ESPID 2023 ABSTRACT BOOK

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EUROPEAN SOCIETY FOR PAEDIATRIC INFECTIOUS DISEASES

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O0001 / #1280

PRIMARY VS. BOOSTER COVID-19 MRNA IMMUNIZATION DURING PREGNANCY OR POSTPARTUM: DURABILITY OF IMMUNE RESPONSES IN MOTHERS AND INFANTS

Joint Symposium
JOINT SYMPOSIUM: PIDS-ESPID: MATERNAL VACCINES AND INFANT PROTECTION: CURRENT EVIDENCE AND PRACTICES IN EUROPE AND THE U.S

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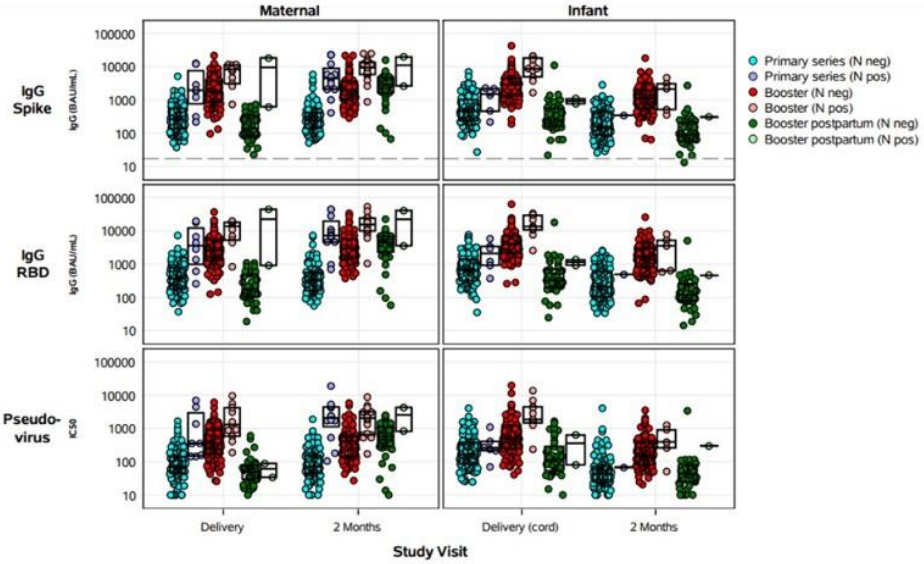
Backgrounds: The durability of immunity following COVID-19 vaccination during pregnancy or postpartum and the protection afforded by a booster dose are not well characterized. We measured immune responses in mothers and infants following maternal primary and booster COVID-19 mRNA vaccination during pregnancy or postpartum.
Methods: Prospective multicenter cohort study of participants enrolled after receipt of a primary 2-dose, or booster COVID-19 mRNA vaccination during pregnancy or a booster dose within 6-weeks postpartum. SARS-CoV-2 binding (IgG), live, and pseudovirus neutralizing antibody (nAb) titers were measured to Spike and RBD. Immune responses were compared between primary and booster vaccine recipients in maternal sera and cord blood at delivery, and maternal and infant sera at 2-months postpartum. Maternal infection status was assessed by medical history and detection of N-protein IgG.

Results:



110 maternal/infant dyads received a primary 2-dose series of either Pfizer or Moderna mRNA vaccine during pregnancy; 104 maternal/infant dyads received a booster vaccination during pregnancy, and 39 maternal/infant dyads received a postpartum booster. Maternal booster vaccination during pregnancy resulted in significantly higher GMT of Spike and RBD IgG, and pseudovirus nAb at delivery and 2-months postpartum in both mothers and infants compared with primary 2-dose series in pregnancy alone ($p<0.01$ for all comparisons). An increase in maternal titers was also seen at 2-months for mothers boosted postpartum. Similarly, maternal booster vaccination during pregnancy resulted in significantly higher live neutralizing antibodies to prototype, Omicron BA.1 and BA.5 strains in mothers and infants at delivery and 2-months post-delivery, compared to primary 2-dose vaccination ($p<0.01$ for all comparisons). Maternal infection increased GMT but numbers are low to evaluate impact.
Conclusions/Learning Points: Our data supports booster vaccination during pregnancy for optimal protection for the mother and newborn (through 2-months) against SARS-CoV2.

O0002 / #1953

RISK OF INFLUENZA LIKE ILLNESS AMONG INFANTS BASED ON TIMING OF MATERNAL INFLUENZA VACCINE ADMINISTRATION DURING PREGNANCY

Joint Symposium
JOINT SYMPOSIUM: PIDS-ESPID: MATERNAL VACCINES AND INFANT PROTECTION: CURRENT EVIDENCE AND PRACTICES IN EUROPE AND THE U.S

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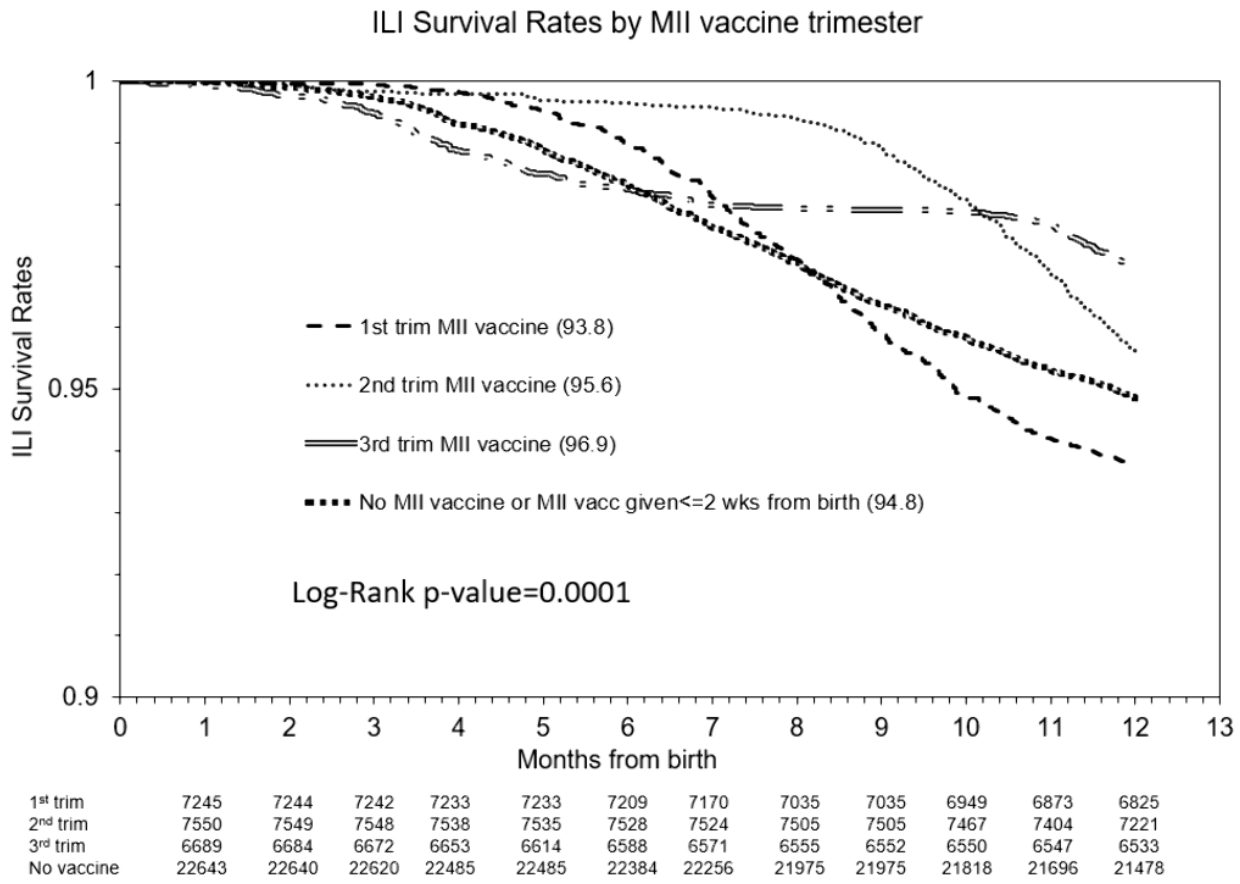
Backgrounds: Infants ≤12 months are at high risk of influenza. Maternal influenza immunization (MII) during pregnancy can protect infants from influenza, however, duration of protection and how it relates to vaccine timing during pregnancy is not well understood.
Methods: We used electronic health records from a retrospective cohort of mother-infant pairs of infants born January 1, 2012 to December 31, 2019 who received longitudinal care within a health system. We identified children ≤12 months with ILI based on a composite of influenza laboratory testing, influenza diagnosis codes, oseltamivir prescriptions and respiratory illness with objective fever. We compared Kaplan-Meier survival curves and hazard ratios (HR) for ILI by trimester of MII for all infants 0-12 months with logrank tests and multivariable cox regression, respectively. On secondary cox regression analysis, we analyzed ILI in infants 0-<6 months and ≥6-12 months separately.
Results: Of the 44,132 mother-infant pairs included, 4.9% (n=2163) of infants ≤12 months had ILI. 51.3% of women were unvaccinated for influenza during pregnancy, 48.7% were vaccinated (16.4% 1st trimester, 17.1% 2nd trimester, 15.2% 3rd trimester). Infants exposed to 3rd trimester vaccine were least likely to have ILI during the first year with 96.9% survival (Figure 1) and adjusted HR (aHR) 0.58 (95%CI: 0.5-0.67). However, these effects are age dependent as 1st and 2nd trimester vaccines significantly reduced HR for ILI among infants 0-6 months (aHR:0.61; 95%CI:0.48-0.78 and aHR:0.21;95CI:0.14-0.31, respectively) but not among infants 6-12 months. These time dependent changes are also reflected in the survival
curves.



1st trim	7245	7244	7242	7233	7233	7209	7170	7035	7035	6949	6873	6825
2nd trim	7550	7549	7548	7538	7535	7528	7524	7505	7505	7467	7404	7221
3rd trim	6689	6684	6672	6653	6614	6588	6571	6555	6552	6550	6547	6533
No vaccine	22643	22640	22620	22485	22485	22384	22256	21975	21975	21818	21696	21478

Conclusions/Learning Points: There are vast differences in protection from ILI during the first year based on timing of MII during pregnancy, which could have significant implications for administration of maternal and infant influenza vaccines warranting additional investigation.

O0003 / #2033

LINKS2HEALTHIERBUBS: A POPULATION-BASED LINKED RECORD STUDY EVALUATING POTENTIAL 'BLUNTING' EFFECTS OF MATERNAL PERTUSSIS VACCINATION ON CHILDHOOD VACCINE EFFECTIVENESS

Joint Symposium
JOINT SYMPOSIUM: PIDS-ESPID: MATERNAL VACCINES AND INFANT PROTECTION: CURRENT EVIDENCE AND PRACTICES IN EUROPE AND THE U.S

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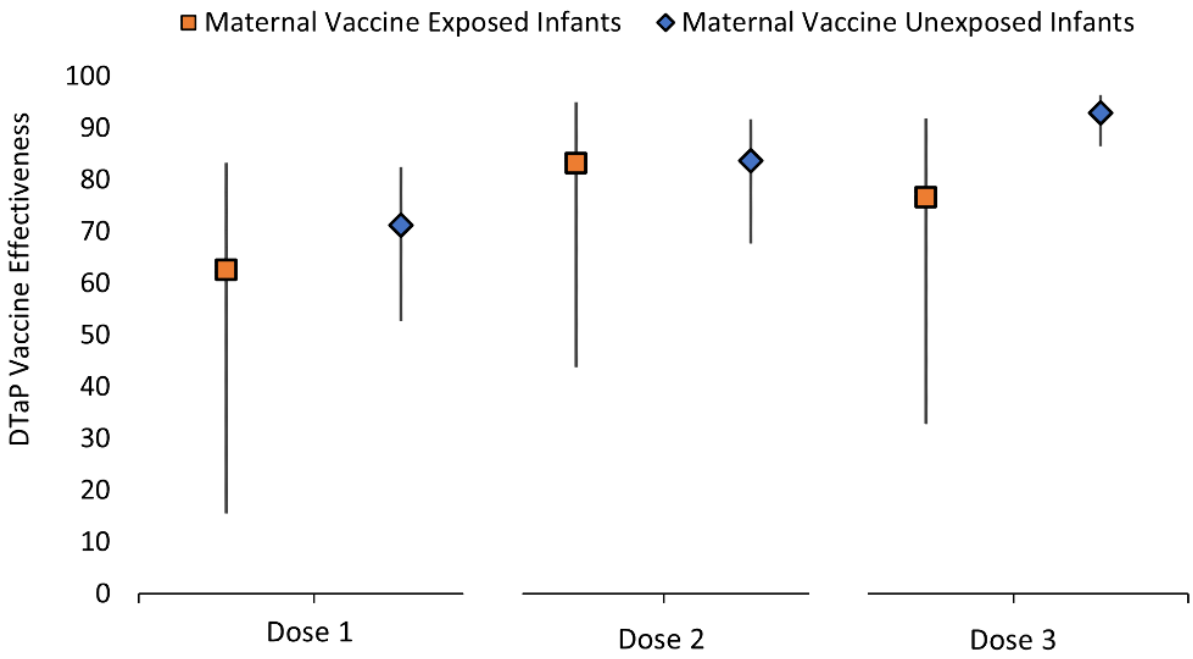
Backgrounds: Maternal pertussis immunisation is recommended to prevent infant infection; however, maternal antibodies may 'blunt' infant's responses to primary vaccination. Limited population-based data have evaluated these effects.
Methods: Links2HealthierBubs is a population-based cohort study using probabilistically linked administrative health records for mothers and their infants born in Northern Territory or Queensland between August 2014 and December 2017 (i.e., initial years of maternal pertussis vaccination programs). We used immunisation data to define the age of receipt of the primary three-dose series of infant DTaP-containing vaccine; infants were defined as exposed to maternal vaccine if mothers had a record of dTpa during pregnancy. We compared rates of pertussis infection by DTaP dose using Cox proportional hazard models with infant age as the underlying time scale and doses of DTaP as the time-varying exposure. DTaP vaccine effectiveness (VE) was estimated as one minus the hazard ratio (HR) and adjusted for child covariates. To evaluate potential 'blunting,' we included maternal vaccination as an effect modifier and compared rates of pertussis at each DTaP dose by maternal vaccination status.
Results: Among 171,840 mother-infant pairs, 87.3% of maternal vaccine-exposed and 76.6% of unexposed infants completed the three-dose series of infant DTaP. VE was similar by exposure status at first and second doses of DTaP but was lower at the third DTaP dose among exposed children (76.5% versus 92.9%; P=0.002); however, pertussis incidence after third dose was similar (20.7 vs. 23.1 cases per 100,000 infants, respectively) and the relative rate of pertussis infection was comparable between maternal vaccine groups (aHR 0.70; 95% CI 0.61,
3.39).



Conclusions/Learning Points: Our data show that maternally vaccinated infants are not more prone to pertussis infection after completing the primary series of DTaP-containing vaccine.

O0004 / #1408

WHOLE GENOME SEQUENCING OF INVASIVE NEISSERIA MENINGITIDIS ISOLATED IN CHILDREN IN CHILE FROM 2016 TO 2019

Parallel Symposium
PARALLEL SYMPOSIUM: WHAT DOES THE FUTURE HOLD FOR NEISSERIA?

Cindy Arteta Acosta[1], Rodolfo Villena[2,3], Jorge Fernández[4], Maria Elena Santolaya[2,5]
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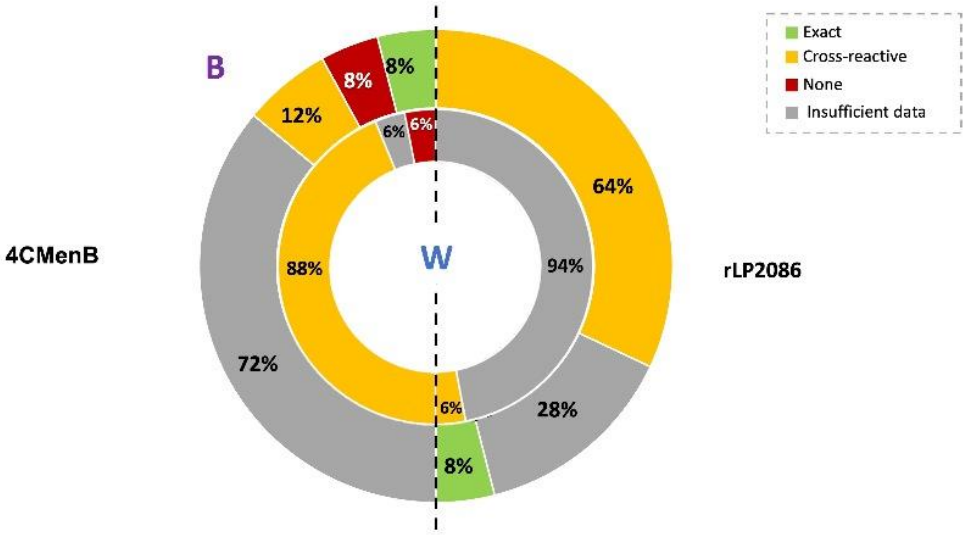
Backgrounds: The whole-genome sequencing (WGS) and bioinformatics tools have contributed to enhanced epidemiological surveillance and the impact of vaccination strategies. The aim of this study was to perform a genomic analysis and to evaluate the potential protection provided by two meningococcal vaccines (4CMenB and rLP2086).
Methods: Forty-two meningococcal genomes isolated from pediatric patients between 2016-2019 were obtained in fastaformat by the Public Health Institute of Chile. De novo assembly genomes were scanned by the BIGSdb platform to assign clonal complex (cc), molecular typing, BAST profile, vaccine antigens, and estimate vaccination coverage using MenDeVAR index.
Results: Serogroups classification were MenB 25 (59.5%), MenW 16 (38%), and MenC 1 (2.3%). For capsular genogrouping, 11 isolates contained serogroup-specific genes in cps locus, 8 were MenB and 3 were MenW. Many of the isolates were assigned to cc11 (39%), followed by cc41/44 (36.5%), and the most prevalent molecular typing were W:P1.5,2:F1-1:cc11 (33.3%) and B:P1.19,13-1:F1-18:cc41/44 (23.8%). The BAST-2 profile was present in 48% of the genomes (all cc11), and 13 new BAST profiles were identified in 16 bacteria. A 26% of genomes had peptide vaccine sequence FHbp-22, NHBA-29, NadA-6, PorA VR1-5, PorA VR2-2. The MenDeVAR index values showed that 80% (20/25) of MenB isolates had any type of vaccination coverage: 20% (5/25) by 4CMenB, and 72% (18/25) by rLP2086. A 72% and 28% of MenB had insufficient coverage data by 4CMenB and rLP2086, respectively. MenW cross-reactivity was 87.5% (14/16) by 4CMenB, and 6.2% (1/16) isolates by rLP2086. Figure 1

Figure 1. **Vaccination coverage of *N. meningitidis* serogroups B and W isolated in children in Chile from 2016 to 2019, using MenDeVAR index**



Conclusions/Learning Points: WGS analysis of meningococcus from Chile belong to the hypervirulent cc, having a molecular typing different from other countries. New recombinant MenB vaccines might afford for a variable protection against MenB and MenW.

O0005 / #2053

USE OF EXPANDED NEISSERIA MENINGITIDIS SEROGROUP B (MENB) PANELS WITH THE SERUM BACTERICIDAL ANTIBODY (SBA) ASSAY IN THE EVALUATION OF MENB VACCINE EFFECTIVENESS

Parallel Symposium
PARALLEL SYMPOSIUM: WHAT DOES THE FUTURE HOLD FOR NEISSERIA?

Woo Yun Sohn[1], Ray Borrow[2], Federico Martinon-Torres[3], Veronique Abitbol[4], Anar Andani[5], Scott Preiss[1], Alessandro Muzzi[6], Larua Serino[6]
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Backgrounds: Measurement of MenB vaccine effectiveness (VE) is complicated by diversity in antigen expression among MenB strains. Since using the classical human complement SBA assay (hSBA) against all circulating strains is not feasible, a new assay is required to assess VE against a large panel of disease-causing strains.
Methods: The characteristics of two methods for predicting MenB VE are discussed: hSBA using endogenous complement in each vaccinees' serum (enc-hSBA) against a panel of MenB isolates (110-strain), and classical hSBA using exogenous complement (exc-hSBA) against 14 (4+10) MenB strains.
Results: Enc-hSBA provides a binary assessment of killing activity elicited by vaccine-specific antibodies in individual vaccinees' sera, bypassing the need to identify suitable human complement. It accounts for inter-subject variability in bactericidal killing and synergistic effects of multiple MenB vaccine antigens. It was qualified using 110 representative disease-causing MenB strains, randomly selected from a 442-strain US panel, representing ~89% of strains circulating globally and 95% of US strains, including the most prevalent clonal complexes and genetic variants of MenB vaccine antigens. Exc-hSBA 4+10 is a titre-based measure of killing activity of the bivalent MenB-FHbp vaccine via hSBA against four primary and 10 additional MenB strains selected following evaluation of factor H-binding protein (fHbp) sequence diversity and expression in 1263/1814 strains. These 14 strains represent ~80% of circulating strains in the US and Europe.
Conclusions/Learning Points: Use of the hSBA against expanded MenB strain panels in VE assessments helps account for diverse circulating MenB strains. With a large panel of randomly selected strains and the vaccinee's own complement, the enc-hSBA assay aims to measure VE under conditions that are as close as possible to real-world settings.

O0006 / #789

COMPARISON OF 6 DOSES OF INTRAPLEURAL FIBRINOLYTIC THERAPY VS CONVENTIONAL 3 DOSES, IN CHILDREN WITH EMPYEMA- A PILOT RANDOMIZED CONTROLLED TRIAL

Joint Symposium
JOINT SYMPOSIUM: ERS-ESPID: PAEDIATRIC PNEUMONIA - MOLECULAR MICROBIOLOGY AND CLINICAL MANAGEMENT

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Post Graduate Institute of Medical Education and Research, Pediatrics, Chandigarh, India

Backgrounds: Childhood pneumonia continues to be a significant public health problem, and nearly 10% pneumonias are complicated by parapneumonic effusions, with 1% progressing to empyema. In addition to appropriate antibiotic therapy, there is ample evidence supporting intrapleural fibrinolytic therapy. There is also limited evidence suggesting that six doses of intrapleural streptokinase may be superior to the conventional three doses. However, there is no well designed trial comparing six versus three doses delivered over the same period of time.
Methods: Children(<12y old) with empyema(standard definition) were randomised to Group A:Intrapleural streptokinase 15000 U/kg/dose, twice daily for 3 days(total 6 doses); or Group B:Intrapleural streptokinase 15000 U/kg/dose, once daily for 3 days(total 3 doses).The outcomes assessed were volume of fluid drained, duration of fever, respiratory distress, hospitalization, radiological evidence of collection after therapy completion, and need for surgical intervention.
Results: A total of 32 patients was enrolled. At the end of 3 days of fibrinolytics, the total fluid drained was higher among those who received 6 doses, median(IQR) in ml being 367(266-850), compared to those who received 3 doses, median(IQR) in ml being 195(142-422), p value 0.02.The mean(SD) duration of fever was shorter in children who received 6 doses,compared to three doses: 2.3(0.8) days vs 5.7(1.6) respectively, p 0.04. Similarly the mean(SD) duration of respiratory distress was significantly shorter in children who received 6 doses SK, compared to three doses: 2.2(0.9) days,vs 6.3(1.9) days p 0.03. There were no differences however, in the duration of hospitalization, intercostal drainage, cost of therapy. There were no significant adverse effects, or other situations necessitating cessation or deferment of streptokinase doses.
Conclusions/Learning Points: Six doses of intrapleural streptokinase appears superior to the conventional three doses in children with empyema; with comparable safety.

O0007 / #1185

THE DYNAMICS OF HOSPITALIZATIONS FOR COMMUNITY-ACQUIRED ALVEOLAR PNEUMONIA (CAAP) IN CHILDREN UNDER 24 MONTHS DURING THE FIRST AND SECOND COVID-19 PANDEMIC-YEARS

Joint Symposium
JOINT SYMPOSIUM: ERS-ESPID: PAEDIATRIC PNEUMONIA - MOLECULAR MICROBIOLOGY AND CLINICAL MANAGEMENT

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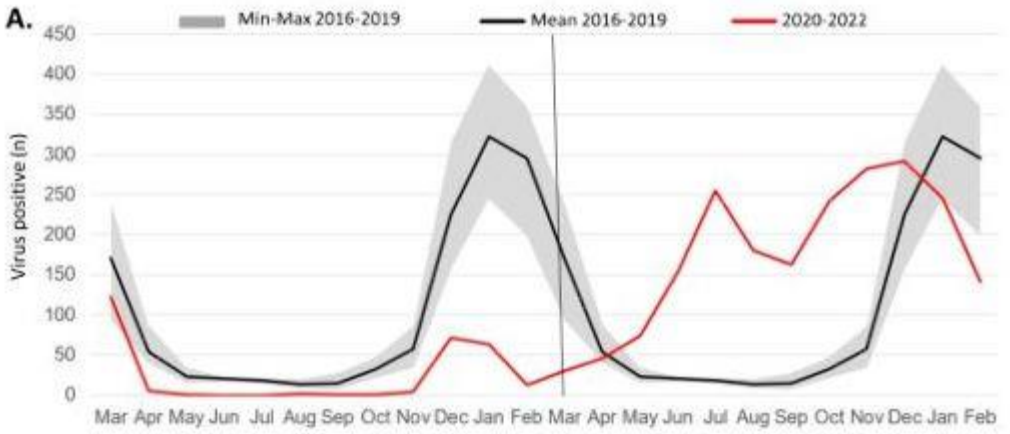
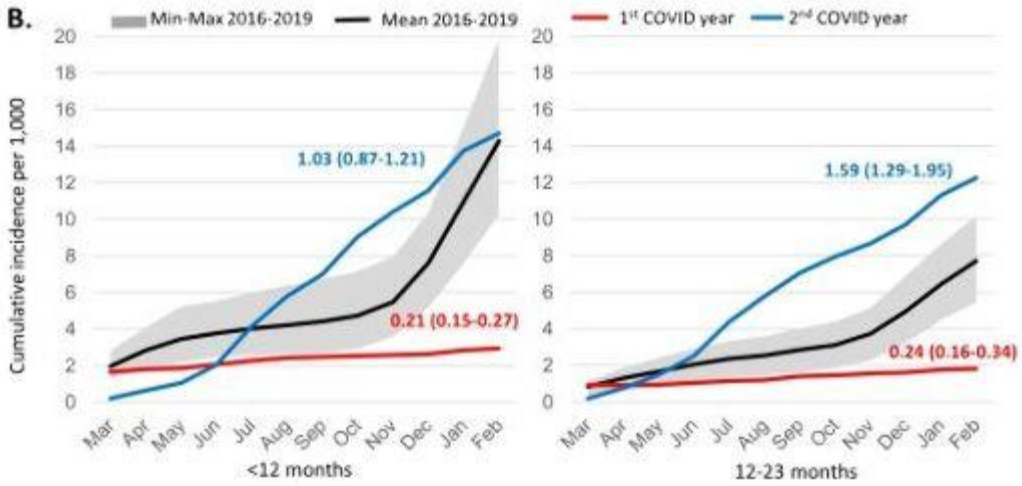
Backgrounds: We have previously demonstrated that the seasonal activity of specific respiratory viruses (RSV/hMPV/influenza/parainfluenza, termed here "LRI-viruses") contributed a major attributable factor in hospitalization for CAAP (CAAP-HOSP) in young children, during the first COVID-19 pandemic year, temporary disappearance of these viruses resulted in a dramatic reduced CAAP-HOSP in <24m old children. During the second pandemic year, both LRI-viruses and CAAP-HOSP reemerged. We evaluated the yearly cumulative rates for CAAP-HOSP in children <12m and 12-23m in parallel to the LRI-viruses during the first and second pandemic years.
Methods: This is an ad-hoc analysis, based on data from prospective surveillance on viral activity and CAAP-HOSP in southern Israel in 2016-2022 (Dagan, medRxiv 2022, doi: https://doi.org/10.1101/2022.09.06.22279606). Cumulative monthly incidence rates during first and second pandemic years were compared to those during 2016-2019 (pre-pandemic).
Results: During the pre-pandemic period, the cumulative incidence of CAAP-HOSP in children <12m was 1.9 (95%CI, 1.5:2.3) times higher than that in 12-23m (Figure 1B). In general, dynamics in cumulative rates for each age group followed LRI-virus activity in the community (Figure 1A+B). In the first pandemic year, cumulative rates of CAAP-HOSP were reduced by 79.5% (95%CI, 72.8; 84.6) and 76.4% (95%CI, 66.1; 83.6) in children <12m and 12-23m, respectively. In contrast, during the second pandemic year cumulative rates returned to expected in the <12m, but exceeded the expected rates in the 12-23m group. When the cohort of <12m, enrolled during the first pandemic year, was followed for the two successive pandemic years, their 2-year cumulative CAAP-HOSP rate remained significantly lower than expected. (Figure

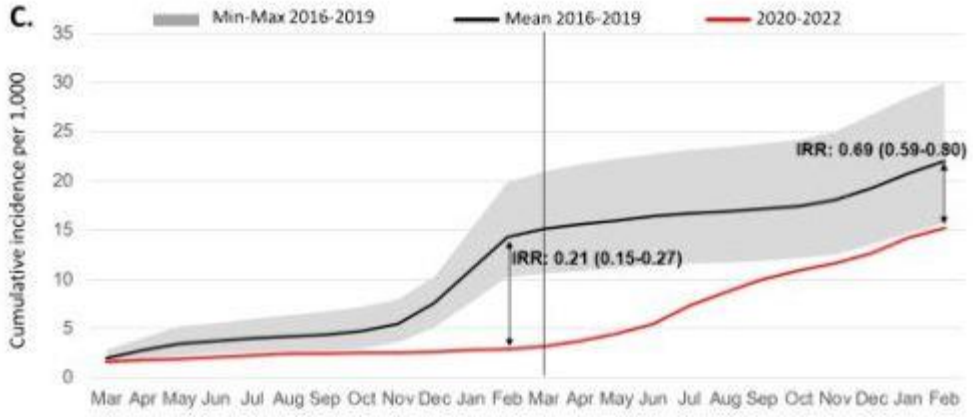
Figure 1:

Dynamics of monthly LRI-virus activity, mean March 2016 through February 2019 *vs.* March 2020 through February 2022, in children <5 years of age, southern Israel



Cumulative monthly CAAP incidence rates, mean March 2016 through February 2019 *vs.* March 2020 through February 2022, in children <24 months of age





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Conclusions/Learning Points: The major variations of LRI-virus activity observed during the first two years of the COVID-19 pandemic resulted in parallel dynamics in CAAP-HOSP in children <24m in southern Israel.

O0008 / #2135

EPIDEMIOLOGY AND MANAGEMENT OF GROUP A STREPTOCOCCAL PNEUMONIA WITH PARAPNEUMONIC EFFUSION DURING A PERIOD OF INCREASED DISEASE INCIDENCE IN THE UK

Joint Symposium
JOINT SYMPOSIUM: ERS-ESPID: PAEDIATRIC PNEUMONIA - MOLECULAR MICROBIOLOGY AND CLINICAL MANAGEMENT

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Backgrounds: Between September 2022 and January 2023, UK-based paediatricians noted an increase in cases of invasive group A Streptococcal infections (iGAS);with 343 cases and 29 deaths reported. These cases have occurred outside of the usual seasonality of this pathogen and included an unusually high proportion of pneumonias with parapneumonic effusion.
Methods: Case series of 24 children admitted to 3 UK hospitals between 20th October and 16th December 2022, with microbiologically confirmed/high clinical suspicion of group A streptococcal pneumonia with parapneumonic effusion. Pseudonymised clinical data obtained from medical records.
Results: Median patient age was 4 years, only 9(38%) female, and 20(83%) previously healthy. Commonest presenting features were fever, cough, difficulty breathing, rash and lethargy. Fifteen(63%) children had healthcare professional review prior to admission. Sixteen(67%) children had viral co-infection detected at admission(see Table 1). Twenty-two(92%) children had unilateral pneumonia with parapneumonic effusion, 2(8%) children had bilateral pneumonia with effusion. Twenty children(83%) had chest drain inserted, 15(63%) also requiring urokinase. Two children later required VATS. Nine cases had culture data available; no macrolide resistance was detected. Duration of fever after admission was prolonged (median 12 days). Intravenous antibiotic courses varied in length (7-42 days; median 15), with each child receiving 2-5 different

Total number of patients *n*	24
Gender *n (%)*	
Female	9 (38%)
Male	15 (62%)
Age in years + months *median [IQR]*	4y 3m [2y 4m–6y 5m]
Significant co-morbidities *n (%)*	4 (17%)
Presenting symptoms *n (%)*:	
Fever	22 (92%)
Cough	18 (75%)
Difficulty breathing	20 (83%)
Rash	9 (38%)
Lethargy / malaise	8 (33%)
Oral antibiotics received prior to admission *n (%)*:	8 (33%)
GP / hospital visit prior to admission *n (%)*:	15 (63%)
Diagnosis during admission *n (%)*:	
Unilateral pneumonia with parapneumonic effusion/empyema	22 (92%)
Bilateral pneumonia with effusion	2 (8%)
GAS bacteraemia	4 (17%)
Toxic shock syndrome	1 (4%)
Scarlet fever	1 (4%)
Length of admission (days) *range(median) [IQR]*	4-29 (13) [9-16]
Initial surgical intervention *n (%)*:	
Chest drain	5 (21%)
Chest drain + urokinase	15 (63%)
Pleural tap	1 (4%)
No intervention needed	3 (13%)
Length of IV antibiotic treatment (days) *range(median) [IQR]*	7-42 (15) [13-25]
Length of subsequent oral antibiotic treatment (days) *range(median) [IQR]*	0-21 (12) [13-14]
Total duration of antibiotic treatment (days) *range(median) [IQR]*	17-56 (28) [26-37]
IV antibiotic agents received *n = 23 (%)*: *(range of 2-5 agents per child)*	
Cefotaxime / Ceftriaxone	21 (91%)
Clindamycin	23 (100%)
Benzylpenicillin	6 (26%)
Co-amoxiclav	4 (17%)
Vancomycin	5 (22%)
Teicoplanin	1 (4%)
Piperacillin/tazobactam	3 (13%)
Meropenem	3 (13%)
Amikacin	3 (13%)
Co-trimoxazole	1 (4%)
Total duration of fever (days) *range(median) [IQR]*	7-21 (15) [12-19]
Duration of fever from admission (days) *range(median) [IQR]*	2-18 (12) [8-14]
Number of detections of virus *n =27 (%)* *(16 children with ≥1 virus detected)*:	
Adenovirus	5 (19%)
Human metapneumovirus (HMPV)	3 (11%)
Influenza A	1 (4%)
Parainfluenza	1 (4%)
Rhino/enterovirus	9 (33%)
Respiratory syncytial virus (RSV)	6 (22%)
Varicella zoster virus (VZV)	2 (7%)
Outcome *n (%)*:	
Discharged on ambulatory IV antibiotics	12 (50%)
Discharged on oral antibiotics	11 (46%)
Remains inpatient at quaternary centre	1 (4%)

drugs.

Conclusions/Learning Points: Children presented with initial symptoms which would be difficult to distinguish from viral infection, illustrated by the frequency of contact with medical services prior to admission. Many cases occurred with co-existent respiratory viral infections, a previously well-recognised risk with influenza A and VZV. The variance in intravenous treatment length highlights the limited available antibiotic guidance. Prolonged fever in many cases induced escalation to broad-spectrum

antibiotics (for a pathogen universally penicillin-sensitive). MDT discussion is encouraged and national data collection underway to standardise future management.

O0009 / #317

GLUCOCORTICOIDS, INTRAVENOUS IMMUNOGLOBULIN, OR BOTH FOR THE TREATMENT OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN – RESULTS FROM THE BEST AVAILABLE TREATMENT STUDY (BATS) ACROSS 39 COUNTRIES

Parallel Symposium
PARALLEL SYMPOSIUM: COVID-19 IN CHILDREN: PIMS-TS

Samuel Channon-Wells[1], Ortensia Vito[1], Andrew Mcardle[1], Eleanor Seaby[1], Harsita Patel[1], Priyen Shah[1], Ekaterina Pazukhina[1], Clare Wilson[1], Claire Broderick[1], Giselle D'Souza[1], Ilana Keren[1], Ruud Nijman[1], Adriana Tremoulet[2], Daniel Munblit[3], Rolando Ulloa-Gutierrez[4], Michael Carter[5], Padmanabhan Ramnarayan[6], Tisham De[1], Clive Hoggart[7], Elizabeth Whittaker[1], Jethro Herberg[1], Myrsini Kaforou[1], Aubrey Cunnington[1], Oleg Blyuss[8], Michael Levin[1]
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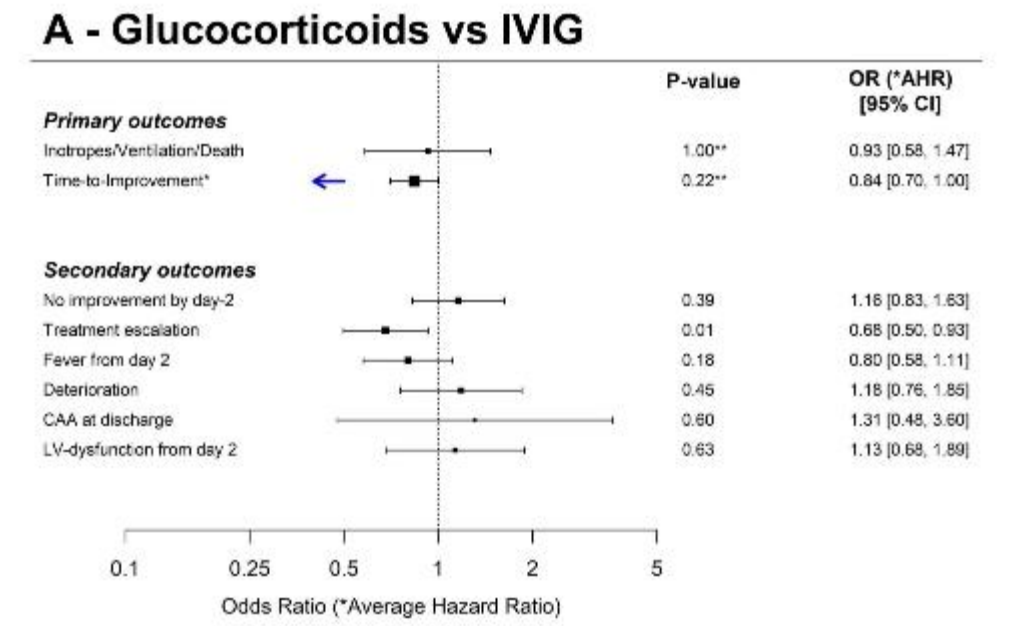
Backgrounds: Intravenous immunoglobulin (IVIG) and/or glucocorticoids are currently the recommended initial treatment for Multisystem Inflammatory System in Children (MIS-C). Evidence comparing their use, individually or in combination, is limited.
Methods: We collected clinical data and outcomes for MIS-C patients from paediatricians around the world, as part of the "Best Available Treatment Study" to evaluate different immunomodulatory treatments. Inverse probability weighting was used to compare primary treatments with IVIG, glucocorticoids, or combined therapy (IVIG+G), using IVIG as reference treatment, adjusting for baseline differences in treatment groups. Primary outcomes were: a composite of inotropic or ventilator support from the second day after treatment initiation, or death; and time-to-improvement on an ordinal clinical severity scale. Extensive secondary outcomes were also studied.
Results: After exclusions 2009 children from 39 countries were enrolled at 121 sites with clinically diagnosed MIS-C, between May 2020 and April 2022. 680 patients received primary treatment with IVIG; 487 glucocorticoids; and 698 IVIG+G. No significant differences in primary outcomes were seen between treatment groups: adjusted odds ratios relative to IVIG for ventilation, inotropic support or death were 1.09 (95% confidence interval [CI] 0.75-1.58) for IVIG+G, and 0.93 (95% CI: 0.58-1.47) for glucocorticoids alone (fig1). Adjusted average hazard ratios for time-to-improvement were 1.04 (95% CI: 0.91-1.20) and 0.84 (95% CI: 0.70-1.00) respectively. Treatment escalation was less frequent for IVIG+G and glucocorticoids vs IVIG. Persistent fever was less common with IVIG+G. Coronary artery aneurysm occurrence and resolution did not differ significantly between

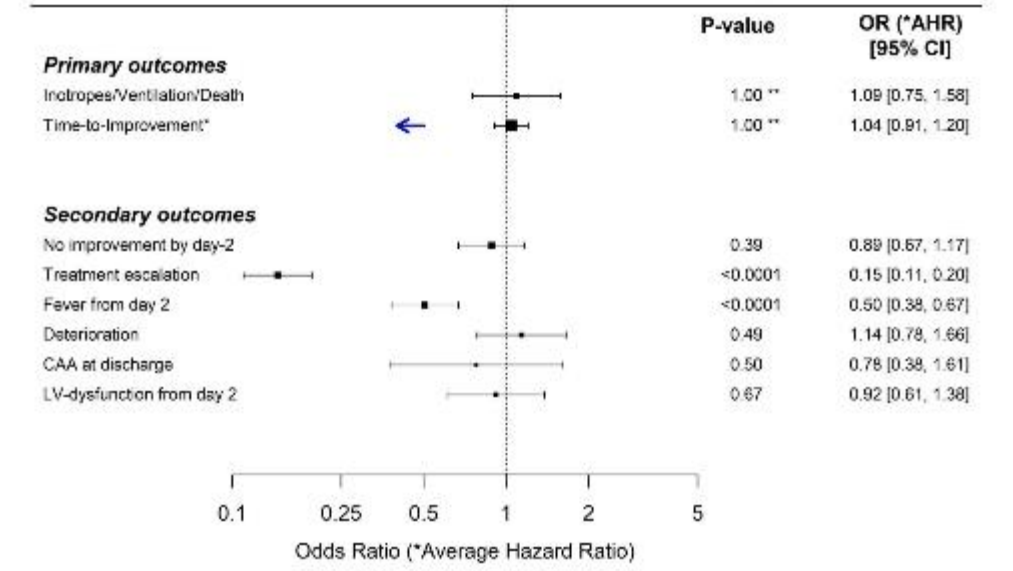
Figure 1 | Forest plots for primary and secondary outcomes

*Shown are outcomes for persons with suspected MIS-C who received steroids alone (Panel A) or IVIG plus steroids (Panel B) compared with those who received IVIG alone (reference group, indicated by an odds ratio or average hazard ratio of 1.00). Displayed values are adjusted odds ratios (or average hazard ratios for time-to-event analysis, indicated by *). Values to the right of the dotted line indicate superiority of IVIG alone, except for time to event analysis, where values to the left indicate superiority of IVIG alone (indicated by blue arrow).*

***Indicates p-values correction for multiple hypothesis testing using the Benjamini-Hotb procedure across all primary outcomes*

Abbreviations: IVIG: Intravenous immunoglobulin; IVIG+S: IVIG and Steroids; OR: Odds-ratio; AHR: Average Hazard Ratio; CAA: Coronary Artery Aneurysms; LV: Left ventricular





treatments.

Conclusions/Learning Points: Initial treatment with either glucocorticoids or IVIG alone appears to be an acceptable alternative to combined therapy for MIS-C, supporting the adoption of glucocorticoids monotherapy as initial treatment, in view of the cost and limited availability of IVIG in many countries.

O0010 / #470

DEVELOPMENT OF A PREDICTIVE MODEL FOR CARDIAC DYSFUNCTION IN PEDIATRIC MIS-C PATIENTS: RELEVANCE OF LABORATORY BIOMARKERS

Parallel Symposium
PARALLEL SYMPOSIUM: COVID-19 IN CHILDREN: PIMS-TS

Guliz Erdem[1], Brendan Galdo[1], Steve Rust[2], Brent Merryman[2], Diego Cruz Vidal[3], Roshini Abraham[4]
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Backgrounds: We developed a preliminary predictive algorithm for left ventricular systolic dysfunction (LVSD) or coronary artery anomalies (CAA) in patients with MIS-C.
Methods: Laboratory and clinical data were collected by retrospective chart review during a 21-month period. Laboratory data included absolute lymphocyte count (ALC), albumin (ALB), sedimentation rate (SED), C-reactive protein (CRP), procalcitonin (PROCAL), d-dimer, fibrinogen (FIBR), ferritin (FERR), IL-6, lymphocyte subsets (TBNK). The Spearman correlation between the variables was assessed. Changes across time was determined using spline regression. A regularized logistic regression model was created to predict LVSD and CAA within 24 hours of admission. The performance of this predictive model was assessed using repeated cross-validation.
Results: Of 160 children with MIS-C, 69 (43%) had LVSD and 27 (17%) had CAA. The time-based analysis found univariate differences in mean ALB, ALC, CRP, FIBR, PROCAL at specific time-points with vs. without LVSD. Differences in CRP, FIBR, PROCAL were notable early on with the mean difference being observed in the first 24 hours. We found differences in mean FERR, d-dimer levels for CAA patients. The best LVSD predictive model performed well with mean cross-validated AUC of 0.78. The predictive biomarkers selected by the LVSD model included: CRP, PROCAL, FIBR, SED, IL6, absolute NK cell count. The best model for CAA performed poorly with mean cross-validated AUC of 0.57.
Conclusions/Learning Points: We used machine-learning methods to construct mathematical models and identified widely available biomarkers to successfully predict systolic dysfunction in MIS-C patients. Highest risks of systolic dysfunction were with higher peak CRP, PROCAL, FIBR early on; and lower ALB and ALC at days 2 and 3 post-admission. Patients with CAA had higher FERR, d-dimer levels, but the effect sizes were small making them less relevant as predictive biomarkers.

O0011 / #1778

CORONARY ANEURYSMS IN MULTIINFLAMMATORY SYNDROME (MIS-C): TREATMENTS PREVENTING THEM, AND RISK FACTORS

Parallel Symposium
PARALLEL SYMPOSIUM: COVID-19 IN CHILDREN: PIMS-TS

Alfredo Tagarro[1], Kamila Ludwikowska[2], Antoni Soriano-Arandes[3], Irati Gastesi[4], Magdalena Okarska-Napierała[5], Sara Villanueva[6], Natalia Dudek[5], Miron Kursa[7], Ernest Kuchar[5], Leszek Szenborn[8], Carlos Grasa[9], María Isabel Iglesias-Bouzas[10], Serena Villaverde[4], Victoria Fumadó Pérez[11], Iris González[12], Fernando Paredes[13], Cinta Moraleda[4]
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Backgrounds: Multisystem inflammatory syndrome in children (MIS-C) can complicate with coronary aneurysms (CAA). We aimed to investigate if treatments given for the MIS-C can prevent the development of CAA. Secondary aims included to find baseline risk factors associated with the development of aneurysms.
Methods: This is an ESPID-nested, multicenter, collaborative, retrospective-prospective cohort study, including hospitalized pediatric patients (0-18 years) from 2 national cohorts of MIS-C (Poland and Spain), and a regional cohort (Catalonia). Clinical and laboratory variables potentially associated with CAA and treatments administered prior to the diagnosis of aneurysms were analyzed univariate logistic model for the treatments and a Cox regression model for the variables associated with CAA considering treatment a time dependent covariate. Ethic committees approved the study.
Results: 872 patients with MIS-C were included, 520 (59.6%) from Poland, 248 (28.4%) from Spain, and 104 (11.9%) from Catalonia. Prior to the diagnosis of aneurysms (or if no aneurysms, during the admission), patients received either steroids (n=85, 9%), or IVIG (n=145, 16%), or both (n=549, 63%), or both plus biological agent (n=12, 1.3%), or none (n=81, 9%). Aneurysms were diagnosed in 67 (7.7%) patients. The variables associated with the risk of CAA were younger age (HR, 1.33; CI95%:1.08-1.63), criteria for KD (HR, 9.4; CI95%:1.39-64.3), and lower hemoglobin (HR, 2.39; CI95%:1.23-4.65). In the univariable logistic model, not receiving treatment increased the risk of CAA compared to steroids (OR, 14.5; CI95%, 4.0-93), IVIG (OR, 6.9; CI95%, 2.9-18.3), and steroids+IVIG (OR 4.9; CI95%, 2.7-9.04). Biological agents added no benefit (OR 3.8; CI95%, 0.6-72).
Conclusions/Learning Points: Risk factors for the development of aneurysms included younger age, KD criteria, and lower hemoglobin. All treatments prevented aneurysms compared to no treatment. In this analysis, no treatment showed any benefit compared to the others.

O0012 / #152

EFFICACY AND SAFETY OF TAKEDA'S TETRAVALENT DENGUE VACCINE CANDIDATE (TAK-003) AFTER 4.5 YEARS OF FOLLOW-UP: RESULTS FROM PARTICIPANTS IN BRAZIL

Joint Symposium
JOINT SYMPOSIUM: ARBOVIRAL DISEASES - A LATIN AMERICAN PERSPECTIVE

Denise Abud[1], Shibadas Biswal[2], Eric Lloyd[2], Vianney Tricou[3], Nicolas Folschweiller[3]
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Backgrounds: Dengue is a major public problem in Brazil; therefore, an effective vaccine against dengue is needed to reduce the disease burden. An ongoing, long-term phase 3 trial has evaluated the efficacy and safety of Takeda's tetravalent dengue vaccine candidate (TAK-003) on children/adolescents across eight dengue-endemic countries. We present the results of 4.5 years of follow-up, including a subgroup analysis of participants from Brazil.
Methods: TIDES (NCT02747927) is a multicenter, double-blind, placebo-controlled trial of TAK-003 among 20,099 healthy children/adolescents aged ≥4 to ≤16 years at enrolment across Asia and Latin America. Participants were randomized 2:1 to receive two doses of TAK-003/placebo, subcutaneously, three months apart. Safety was evaluated, and participants were under active febrile illness surveillance for symptomatic dengue. A serotype-specific RT-PCR was used to identify virologically confirmed dengue (VCD).
Results: Overall, 20,071 participants received ≥1 dose of TAK-003/placebo; 91% completed the 54-month post-vaccination follow-up; 27.7% were seronegative at baseline. In total, 27,684 febrile illnesses were reported. Of these, 5.8 % placebo and 2.5% TAK-003 participants had VCD. The vaccine efficacy (VE) to 4.5 years of follow-up was 61.2% (95% CI 56.0–65.8) against VCD (64.2% for baseline seropositive and 53.5% for baseline seronegative participants) and 84.1% (95% CI 77.8–88.6) against hospitalization. Overall, there were slightly more serious adverse events in the placebo group. In Brazil, 1,773 participants received ≥1 dose of TAK-003/placebo. VE was 82.2% (61.8–91.8) against VCD; 2 participants in the placebo group were hospitalized versus 0 in the TAK-003 group.
Conclusions/Learning Points: TAK-003 was well tolerated and efficacious against dengue fever over 4.5 years in children/adolescents. The analyses from the Brazil subgroup were consistent with the overall results. Support: Study and medical writing support was funded by Takeda.

O0013 / #464

EFFICACY AND SAFETY OF BUTANTAN-DV LIVE-ATTENUATED TETRAVALENT DENGUE VACCINE OVER TWO YEARS IN A PHASE 3 CLINICAL TRIAL

Joint Symposium
JOINT SYMPOSIUM: ARBOVIRAL DISEASES - A LATIN AMERICAN PERSPECTIVE

Monica Cintra[1], Jose Moreira[1], Elizabeth Patino[1], Patricia Emilia Braga[1], Patricia Carneiro[1], Lucas Alves[1], Juliana Tenorio[1], Esper Kallas[1,2], Mauricio Nogueira[3], Alejandra Esteves-Jaramillo[4], Tulin Shekar[4], Jung-Jin Lee[4], Julieta Macey[4], Sabrina Gozlan Kelner[4], Beth-Ann Coller[4], Fernanda Castro Boulos[1]
[1]Instituto Butantan, , San Paulo, Brazil, [2]Hospital das Clínicas da Faculdade de Medicina, Usp-sp, Sao Paulo, Brazil, [3]Faculdade de Medicina de Sao Jose do Rio Preto, Famerp, Sao Paulo, Brazil, [4]Merck & Co., Inc., Rahway, United States of America

Backgrounds: Butantan-DV is a live-attenuated tetravalent dengue vaccine produced by Instituto Butantan analogous to TV003 developed by the US National Institutes of Health. We assessed the efficacy and safety of Butantan-DV in participants ages 2-59.
Methods: Participants were stratified by age (2-6, 7-17, and 18-59 years old) and randomized 2:1 to receive a single dose of Butantan-DV or placebo in an ongoing, phase III, double-blind trial conducted in 16 sites across Brazil, with projected five years follow-up (NCT02406729). The primary objectives were to describe the safety up to Day 21 and to evaluate vaccine efficacy (VE) to prevent symptomatic virologically confirmed dengue (VCD) by RT-PCR after Day 28 postvaccination to any dengue virus (DENV) serotype and regardless of participants' baseline serostatus. VE was assessed through the first 2 years of follow-up. Safety was evaluated as the frequency of participants with solicited (local and systemic) vaccine-related adverse events (AEs). Secondary objectives, VE by baseline serostatus and by serotype, were also evaluated.
Results: 16,235 participants were enrolled and received Butantan-DV (n=10,259) or placebo (n=5,976) between 2016 and 2019. Non-serious, solicited systemic vaccine-related AEs were observed in a slightly higher proportion of participants receiving Butantan-DV (58.3%) compared to placebo (45.6%) within 21 days postvaccination. The overall 2-year VE was 79.6% (95% CI:70.0%-86.3%). Regarding baseline serostatus, overall VE was 73.6% (95% CI:57.6%-83.7%) in dengue-naïve participants and 89.2% (95% CI:77.6%-95.6%) in dengue-experienced participants. Serotype-specific VE was 89.5% (95% CI:78.7%-95.0%) against DENV1 and 69.6% (95% CI:50.8%-81.5%) against DENV2. No cases of DENV3 or DENV4 were observed during the first 2 years.
Conclusions/Learning Points: A single dose of Butantan-DV was generally well tolerated and efficacious against DENV1 and DENV2 symptomatic VCD, regardless of baseline serostatus, through the first 2 years of follow-up.

O0014 / #1934

SIGNIFICANTLY LOWER INFECTION FATALITY RATES ASSOCIATED WITH SARS-COV-2 OMICRON INFECTION IN CHILDREN: ACTIVE, PROSPECTIVE NATIONAL SURVEILLANCE, JANUARY-MARCH 2022, ENGLAND

Parallel Symposium
PARALLEL SYMPOSIUM: LEARNING FROM COVID

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Backgrounds: Children and young people (CYP) have a very low risk of severe or fatal COVID-19, especially when compared to adults. Detailed follow-up of COVID-19 deaths in CYP in England between 01 March 2020 and 31 December 2021 showed 91% of deaths occurred within 30 days of testing, mainly in CYP with severe and/or life-limiting underlying conditions. We extended our previous analysis to include deaths during the first Omicron variant wave, when the BA1/BA.2 subvariants were circulating in England.
Methods: CYP aged <20 years who died within 30 days of laboratory-confirmed SARS-CoV-2 infection between 01 January 2022 and 31 March 2022 in England were followed up in detail, using national databases, surveillance questionnaires, post-mortem reports, and clinician interviews. Infections were estimated through real-time, nowcasting modelling.
Results: Out of 46 deaths within 30 days of COVID-19 during the 3-month follow-up period, 11 (23.9%) were due to COVID-19. All deaths followed a primary COVID-19 infection, seven (66%) were male, six were White (55%) and eight (73%) had underlying comorbidities, including four with severe neurodisabilities. All but one were hospitalised. Over the 3-month surveillance period, SARS-CoV-2 was responsible for 1.0% (10/1,003) of all deaths in CYP aged <20 years. The infection fatality rate (IFR) was lower than that of the previous study period overall (0.1/100,000 vs. 0.7/100,000) and for all age groups. IFR during the Omicron wave was lower than in the first pandemic wave (1.0/100,000; 21/2,062,780), alpha (0.8/ 100,000; 15/1,980,140) and delta (0.7/100,000; 81/11,629,407) waves.
Conclusions/Learning Points: Despite very large infections during the Omicron wave, COVID-19 deaths remained extremely are in CYP with IFR being lower during Omicron than all preceding waves. Most fatalities involved CYP with severe comorbidities, especially neurodisabilities, similar to previous variant waves.

O0015 / #1067

AN INTERNATIONAL, MULTI-CENTER ANALYSIS OF PEDIATRIC COVID-19 SEVERITY OVER THE COURSE OF THE PANDEMIC

Parallel Symposium
PARALLEL SYMPOSIUM: LEARNING FROM COVID

Yanshan Zhu[1], Flavia Almeida[2], Asha Bowen[3], Philip Britton[4], Martin Brizuela[5], Danilo Buonsenso[6], David Burgner[7], Keng Yih Chew[1], Kulkanya Chokephaibulkit[8], Cheryl Cohen[9], Stephania Cormier[10], Nigel Crawford[11], Nigel Curtis[12], Charles Gilks[13], Anne Von Gottberg[9], Diana Hamer[14], Isaric4C Investigators[15], Waasila Jassat[16], Ana Rita Jesus[17], Benjawan Khumcha[8], Georgina Mccallum[1], Jessica Miller[7], Rosa Morello[6], Alasdair Munro[18], Paeds Network Investigators[19], Srivatsan Padmanabhan[20], Wanatpreeya Phongsamart[8], Gary Reubenson[21], Nicole Ritz[22], Fernanda Rodrigues[17], Supattra Rungmaitree[8], Fiona Russell[7], Marco Aurelio Safadi[23], Christoph Saner[11], Kirsten Spann[24], Sibongile Walaza[25], Nicole Wolter[9], Yao Xia[26], Daniel K Yeoh[27], Heather Zar[28], Petra Zimmermann[29], Kirsty Short[1]
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Backgrounds: Variants of SARS-CoV-2 have emerged over the course of the COVID-19 pandemic, resulting in changes in transmissibility and pathogenicity in adults. The implications for COVID-19 severity in children world-wide are unclear.
Methods: Clinical data from hospitalised children (<18 years) who were SARS-CoV-2 PCR positive were

obtained from 9 countries during three time frames: T1 ancestral cohort; T2 pre-Omicron cohort; and T3 Omicron cohort. Age groups were aligned with the vaccine age groups: < 6 months, 6 months to < 5 years and 5 to <18 years. Site-specific estimates were calculated, modelling the relative risk (RR) of each clinical outcome by age category, and combined in a meta-analysis. Children with an incidental positive test were excluded.
Results: Of the 31,785 children included, 5,438 (17.1%) were categorized in the T1 ancestral cohort, 15,205 (47.8%) in the T2 pre-Omicron cohort and 11,142 (35.1%) in the T3 Omicron cohort. In children < 5 years of age over the pandemic, there was a reduction in ICU admission (T3 vs T1: RR 0.56, 95% CI, 0.42-0.75; [children <6 months], RR 0.61, 95% CI, 0.47–0.79 [6 months – < 5 years]), but not ventilation or oxygen support. In contrast, ICU admission (T3 versus T1: RR, 0.39, 95% CI, 0.32–0.48), ventilation (T3 versus T1: RR, 0.37, 95% CI, 0.27–0.51) and oxygen therapy (T3 versus T1: RR, 0.47, 95% CI, 0.32-0.7) all decreased in those aged 5 to <18 years old. The results were consistent when restricted to data from unvaccinated children aged 5 to <18 years.
Conclusions/Learning Points: These data reveal that COVID-19 severity assessed by ICU admission, ventilation and oxygen support decreased over time for children aged 5-18 years, whereas ventilation and oxygen support did not decline in hospitalised children < 5 years.

O0016 / #1365

TWO-THIRDS OF SARS-COV-2 INFECTED SCHOOL-AGE CHILDREN ARE ASYMPTOMATIC: A SYSTEMATIC REVIEW AND META-ANALYSIS OF 48 352 CHILDREN

Parallel Symposium
PARALLEL SYMPOSIUM: LEARNING FROM COVID

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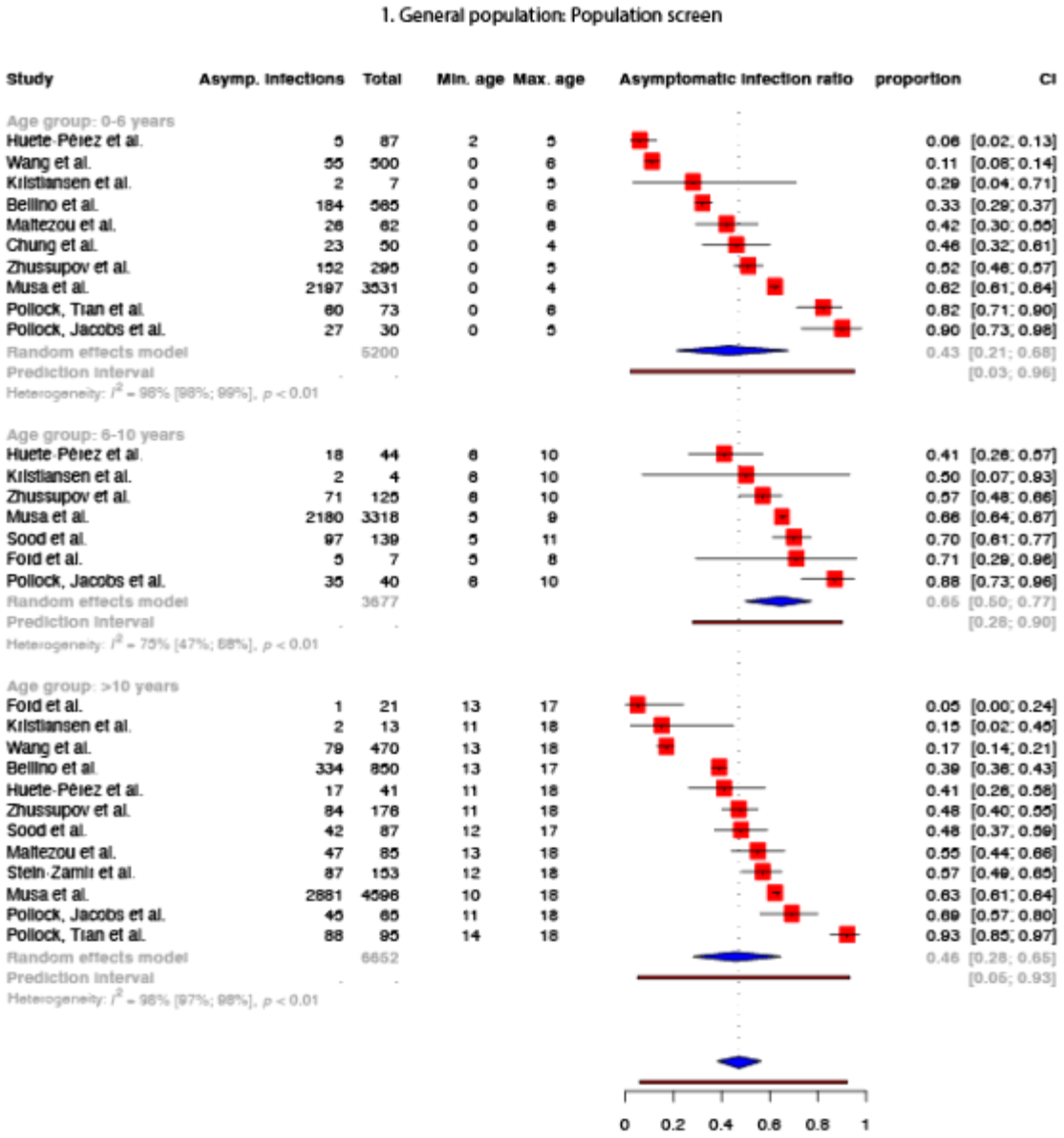
Backgrounds: Evidence shows that asymptomatic SARS-CoV-2 infected people are just as contagious as their symptomatic counterparts, therefore they play a key role in transmission. Knowing the prevalence of asymptomatic COVID-19 in children is of paramount importance in understanding the transmission potential of SARS-CoV-2 in school and community settings.
Methods: We conducted a systematic review and meta-analysis of studies (Medline, Embase, Central) containing information about the prevalence of PCR confirmed asymptomatic COVID-19 in children until 14th October 2021. We calculated risk ratios and performed one-stage dose-response random effect meta-analysis to assess the effect of age on asymptomatic infections. Pooled prevalences of asymptomatic paediatric COVID-19 by subgroups, risk ratios of different age groups and dose-response analysis of age were our main outcomes. Subgroups were created by screening strategies, age and by Healthcare Access and Quality (HAQ) index.
Results: We included 153 articles with 48 352 children's data from 58 countries. The pooled prevalence of asymptomatic SARS-CoV-2 infection in the general pediatric population was 45% (CI: 34-57%) with the highest prevalence among 6-10 years of age: 65% (CI: 50-77%). The subgroup analysis of different screening strategies identified contact tracing as the most common (43,78% of the studies) protective approach worldwide. Meanwhile, in a population of newborns with SARS-CoV-2 infected mothers, the prevalence of asymptomatic COVID-19 was 69% (CI: 58-



78%).

Conclusions/Learning Points: Around half of all SARS-CoV-2 infected children and more than two third of newborns of affected mothers are asymptomatic. Re-evaluating protective strategies and everyday medical practice – particularly in the shadow of poorly diagnosable post-COVID cases - considering the proportion of asymptomatic children is crucial, with particular attention to vaccination, which can protect society, also vulnerable groups even from the severe disease acquired from asymptomatic children.

O0017 / #837

SAFETY/IMMUNOGENICITY OF 2 INVESTIGATIONAL MRNA VACCINES, A RESPIRATORY SYNCYTIAL VIRUS VACCINE AND A HUMAN METAPNEUMOVIRUS AND PARAINFLUENZA VIRUS TYPE 3 COMBINATION VACCINE IN YOUNG CHILDREN

Parallel Symposium
PARALLEL SYMPOSIUM: NEW WAYS TO MAKE BETTER VACCINES

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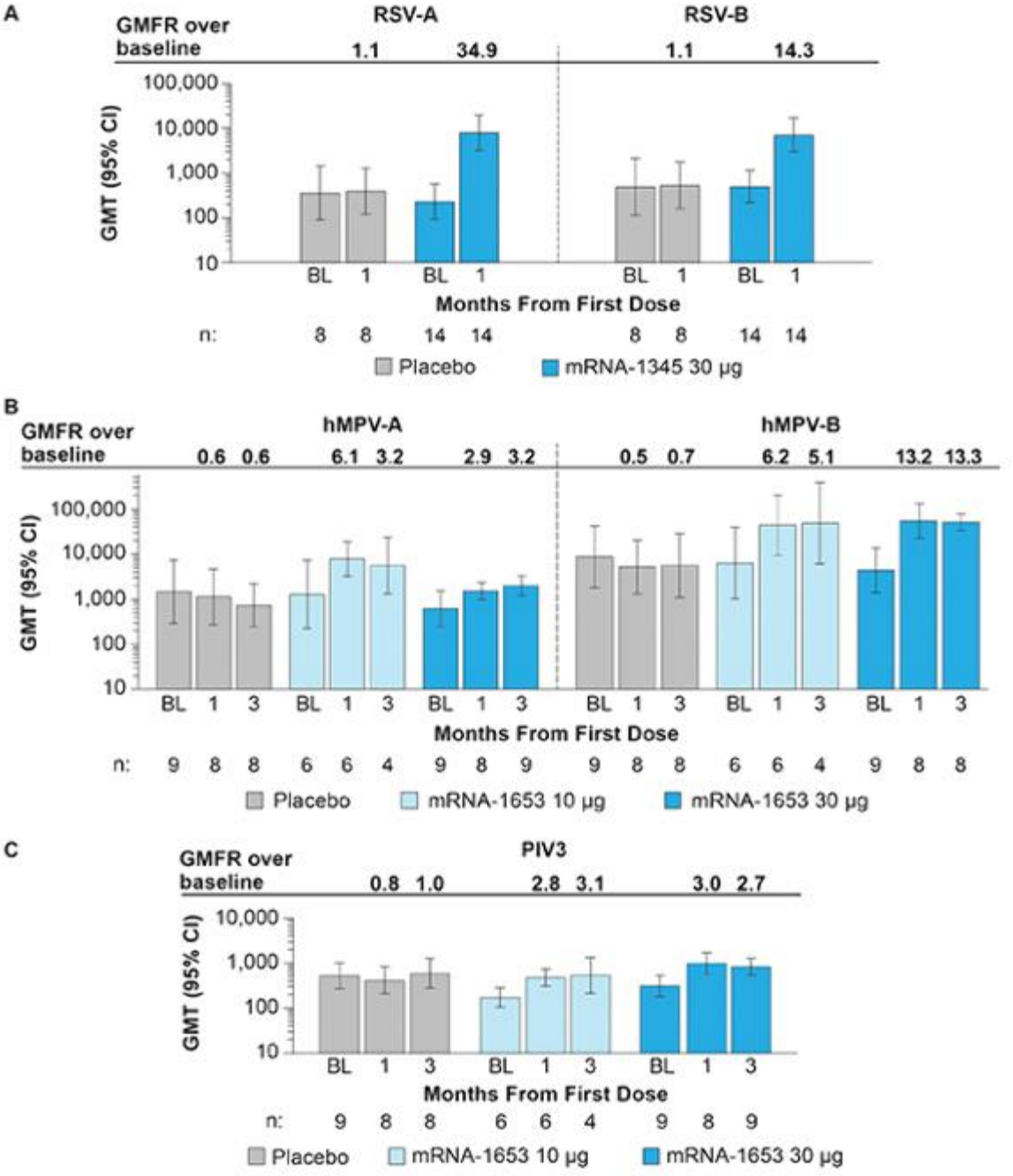
Backgrounds: Respiratory syncytial virus (RSV), human metapneumovirus (hMPV), and parainfluenza virus type 3 (PIV3) are common respiratory illnesses in children. Two investigational vaccines, mRNA-1345, encoding the RSV prefusion stabilized F glycoprotein, and mRNA-1653, encoding the hMPV and PIV3 F glycoproteins, are in clinical trials.
Methods: Two Phase 1, randomized, observer blind, placebo-controlled trials in children (aged 12-59 months) assessed the safety and immunogenicity of mRNA-1345 (NCT04528719) and mRNA-1653 (NCT04144348). In the mRNA-1345 trial, RSV-seropositive children (n=26) were randomized to receive 3 doses of mRNA-1345 (30 µg) or placebo 2 months apart. In the mRNA-1653 trial, hMPV- and PIV3-seropositive children (n=27) were randomized to receive 2 doses of mRNA-1653 (10 or 30 µg) or placebo 2 months apart. Interim data through Month (M) 1 for mRNA-1345 and M3 for mRNA-1653 are presented.
Results: mRNA-1345 and mRNA-1653 were well-tolerated; the most frequently reported local solicited adverse reaction (SAR) was injection site pain (mRNA-1345, 53.3%; placebo, 30.0% and mRNA-1653, 44.4%-60.0%; placebo, 12.5%-30.0%); systemic SARs were mostly grade 1 or 2 (mRNA-1345, 53.3%; placebo, 40.0% and mRNA-1653, 33.3%-55.6%; placebo, 12.5%-60.0%). One mRNA-1345 injection boosted RSV-A and RSV-B neutralizing antibody (nAb) geometric mean titers (GMTs) at M1 (geometric mean fold rise [GMFR] over baseline: RSV-A=34.9; RSV-B=14.3; Figure). One mRNA-1653 injection boosted hMPV and PIV3 nAb GMTs at M1 (GMFRs: hMPV-A=2.9-6.1; hMPV-B=6.2-13.2; PIV3=2.8-3.0); a second injection did not further increase GMTs at M3 (GMFRs: hMPV-A=3.24 for both dose levels; hMPV-B=5.1-13.3; PIV3=2.7-3.1). In both trials, antibody responses were prefusion F-

Figure. Serum neutralizing antibody titers in seropositive children*: (A) RSV-A and RSV-B, (B) hMPV-A and hMPV-B, and (C) PIV3.



*In the mRNA-1345 trial, dose 1 was administered at baseline; in the mRNA-1653 trial, dose 1 was administered at baseline and dose 2 was administered at Month 2.

BL, baseline; CI, confidence interval; GMFR, geometric mean fold rise; GMT, geometric mean titer; hMPV, human metapneumovirus; PIV3, parainfluenza virus type 3; RSV, respiratory syncytial virus.

biased.

Conclusions/Learning Points: mRNA-1345 and mRNA-1653 were well-tolerated and boosted RSV and hMPV plus PIV3 nAbs, respectively, in seropositive children aged 12-59 months, supporting continued development of these vaccines and the development of a combination RSV and hMPV vaccine.

O0018 / #1758

IMMUNOGENICITY AND SAFETY OF DIFFERENT MF59-ADJUVANTED H5N1 (AH5N1) INFLUENZA VACCINE FORMULATIONS IN HEALTHY PEDIATRIC SUBJECTS

Parallel Symposium
PARALLEL SYMPOSIUM: NEW WAYS TO MAKE BETTER VACCINES

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Backgrounds: A randomized, observer-blind, dose-ranging study evaluated the safety and immunogenicity of MF59-adjuvanted H5N1 vaccine formulations in healthy children.
Methods: 420 subjects 6 months to < 9yrs, were equally randomized to receive 2 doses of one of 6 different vaccine formulations including either 1.875, 3.75, or 7.5 µg H5N1 antigen combined with 0.125 mL (50%) or 0.25 mL (100% [versus adult dosage]) MF59, three weeks apart, stratified into 2 age cohorts (6 to <36 months and 3 to <9 years of age). HI and MN assays measured antibody responses against the homologous H5N1 (A/turkey/Turkey/1/2005) strain at baseline (Day 1), and 3 weeks after the 1st (Day 22) and 3 weeks (Day 43) and 6 months after the 2nd vaccination (Day 202).
Results: All vaccine formulations elicited strong homologous immune responses after the second vaccination, with a trend towards higher responses in subjects receiving the 100% MF59-adjuvanted vaccine formulations at Day 43 and at Day 202. No clear effect of the H5N1 antigen dose on immune responses was observed with both MF59 dosages. These immunogenicity patterns were observed in the entire study population and in both age cohorts. No patterns in frequency or severity of solicited or unsolicited adverse events were observed with increasing H5N1 antigen or MF59-adjuvant content.
Conclusions/Learning Points: Both the HI and MN responses indicate a 2-dose series of MF59-adjuvanted H5N1 vaccine, 3 weeks apart, achieves antibody levels likely to provide protection in children 6 months to 9 years of age. Although all formulations were highly immunogenic with a favorable safety profile, the vaccine formulations with higher MF59 content were associated with a greater magnitude and persistence of immune responses, while not associated with increased reactogenicity.

O0019 / #2155

LIVE-ATTENUATED RESPIRATORY SYNCYTIAL VIRUS VACCINE FOR THE PREVENTION OF RSV DISEASE: PH1/2 RESULTS SHOW PROMISING SAFETY, IMMUNOGENICITY AND INFECTIVITY

Parallel Symposium
PARALLEL SYMPOSIUM: NEW WAYS TO MAKE BETTER VACCINES

Scott Gallichah[1], Olubukola T Idoko[2], Sanie Sesay[2], Sophie Pallardy[2], Haritha Adhikarla[3]
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Backgrounds: After decades of research a paediatric vaccine for RSV is not yet available. Early trials with live attenuated vaccine candidates suggest promise for paediatric vaccination and have not been linked to the risk of enhanced disease noted with formalin inactivated candidates.
Methods: The ongoing Sanofi-sponsored Phase I/II trial (NCT04491877) evaluated a live-attenuated RSV vaccine, which was co-developed in partnership with NIH under a CRADA and license agreement, in 6-18mo infants and toddlers in the US and South America (Chile and Honduras). In this trial, the safety, immunogenicity and infectivity of two formulations administered intranasally was assessed in sequential cohorts (N=259). Participants received two administrations of the candidate or placebo two months apart and provided blood samples at baseline and up to at least 5 months post the second vaccine administration (and/or end of RSV season) to assess immunogenicity. Vaccine viral shedding was assessed 7 days post each vaccine formulation administration. Safety follow up lasted 5 months after the second vaccine administration or to the end of the RSV season, whichever was greater.
Results: The results show that the vaccine was well tolerated with no safety concerns identified after 1 and 2 administrations of either formulation. The vaccine virus shedding and immunogenicity results from the interim data analysis are promising and demonstrate strong take of the vaccine with a high degree of recipients showing shedding of the virus and the development of neutralizing antibodies.
Conclusions/Learning Points: The current results indicate that the live-attenuated RSV vaccine is safe and immunogenic and support the future development of the candidate.

O0020 / #1557

STAPHYLOCOCCUS AUREUS CAUSING PEDIATRIC INVASIVE INFECTIONS IN PORTUGAL ARE A DIVERSE POPULATION WITH LOW REPRESENTATION OF MRSA AND IMPORTANT VIRULENCE GENES

Joint Symposium
JOINT SYMPOSIUM: ESCMID-ESPID: STAPHYLOCOCCI PERSISTING AND PERISHING

Marcos Pinho[1], Yenine Martins[1], Paula Correia[2], Catarina Gouveia[3], Fernanda Rodrigues[4], José Melo-Cristino[1], Mário Ramirez[1], . The Portuguese Study Group Of Invasive Pneumococcal Disease Of The Pediatric Infectious Diseases Society[1], . Study Group Of Pediatric Staphylococcal Disease In Portugal[1]
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Backgrounds: We aimed at identifying the Staphylococcus aureus lineages causing pediatric (<18 yrs) invasive infections (piSA) in Portugal, evaluating antimicrobial susceptibility and the distribution of virulence genes.
Methods: A total of 205 isolates were recovered from blood (n=180), synovial fluid (n=12) or other normally sterile fluids/tissues (n=13) in 10 Portuguese hospitals in 2015-2020. Genomic sequences (Illumina) were obtained for all isolates. Multilocus sequence typing (MLST), virulence and antimicrobial resistance genes were identified. Antimicrobial susceptibility to fourteen antimicrobial agents was determined by disk diffusion or E-test, following EUCAST guidelines.
Results: Isolates belonged to 36 sequence types (STs) grouped into 17 CCs and one singleton (Simpson's index of diversity ± 95% confidence interval, 0.899 ± 0.015). CC398 (16.6%), CC30 (16.1%), CC5 (13.7%) and CC45 (10.7%) were the most frequent CCs. Overall penicillin resistance was 87.3% and methicillin-resistant (MRSA) strains accounted for 17.1% (n=35) of the isolates, with SCCmec types IV (n=17), VI (n=8) and II (n=8). MRSA isolates belonged to CCs 5 (51.4%), 22 (31.4%), 8 (11.4%), 72 and 152 (2.9% each). Resistance to other antimicrobial agents included erythromycin (29.8%), norfloxacin (15.1%), fusidic acid (7.3%) and gentamicin (6.8%). Panton-Valentine leucocidin (PVL) genes were detected in 10 (4.9%) isolates, including two MRSA. Toxic shock syndrome toxin-1 gene was found in 15.6% (n=32) of the isolates while exfoliative toxins ETA (2.9%) and ETB (2.4%) genes were carried by a minority of isolates.
Conclusions/Learning Points: S. aureus causing piSA in Portugal showed considerable diversity, albeit representing widely disseminated lineages. While most isolates were resistant to penicillin, only a minority were MRSA, with CC5 and CC22 dominating among this group. Despite the severity of some cases, PVL, ETA or ETB genes were present in <5% of isolates.

O0021 / #1760

LONG-TERM IMMUNOGENICITY OF BNT162B2 VACCINE IN VULNERABLE POPULATIONS: A LASTING SUCCESS.

Oral Presentations Session
ORAL PRESENTATION SESSION 01: COVID VACCINES

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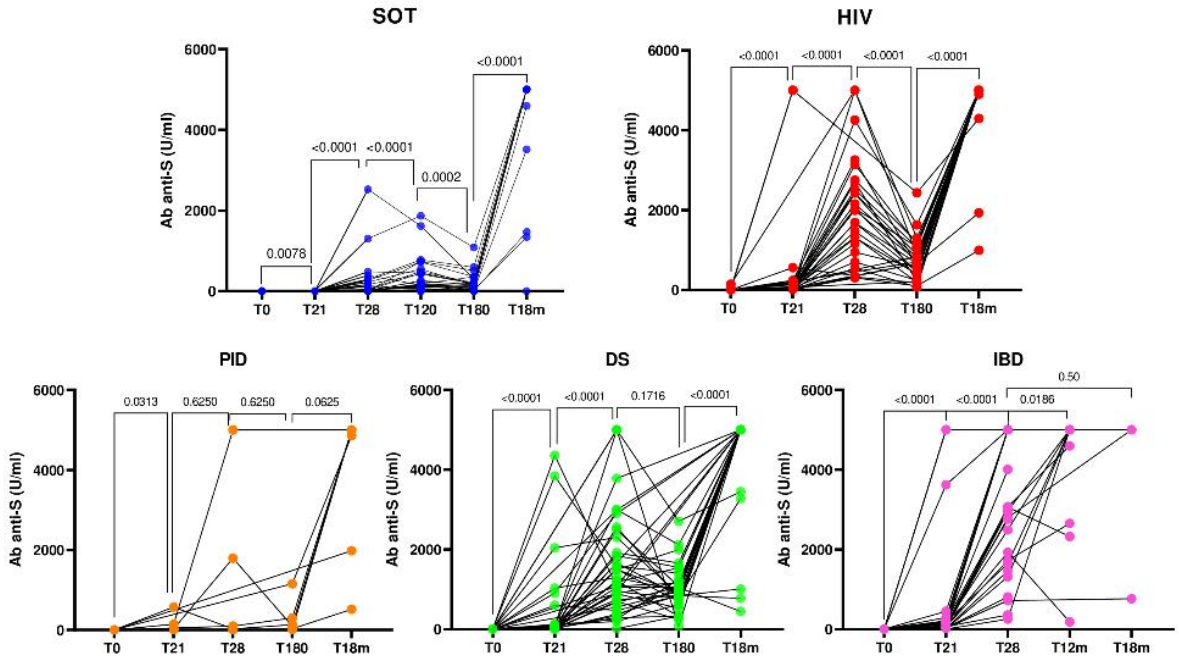
Backgrounds: Little is known about the longevity of COVID19 vaccine-induced protection in vulnerable populations. Our analysis aims to evaluate the persistence of humoral immunity following BNT162B2 mRNA COVID-19 vaccination in 5 cohorts of vulnerable children and young adults: solid organ transplant recipients (SOT), ART-treated perinatally HIV-infected (HIV), Down Syndrome (DS), Inflammatory Bowel Disease (IBD), primary immunodeficiency (PID).
Methods: Longitudinal blood samples were collected on the day of vaccination (T0), 21-days (T21), 28-days (T28), 6-months (T180), and 12-months and/or 18-months (T18m) after the priming dose. Anti–SARS-CoV-2 S1 receptor-binding domain antibodies were assessed at each time point. Booster shot and SARS-CoV-2 infection occurring between the second dose and the first booster were monitored via the regional registry.
Results:



At T18m, 106 patients were included in our analysis: 24 SOTs, 28 DS, 32 HIV, 15 IBDs, 7 PID. Among

them, 99/106 got the booster shot at T180. The serological data overall showed a decrease in Ab at T180 in SOT, HIV and DS. However, 98/99 of booster-vaccinated individuals have significantly increased ab titers at T18m compared to T180 ($p < 0.05$ in SOTs, HIVs and DSs, and not statistically significant in PID and IBD). Only one SOT remained non-responder after 1 booster dose and SARS-CoV-2 infection.
Conclusions/Learning Points: According to our analysis, the vaccination schedule adopted for vulnerable population was able to provide long-term humoral immunity (18 months). Whereas a decreasing trend was observed 6 months after vaccination, booster shots provided at 12 months were able to restore vaccine induced Ab. These data further show that timing of immunization and boosters are crucial in these populations and additional data are needed to pursue a personalized vaccination approach in immune compromised adolescents and young adults.

O0022 / #169

EFFECTIVENESS OF BNT162B2 AND CORONAVAC AGAINST PEDIATRIC COVID-19-ASSOCIATED HOSPITALIZATION AND MODERATE-TO-SEVERE DISEASE

Oral Presentations Session
ORAL PRESENTATION SESSION 01: COVID VACCINES

Jaime Rosa Duque, Daniel Leung, Ka Man Yip, Derek Lee, Hung-Kwan So, Wilfred Wong, Yu Lung Lau
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Backgrounds: Vaccine effectiveness (VE) of BNT162b2 and CoronaVac against COVID-19-associated hospitalization and moderate-to-severe disease due to SARS-CoV-2 Omicron BA.2 for pediatric populations that had low exposure to prior SARS-CoV-2 variants needs to be further clarified. This can be studied from the 1.36 million vaccine doses that had been administered to 766,601 of 953,400 children and adolescents in Hong Kong (HK) since March 2021 to April 2022.
Methods: Using an ecological design leveraging HK vaccination coverage statistics and public hospital records, this study investigated the VE for children aged 3-11 years and adolescents aged 12-18 years at the population level during the Omicron BA.2 wave from January to April 2022.
Results: VE against COVID-19-associated hospitalization for children was 65.3% for 1 dose of BNT162b2 and 13.0% and 86.1% for 1 and 2 doses of CoronaVac, respectively. For adolescents, VE against COVID-19-associated hospitalization was 60.2% and 82.4% after 1 and 2 doses of BNT162b2 and 30.8% and 90.7% after 1 and 2 doses of CoronaVac, respectively. Protection against moderate-to-severe disease for aged 3-18 was high, with VE of 93.1% and 95.8% after 2 doses of BNT162b2 and CoronaVac, respectively. No COVID-19-associated hospitalization or moderate-to-severe disease occurred for 68,565 children and adolescents who received their third dose. Estimated hospitalizations of children and adolescents averted by vaccination were 68 and 999, respectively, and were 45 and 147 for moderate-to-severe cases.
Conclusions/Learning Points: BNT162b2 or CoronaVac provide substantial protection from COVID-19-associated hospitalization and moderate-to-severe disease due to a SARS-CoV-2 variant of concern.

O0023 / #262

REACTOGENICITY, IMMUNOGENICITY AND BREAKTHROUGH INFECTIONS FOLLOWING HETEROLOGOUS OR FRACTIONAL SECOND DOSE COVID-19 VACCINATION IN ADOLESCENTS (COM-COV3): A RANDOMISED CONTROLLED TRIAL

Oral Presentations Session
ORAL PRESENTATION SESSION 01: COVID VACCINES

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Backgrounds: This was the first study to investigate the reactogenicity and immunogenicity of heterologous or fractional dose COVID-19 vaccine regimens in adolescents.
Methods: A phase II, single-blind, multi-centre, randomised-controlled trial recruited across seven UK sites from September to November 2021, with follow-up visits to August 2022. Healthy 12-to-16 years olds were randomised (1:1:1) to either 30µg BNT162b2 (BNT-30), 10µg BNT162b2 (BNT-10), or NVX-CoV2373 (NVX), eight weeks after a first 30µg dose of BNT162b2. The primary outcome was solicited systemic reactions one week after vaccination. Secondary outcomes included immunogenicity and safety. 'Breakthrough infection' analyses were exploratory.
Results: 148 participants were recruited (median age 14 years, 30% anti-nucleocapsid IgG seropositive pre-second dose). Reactions were mostly mild-to-moderate, with lower rates in BNT-10 recipients. Compared to BNT-30, at 28 days post-second dose anti-spike antibody responses were similar for NVX (geometric mean ratio (GMR) 1.09, 95% confidence interval (CI): 0.84,1.42) and significantly lower for BNT-10 (GMR 0.78 95% CI: 0.61, 0.99). For Omicron BA.1 and BA.2 neutralising antibody (NAb) titres, GMR compared to BNT-30 at day 28 were similar for BNT-10 [1.0 (95% CI 0.65, 1.54), 1.02 (95% CI 0.71, 1.48)] respectively, but higher for NVX [1.7 (95% CI 1.07, 2.69), 1.43 (0.96 – 2.12)]. Amongst SARS-CoV-2 infection naïve participants, NVX participants had an 89% reduction in the risk of a self-reported 'breakthrough infection' compared to BNT-30 (hazard ratio (HR) 0.11, 95% CI: 0.01, 0.86). BNT-10 recipients were significantly more likely to have a 'breakthrough infection' compared to BNT-30 (HR 2.14, 95% CI: 1.02, 4.51).
Conclusions/Learning Points: The enhanced performance of the heterologous schedule using NVX-CoV2373 against the Omicron SARS-CoV-2 variant suggests this mRNA prime and protein-subunit-boost schedule may provide a greater breadth of protection than the licensed homologous schedule.

O0024 / #1316

BREASTMILK ANTIBODIES AFTER PRIMARY VS. BOOSTER MRNA COVID-19 VACCINATION DURING PREGNANCY OR POSTPARTUM

Oral Presentations Session
ORAL PRESENTATION SESSION 01: COVID VACCINES

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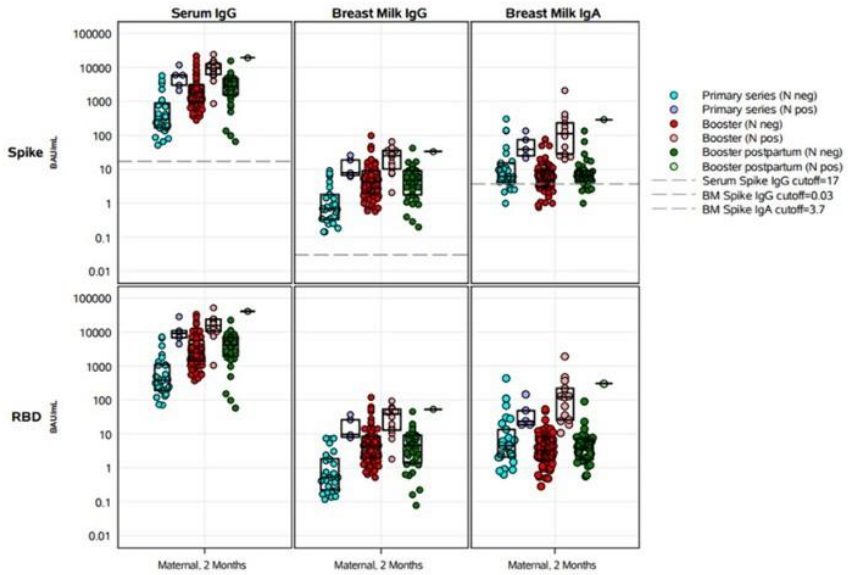
Backgrounds: The immune profile of breastmilk following primary vs. booster COVID-19 vaccination during pregnancy or post-partum and its potential for protection are not well characterized.
Methods: Prospective multicenter cohort study of participants enrolled after receipt of a primary 2-dose, or booster COVID-19 mRNA vaccination during pregnancy or a booster dose within 6 weeks postpartum. Maternal blood and breastmilk samples were collected at 2-months postpartum in this substudy. IgG and IgA binding antibodies to Spike and RBD of SARS-COV-2 in breastmilk were compared in primary vs. booster vaccine recipients. The correlation between maternal Spike IgG and breastmilk Spike IgG and IgA was assessed. Maternal infection status was assessed by medical history and detection of N-protein IgG.
Results: The study included 32 mother-infant dyads with primary 2-dose vaccination during pregnancy, 82 dyads with booster vaccination during pregnancy and 36 dyads with maternal booster within 6 weeks postpartum. The majority of infants were born at term (≥90%) and most (≥85%) were breastfeeding at 2 months postpartum. Spike and RBD IgG and IgA were present in breastmilk in all study groups. Higher IgG GMT were measured in those who received a booster vaccination either during pregnancy or postpartum, compared with primary 2-dose vaccination during pregnancy. Maternal infection increased GMT in breastmilk but numbers were low to evaluate impact. A significant positive correlation was observed between maternal serum IgG titers and breastmilk IgG and IgA at 2-months postpartum, regardless of vaccine regimen. The Spearman correlation between maternal sera and breastmilk antibodies was higher with breastmilk IgG (r=0.79-0.9596) than with breastmilk IgA (r=0.42-0.52).



Conclusions/Learning Points: Results support the potential protective effect of breastmilk antibodies in nursing infants of mothers who are vaccinated or boosted with COVID-19 mRNA vaccines during pregnancy or postpartum.

O0025 / #1697

IMMUNOGENICITY AND REACTOGENICITY OF BNT162B2 MRNA COVID-19 VACCINE AMONG CHILDREN PREVIOUSLY INFECTED WITH SARS-COV-2

Oral Presentations Session
ORAL PRESENTATION SESSION 01: COVID VACCINES

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Backgrounds: The immunogenicity of vaccination among children previously infected with SARS-CoV-2 is limited studied.
Methods: Children aged 5-11 years with confirmed SARS-CoV2 infection were randomly assigned to receive BNT162b2 vaccine at full-dose (10 micrograms) or half-dose (5 micrograms). Anti-spike receptor binding domain (RBD) IgG, and neutralizing (NT) antibody against ancestor and omicron BA.5 variant were measured at 3 (+/- 1week) weeks after vaccination. Solicited adverse events (AEs) were recorded for 7 days following vaccination.
Results: 183 children were enrolled, median age (IQR) of 8.5 (7.2-10.1) years. One participant withdrew. Overall, anti- RBD antibody was higher among children who had infections at >3 months prior compared to those at 1-3 months prior. The full-dose group provided higher antibody levels compared to half-dose; however, the significant different was found only among the children infected at 1-3 months prior.

Duration from previous infection	Anti-spike RBD IgG(AU/mL) GMT (95%CI)		
	Before vaccination (N=182)	After Vaccination (N=177)	p-value
1-3 months			
Full-dose	165.4 (110.7-248.2)	9469.0 (8319.6-10777.1)	<0.001
Half-dose	142.3 (90.0-225.0)	6255.7 (5183.0-7550.5)	<0.001
p-value	0.621	<0.001	
>3 months			
Full-dose	200.2 (121.6-329.5)	17691.6 (12823.0-24408.8)	<0.001
Half-dose	187.6 (128.0-275.0)	16750.8 (11448.4-24509.1)	<0.001
p-value	0.836	0.824	

The NT against ancestral virus [GMT(95%CI) 826.0 (600.3-1136.7) vs 122.3 (93.7-159.6); p<0.001] and omicron BA.5 [GMT(95%CI) 165.1 (128.8-211.7) vs 75.7 (58.1-98.7); p<0.001] were higher among children who had infection at >3 months prior than those at 1-3 months prior, respectively. The most common AEs were pain (33.5%), myalgia (18.1%), and headache (9.9%); no myocarditis/pericarditis or serious AEs.
Conclusions/Learning Points: Delaying vaccination after 3 months from infection provided better immunogenicity than earlier vaccination. Half dose of BNT162b2 mRNA

COVID-19 vaccine may be an alternative regimen for children with prior SARS-CoV-2 infection >3 months.

O0026 / #1716

SAFETY, REACTOGENICITY, AND IMMUNOGENICITY OF MRNA-1273.214 PRIMARY SERIES AND BOOSTER VACCINATION IN INDIVIDUALS AGED 6 MONTHS TO LESS THAN 6 YEARS: INTERIM RESULTS FROM A PHASE 3, OPEN-LABEL TRIAL

Oral Presentations Session
ORAL PRESENTATION SESSION 01: COVID VACCINES

Avika Dixit[1], Richard Bennett[2], Kashif Ali[3], Robert Clifford[4], Rosanne Poston[1], Kelly Hautzinger[1], Anne Yeakey[5], Bethany Girard[1], Wen Zhou[1], Weiping Deng[1], Honghong Zhou[1], Sabine Schnyder Ghamloush[1], Jacqueline Miller[1], Rituparna Das[1]
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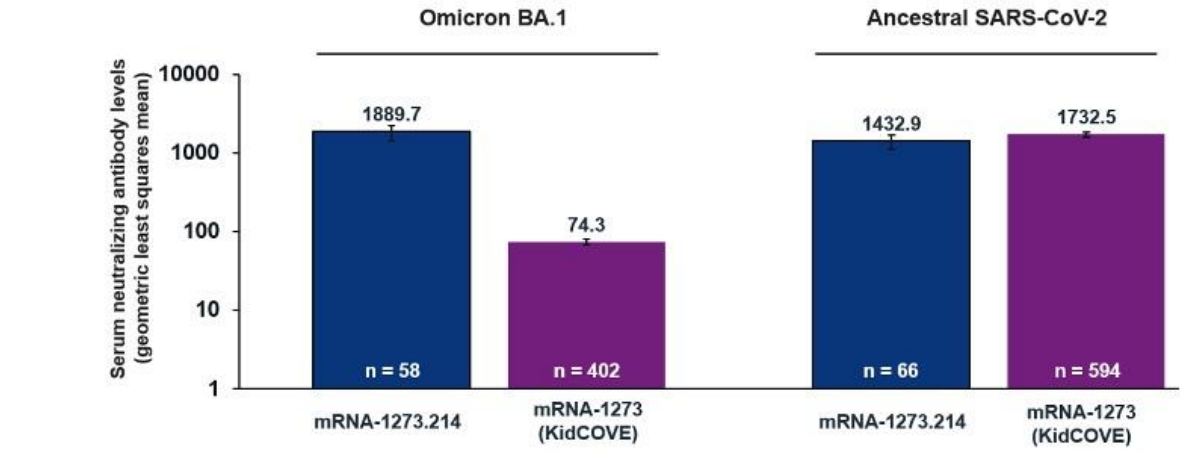
Backgrounds: The bivalent mRNA-1273.214 vaccine, containing mRNAs encoding the spike glycoproteins of the SARS-CoV-2 Wuhan-Hu-1 isolate and the omicron B.1.1.529 BA.1 subvariant, was previously evaluated in a phase 2/3 study as a second booster in adults who received the mRNA-1273 primary series plus a first booster. Herein, we present interim results from a study evaluating mRNA-1273.214 as a primary series in children.
Methods: This ongoing, phase 3, open-label trial evaluated the safety, reactogenicity, and immunogenicity of mRNA-1273.214 (25 µg) as a 2-dose primary series administered 28 days apart (Part 1) in SARS-CoV-2 vaccine-naive individuals aged 6 months to <6 years (NCT05436834). Effectiveness of mRNA-1273.214 was inferred based on immune responses against BA.1 and ancestral SARS-CoV-2 at 28 days after dose 2 compared with those induced by the mRNA-1273 (25 µg) primary series among participants of the same age group from the phase 3 KidCOVE study. Immunogenicity comparisons were based on geometric mean ratio (GMR; mRNA-1273.214 vs mRNA-1273) of neutralizing antibodies (nAbs).
Results: A total of 179 participants (median age, 3 [IQR 1-3] years) were included in this interim analysis of mRNA-1273.214 (dose 1, 179; dose 2, 142). mRNA-1273.214 was generally well-tolerated and no safety concerns were identified. Irritability/crying and pain were the most frequently reported solicited adverse reactions. Superiority of the nAb response against omicron BA.1 (GMR, 25.4 [95% CI, 20.1-32.1]) and non-inferiority against the ancestral strain (GMR, 0.83 [95% CI, 0.67-1.02]) were demonstrated following mRNA-1273.214 compared with mRNA-1273
(Figure).

Figure. Serum neutralizing antibodies against SARS-CoV-2 at 28 days after dose 2 of mRNA-1273.214 or mRNA-1273



Geometric mean ratio (95% CI)	25.4 (20.1-32.1)	0.83 (0.67-1.02)

Immunogenicity was assessed in the per-protocol immunogenicity population, including participants aged 6 months to <6 years regardless of baseline SARS-CoV-2 status. Superiority against omicron BA.1 was declared if the lower bound of the 95% CI of the geometric mean ratio (ratio of the geometric least squares mean serum antibody values for mRNA-1273.214 vs mRNA-1273 at 28 days after dose 2) was >1. Non-inferiority against ancestral SARS-CoV-2 was declared if the lower bound of the 95% CI of the geometric mean ratio (ratio of the geometric least squares mean serum antibody values for mRNA-1273.214 vs mRNA-1273 at 28 days after dose 2) was >0.667.

Conclusions/Learning Points: A 2-dose primary series of the bivalent mRNA-1273.214 vaccine had no new safety concerns and elicited immune responses against omicron BA.1 that were superior to mRNA-1273 in children aged 6 months to <6 years.

O0027 / #1374

PAEDIATRIC TULAREMIA IN EUROPE – TWO COUNTRIES: DIFFERENT VECTORS AND EPIDEMIOLOGY

Oral Presentations Session
ORAL PRESENTATION SESSION 02: MISCELLANEOUS I

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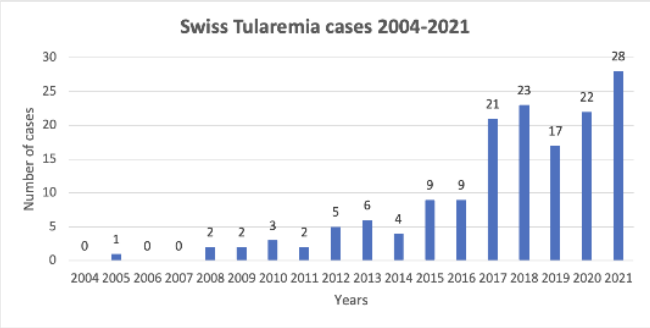
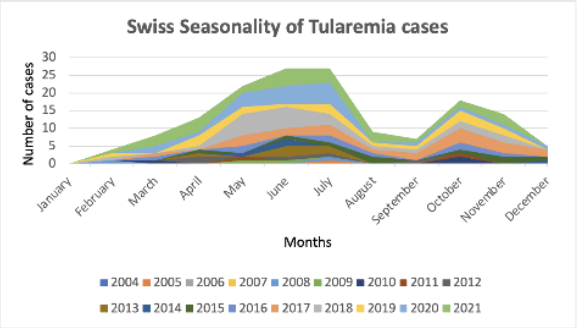
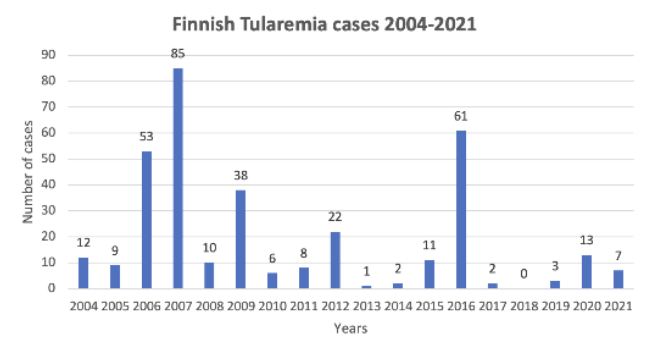
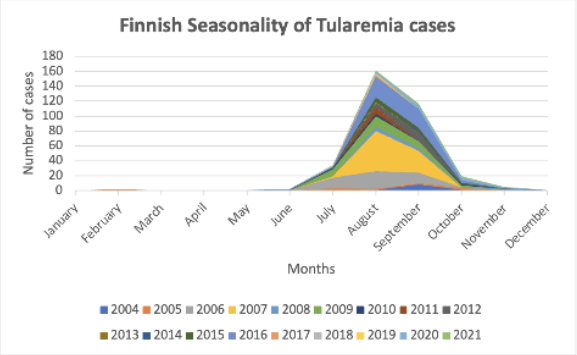
Backgrounds: Paediatric data on tularemia, an emerging zoonosis, are scarce. In Europe the Francisella tularensis holarctica subtype is primarily responsible for tularemia syndromes in children. We characterize the epidemiological differences of tularemia in children in Finland and in Switzerland
Methods: We compared datasets from nationwide register-based cohorts from two European countries. Paediatric data (<15 years of age) from 2004-2021 were retrieved from the Swiss (CH) and Finnish (FI) national public health surveillance reporting systems, including a cohort from the Oulu catchment area, a tularemia hotspot in Finland.
Results: We recorded 497 (343 FI; 154 CH) cases, 40% (N=201) of cases were in females. Main vectors were ticks in CH and mosquitoes in FI. In FI, the highest annual incidence was seen in 2007 with the annual incidences of 10.2 in 0-4y, 10.1 in 5-9y, and 8.2 in the 10-14 year age groups. In CH, the annual incidence increased from 0 to 1.7 per100 000 per year for the <15y age group. In FI, outbreaks occurred regularly every few years, whereas a steady increasing annual incidence was observed in CH. In FI infections peaked in late summer (August and September), while CH recorded two epidemiological peaks (June to July and October) (Fig.1.). In both cohorts the most common clinical manifestations were ulceroglandular or glandular tularemia followed by rare oropharyngeal, pulmonary, oculoglandular, middle ear, abdominal, and typhoidal manifestations.









Conclusions/Learning Points: The CH and FI surveillance cohorts revealed clear differences in the epidemiology of paediatric tularaemia, specifically in regards to main transmission vector and incidence peak variation. In CH, the reasons for the observed increasing incidence of pediatric tularemia are unknown.

O0028 / #1827

CLINICAL CHARACTERISTICS AND SEROLOGICAL PROFILES OF LYME DISEASE IN CHILDREN: A RETROSPECTIVE COHORT STUDY IN SWITZERLAND, 2006–2020

Oral Presentations Session
ORAL PRESENTATION SESSION 02: MISCELLANEOUS I

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Backgrounds: Lyme disease (LD) is the most common tickborne disease in the northern hemisphere caused by the bacteria Borrelia burgdorferi (Bb). Although classical characteristics of LD are well-known, the diagnosis and treatment are often delayed, particularly in children. The aim of this study was to better describe clinical characteristics and serological profiles which allow for early and reliable diagnosis of LD in children.
Methods: This is a retrospective cohort study of children, 0–17 years of age, diagnosed with LD according to current guidelines at University Children's Hospital Zurich from January 1, 2006–December 31, 2020.
Results: In total, 469 children diagnosed with LD were included. LD presented in 171 (36.5%) patients with skin manifestations (including erythema migrans and borrelial lymphocytoma), in 190 patients (40.5%) with Lyme neuroborreliosis (LNB), and in 108 (23.0%) patients with Lyme arthritis (Figure, Panel A). Seasonal variations were observed in patients with skin manifestations and LNB (high prevalence in May–October), but not in patients with Lyme arthritis (Figure, Panel B). The median age was 8.0 years (IQR 5.5 - 10.5), but there were significant differences in age between patients with different manifestations (Figure, Panel C). Patients with Lyme arthritis showed more pronounced systemic inflammation compared to other manifestations. Significant differences were observed in specificity and magnitude of Bb-specific serum antibody responses among LD manifestation groups (Figure, Panel D).
Conclusions/Learning Points: This is one of the largest and most detailed studies for LD in Europe. It presents new observations regarding the differences in epidemiology and immune responses between various manifestations of LD in children, which we will investigate in more detail in an upcoming

prospective LD study.

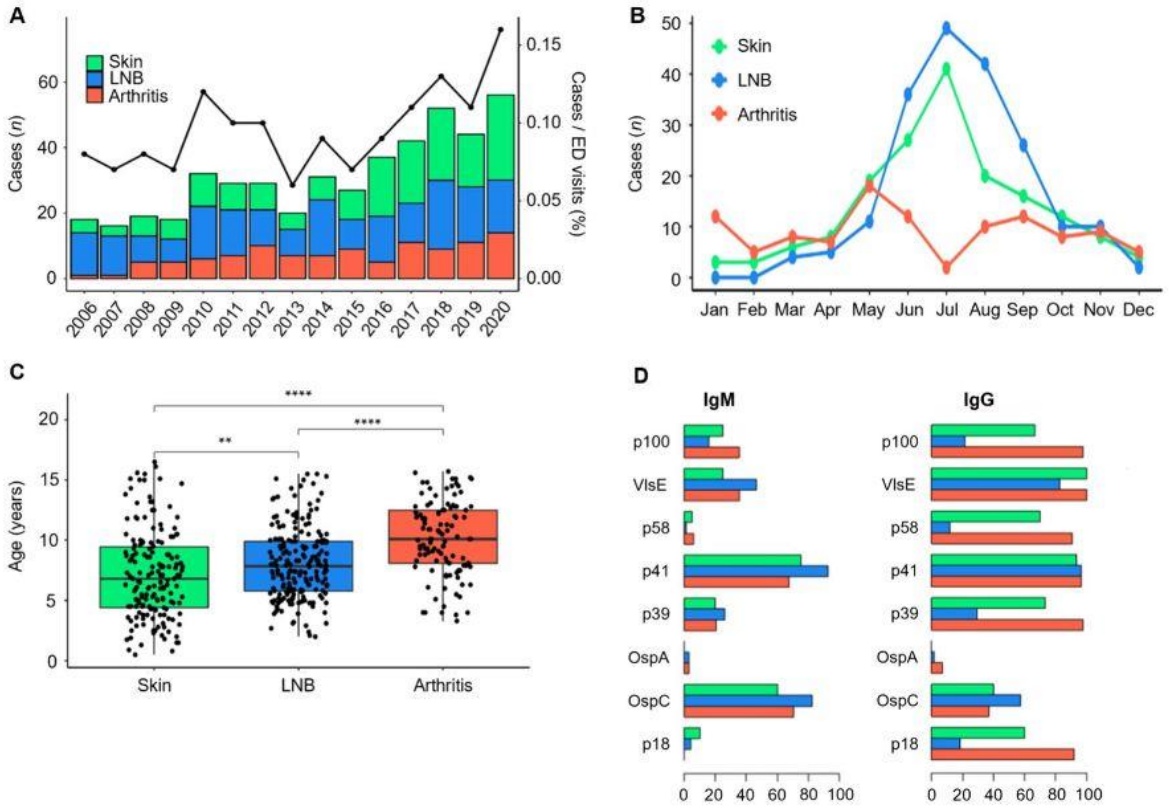

Figure. (A) Incidence per year, (B) Seasonal changes in number of cases, (C) Age differences, and (D) Serum antibody responses among different manifestations of Lyme disease. Abbreviations: ED, emergency department; LNB, Lyme neuroborreliosis.

O0029 / #393

SCORING SYSTEMS FOR PREDICTION OF MALARIA AND DENGUE FEVER IN NON-ENDEMIC AREAS AMONG TRAVELERS ARRIVING FROM TROPICAL AND SUB-TROPICAL AREAS

Oral Presentations Session
ORAL PRESENTATION SESSION 02: MISCELLANEOUS I

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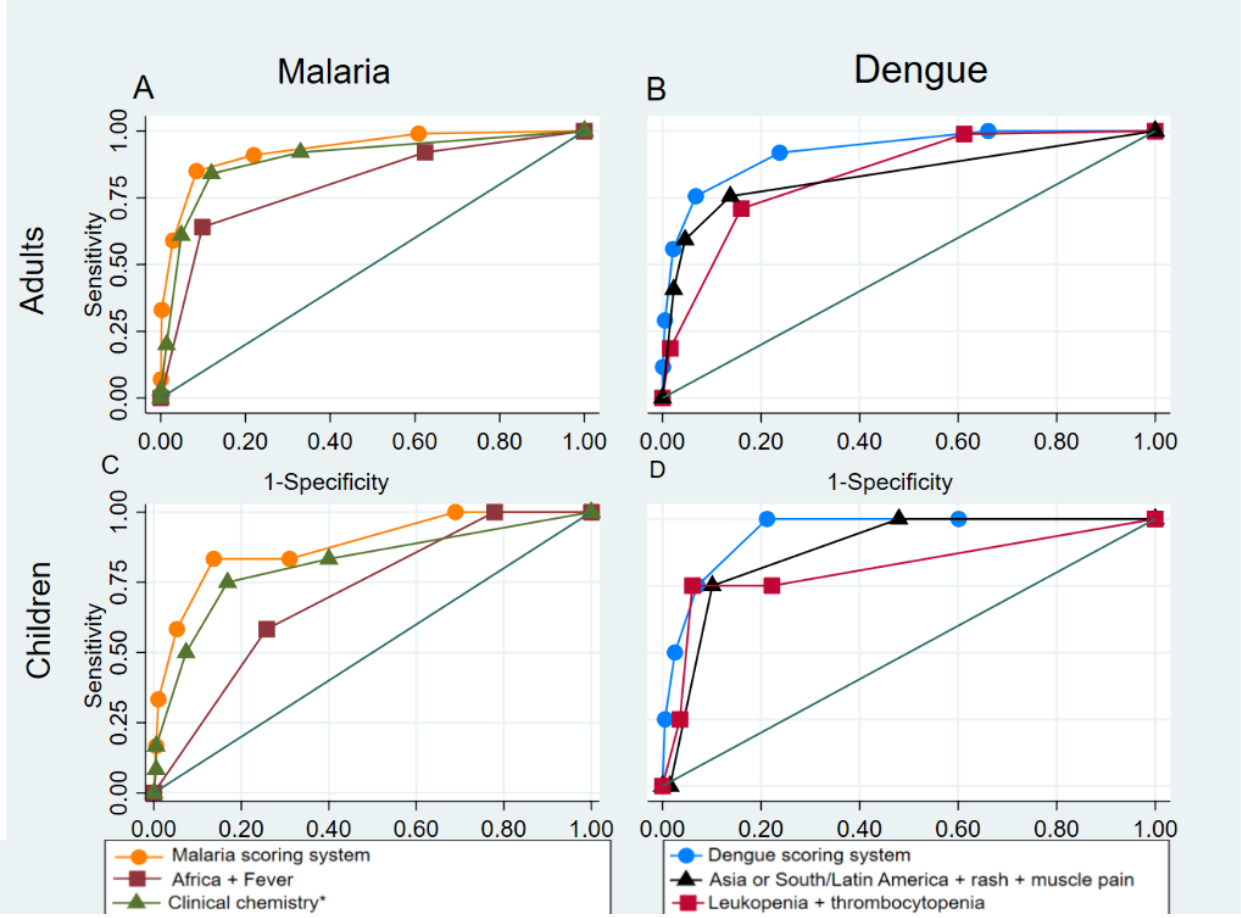
Backgrounds: Fever is a common symptom among travelers returning from tropical/subtropical areas, and to promptly distinguish severe illnesses from self-limiting febrile syndromes is important, but can be challenging due to unspecific clinical presentation
Methods: A cross sectional study enrolling adults and children who sought care at Karolinska University Hospital, Stockholm, Sweden with fever within two months following return from travel to a tropical/subtropical area. Prospective and retrospective data was collected on symptoms and laboratory parameters. Two separate scoring systems for malaria and dengue were developed based on forward stepwise regressions with combination of clinical indicators.
Results: In total, 2113 adults aged 18-94 and 202 children aged 1-17 were included during 2015-2020, with 112 (4.8%) cases of malaria and 90 (3.9%) cases of dengue. In the scoring systems ranging from 0-7 points depending on the following predictors mentioned, scores of ≥3 points predicted a high odds ratio (OR) for dengue in adults 42.7 (95% CI 25.3–71.9) and children 39.4 (95% CI 3.8–404.2), as well as for malaria, OR adults 61.4 (95% CI 34.7–108.7) vs. OR children 31.5 (95% CI 6.5–152.1). Malaria was predominantly diagnosed in patients presenting with thrombocytopenia (2p), anemia (1p), lymphocytopenia (1p), neutropenia (1p), and fever ≥39.5 °C (1p) after visiting sub-Saharan Africa (1p). Leukopenia (2p), thrombocytopenia (1p), muscle pain (1p) and rash (1p) after traveling to Asia or South/Latin America (1p) indicated high probability of dengue. Figure: ROC-curve of the scoring systems



*Clinical chemistry = Thrombocytopenia, anemia, lymphocytopenia, neutropenia

Conclusions/Learning Points: The scoring systems provide a novel tool for structured assessment of tropical fever patients and highlight clinical signs associated with a potential severe etiology and indicate the need for microbial investigation.

O0030 / #2112

UKRAINIAN CHILD MIGRANTS' AND WAR REFUGEES' HOSPITAL ADMISSIONS : EVIDENCE FROM THE POLISH NATIONWIDE GENERAL HOSPITAL MORBIDITY STUDY, 2014-2022

Oral Presentations Session
ORAL PRESENTATION SESSION 02: MISCELLANEOUS I

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Backgrounds: Millions of Ukrainian children have fled to other countries because of the Russian war. The aim of the study was to assess changes in the frequency and structure of hospitalizations among Ukrainian child migrants and refugees in Poland after the outbreak of the war.
Methods: The study was based on the analysis of hospital admission data of Ukrainian children under the age of 18, which were collected in the Nationwide General Hospital Morbidity Study. Two periods were analyzed: before the war (01.01.2014-23.02.2022) and after (24.02.2022-31.05.2022) its outbreak.
Results: In the study period, 1515 Ukrainian children were hospitalized in Poland, 644 of whom (42.3%) were admitted to hospitals after 24 February 2022. Before Russia's invasion of Ukraine the average of 0.3 child/day was admitted to hospital, and since the war started this number increased to 6.7 patients a day. Prior to the war, the most frequently reported hospital events among the Ukrainian migrant children were factors influencing health status and contact with health services (Z00-Z99) – 30.5%, certain conditions originating in the perinatal period (P00-P96) – 18.3%, and diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89) – 8.2%. Since the beginning of the war, the incidence of health problems among Ukrainian child refugees has changed dramatically, with infectious and parasitic diseases (A00-B99) being the most common – 42.0%, followed by abnormal clinical and lab findings (R00-R99) – 16.2%, and diseases of the respiratory system (J00-J99) – 10.5%.
Conclusions/Learning Points: Studies on the health condition of child war refugees and the use of health services by them are of key importance for health policy and strategic planning of healthcare in the host countries.

O0031 / #2190

NEONATAL INVASIVE CANDIDIASIS (NIC) IN LOW- AND MIDDLE-INCOME COUNTRIES (LMICS): BURDEN OF DISEASE AND CASE FATALITY.

Oral Presentations Session
ORAL PRESENTATION SESSION 02: MISCELLANEOUS I

Daniel Hsiang-Te Tsai[1,2], Ian Chang-Yen Wu[1,2,3], Ling-Fang Chang[4,5], Marie Jen-Huey Lu[6], Brishti Debnath[2], Adilia Warris[7], Mike Sharland[2], Yingfen Hsia[2,8], Laura Ferreras-Antolin[2,7,9]
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Backgrounds: Candida spp. are an important cause of neonatal infections. The real burden of NIC in LMICs has been poorly described and is likely underreported. We performed a systematic review and meta-analysis to evaluate the burden of this infection together with the case-fatality rates (CFR) in LMICs.
Methods: The systematic review included all articles published (excluding case reports, opinion pieces, conference proceedings, review articles and systematic reviews) about microbiologically confirmed NIC in LMICs until April 2022. No language restrictions applied. We performed a meta-analysis to estimate pooled incidence rates and CFR. Results were stratified by WHO region and risk of NIC (high-risk defined as <1500 gr birth-weight or <28 weeks gestational age).
Results: 465 articles were included, with 10,928 NIC cases from 36 LMICs. The distribution by WHO region was: 3976 (36.4%) Western Pacific; 3512 (32.1%) Africa; 1346 (12.3%) Southeast Asia; 989 (9.1%) Eastern Mediterranean; 813 (7.4%) Latin America; 292 (2.7%) Europe. 119 articles were included to estimate incidence rates and 98 articles for CFR. The incidence rate for mixed population (no exclusively high-risk neonates) was 3% (95% confidence interval [CI] 2-3%). Regional differences were observed, with the highest incidence rate reported in Southeast Asia (6% [95% CI, 3-10%]). A higher incidence rate was observed in high-risk neonates (8% [95% CI, 6-10%]). Overall, the CFR was 19% (95% CI, 16%-22%,). Sensitivity analysis showed a higher CRF after excluding articles published in Chinese language, 28% (95% CI, 23%-33%).
Conclusions/Learning Points: There was marked variation in incidence of NIC in LMICs. Compared to the published CFR in high income countries, CFR was higher in LMICs. Our data reveal that target neonatal studies focusing on prevention and management in these settings are urgently needed.

O0032 / #488

ASSOCIATIONS WITH SEVERITY IN MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN

Oral Presentations Session
ORAL PRESENTATION SESSION 03: COVID 19 AND MIS-C

Harsita Patel[1], Clare Wilson[1], Andrew Mcardle[1], Ortensia Vito[1], Samuel Channon-Wells[1], Eleanor Seaby[1], Priyen Shah[1], Claire Broderick[1], Giselle D'Souza[1], Tisham De[1], Elizabeth Whittaker[1,2], Aubrey Cunnington[1], Myrsini Kaforou[1], Jethro Herberg[1], Michael Levin[1]
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Backgrounds: Multisystem Inflammatory Syndrome in children (MIS-C) varies in severity with complications including cardiac involvement (54%), shock (60%) and multi-organ dysfunction requiring intensive care (71%). Early identification of children at risk of severe disease and cardiac involvement would help clinical management.
Methods: 1315 patients recruited through the BATS study were categorized into four severity categories: mild (no support), moderate (1 of oxygen, NIV, fluid bolus), severe (invasive ventilation or vasoactive treatment) or very severe (invasive ventilation and vasoactive treatment, or ECMO, RRT, death). Previously described physiological scores (incorporating cardiovascular, respiratory and neurological parameters) and a novel laboratory score, incorporating markers associated with MIS-C, were calculated: [CRP+ [(40-albumin) x 10] + (neutrophils x 10) + [(3- lymphocyte count) x 20] + (400 - platelet count) + [(150 – Hb) x 2] + troponin + ferritin + (lactate x 10)]. A combined physiological-laboratory score was calculated. Individual clinical and laboratory variables and these scores were evaluated for association with severity.
Results: In an adjusted model, age ($p<0.001$), sex ($p<0.001$), self-reported ethnicity ($p<0.001$-0.02), respiratory distress ($p<0.001$), gastrointestinal symptoms ($p<0.001$ for ³3), and ³3 neurological symptoms ($p<0.001$) were independently associated with severe or very severe disease. Blood marker trends significantly ($p<0.01$-0.0001) associated with severe or very severe disease include increased neutrophils, CRP, ferritin, d-dimer, troponin and lactate and decreased haemoglobin, lymphocytes, platelets, and albumin. The total physiological, laboratory and combined scores associated with severe disease at baseline (all $p<0.0001$; AUC 0.87, 0.78 and 0.91 respectively Figure 1) and 48-hours (all $p<0.005$, AUC 0.67, 0.76 and 0.79
respectively).

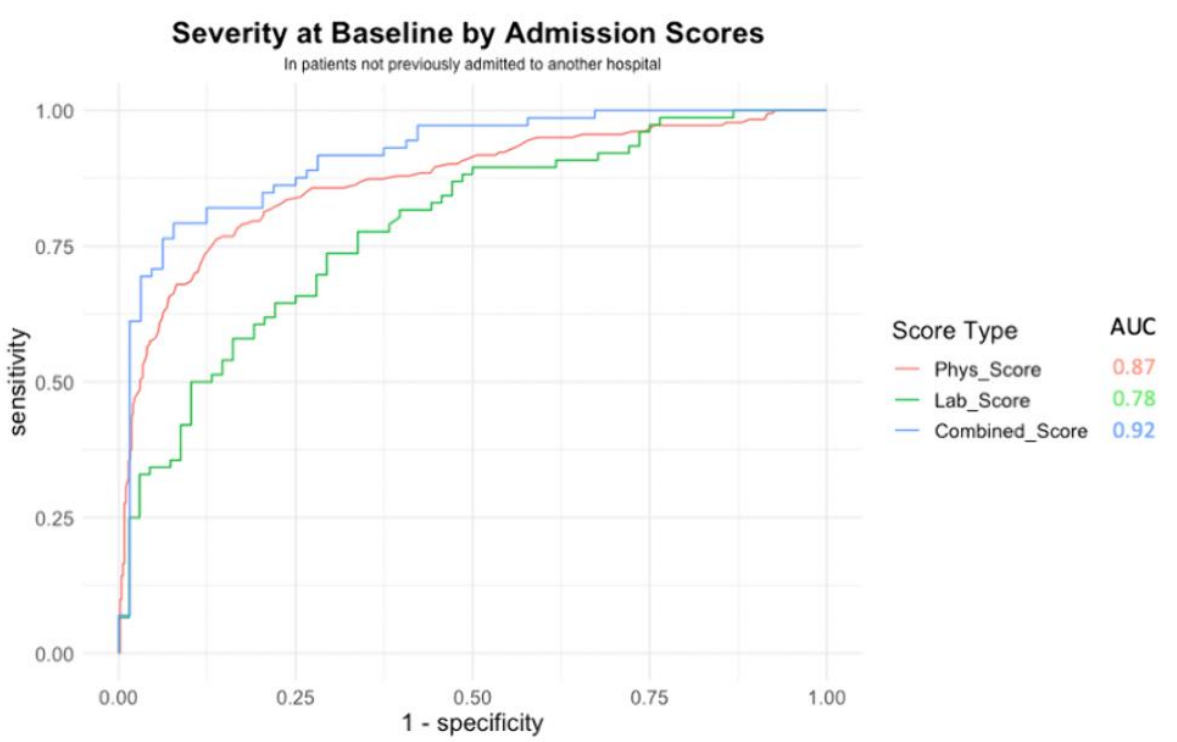

Figure 1: Receiving operator curves demonstrating predictive value of the physiological score, laboratory score and combined physiological-laboratory score for severity at baseline

Conclusions/Learning Points: We have shown individual and combined clinical and laboratory markers associate with severe disease at admission and 48-hours in children presenting to hospital with MIS-C. This is being externally validated.

O0033 / #613

HEALTHCARE RESOURCE UTILIZATION AND COSTS ASSOCIATED WITH ACUTE COVID IN PEDIATRIC PATIENTS MANAGED IN THE COMMUNITY OR HOSPITAL SETTING IN ENGLAND: A POPULATION-BASED STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 03: COVID 19 AND MIS-C

Jingyan Yang[1], Kathleen Andersen[2], Kiran Rai[3], Maya Reimbaeva[4], Leah Mcgrath[2], Carmen Tsang[5], Theo Tritton[3], Poppy Payne[5], Bethany Backhouse[3], Tendai Mugwagwa[6], Kevin Naicker[7], Diana Mendes[6], Tamuno Alfred[4], Mary Araghi[5], Robert Wood[3], Jennifer Nguyen[8]
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Backgrounds: The COVID pandemic severely affected the UK healthcare system. We aimed to describe patient demographic and clinical characteristics, healthcare resource utilization and costs associated with acute COVID in pediatrics in England.
Methods: This population-based retrospective study used linked Clinical Practice Research Datalink (CPRD Aurum) and Hospital Episode Statistics (HES) data to identify persons aged 1-17 years who were: 1) hospitalized (admitted within 12 weeks of a positive COVID-19 PCR test between August 2020 - March 2021) and 2) non-hospitalized (positive test between August 2020 - January 2022 and managed in the community). Costs were calculated using 2021 UK healthcare reference costs.
Results: We identified 564,704 COVID cases. More cases were observed in older age groups for non-hospitalized & hospitalized cohorts (1-4 years: 7% and 25%; 5-11 years: 46% and 35%; 12-17 years: 47% and 40%, respectively). Among non-hospitalized & hospitalized cohorts, 2% and 20%, respectively, were considered high risk for severe COVID using COVID immunization priority groups in the UK HSA's Green Book. For the hospitalized cohort (n=60), median inpatient stay was 2 days for each age group. No cases aged < 12 received mechanical ventilation. Median (IQR) costs (critical care cost excluded) for a finished consultant episode with COVID as a primary diagnosis per-patient were £1,444 (£4,604) for ages 1-4, £1,471 (£4,604) ages 5-11 and £3,746 (£4604) ages 12-17. The majority (>90%) of non-hospitalized cases did not seek GP care in the 12 weeks after COVID diagnosis. Of those with at least 1 GP visit, the median healthcare costs in the non-hospitalized cohort for each age group was £15.
Conclusions/Learning Points: The COVID pandemic resulted in substantial healthcare resource allocation and costs among the pediatrics, driven largely by in-hospital stays.

O0034 / #854

COMPARISON OF SEVERITY OUTCOMES AMONG HOSPITALIZED CHILDREN WITH COVID-19 IN CANADA BY SARS-COV-2 LINEAGE: AN IMPACT SURVEILLANCE NETWORK ANALYSIS

Oral Presentations Session
ORAL PRESENTATION SESSION 03: COVID 19 AND MIS-C

Daniel Farrar[1], Julie Bettinger[2], Annick Audet[3], Aaron Campigotto[4], Shelley Deeks[5], Olivier Drouin[6], Joanne Embree[7], Elie Haddad[8], Scott Halperin[9], Taj Jadavji[10], Kescha Kazmi[11], Melanie Laffin Thibodeau[12], Charlotte Moore Hepburn[13], Jesse Papenburg[14], Rupeena Purewal[15], Manish Sadarangani[16], Laura Sauvé[17], Sarah Wilson[18], Rae Yeung[19], Karina Top[20], Fatima Kakkar[21], Shaun Morris[11]
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Backgrounds: Amongst children, differences in the presentation and disease severity of SARS-CoV-2 lineages are not well understood. We aimed to determine the absolute and relative hospital burden of severe paediatric COVID-19 in Canada by age group and lineage.
Methods: Data were collected during two national surveillance studies: the Canadian Paediatric Surveillance Program (April 2020–May 2021) and Canadian Immunization Monitoring Program, ACTive (June 2021–May 2022). Children <17 years old hospitalized for COVID-19 (excluding incidental SARS-CoV-2) at one of thirteen sentinel paediatric hospitals were included. SARS-CoV-2 lineages were classified as "Ancestral", "pre-Delta" (Alpha, Beta, or Gamma), "Delta", or "Omicron" based on genetic sequencing or the predominant lineage across Canada at the time of hospitalization. Severe disease was defined as intensive care, ventilatory, or hemodynamic support requirements, organ system complications, or death.
Results: Among 1357 hospitalized children, median age at hospitalization was highest for Delta (3.0 years, interquartile range 0.2–11.1) and lowest for Omicron (1.3 years, interquartile range 0.3–5.4; p<0.001). COVID-19 vaccination (≥1 doses) was received by <5 pre-Delta (<4.8%), six Delta (3.4%), and 98 Omicron cases (11.9%). Among unvaccinated patients (n=1251; Table), severe COVID-19 was most common for Delta (34.3%) versus other lineages (24.0% ancestral, 22.3 pre-Delta, 24.8% Omicron; p=0.049). Differences were most pronounced for children aged <5 years, with Delta more often leading to intensive care and ventilation (21.6% and 15.7%) than other lineages (9.8–13.9%, p=0.053; 7.0–9.6%, p=0.03). The absolute number of hospitalizations among children aged <12 years during Omicron waves was greater than all other waves

combined.

Table. Disease severity of unvaccinated children with COVID-19, by timing of hospitalization.

Outcome[1]	Timing of hospitalization				*P* value[2]
	Ancestral	Pre-Delta	Delta	Omicron	
All hospitalizations, N	254	103	169	725	---
Any respiratory support	61 / 254 (24.0)	33 / 103 (32.0)	56 / 169 (33.1)	147 / 725 (20.3)	**0.001**
Ventilation	26 / 254 (10.2)	9 / 103 (8.7)	25 / 169 (14.8)	55 / 725 (7.6)	**0.03**
PICU admission	45 / 254 (17.7)	15 / 103 (14.6)	44 / 169 (26.0)	99 / 725 (13.7)	**0.001**
PICU length of stay (days)	4 (2–7)	3 (2–6)	4 (2–9)	2 (1–5)	**0.02**
Severe COVID-19	61 / 254 (24.0)	23 / 103 (22.3)	58 / 169 (34.3)	180 / 725 (24.8)	**0.049**
Death	5 / 254 (2.0)	<5 / 103 (<4.9)	<5 / 169 (<3.0)	6 / 725 (0.8)	0.35
Age <5 years, N	166	61	102	601	---
Any respiratory support	33 / 166 (19.9)	13 / 61 (21.3)	30 / 102 (29.4)	112 / 601 (18.6)	0.10
Ventilation	16 / 166 (9.6)	<5 / 61 (<8.2)	16 / 102 (15.7)	42 / 601 (7.0)	**0.03**
PICU admission	23 / 166 (13.9)	6 / 61 (9.8)	22 / 102 (21.6)	72 / 601 (12.0)	0.053
PICU length of stay (days)	4 (3–6)	2 (2–3)	4 (2–10)	2 (1–5)	0.07
Severe COVID-19	29 / 166 (17.5)	14 / 61 (23.0)	30 / 102 (29.4)	135 / 601 (22.5)	0.16
Age 5–11 years, N	35	11	37	100	---
Any respiratory support	9 / 35 (25.7)	<5 / 11 (<45.5)	10 / 37 (27.0)	26 / 100 (26.0)	1.00
Ventilation	<5 / 35 (<14.3)	0 / 11 (0.0)	<5 / 37 (<13.5)	11 / 100 (11.0)	0.73
PICU admission	10 / 35 (28.6)	<5 / 11 (<45.5)	10 / 37 (27.0)	21 / 100 (21.0)	0.52
PICU length of stay (days)	2 (1–7)	1 (1–1)	3 (1–3)	3 (2–5)	0.49
Severe COVID-19	13 / 35 (37.1)	<5 / 11 (<45.5)	11 / 37 (29.7)	35 / 100 (35.0)	0.33
Age 12–16 years, N	53	31	30	24	---
Any respiratory support	19 / 53 (35.9)	17 / 31 (54.8)	16 / 30 (53.3)	9 / 24 (37.5)	0.20
Ventilation	7 / 53 (13.2)	5 / 31 (16.1)	7 / 30 (23.3)	<5 / 24 (<20.8)	0.49
PICU admission	12 / 53 (22.6)	8 / 31 (25.8)	12 / 30 (40.0)	6 / 24 (25.0)	0.38
PICU length of stay (days)	4 (1–7)	5 (3–8)	8 (5–9)	2 (1–2)	**0.02**
Severe COVID-19	19 / 53 (35.9)	8 / 31 (25.8)	17 / 30 (56.7)	10 / 24 (41.7)	0.09

[1]Descriptive statistics are presented as frequency and proportions, or medians and interquartile ranges. [2]Unadjusted comparisons were conducted using χ^2 and Fisher's exact tests; multivariable comparisons to be conducted upon completion of case reporting.

Conclusions/Learning Points: While Delta lineages were relatively more severe, substantially more children were hospitalized during Omicron waves. The epidemiologic differences between SARS-CoV-2 lineages may guide future planning for vaccination and health system resource planning.

O0035 / #142

USING PAEDIATRIC ACTIVE SURVEILLANCE NETWORK TO CONDUCT SARS-COV-2 SEROSURVEILLANCE IN CHILDREN

Oral Presentations Session
ORAL PRESENTATION SESSION 03: COVID 19 AND MIS-C

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Backgrounds: In Australia the Paediatric Active Enhanced Disease Surveillance (PAEDS) program monitors children hospitalised with severe disease across seven tertiary referral hospitals. In 2020, this network expanded its surveillance to include hospitalised COVID-19 cases. In addition to case surveillance that monitors severe or complicated disease, serosurveillance studies are important to determine population infection rates. Serosurveys that utilise residual sera systematically under-sample children because they present to health care infrequently or have minimal blood collected. During the COVID-19 pandemic, novel, population representative sampling approaches for serosurveillance were needed.
Methods: PAEDS SARS-CoV-2 surveillance program was expanded to include serosurveillance of children aged 0-19 years undergoing an anaesthetic procedure (e.g. for day surgery, trauma or other reason). Recruitment occurred from 3 November to 12 March 2021 (pre-vaccination rollout) and from 8 June 2022 to 31 August 2022 (vaccination recommended for ≥ 5 years). Samples were tested for anti-spike antibodies in 2021 and anti-spike and -nucleocapsid antibodies in 2022.
Results: We collected 3995 samples (1689 in 2020-21 and 2045 in 2022). Participants broadly reflected geographic and socio-economic status population distributions. Seroprevalence of anti-spike antibody increased from <0.6% (7/1689) to 90% (1833/2045) and anti-nucleocapsid seroprevalence was 64% (1309/2046) in 2022. Of those unvaccinated in 2022 (1,170), 961 (82%) had anti-spike antibodies detected and 739 (63%) anti-nucleocapsid antibodies detected. Children with pre-existing medical conditions had a lower prevalence of anti-nucleocapsid antibodies (59%) compared to those without medical conditions (67%).
Conclusions/Learning Points: Using a collaborative and well-established research network, we were able to recruit nearly 4000 children for the purpose of understanding SARS-CoV-2 paediatric seroprevalence in Australia, across 2 years. Our methodology shows promise as an efficient, acceptable and representative approach to paediatric serosurveys.

O0036 / #920

HOUSEHOLD TRANSMISSION AND CLINICAL FEATURES OF SARS-COV-2 POSITIVE AND NEGATIVE RESPIRATORY TRACT INFECTIONS DURING THE COVID-19 PANDEMIC: A COHORT STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 03: COVID 19 AND MIS-C

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Backgrounds: There is a lack of comparative data for the transmission of respiratory infections positive and negative for SARS-CoV-2 in households with children.
Methods: We followed all respiratory tract infections in 700 participants from 175 households from June 2020 through April 2022. Daily symptoms were monitored by weekly electronic questionnaires. SARS-CoV-2 PCR tests were performed for symptomatic participants, and twice with a one-week interval for household members of positive participants. Clinical features and secondary attack rates (SAR), based on the onset of symptoms, were compared between SARS-CoV-2 positive and negative respiratory infections.
Results: Of 700 participants, 376 (54%) were children (median age, 11.1 years) and 324 (46%) adults. The majority (90%) of SARS-CoV-2 infections occurred from January through April 2022 when Omicron BA.1 and BA.2 were the dominant variants. Fever (51%) and cough (67%) were more common in SARS-CoV-2 positive infections compared to SARS-CoV-2 negative infections (18% and 43%, respectively; P <0.001 for both). Transmission occurred more often in SARS-CoV-2 positive households (84/117, 72%) than in SARS-CoV-2 negative households (280/603, 46%, P <0.001). The SAR for SARS-CoV-2 positive and negative infections was 44% and 24%, respectively (P <0.001). In SARS-CoV-2 positive infections, SAR was similar for the child (42%) and adult (46%; P = 0.43) index cases whereas in SARS-CoV-2 negative infections, SAR was higher for the child (27%) than for adult index cases (19%; P <0.001).
Conclusions/Learning Points: Compared to SARS-CoV-2 negative respiratory infections, SARS-CoV-2 positive infections presented with more severe symptoms and were transmitted more efficiently in households with children. Transmission of SARS-CoV-2 was similar for adult and child index cases, whereas transmission of SARS-CoV-2 negative infections was higher for child index cases.

O0037 / #1574

REAL-TIME REPORTING OF SEVERE PEDIATRIC COVID-19 AND MIS-C FROM WILD-TYPE TO POPULATION IMMUNITY: A PROSPECTIVE MULTICENTER COHORT STUDY IN THE NETHERLANDS, CURAÇAO AND SURINAM

Oral Presentations Session
ORAL PRESENTATION SESSION 03: COVID 19 AND MIS-C

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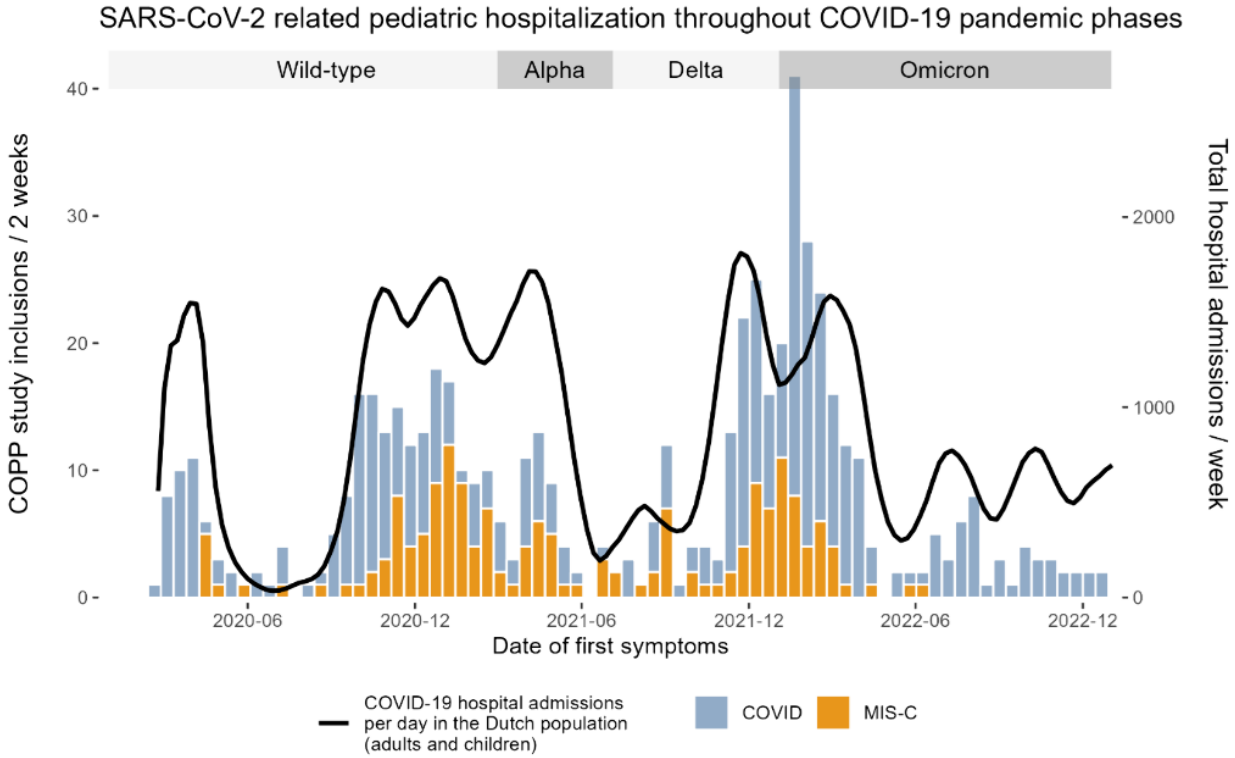
Backgrounds: Pandemic preparedness is key to reduction of morbidity and mortality in future pandemics. Real-life data reporting throughout the outbreak of a new disease has a major impact on policy making decisions.
Methods: This real-life hospital-based multicenter, prospective cohort study with online real-time reporting was active from March 2020 until December 2022. Children under 18 years of age with acute COVID-19 or Multisystem Inflammatory Syndrome in Children (MIS-C) presenting in 42 hospitals in the Netherlands, and two Caribbean hospitals (Curaçao and Surinam) were eligible to participate. Longitudinal incident rates and risk factors for severe disease were determined. In total, 589 children were included.
Results: The incidence rate as well as the severity for both acute pediatric COVID-19 and MIS-C were strongly reduced during the Omicron wave compared to the Wild-type, Alpha, and Delta waves. After June 2023, when pediatric seroprevalence approached 100%, a strong reduction of severe pediatric acute COVID-19 and MIS-C was observed. 125/415 (30%) patients with acute COVID-19 infection needed supplemental oxygen therapy and 31 (7.5%) patients required intensive care unit (ICU) admission. Higher age, cardiac and respiratory rate at initial hospital visit, and a positive medical history were predictors for severe disease in pediatric COVID-19. For MIS-C, 93/174 (53%) patients meeting the WHO criteria were admitted to ICU and 66 (40%) required inotropic medication. Low blood pressure, higher respiratory rate, cardiac and renal involvement were predictors for severe disease in MIS-C.



Conclusions/Learning Points: Our study shows that real-time reporting of accurate and high quality data is feasible and impacts clinical and public health decision making. The reporting framework of our consortium is readily accessible for future SARS-COV-2 waves and other emerging (pediatric) infectious diseases.

O0038 / #1243

STREPTOCOCCUS PYOGENES IN CHILDREN WITH PARAPNEUMONIC PLEURAL EFFUSIONS AND PLEURAL EMPYEMA (PPE/PE) - PATIENT CHARACTERISTICS AND SUBTYPE DISTRIBUTION (ESPED STUDY, 2010-2020)

Oral Presentations Session
ORAL PRESENTATION SESSION 04: MISCELLANEOUS II

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Backgrounds: Streptococcus pyogenes (Spy) is the second most common pathogen of PPE/PE in children in Germany after S. pneumoniae (Liese 2018). Spy subtypes (emm-types) are classified by sequence typing of the M-protein (Imöhl 2017). We analyzed patient characteristics and emm-types in children with Spy-associated PPE/PE.
Methods: From October 2010 - June 2020, all hospitalized children <18 years of age with pneumonia-associated PPE/PE persisting for more than 7 days or requiring drainage were registered by the German Surveillance Unit for Rare Pediatric Diseases (ESPED). Spy detected from blood culture or pleural fluid (culture/PCR) were recorded. Supplemental eubacterial 16S-rDNA-PCR from pleural fluid was offered and Spy from available samples were subtyped.
Results: During 10 study years (SY), 210 children with Spy-associated PPE/PE were registered (median age 3 years [IQR 1-5]; 49% male; 19% with chronic conditions); the annual incidence increased from 0.045 (SY1) to 0.329 (SY10) per 100,000 children. Median length of hospital stay was 17 days (IQR 14-22); 176 (84%) children received intensive care treatment (median length 7 days [IQR 4-12]); 19% received thoracoscopy and 6% open thoracotomy. Two children (1%) died; 30 (14%) showed confirmed/possible sequelae. Spy was detected from blood culture in 27/183 (15%) and/or from pleural fluid in 198/206 (96%) samples. 35 of 71 submitted samples with Spy could be subtyped; most common was emm1 (29/35; 83%), followed by emm12 (3/35; 9%) and emm3, emm68, and emm75 (1/35 [3%] each).
Conclusions/Learning Points: The incidence of Spy-associated PPE/PE increased 7.3-fold from 2010 to 2020. In Germany, the proportion of PPE/PE-associated emm1 was 83% (29/35); higher than in children in Spain (14/27; 52%; Sanchez-Encinales 2019) and comparable to France (17/22; 77%; Bellulo 2016).

O0039 / #1416

THE LINK BETWEEN RESPIRATORY VIRUSES AND COMMUNITY-ACQUIRED PNEUMONIA (CAP)

Oral Presentations Session
ORAL PRESENTATION SESSION 04: MISCELLANEOUS II

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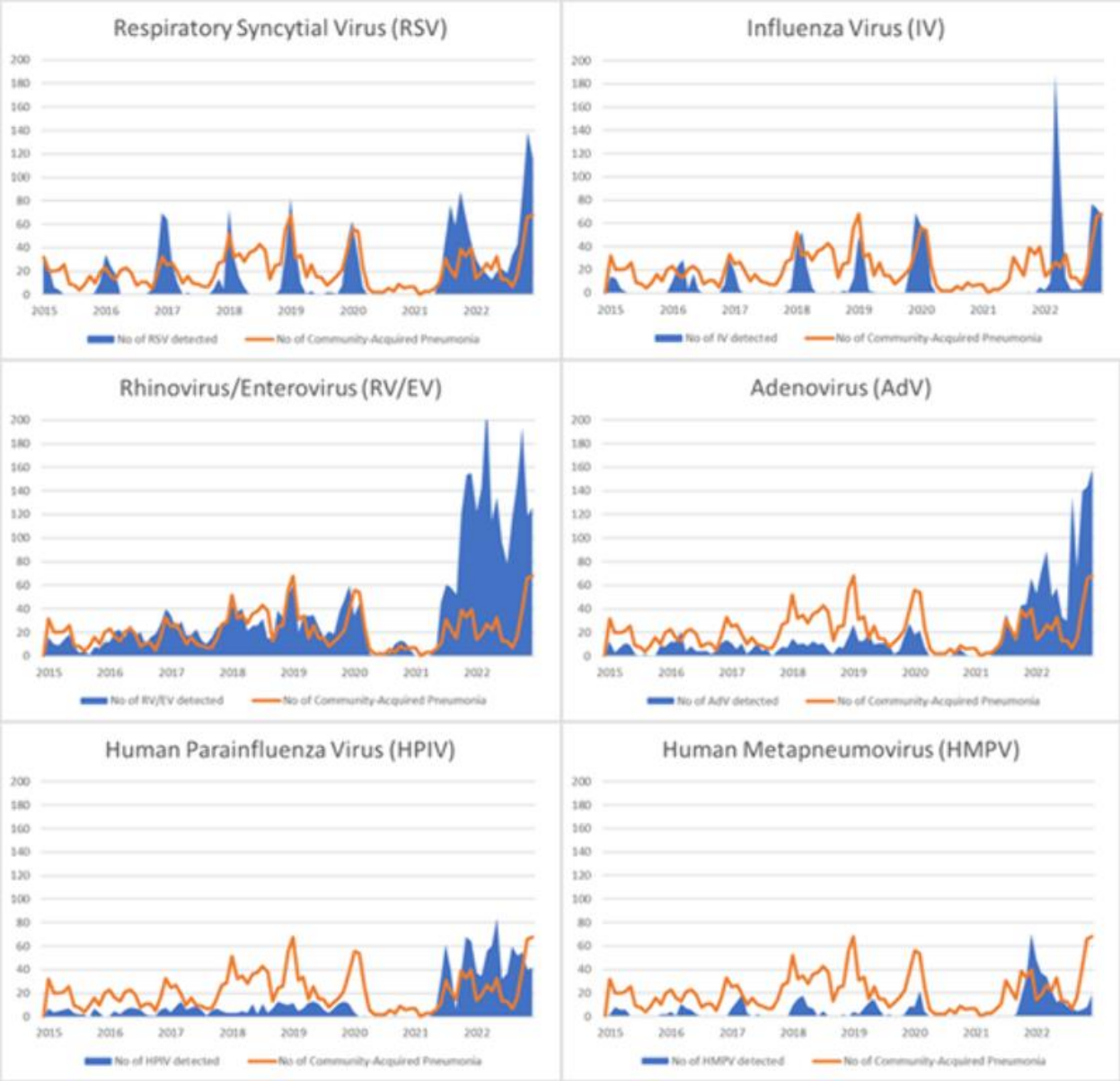
Backgrounds: During the first year of the COVID-19 pandemic, there was a very important reduction in CAP diagnoses in children. The association of CAP with nasopharyngeal colonization by pneumococcus and respiratory viruses (RV) is known. Recent studies have shown no change in colonization characteristics during the pandemic, suggesting that CAP reduction was associated with decreased RV circulation. Given that the resurgence of these viruses occurred at different times, the aim of this study was to evaluate their impact on CAP diagnoses in an emergency service (ES) of a paediatric hospital.
Methods: Observational, retrospective, descriptive study, performed in a tertiary paediatric hospital that has received an average of 60 000 children/year. The analysis of the data from ES episodes, from January 2015 to December 2022, included: - all CAP diagnostic codes (ICD-9: 481 pneumococcal pneumonia; 482 other bacterial pneumonia; 4828 pneumonia due to other specified bacteria; 4829 unspecified bacterial pneumonia and ICD-10: J13 pneumococcal pneumonia; J159 unspecified bacterial pneumonia; J181 lobar pneumonia, unspecified organism); - all positive PCR tests (FilmArray respiratory panel) for RV.
Results: The distributions of CAP diagnoses and positive PCR tests for each RV, throughout the years are presented in figure 1. FIGURE 1. Number of various respiratory viruses detected by PCR and number of Community-Acquired Pneumonia cases by year, 2015-
2022



Conclusions/Learning Points: The pre-pandemic data suggest a link between seasonality of respiratory viral infections and the incidence of CAP. Data throughout the pandemic, with the resurgence of different RV at different times, suggest a stronger link between CAP and RSV than with Influenza. These findings support the concept that interventions to control RV could prevent a large proportion of CAP cases.

O0040 / #1786

SHIFTS OF INFECTIOUS DISEASE PROFILE DUE TO WAR IN UKRAINE

Oral Presentations Session
ORAL PRESENTATION SESSION 04: MISCELLANEOUS II

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Backgrounds: Russian military invasion of Ukraine brings life-threatening risks for people, especially children. Not only the weapon affection but also the absence of access to hygiene, adequate nutrition, vaccination, and medical care on time. As a result, the poor statistic (couldn't cover occupated territory) uncovered the morbidity shifts, for instance, the infectious one.
Methods: The morbidity reports of different age people from all regions of Ukraine were analyzed for 11 months in 2022 and compared with the appropriate data in 2021.
Results: Acute intestinal infections (AII) with detected etiology were 41,99 per 100,000 population, which on 10,1% higher than in 2021, with the highest level of enteritis caused by rotavirus (12,97 per 100,000 population - 49,1% higher than in 2021). Despite our fears, officially, we had no cases of Cholera in Ukraine in 2022. Also, AII without detection of etiology was diagnosed (51,91 per 100,000 population), but their level was almost the same as it was in 2021 (3,1%). The level of acute respiratory infection in 2022 was 11081,26 per 100,000 population which is less if compared with 2021 to 38,0%. At the same time, the morbidity of Influenza was 10,92 per 100,000 population, which on 23,8% higher than in 2021. The situation with SARS-CoV2 morbidity changed very fast and achieved 15,87 per 100,000 population. Isolated cases of tularemia (1), listeriosis (2), rabies (2), and diphtheria (2) and in 12 people were detected as carriers of causative agents of non-toxigenic strains of diphtheria. Being the one of important life-threatening factors in case of war the Tetanus was diagnosed generally in 12 people. As a fact, the number of detection of scabies and pediculosis was less than in the previous 2021.
Conclusions/Learning Points: Despite a lot of risks and decreased public health response (destroyed medical and public health infrastructure, vaccination distribution) there are no threateningly increased levels of global health diseases in Ukraine.

O0041 / #1204

THE POTENTIAL IMPACT OF THE USE OF HIGHER-VALENT PNEUMOCOCCAL CONJUGATE VACCINES IN CHILDREN ON THE COST-EFFECTIVENESS OF PNEUMOCOCCAL VACCINATION IN ELDERLY

Oral Presentations Session
ORAL PRESENTATION SESSION 04: MISCELLANEOUS II

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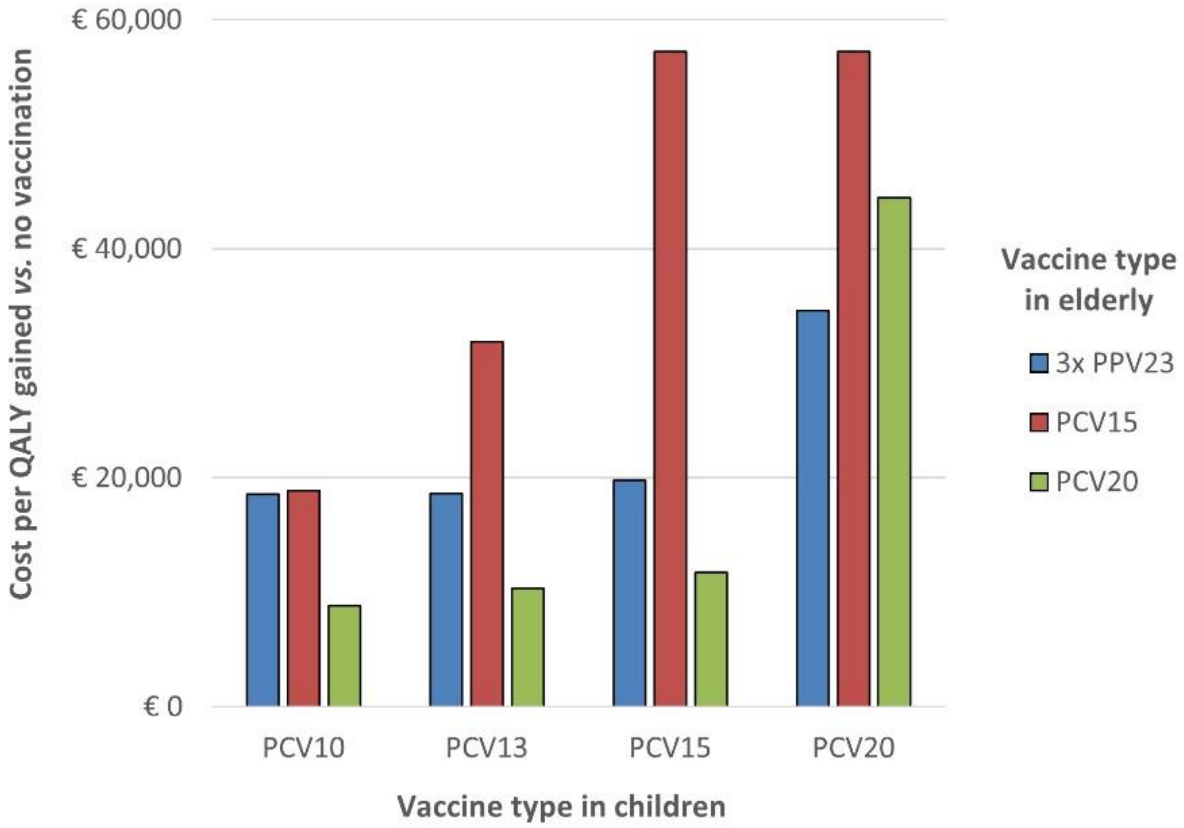
Backgrounds: New 15-valent and 20-valent pneumococcal conjugate vaccines (PCV15 and PCV20) are developed for use in children and adults. Current pediatric programs with PCV10 and PCV13 have shown to induce replacement of vaccine serotypes with non-vaccine serotypes, potentially mitigating the impact of elderly pneumococcal vaccination programs. We assessed the potential impact of higher-valent PCVs in children on the cost-effectiveness of different elderly pneumococcal vaccination strategies.
Methods: A static model parameterized for the Netherlands was used to estimate the cost-effectiveness of 23-valent pneumococcal polysaccharide vaccine (PPV23, every 5 years), PCV15 and PCV20 compared to no vaccination, in a cohort of 65-year-olds, over a time-horizon of 15 years. We assumed that herd protection reduced the disease burden from serotypes added to the pediatric vaccine in elderly by 80% (except serotype 3, no effect), and that this reduction in disease burden in elderly was completely offset by an increase in disease burden from serotypes not included in the pediatric vaccine.
Results: With PCV10-13 in children, PCV20 was the economically most attractive strategy for elderly (Figure 1, lowest cost per QALY gained compared to no vaccination). Higher-valent paediatric vaccines worsened the cost-effectiveness of the elderly vaccination programs, with the increase in cost per QALY depending on the extent of overlap between serotypes covered by the pediatric vaccine and the elderly vaccine. With implementation of PCV20 in children, the economically most attractive vaccination strategy for elderly changed from PCV20 to
PPV23.

Figure 1: Cost-effectiveness of elderly vaccination



Conclusions/Learning Points: The vaccine choice for pediatric pneumococcal programs affects the cost-effectiveness and optimal vaccine choice of elderly pneumococcal programs. Policy decisions on how to reduce the burden of pneumococcal disease in the entire population should be informed by combined economic evaluations for children- and elderly vaccination.

O0042 / #681

ASSESSING THE BURDEN OF BRONCHIOLITIS AND RESPIRATORY SYNCYTIAL VIRUS 15 DAYS AND 6 MONTHS FOLLOWING A PRIMARY CARE VISIT, FRANCE, 2021-2022

Oral Presentations Session
ORAL PRESENTATION SESSION 04: MISCELLANEOUS II

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Backgrounds: Although the role of respiratory syncytial virus (RSV) in hospitalizations of infants for bronchiolitis is well known, its burden in outpatient settings is not sufficiently assessed. In the context of possible implementation of future generalized RSV prophylaxis, our study aimed to provide a baseline of the attributable burden of bronchiolitis in outpatient settings.
Methods: 46 pediatricians participating in the OURSYN study between February 2021 and September 2022 enrolled children <2 years old with a first episode of bronchiolitis. For each patient, a nasopharyngeal swab was taken for rapid diagnostic testing for RSV. Parents were called 15 days and 6 months after enrollment to complete a standardized follow-up questionnaire.
Results: Among the 753 children enrolled (mean age 8±5.7 months), 6.9% were preterm and 38.1% attended day care center. No significant differences in socio demographic characteristics were reported according to the RSV test result. RSV+ bronchiolitis cases had significantly more hospitalization, need for emergency department (ED) visits, parental leave and decreased food intake 15 days after outpatient visit compared to RSV- bronchiolitis
cases.

N (%)	RSV+ N=332 (44)	RSV- N=421 (56)	Total 753	p
15-day follow-up	**230 (69.3)**	**304 (72.4)**	**534 (71.0)**	**0.35**
Hospitalization	32 (14.2)	23 (7.6)	55 (10.4)	0.01
Need for ED visit	37 (16.6)	29 (9.9)	66 (12.8)	0.02
Parental leave	93 (46.7)	87 (35.1)	180 (40.3)	0.01
Need for new outpatient visit	81 (35.7)	127 (42.0)	208 (39.3)	0.14
Persistent wheezing	59 (28.1)	91 (33.3)	150 (31.1)	0.22
Persistent cough	101 (47.9)	137 (50.6)	238 (46.4)	0.56
Decreased food intake	56 (27.1)	40 (14.8)	96 (20.1)	0.001
6-month follow-up	**175 (52.7)**	**213 (50.7)**	**388 (51.6)**	**0.59**
Hospitalization	10 (6.1)	9 (4.7)	19 (5.4)	0.55
Need for ED visit	28 (16.3)	39 (19.2)	67 (17.9)	0.46
Parental leave	38 (24.5)	51 (28.3)	89 (26.9)	0.43
Need for new outpatient visit	164 (93.7)	197 (92.5)	361 (93.0)	0.64

Conclusions/Learning Points: Our study shows that the 15-day follow-up for outpatient children with RSV, which accounted for almost half of children with bronchiolitis, had a more severe disease with higher impact on parents and medical care. By contrast, the 6-month follow-up did not show any differences between the RSV+ and the RSV- groups. Our baseline data highlight that RSV prevention could greatly reduce the burden of bronchiolitis in outpatient settings.

O0043 / #2671

PROGNOSTIC VALUE OF MRI FINDINGS IN INFANTS WITH CONGENITAL CYTOMEGALOVIRUS INFECTION IN EUROPE (CCMVNET)

Oral Presentations Session
ORAL PRESENTATION SESSION 04: MISCELLANEOUS II

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Background: Congenital CMV (cCMV) is one of the leading causes of non-genetic hearing loss and neurologic impairment in children. We describe long-term outcomes of infants with cCMV in a European cohort (cCMVnet) according to cranial MRI findings at birth.
Methods: A multicentric study was performed within cCMVnet cohort in children with MRI and cranial US (cUS) performed in the first 3 months of life. Presence of hearing loss (HL), motor impairment (paresis/spasticity), epilepsy and/or visual impairment during follow-up were evaluated.
Results: 349 children with available MRI were included, 60.2% infants had abnormalities in MRI and 56.4% in cUS. Follow-up visit was available in 240 children, with a median follow-up of 26.5 [13.5–40.2] months. 84 (35%) children showed sequelae in the last evaluation: 75(31.2%) had hearing loss, 10(4.1%) epilepsy, 24(10%) motor impairment and 6(2.5%) visual impairment. Univariate analysis of prognostic factors is listed in table 1. Eighteen children developed Delayed Onset of HL (DOHL) (18/170; 10.5%), this was associated with abnormalities in MRI (p=0.05) (ventriculomegaly (p=0.032)) and physical examination at birth (p=0.003),but was not associated with abnormalities in cUS (p=0.5). In multivariate analysis abnormal physical examination at birth (OR: 4.0 95%IC:2.1– 7.8), ventriculomegaly in MRI (OR: 5.2 95%IC: 2.1–13.0), and white matter abnormalities (WMA) in MRI and in cUS (OR: 2.8 95%IC:1.5–5.4 and OR: 3.4 ;95%IC:1.2 – 9.5 respectively) were associated with

	No sequelae (N = 156)		Sequelae (N =84)		p-value
	N		N		
Maternal primary infection n (%)	93	71 (76.3)	43	31 (72.1)	0.749
Gestational age <= 36 weeks, n (%)	156	28 (17.9)	84	21 (25.6)	0.222
Female, n (%)	156	76 (49.0)	84	48 (57.1)	0.288
Birth Weight (gr) (median [IQR])	156	2940.0 [2453.8, 3302.5]	83	2740.0 [2097.5, 3105.0]	0.015
Z-Score Newborn weight (median [IQR])	155	-0.4 [-1.2, 0.7]	83	-0.7 [-1.6, 0.2]	0.017
Birth head circumference (cm) (median [IQR])	154	34.0 [32.0, 34.5]	81	33.0 [31.0, 34.0]	0.038
Z-Score Newborn head circumference (median [IQR])	153	-0.5 [-1.8, 0.3]	81	-0.9 [-2.4, 0.0]	0.162
Abnormal physical examination at birth, n (%)	156	30 (19.4)	82	42 (51.2)	<0.001
Physical examination abnormalities, n (%)					
- Seizures	155	0 (0.0)	82	0 (0.0)	-
- Splenomegaly	155	2 (1.3)	82	15 (18.3)	<0.001
- Hepatomegaly	155	3 (1.9)	82	15 (18.3)	<0.001
- Hypotonia	155	4 (2.6)	82	12 (14.6)	0.001
- Jaundice	155	3 (1.9)	82	9 (11.0)	0.007
- Petechiae/ purpura	155	15 (9.7)	82	23 (28.0)	0.001
- Small for gestational age (< -2 Z-Score)	155	7 (4.5)	82	13 (15.9)	0.006
Abnormal Blood test at birth (First week of life), n (%)	139	31 (22.3)	74	35 (47.3)	<0.001
Newborn: ALT (GPT) (U/L) (median [IQR])	118	19.0 [12.0, 28.8]	67	21.0 [13.0, 33.5]	0.169
Newborn: Platelets (es/mm3) (median [IQR])	128	240500.0 [176000.0, 304000.0]	72	143000.0 [80750.0, 238000.0]	<0.001
Abnormal child first cranial ultrasound, n (%)	156	70 (47.3)	84	65 (81.2)	<0.001
Findings on brain MRI, n (%)	156	69 (45.1)	84	70 (83.1)	<0.001
- White matter abnormalities (any)	156	46 (29.4)	84	51(60.4)	<0.001
- White matter abnormalities (focal/multifocal)	156	35 (22.9)	84	41 (48.8)	<0.001
- White matter abnormalities (Diffuse)	156	11 (7.2)	84	10 (11.9)	0.326
- Lenticulostriate vasculopathy	156	4 (2.6)	84	6 (7.1)	0.186
- Intracranial calcifications (any)	156	11 (7)	84	17 (20)	0.005
- Intracranial calcifications (single)	156	7 (4.6)	84	13 (15.5)	0.008
- Intracranial calcifications (multiple)	156	4 (2.6)	84	4 (4.8)	0.617
- Intracranial calcifications (extensive)	156	0(0)	84	0 (0)	-
- Ventriculomegaly (mild-moderate >97th centile)	156	9 (5.9)	84	21 (25)	<0.001
- Ventriculomegaly (severe >97th centile +4 mm)	156	0(0)	84	0(0)	-
- Cerebellar hypoplasia	156	0 (0)	84	3(3.6)	0.081
- Lissencephaly/Other migrational abnormalities	156	2 (1.3)	84	13 (15.5)	<0.001
- Microcephaly	156	1 (0.7)	84	5 (6.0)	0.04
- Periventricular Cysts	156	15 (9.8)	84	25 (29.8)	<0.001
- Caudothalamic/Subependymal Cysts/Germinolysis	156	10 (6.5)	84	8 (9.5)	0.566
Chorioretinitis at birth, n (%)	156	1(0.6)	84	6 (7.1)	0.012
Hearing loss at birth (any ear), n (%)	156	11 (7.4)	84	59 (71.1)	<0.001
Antiviral treatment received (child), n (%)	156	100 (64.5)	84	79 (94)	<0.001

sequelae.

Conclusions/Learning Points: In this large European cohort, sequelae were associated with abnormalities in birth physical examination, brain MRI and cUS. Abnormalities in MRI were also associated with DOHL, which could have prognostic importance. Large cohort studies are essential to define risk factors for sequelae in cCMV infection. We encourage all ESPID members to enroll their patients in cCMVnet.

O0044 / #1039

BLOOD BIOMARKERS AND DISEASE SEVERITY IN CHILDREN WITH PNEUMONIA: A MULTINATIONAL PROSPECTIVE COHORT STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: Elevation of certain host biomarkers are associated with disease severity in adults with community-acquired pneumonia (CAP). There are conflicting data, however, about these associations in children. We evaluated the association of white blood cell (WBC), absolute neutrophil counts (ANC), C-reactive protein (CRP), and procalcitonin (PCT) with development of severe outcomes in children with CAP.
Methods: We performed a prospective cohort study of children 3 months to 14 years with CAP in 69 emergency departments (ED) globally in the Pediatric Emergency Research Network (PERN). Blood biomarkers were obtained at the discretion of the treating clinician. The primary outcome was disease severity: mild (discharged home), moderate (hospitalized, but not meeting severe criteria), or severe (ICU>24 hours, positive-pressure ventilation, vasopressors, chest drainage, ECMO, death within 7 days).
Results: Of 2540 enrolled children, WBC was obtained in 1004, ANC in 1007, CRP in 792, and PCT in 152 children. There were no significant differences in median WBC or ANC across severity categories (Table). Increasing CRP and PCT concentrations were significantly associated with more severe disease. In multivariable analyses adjusting for age, antibiotic use for the current illness, fever duration and viral pathogen detection, CRP and PCT were associated with more severe outcomes. No biomarker had sufficient sensitivity, specificity, or discriminatory capacity; however, CRP and PCT had better diagnostic performance (per AUC) for severe disease compared with the WBC and
ANC.

Table. Blood Biomarkers and Disease Severity in Children with CAP

Median [Interquartile Range] Across Severity Levels							
	Mild	**Moderate**	**Severe**	**p-value***			
WBC (1000/uL)	11.3 [7.5, 16.5]	12.4 [8.6, 17.9]	11.6 [7.5, 17.7]	0.07			
ANC (1000/uL)	6.9 [4.3, 12.4]	7.9 [4.9, 12.9]	7.9 [5, 13]	0.1			
CRP (mg/dL)	3.1 [1, 7]	5.1 [1.9, 13.1]	18.5 [6.2, 27]	<0.001			
PCT (ng/mL)	0.25 [0.13, 2.3]	0.97 [0.23, 6]	3.5 [0.48, 10.8]	0.03			
Diagnostic Performance							
		Mild vs. Moderate/Severe Disease			**Mild/Moderate vs. Severe Disease**		
	aOR**	**Sensitivity**	**Specificity**	**AUC**	**Sensitivity**	**Specificity**	**AUC**
WBC>15	1.3 (0.98,1.72)	37 (33.7,40.5)	69.9 (63.5,75.7)	0.534 (0.5,0.569)	41.1 (31.1,51.6)	65.1 (61.9,68.1)	0.531 (0.479,0.583)
WBC>20	1.12 (0.79,1.59)	17.4 (14.8,20.2)	83.8 (78.4,88.4)	0.506 (0.479,0.533)	18.9 (11.6,28.3)	83.1 (80.5,85.4)	0.51 (0.469,0.551)
ANC>10	1.22 (0.93,1.62)	37.7 (34.3,41.2)	67.9 (61.3,74)	0.528 (0.492,0.563)	38 (28.1,48.8)	63.7 (60.5,66.8)	0.509 (0.456,0.561)
CRP>2	1.91 (1.36,2.67)	74.2 (70.6,77.6)	37.7 (30.2,45.6)	0.559 (0.518,0.601)	85.7 (75.3,92.9)	29.6 (26.2,33.1)	0.576 (0.532,0.621)
CRP>6	2.33 (1.68,3.22)	48.2 (44.2,52.2)	66.7 (58.8,73.9)	0.574 (0.533,0.615)	75.7 (64,85.2)	57.9 (54.2,61.5)	0.668 (0.614,0.722)
PCT>0.5	2.9 (1.29,6.53)	64.1 (55.1,72.3)	65.2 (42.7,83.6)	0.646 (0.538,0.754)	71.4 (41.9,91.6)	41.6 (33.3,50.3)	0.565 (0.436,0.695)
PCT>2	2.62 (1.15,6)	41.4 (32.8,50.4)	73.9 (51.6,89.8)	0.577 (0.475,0.678)	64.3 (35.1,87.2)	63.5 (54.9,71.6)	0.639 (0.503,0.775)

*p-values calculated by Kruskal-Wallis rank sum test comparing mild, moderate, and severe for each biomarker

**Each biomarker was included individually in ordinal regression models and adjusted for age, duration of fever, prior antibiotic use for the current illness, and viral detection

Conclusions/Learning Points: Conclusions: None of the blood biomarkers examined can be used in isolation to predict severe outcomes in children with CAP. However, CRP and PCT are more strongly associated with moderate and severe disease than are WBC and ANC, which have limited discriminatory ability.

O0045 / #454

BURDEN OF NON-MEDICALLY ATTENDED RSV INFECTIONS DURING INFANCY – A EUROPEAN-WIDE PROSPECTIVE BIRTH COHORT STUDY (RESCEU)

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: Nearly half of infants with a symptomatic respiratory syncytial virus (RSV) infection do not seek medical attention. Current focus on medically-attended RSV infections therefore underrepresents the true burden of RSV on society. To capture the population burden of RSV, we assessed the clinical and societal burden of non-medically attended RSV infections in healthy term-born infants during the first year of life.
Methods: The RESCEU study is a prospective, observational birth cohort study that enrolled healthy term-born infants (n=9164) between 2017 and 2020 in five European countries. We performed active RSV surveillance in a nested cohort (n=993) until the age of one year. During an RSV episode, parents kept a diary of symptoms, medicine use, healthcare resource use, and family impact.
Results: A total of 102 infants with a non-medically attended RSV episode were included. Median duration of any respiratory symptoms and moderate-severe respiratory symptoms were 14 days (IQR 4) and 5 days (IQR 3.5) respectively. Cough was the most common respiratory symptom (97.1%) and persisted for a median of 11 days (IQR 6). Commonly reported non-respiratory symptoms were feeding difficulties (69.6%), vomiting (54.9%) and fever (51.0%). Medicine use was reported in 53.9% of episodes. More than half of parents noted impairment in usual daily activities (58.9%) for a median duration of 5 days (IQR 8), and nearly a quarter (24.5%) reported absenteeism from work.
Conclusions/Learning Points: Even when medical attendance is not required, RSV infection in infancy poses a significant burden to infants, families and society at large. These findings are important for policymakers when deciding on the implementation of RSV immunoprophylaxis or maternal vaccination in a national immunization program.

O0046 / #764

PHARMACOKINETICS, SERUM-NEUTRALIZING ACTIVITY, AND EFFICACY FROM A PHASE 1B/2A INFANT STUDY OF CLESROVIMAB (MK-1654), AN RSV- NEUTRALIZING MONOCLONAL ANTIBODY

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: Clesrovimab is an investigational RSV-neutralizing monoclonal antibody targeting site IV of the RSV F fusion protein for the prevention of RSV lower respiratory tract infection in infants.
Methods: This phase 1b/2a double-blind, randomized, placebo-controlled study evaluated the safety, tolerability, pharmacokinetics (PK), and serum neutralizing antibody (SNA) titers of clesrovimab in pre-term (born 29-35 weeks gestational age) and full-term infants. The study randomized 181 infants 2 weeks to 8 months of age in a 4:1 ratio within five separate panels (pre-term: 20, 50, 75 or 100-mg, full-term: 100mg) to receive a single intramuscular dose of clesrovimab or placebo. Blood samples were collected to quantify clesrovimab serum concentrations and SNA titers. Exploratory efficacy analyses were conducted for RSV-associated medically attended lower respiratory tract infection (MALRI), RSV-associated acute respiratory Infection (ARI, which encompasses upper and lower respiratory tract infection) and RSV-associated hospitalization through day 150 post-administration.
Results: The half-life of clesrovimab was approximately 42 days. A linear relationship was observed between increasing concentrations of clesrovimab and increasing SNA. The efficacy of a 100 mg dose of clesrovimab vs. placebo was 80.6% (95% CI: -141.2%, 99.6%) against RSV-associated MALRI and 71.6% (95% CI: -97.8%, 97.4%) against RSV-associated ARI from days 1 to 150 post-administration. Three infants who received placebo were hospitalized with RSV infection while no RSV-associated hospitalizations were observed in infants receiving any dose of clesrovimab from days 1 to 150 post-administration (Table 1).

Table 1: Efficacy through Day 150, Full Analysis Set

		Clesrovimab		Placebo		
RSV-Associated Clinical Endpoint		Participants	Cases	Participants	Cases	Observed Efficacy %, (95% CI) ‡
MALRI	100 mg Vs. placebo	64	1	38	3	80.6 (-141.2, 99.6)
MALRI	Combined* dose group Vs. placebo	143	3	38	3	74.2 (-92.9, 96.5)
ARI	100 mg Vs. placebo	64	2	38	4	71.6 (-97.8, 97.4)
ARI	Combined* dose group Vs. placebo	143	8	38	4	48.7 (-132.8, 86.3)
Hospitalization	100 mg Vs. placebo	64	0	38	3	100 (-39.4, 100)
Hospitalization	Combined* dose group Vs. placebo	143	0	38	3	100 (37.9, 100)

*Combined 20, 50, 75 and 100mg dose groups

‡ Estimated based on the exact binomial method proposed by Chan and Bohidar

Conclusions/Learning Points: While subject to limitations of small sample size, these results support the efficacy of clesrovimab against RSV-associated upper and lower respiratory tract infection and hospitalization and warrant continued evaluation in ongoing phase 3 studies.

O0047 / #1507

RESPECTIVE ROLE OF NON-PHARMACEUTICAL INTERVENTIONS ON BRONCHIOLITIS OUTBREAKS, AN INTERRUPTED TIME SERIES ANALYSIS BASED ON A MULTINATIONAL SURVEILLANCE SYSTEM

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: Bronchiolitis is a major source of morbimortality among young children worldwide. Non-pharmaceutical interventions (NPIs) implemented to reduce the spread of SARS-CoV-2 may have had an important impact on bronchiolitis outbreaks, as well as major societal consequences. Discriminating between their respective impacts would help define optimal public health strategies against bronchiolitis. We aimed to assess the respective impact of each NPI on bronchiolitis outbreaks in 14 European countries.
Methods: We conducted a quasi-experimental interrupted time-series analysis based on a multicentre international study. All children diagnosed with bronchiolitis presenting to the paediatric emergency department of one of the 27 centres from January 2018 to March 2021 were included. We assessed the association between each NPI and change in the bronchiolitis trend over time by seasonally adjusted multivariable quasi-Poisson regression modelling.
Results: In total, 42,916 children were included. We observed an overall cumulative 78% reduction (95%CI [-100;-54], p<0.0001) in bronchiolitis cases following NPI implementation. The decrease varied between countries from -97% (95%CI [-100;-47], p=0.0005) to -36% (95%CI [-79;+07], p=0.105). Full lockdown (IRR 0.21, 95%CI [0.14;0.30], p<0.001), secondary-school closure (IRR 0.33, 95%CI [0.20;0.52], p<0.0001), wearing a mask indoors (IRR 0.49, 95%CI [0.25;0.94], p=0.034), and teleworking (IRR 0.55, 95%CI [0.31;0.97], p=0.038) were independently associated with reducing bronchiolitis.
Conclusions/Learning Points: Several NPIs were associated with a reduction of bronchiolitis outbreaks, including full lockdown, school closure, teleworking and facial masking. Some of these public health interventions may be considered to further reduce the global burden of bronchiolitis.

O0048 / #2116

HOW DID THE UK COVID-19 LOCKDOWNS DISRUPT THE SEASONALITY AND AGE STRUCTURE OF RESPIRATORY SYNCYTIAL VIRUS TRANSMISSION?

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: The UK's COVID-19 lockdowns also interrupted the transmission of other childhood infections. We investigated how the seasonality, age dynamics and severity of respiratory syncytial virus (RSV) infections were affected over the following two seasons compared to a 'normal' pre-pandemic year.
Methods: Bristol Royal Hospital for Children is the only paediatric hospital for a population of 180,000 children in the South-West of England. All admissions with respiratory symptoms are routinely screened using a viral PCR panel. We retrospectively extracted the RSV results of all acute admissions for 2019-2022, extracting their age, diagnosis and length of stay.
Results: With no RSV epidemic in 2020, post-lockdown there was a large out of season outbreak in early 2021, a smaller outbreak in early 2022 followed by a more typical (still ongoing) winter. Post lockdown, there was a significant increase in age (p=<0.001), length of stay was increased for <12m, decreased for 12-24m but unchanged for
>24m.

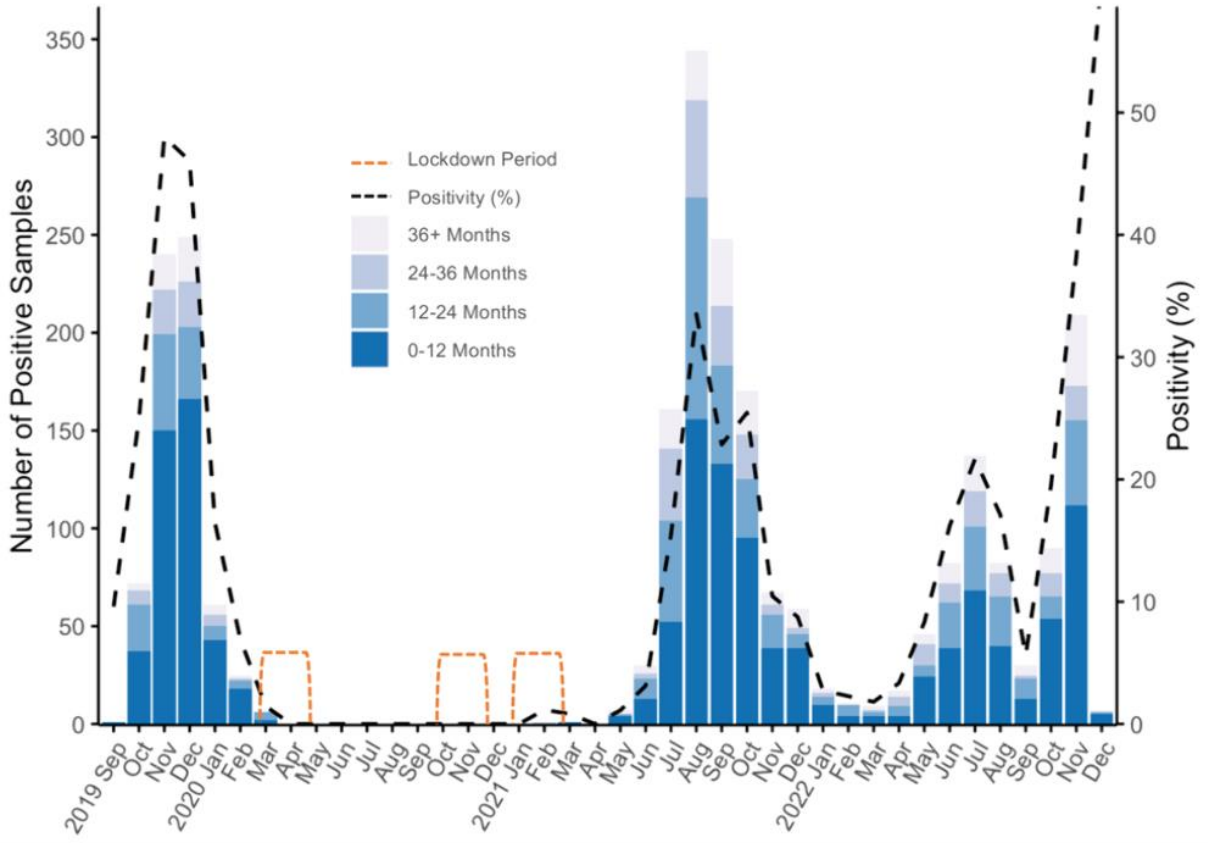

Table 1			
Year	Season	Number of Admissions	Median Age (months)
2019/20	Sep-Mar	591	7.4
2020	Apr-Mar	1	6.9
2021/22	Apr-Mar	1003	12.5
2022-23	Mar-ongoing	655	11.8

Conclusions/Learning Points: Changes in age dynamics and length of stay were observed after the UK's COVID-19 lockdown with sustained increase in RSV infection age post-pandemic but changes in length of stay suggesting potential milder disease in the children for whom RSV infection had been delayed. This natural experiment shifting age of infection for a cohort may provide useful modelling parameters for estimating the potential effects of passive immunity through long lasting monoclonal antibodies.

O0049 / #1198

SUSTAINED IMPORTANCE OF STREPTOCOCCUS PNEUMONIAE AMONG PEDIATRIC COMPLICATED PNEUMONIA IN PORTUGAL (2019-22)

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: To improve the etiological diagnosis of culture-negative pediatric complicated pneumonia (PCP), we expanded our real-time PCR assay to include other bacterial agents and evaluate potential changes in etiology after 7 years of near universal use of 13-valent conjugate pneumococcal vaccine (PCV13).
Methods: We collected 156 culture-negative pleural fluid and empyema samples from children (<18 years), in 62 hospitals in Portugal, from January 2019 to December 2022. Our assay included Streptococcus pneumoniae, Streptococcus pyogenes, Staphylococcus aureus, Mycoplasma pneumoniae, Haemophilus influenzae, Mycobacterium tuberculosis and Streptococcus agalactiae. For S. pneumoniae cases we performed molecular serotyping.
Results: Overall, 78 samples were negative for all bacteria tested (50.0%). Among the remaining 78 samples, the majority was positive for S. pneumoniae (n=64, 41.0%). S. pyogenes was found in 7 samples (4.49%), S. aureus in 5 samples (3.20%), H. influenzae in 2 samples (1.28%), and M. pneumoniae in 1 sample (0.64%). We did not detect M. tuberculosis nor S. agalactiae. In 2 samples, we detected the presence of DNA from both S. pneumoniae and another species: S. aureus (n=1) and H. influenzae (n=1). Among the pneumococcal samples, 44 were serotype 3 (56.4%), 5 were serotype 8 (6.41%), 2 were serotype 14 (2.56%) and serotypes 15A, 16F, 19A, 19F and 6C/6D were detected in 1 sample each (1.28% each). The remaining were negative for all serotypes tested (4.49%).
Conclusions/Learning Points: After two decades of pneumococcal conjugate vaccine use, S. pneumoniae is still responsible for most culture-negative PCPs, with PCV13 serotype 3 responsible for most cases. Expanding the molecular diagnostic panel to other species allowed the identification of the etiology of only an additional 9.62% of cases, suggesting that bacteria other than S. pneumoniae remain infrequent despite PCV13 use.

O0050 / #501

BLOODSTREAM INFECTIONS IN CHILDREN HOSPITALIZED FOR INFLUENZA, THE CANADIAN IMMUNIZATION MONITORING PROGRAM ACTIVE (IMPACT)

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: We aimed to estimate the proportion of children hospitalized for influenza whose illness was complicated by bloodstream infection, describe their clinical course, and identify factors associated with bloodstream infection.
Methods: We performed active surveillance for laboratory-confirmed influenza hospitalizations among children ≤16 years old at the 12 Canadian Immunization Monitoring Program Active hospitals, from 2010 to 2021. Factors associated with bloodstream infection were identified using multivariable logistic regression analyses.
Results: Among 9,179 laboratory-confirmed influenza hospital admissions, bloodstream infection occurred in 87 children (0.9%). Streptococcus pyogenes (22%), Staphylococcus aureus (18%), and Streptococcus pneumoniae (17%) were the most common bloodstream infection pathogens identified. Children with cancer (adjusted odds ratio [aOR] 2.78, 95% confidence interval [CI] 1.23-5.63), a laboratory-confirmed non-bloodstream bacterial infection (aOR 14.1, 95% CI 8.04-24.3), or radiographically-confirmed pneumonia (aOR 1.87, 95% CI 1.17-2.97), were more likely to experience a bloodstream infection, whereas children with chronic lung disorders were less likely (aOR 0.41, 95% CI 0.19-0.80). Disease severity markers such as ICU admission (aOR 2.11, 95% CI 1.27-3.46), mechanical ventilation (aOR 2.84, 95% CI 1.63-4.80) and longer hospital length of stay (aOR 1.02, 95% CI 1.01-1.03) were associated with bloodstream infection. Bloodstream infection also increased the odds of death (aOR 13.0, 95% CI 4.84-29.1) after adjustment for age, influenza virus type and the presence of ≥ 1 at-risk chronic condition.
Conclusions/Learning Points: Bloodstream infections, although infrequent, are associated with ICU admission, mechanical ventilation, increased hospital length of stay, and in-hospital mortality, thus requiring increased levels of care among pediatric influenza hospitalizations.

O0051 / #1816

STOP RSV: EPIDEMIOLOGY OF RESPIRATORY SYNCYTIAL VIRUS (RSV) IN CHILDREN UNDER 3YRS OLD PRESENTING WITH RESPIRATORY SYMPTOMS TO PRIMARY CARE AND HOSPITALS IN THE UK

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) respiratory tract infection (RTI) is estimated to cause >100,000 deaths per year globally in children. In England it is estimated that 53% of RTI admissions in children <5 are caused by RSV. Nirsevimab was recently licensed in the UK for prevention of RSV Lower RTI in children. This study will provide granular data on the burden of RSV in primary care and hospitals in the UK. This unique study will provide data to inform policy decisions on which children should be immunised, at what age, and when in the season.
Methods: A prospective observational study in primary and hospital healthcare settings in Cheshire, Merseyside and Bristol, UK to estimate RSV incidence among children <3 years with RTI symptoms (target n=2000), Dec 2021 - March 2023 (ISRCTN:41075797). Nasal swabs collected from n=723 children <3 years old from December 2021–August 2022, tested on multiplex respiratory viral panel using Biofire/ Panther systems. This study is funded by a collaborative agreement with Sanofi / AstraZeneca.
Results: Overall RSV positivity was 49% in hospital and 16% in primary healthcare settings. RSV point prevalence was highest in Summer 2022 (compared to Winter 2021-22 and Spring 2022) and in hospital settings compared to primary care. Point prevalence of RSV was highest in <1yr olds.
Conclusions/Learning Points: As expected, the highest burden of RSV was found in infants <1 year but is significantly higher in other age groups post COVID-19 pandemic. The seasonality of RSV infection has been perturbed due to COVID-19 pandemic. This is the first prospective RSV swab data from primary care; importantly it suggests a large and previously unknown RSV disease burden in primary care. This data may be used to inform future immunisation programmes.

O0052 / #2015

GROUP A STREPTOCOCCUS: A RETURN TO PRE-PANDEMIC INCIDENCE BUT NO REBOUND IN PORTUGAL

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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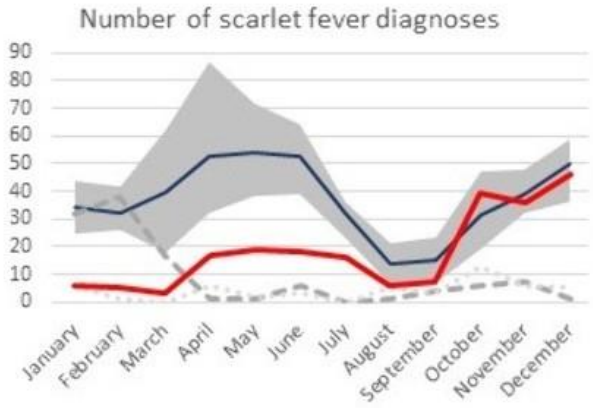
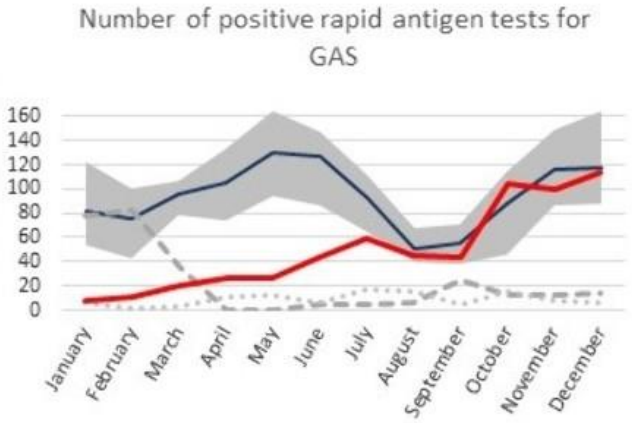
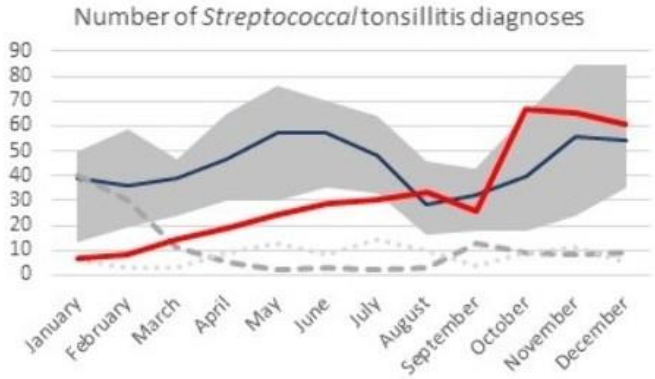
Backgrounds: A number of European countries reported an increase in the number of cases of invasive Group A Streptococcus (iGAS) disease among children <10 years of age, and in some cases also Scarlet Fever, seen during 2022, particularly since September 2022, with no newly emerging gene sequence types identified. The aim of this study was to evaluate the current epidemiological situation of non-invasive GAS infection in a paediatric tertiary centre, where iGAS remains very rare.
Methods: We performed an observational descriptive study in a paediatric tertiary centre that admits an average of 60 000 children/year, from January 2015 to December 2022 including all: - positive rapid antigen test for GAS; - ICD9 and ICD10 codes for Scarlet Fever and Streptococcal tonsillitis; - iGAS diagnoses.
Results:







	2015	2016	2017	2018	2019	2020	2021	2022
Number of children seen in Emergency Service/year	61 012	64 971	62 124	63 656	65 360	39 567	51 927	71 261
Number of rapid antigen tests for GAS	2974	3215	3513	3623	3814	1261	1297	2886
Number of positive rapid antigen tests for GAS (%)	1099 (37%)	1104 (34%)	1354 (39%)	963 (27%)	1166 (31%)	273 (22%)	105 (8%)	601 (21%)
Number of iGAS infections	1	4	7	1	2	0	0	3

Total number and monthly distribution of positive rapid antigen test for GAS, Scarlet Fever and Streptococcal Tonsillitis diagnoses are shown in the figure. In the pre-pandemic years (2015-2019) GAS infection presented with 2 peaks (May-June and November-December). After the first two years of the COVID-19 pandemic with a very reduced incidence, in 2022 there was a progressive rise, returning to the pre-pandemic numbers and seasonality. The number of iGAS cases remain small and unchanged.
Conclusions/Learning Points: In 2022, the distribution of GAS infections has returned to the pre-pandemic pattern. Up to date, iGAS infections remain rare and currently no more frequent than in a typical year, unlike the situation reported in some European countries. These epidemiological data will be continuously assessed.

O0053 / #77

INCIDENCE, SEVERITY AND CLINICAL CHARACTERISTICS OF LOWER RESPIRATORY TRACT INFECTIONS IN CHILDREN BEFORE AND AFTER LOCKDOWN – A RETROSPECTIVE COHORT STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

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Backgrounds: SARS-CoV-2 public health measures reduced the incidence of pediatric lower respiratory tract infections (LRTIs) in 2020. An interseasonal surge in pediatric LRTI's occurred after relaxation of restrictions. We aimed to compare characteristics and disease severity of children presenting with LRTI's before, during, and after COVID-19 lockdown.
Methods: All LRTI presentations in a large pediatric hospital in the Netherlands between 2019 and 2021 were included. Parameters were compared between 2019 and 2020 and between 2019 and 2021. Variables included demographic characteristics, condition upon ED arrival, diagnosis, applied treatment, and clinical follow-up.
Results: Patients in 2020 were older compared to 2019 (median age 2.0 (IQR 0.8-4.5) years versus 1.3 (IQR 0.5-3.5) years, p <0.001). In 2021, median age was lower (1.1 (IQR 0.4-2.5) years, p = 0.003) and there was a larger proportion of bronchiolitis cases (64% versus 48% in 2019, p < 0.001). Oxygen saturation at presentation was lower in 2021 (17.0% <90% versus 12.6% in 2019) and admission rate was higher (58.4% versus 48.5%, p = 0.001). Both in 2020 and 2021, a larger proportion of children presented with co-occurring symptoms of obstructive lung disease compared to 2019 (20.6% in 2019 to 30% in 2020 (p = 0.003) and 29.5% in 2021 (p <0.001).
Conclusions/Learning Points: Children presenting with LRTIs in 2021 seem to have a more severe clinical phenotype, possibly explained by immunity debt after COVID-19 lockdown, stricter referral policy or changes in healthcare seeking behavior. Future research is needed to evaluate long-term consequences of growing up during lockdown.

O0054 / #518

CHILDREN ADMITTED WITH SEVERE MALNUTRITION HAVE HIGHER INFLAMMATORY MARKERS, FURTHER EXACERBATED BY HIV; THESE REMAIN HIGHER OVER ONE-YEAR POST-DISCHARGE DESPITE NUTRITIONAL RECOVERY

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

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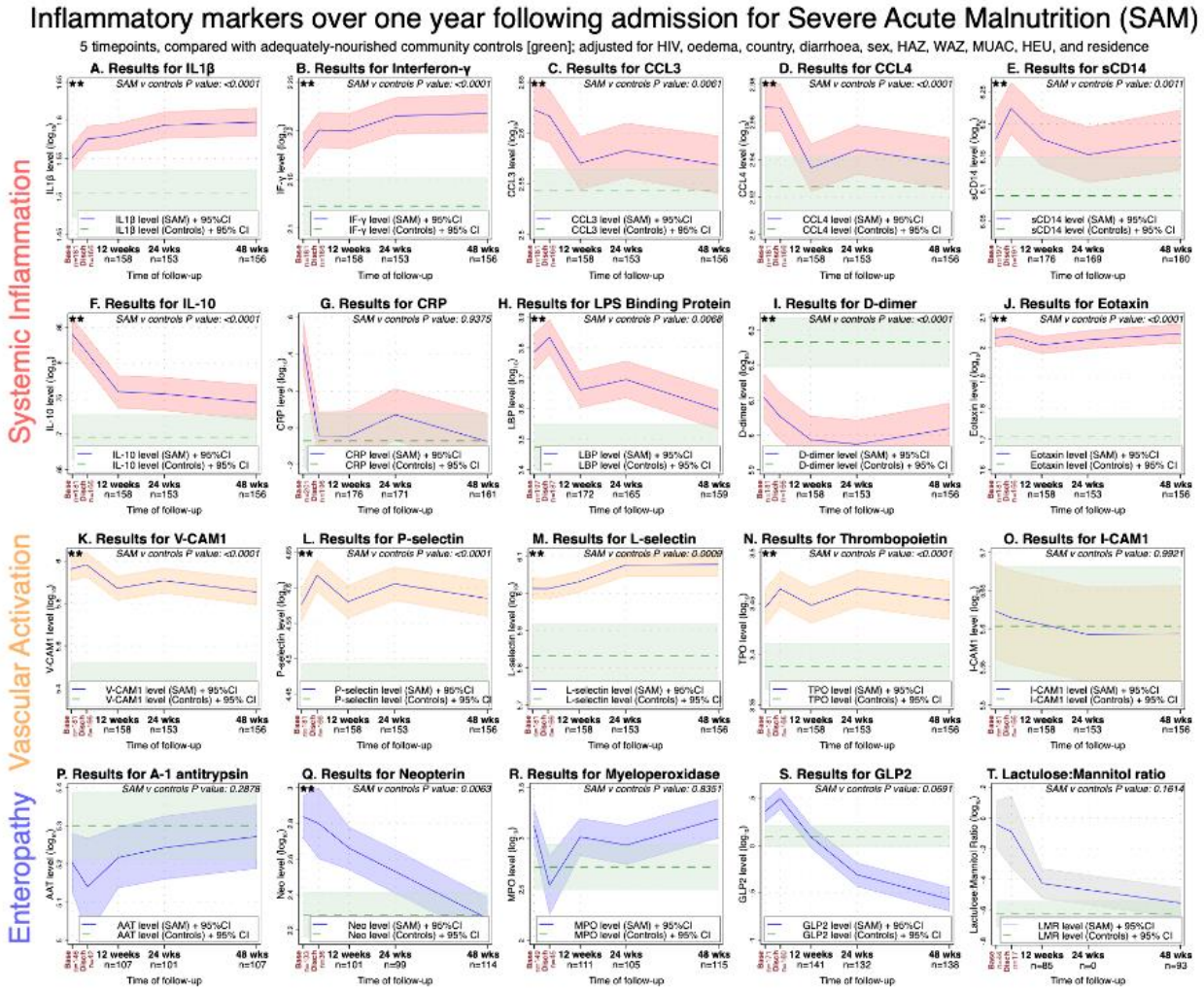
Backgrounds: Severe acute malnutrition (SAM) is the most high-risk form of undernutrition, particularly when children require hospitalisation for complications. It is a multisystem disease with high inpatient mortality, matched by a similar rate in the year post-discharge, frequently attributed to infections, particularly in children with HIV. However, we lack understanding of the underlying pathogenesis.
Methods: A prospective cohort study enrolled 262 children admitted with SAM across 3 hospitals in Zimbabwe/Zambia. They were followed up for 48 weeks post-discharge, with biospecimens taken at baseline, discharge, 12 weeks, 24 weeks, and 48 weeks. 173 adequately-nourished community-control children were recruited to assess normal values. A proteomic analysis examined 34 markers of inflammation in blood/stool at each timepoint, with significance adjusted for multiple-hypothesis testing.
Results: Children admitted with SAM have higher baseline inflammation compared with controls in multiple compartments: higher systemic inflammation (LBP, IL-8, IL1ra), endothelial activation (VCAM-1, P-selectin, L-selectin, eotaxin), and reduced placental growth factor. Children with SAM and HIV had higher inflammatory markers over children with SAM alone, including CRP, TNFa, IL-6, IL-33, IL-10, IL-2, and IL-1ra. Systemic, vascular, and intestinal inflammation does not resolve over one-year post-discharge despite phenotypic recovery from acute malnutrition, with 15/17 systemic inflammatory biomarkers, and 4/5 vascular inflammatory markers remaining higher over community controls (Figure 1). Following principal components analysis, children with higher systemic inflammation and lower epidermal growth factor had a greater risk of death/readmission to hospital.



Conclusions/Learning Points: Few studies have longitudinally examined the longitudinal pathophysiology of children following SAM. Our study highlights the high hidden need of these children after discharge, with ongoing systemic and vascular inflammation; this may represent a state of functional immunosuppression, with levels predicting ongoing mortality, frequently due to infection, despite their nutritional recovery.

O0055 / #445

STILLBIRTHS AND 0-90 DAYS DEATH CAUSED BY GROUP B STREPTOCOCCUS IN AFRICA AND SOUTH ASIA IDENTIFIED THROUGH CHILD HEALTH AND MORTALITY PREVENTION SURVEILLANCE (CHAMPS).

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

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Backgrounds: Invasive Group B streptococcus (GBS) is considered a common infectious cause of stillbirth and 0-90-day deaths. We examined stillbirths and 0-90-day deaths to investigate the role of GBS using post-mortem minimally invasive tissue sampling (MITS) in children from seven LMICs participating in Child Health and Mortality Prevention Surveillance (CHAMPS).
Methods: From December 2016-December 2021, post-mortem specimens collected by MITS within 24-48hours of death were investigated. Laboratory diagnostic tests included microbial culture of blood and cerebrospinal fluid, real-time PCR by TaqMan Array Card on blood, cerebrospinal fluid, nasopharyngeal swabs, and lung tissue and histopathological investigation of lungs, liver, placenta, and brain. Data collection included clinical record review and family interview using standardized verbal autopsy. Expert panels reviewed all information and assigned causes of death per WHO recommendations.

Results: We evaluated 2,966 deaths, including stillbirths (n=1,332), deaths within the first 24-hours (0-<24h; n=597), early-neonatal deaths (1d-<7d; n=593) and 7-90-day deaths (n=454). GBS was detected in post-mortem specimens in 11% (327/2,966) of deaths; it was part of causal chain of death for 2.7% (79/2,966; range 0.3% in Sierra Leone to 7.2% in South Africa), including 2.3% (31/1,322) of stillbirths, 4.7% (28/597) of deaths within the first 24-hours, 1.9% (11/593) of early-neonatal deaths and 2.0% (9/454) of 7–90-day deaths. Among GBS-attributed deaths, 49% weighed <2500grams at birth. Other infections in the causal pathway were found in 32.9% (26/79) of GBS deaths; and common pathogens were Escherichia coli 42% (11/26) and Klebsiella pneumoniae 27% (7/26).
Conclusions/Learning Points: Our findings confirm that GBS is an important and possibly underestimated cause of stillbirth and 0-90-day deaths in LMICs. These findings add to the substantial body of literature calling for better prevention options including maternal vaccination for GBS in high-mortality rate settings.

O0056 / #2265

PATHWAYS AND MORTALITY OF UNDER 5 CHILDREN IDENTIFIED AS SEVERE CASES WITH ROUTINE PULSE OXIMETRY USED INTO THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS GUIDELINES AT PRIMARY HEALTH CENTERS IN WEST AFRICA, JUNE 2021 TO JUNE 2022

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

Gildas Boris Hedible[1], Désiré Neboua[2], Lucie Peters Bokol[1], Gildas Anago[3], Zineb Zair[1], Severin Lenaud[4], Honorat Agbeci[1], Abdoul Guaniyi Sawadogo[5], Desire G Kargougou[6], Bertrand Meda[7], Jacques Seraphin Kolie[8], Sarah Louart[3,9], Valéry Ridde[10], Valeriane Leroy[1]
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Backgrounds: The Integrated Management of Childhood Illness (IMCI) guidelines for children under5 is a symptom-based algorithm, adapted for resources-limited countries at primary health center (PHC) level. To improve the diagnosis and care-management of severe cases with hypoxemia, the AIRE project, UNITAID-funded, has implemented the routine Pulse Oximeter (PO) use into IMCI consultations at PHCs in Burkina Faso, Guinea, Mali and Niger. This study purpose was to describe the care pathway and mortality of children with serious illness.
Methods: In 16 PHCs (4/country), all under5 children attending IMCI consultations and classified as severe cases were enrolled in a prospective short cohort study with 14-Days of follow-up, with parental consent.
Results: From June 2021 to June 2022, 39,360 children attended IMCI consultations at the research PHCs. Among the 3,163 identified as severe cases, 1998 were followed of whom 499 (25%) were referred to district hospital (DH) while 1470 (73.5%) were treated at PHC and 29 (1.5%) were not referred and treated at PHC. The D14-mortality rate was at 4.7% (95/1998 - 95% CI: 3.9-5.8). It was significantly different among children managed at hospital level with 14.8% (74/499-95% CI: 11.8-18.3) and those treated at PHC level with 1.3% (19/1470-95%CI: 0.8-2.0). Hypoxemia was detected in 141 children of whom 128 (91%) was treated at DH vs 13 (9%) at PHC. Their D14-mortality rate was at 26.2% (37/141; 95%CI: 19.2-34.3); 24.8% (35/141; 95%CI: 17.9-32.8) for referred children vs 1.4% (2/141; 95%CI: 0.2-5) for those treated at PHC.
Conclusions/Learning Points: Unexpectedly, referral of severe case to hospital is not systematic even for hypoxemia. The D14-mortality rate remain high especially at hospital level. The health Care Worker training, the practice of IMCI and the proper transfer of severe case remain challenges in West African

O0057 / #2010

EFFECT OF HIV AND MALARIA IN PREGNANCY ON PERTUSSIS-SPECIFIC ANTIBODIES AND TRANS-PLACENTAL ANTIBODY TRANSFER: A PROSPECTIVE COHORT STUDY IN MOZAMBICAN PREGNANT WOMEN AND THEIR INFANTS

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

Azucena Bardaji[1], Carlota Dobaño[2], Selena Alonso[2], Percy Efrain Pantoja[1], Marta Vidal[2], Anifa Vala[3], Sonia Maculuve[3], Arsenio Nhacolo[4], María Rupérez[1], Esperança Sevene[3], Eusebio Macete[3], Raquel González[1], Alfredo Mayor[1], Gemma Moncunill[2], Clara Menendez[1]
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Backgrounds: Pertussis is a highly contagious and potentially severe respiratory disease. HIV and malaria may affect immunity against childhood pathogens. We aimed to evaluate the effect of HIV and malaria in pregnancy on maternal and infant immunity against pertussis and on placental antibody transfer.
Methods: A prospective cohort study was conducted in pregnant women attending ANC and their infants in Mozambique. Peripheral and cord blood samples were collected from women and from infants at 1 and 9 months of age for antibody assays (Luminex). Maternal HIV serostatus was assessed. Peripheral/placental P. falciparum infection in pregnancy was assessed by microscopy/molecular/histological methods. Efficiency in placental transfer was determined through cord-to-mother ratio of antibodies against pertussis toxin (PT), pertactin (PRN) and fimbriae 2/3 (FIM).
Results: A total of 278 mother-infant pairs were enrolled, 101 mothers were HIV-infected and 40 mothers malaria-infected. Geometric mean (GM) antibody levels to PT, PRN and FIM were significantly lower at birth (cord) in infants born to HIV-infected mothers compared to HIV-uninfected; conversely, antibodies were higher in infants born to malaria-infected women compared to uninfected. HIV-infected women showed reductions in placental transfer (PT 13.1%, p=0.01; PRN 14.5%, p=<0.01; and FIM 10.9%, p=0.12) compared to HIV-uninfected. A trend towards reduction in antibody transfer was observed in malaria-infected women (PT 9.5%, p=0.15; PRN 5.2%, p=0.37; and FIM 16.9%, p=0.06) compared to uninfected. In multivariate analyses, maternal HIV infection (p<0.01), maternal anaemia (p<0.01) and a high maternal viral load (p=0.03) were associated with impaired placental transfer.
Conclusions/Learning Points: Maternal HIV is associated with lower mother-infant transfer of pertussis antibodies. An effect towards impaired placental transfer is also observed in pregnant women with malaria. Preventive interventions against pertussis may require to target HIV- and malaria-infected mothers and their infants.

O0058 / #523

ASSESSING THE USE OF NEONATAL BLOODSTREAM INFECTION GUIDELINES IN TWO SUB-SAHARAN AFRICAN COUNTRIES: WHAT IS USED AND WHAT IS USEFUL?

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

Felicity Fitzgerald[1], Nushrat Khan[2], Gwendoline Chimhini[3], Gloria Zailani[4], Deliwe Nkhoma[5], Samuel Neal[6], Mario Cortina Borja[2], Leyla Larsson[7], Tim Hull-Bailey[2], Emma Wilson[2], Katharina Kranzer[8], Hannah Gannon[2], Marcia Mangiza[9], Simbarashe Chimhuya[3], Michelle Heys[2], Msandeni Chiume[4]
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Backgrounds: Neonatal sepsis is a major cause of neonatal mortality in low-resource settings. In the frequent absence of microbiological diagnostics, clinical guidelines used to prescribe antibiotics prioritise sensitivity over specificity. We assessed how neonatal sepsis guidelines were used in two Zimbabwean hospitals (Sally Mugabe Central Hospital, SMCH; and Chinhoyi Provincial Hospital, CPH), and one Malawian hospital (Kamuzu Central Hospital, KCH).
Methods: Utilising routine data collected using the digital quality improvement tool Neotree, we retrospectively reviewed concordance of national and World Health Organization (WHO) guideline recommendation for commencement of antibiotics for suspected sepsis with clinicians' contemporaneous decisions. We compared clinical features and outcomes of neonates that would have received antibiotics as per guideline versus those who actually received them.
Results: From January 2021 to June 2022, data were collected on 10,868 neonates, 6045 admitted to SMCH, 1094 to CPH and 3729 to KCH (Table, 10,690 included in analysis). At all sites, complete implementation of national guideline recommendation to commence antibiotics would result in a large increase in prescription rates at admission: from 2253 (38%) to 3727 (63%) neonates at SMCH, from 472 (44%) to 852 (79%) at CPH, and 1519 (41%) to 3043 (82%) at KCH. Clinical features of sepsis were similarly distributed between both groups, but the case fatality rate was lower in the group not prescribed antibiotics despite guideline recommendation(Table). Complete implementation of WHO guidelines would lead to an increase in antibiotic prescription to 91% at SMCH, 88% at CPH, and 77% in KCH, Malawi

Table

Numbers of neonates admitted to facilities eligible for antibiotics as per national guidelines, comparing case fatality rates between those who received and did not receive antibiotics

Site	Total	Sepsis predicted (%)	% of eligible who received antibiotics	CFR of those who met criteria and received antibiotics (per 1,000)	CFR of those not receiving antibiotics despite meeting criteria	Fisher's exact test
SMCH (Zimbabwe)	5878	63%	49%	273	175	p<0.001
CPH (Zimbabwe)	1081	79%	54%	225	180	p=0.097
KCH (Malawi)	3728	82%	43%	246	215	p=0.048

SMCH: Sally Mugabe Central Hospital, Zimbabwe
CPH: Chinhoyi Provincial Hospital, Zimbabwe
KCH: Kamuzu Central Hospital, Malawi
CFR: Case Fatality Rate

Conclusions/Learning Points: Guidelines for bloodstream infection are inconsistently used, with clinicians using other features to triage neonates most in need of antibiotics. Work is needed to derive clinical diagnostic algorithms that are used and useful in low-resource settings.

O0059 / #2488

POPULATION PHARMACOKINETIC MODELLING OF CEFTRIAXONE IN CEREBROSPINAL FLUID IN CHILDREN: SHOULD WE BE USING ONCE OR TWICE DAILY DOSING FOR MENINGITIS?

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

Floyd Wang[1], Alison Boast[2], Gena Gonis[3], Amanda Di Carlo[3], Brett Mcwhinney[4], Jacobus Ungerer[4], Alice Lei[2], Joseph Standing[1], Amanda Gwee[2]
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Background: International guidelines for bacterial meningitis in children recommend intravenous ceftriaxone 50mg/kg (max 2g) twice daily or 100mg/kg (max 4g) once daily, with the decision regarding the dose frequency determined by the prescriber. We investigated the cerebrospinal fluid (CSF) penetration of ceftriaxone in children and evaluated whether one dosing regimen is superior to another.
Methods: Serum and CSF samples from children aged 0-18 years treated with ceftriaxone were collected if there was excess sample left after clinical tests were performed and unbound ceftriaxone concentrations determined. A population pharmacokinetic (popPK) model was developed using non-linear mixed effects modelling. Once- and twice-daily dosing regimens were simulated and the probability of target attainment (PTA) of achieving CSF concentrations above the MIC of common meningitis pathogens for 100% of the dosing interval determined.
Results: Overall, 17 serum and 87 CSF samples were collected from 98 children (median age 1.9 years (range 0.2-18.5). The final two-compartment serum-CSF model included a post-menstrual age maturation function with weight scaling on clearance, intercompartmental clearance and volume of distribution. The median serum:CSF penetration was 15.5%. Both dosing regimens achieved a PTA >90% for bacteria with MICs of <1mg/L. However, for an MIC of 1 mg/L (i.e. E. coli), only the once-daily dosing regimen achieved a PTA >90%. For Staphylococcus aureus (MIC 4 mg/L), neither dosing regimen was sufficient.
Conclusions/Learning Points: This is the first paediatric serum:CSF popPK model of ceftriaxone. Our findings support a ceftriaxone dosing regimen of 100mg/kg once daily as empirical treatment for meningitis. Neither regimen achieved the pharmacodynamic target for S. aureus.

O0060 / #2458

A PHASE III OPEN-LABEL, RANDOMIZED, CONTROLLED STUDY TO EVALUATE IMMUNOGENICITY AND SAFETY OF NOPV2 AT DIFFERENT INTERVALS OF ADMINISTRATION IN INFANTS IN DOMINICAN REPUBLIC

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

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Background: In November 2020, the WHO prequalification program issued an Emergency Use Listing authorization for novel OPV type 2 (nOPV2) to allow rollout of the vaccine in countries affected by circulating vaccine-derived poliovirus type 2 (cVDPV2) outbreaks. It is important to investigate the option of shorter interval administration of nOPV2 in vaccination campaigns for prompt interruption of outbreaks.
Methods: The primary objective of the study was to determine if the seroconversion (SC) rate to poliovirus type 2 (PV2), 28 days following 2 doses of nOPV2 given at 1 week or 2 weeks, is non-inferior to the standard 4-week interval administration in infants. Incidence of serious adverse events (SAE), important medical events (IME), solicited and unsolicited mild, moderate and severe adverse events (AEs) were also evaluated.
Results: 905 infants, 6 to 8 weeks old from Dominican Republic, were randomized with a 1:1:1 ratio to receive 2 doses of nOPV2 to the following groups: A: 302, 1 week apart, B: 300, 2 weeks apart, and C (control group): 303, 4 weeks apart. SC rates were 87.5% (CI95% 83.2-91.1), 91.8% (88.1-94.7), 95.5% (92.5-97.6) in group A, B and C respectively. Incidence of SAEs and IMEs were similar across groups and no causal association to the vaccination was reported.
Conclusions/Learning Points: Shorter intervals could be an option for nOPV2 administration in order to optimize immunization campaigns.

O0061 / #2512

OUTCOMES OF THE TREATMENT WITH SOFOSBUVIR/VELPATASVIR IN PATIENTS AGED 6 TO 18 YEARS WITH CHRONIC HEPATITIS C: RESULTS OF THE PANDAA-PED STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

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Background: In this non-commercial, open-label, non-randomized clinical trial PANDAA-PED we analyzed the efficacy and safety of a fixed-dose pangenotypic regimen sofosbuvir/velpatasvir (SOF/VEL) in children and adolescents aged 6 to 18 years with chronic hepatitis C virus (HCV) infection.
Methods: Fifty patients qualified for the 12-week treatment were divided into two weight groups: 15 children weighting between 17 and <30 kg received a fixed dose of 200/50 mg of SOF/VEL (tablet) once daily, and 35 patients weighting ≥ 30 kg were treated with a fixed dose of 400/100 mg SOF/VEL. The primary endpoint of the study was efficacy defined as sustained viral response (undetectable HCV RNA using an real-time polymerase chain reaction, RT-PCR method) at 12 weeks posttreatment (SVR12).
Results: Median age of the participants was 10 (interquartile range, IQR 8 – 12) years, 47 were infected vertically, 3 patients were previously ineffectively treated with pegylated interferon and ribavirin. Thirty-seven participants were infected with HCV genotype 1, 10 with HCV genotype 3, and the remaining 3 with genotype 4. There was no case of cirrhosis. SVR12 was 100%. There were 33 reported adverse events (AEs) possibly or probably related to the administration of SOF/VEL, all of them were mild or moderate. Children presenting with AEs were older compared to these without AEs: median age 12 (9.5 – 13) vs. 9 (8 – 11) years, respectively (p = 0.008). The most commonly reported symptoms were headache (18%), abdominal pain (16%), and asthenia (12%).
Conclusions/Learning Points: Results of the PANDAA-PED study indicated a 100% effectiveness of a 12-week therapy with SOF/VEL in children aged 6 to 18 years with chronic HCV infection and its good safety profile, in particular in younger patients.

O0062 / #2603

ARTIFICIAL INTELLIGENCE FOR NTDS: A SYSTEM TO SUPPORT THE DIAGNOSIS OF HELMINTHIASIS FROM MICROSCOPY USING REAL-TIME ARTIFICIAL INTELLIGENCE WORKING IN SMARTPHONES WITH LIMITED CONNECTIVITY

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

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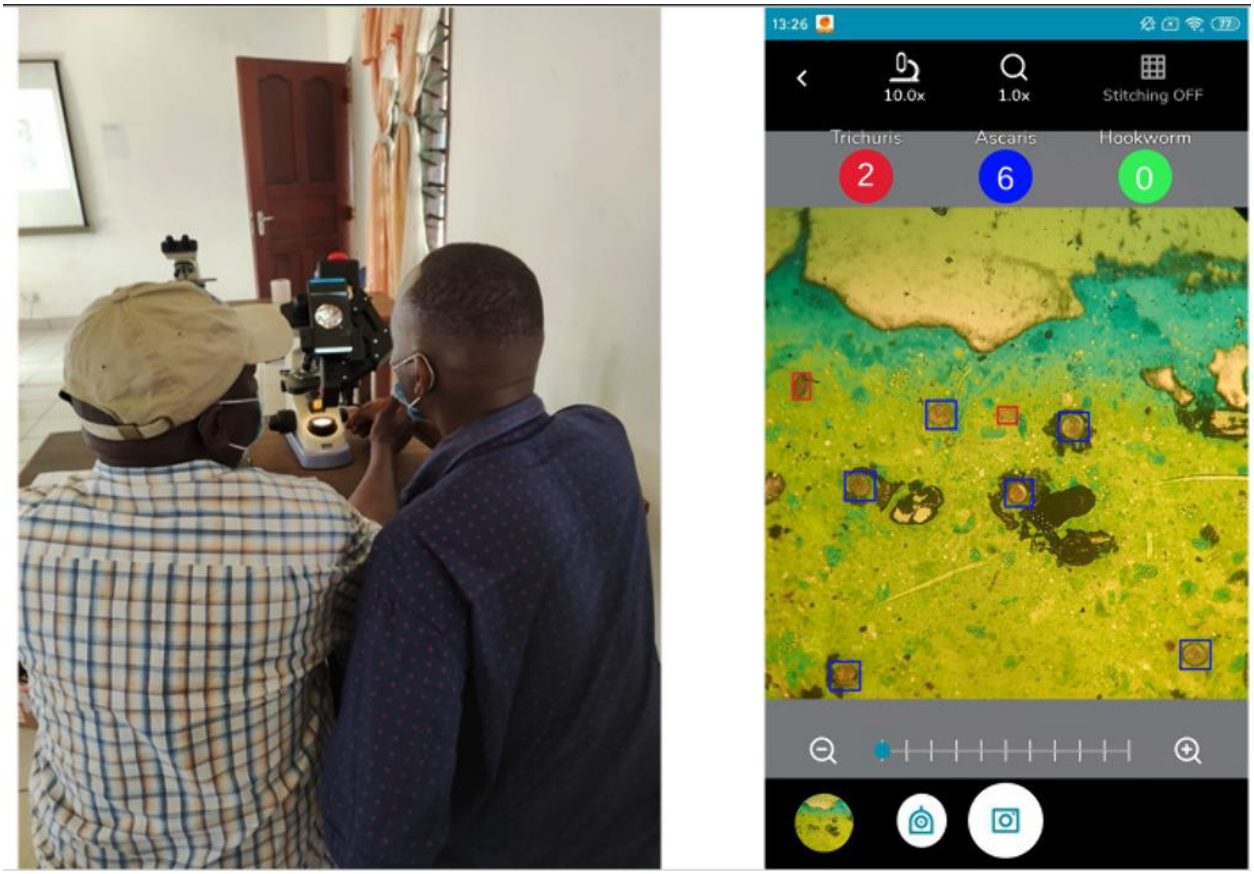
Background: Soil-transmitted helminthiasis (STH), a neglected tropical disease (NTD), affects 1.5 billion people. Although the Kato-Katz technique is the recommended diagnostic method, it has decreased sensitivity and is labour-intensive. To address these issues, a methodology was created and piloted to digitize samples, train and deploy an artificial intelligence (AI) model which runs in real-time on a smartphone for the detection and quantification of Ascaris lumbricoides, Trichuris trichiura and hookworm.
Methods: 1347 stool samples from 5-15-year-old children (Kwale, Kenya) were collected and analyzed by 8 experts with an AI (SSD-MobileNet V2 network) app on smartphones coupled to an optical microscope. The AI model was improved through an iterative methodology in 2 weeks with 4 versions. To iteratively improve the AI model, images were uploaded to a telemedicine platform. Labeled images were used to train a new version of the model, which was deployed on smartphones for the next day's campaign.
Results: The final model, trained with 679 images and 1685 labels, achieved 87.27% precision and 84.72% recall on a validation set of 311 images and 553 labels.
Conclusions/Learning Points: This experiment showed the possibility of human-AI feedback loops to support the work performed by lab technicians close to the point-of-care. The methodology demonstrated the feasibility of carrying out these studies leveraging the latest artificial intelligence tools in a real-world setting without the need for connectivity or expensive equipment. The use of AI could support the WHO's 2030 control and elimination targets for
NTDs.



Funding: EU's Horizon 2020 program (grant No 881062), the Comunidad de Madrid's predoctoral grant IND2019/TIC-17167, and the THRiVE consortium's postdoctoral training fellowship, funded by the Wellcome Trust.

O0063 / #2594

ROSIGLITAZONE ADJUNCTIVE THERAPY FOR SEVERE MALARIA IN MOZAMBICAN CHILDREN: A RANDOMIZED PLACEBO-CONTROLLED TRIAL

Oral Presentations Session
ORAL PRESENTATION SESSION 06: GLOBAL HEALTH & HIV

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Background: Despite potent antimalarials, the mortality rate of pediatric severe malaria remains high. Peroxisome proliferator-activated receptor gamma agonists have been shown to act on several pathways implicated in the pathogenesis of severe malaria, including the angiopoietin (Angpt) Tie-2 axis. We tested the hypothesis that adjunctive rosiglitazone treatment would reduce levels of circulating Angpt-2 and improve outcomes of Mozambican children with severe malaria.
Methods: A randomized, double-blind placebo-controlled trial of rosiglitazone versus placebo as adjunctive treatment to artesunate in children with severe malaria was conducted. A 0.045 mg/kg/dose of rosiglitazone or matching placebo were administered, in addition to standard of malaria care, twice a day for four days. The primary endpoint was the rate of decline of Angpt-2 over 96h. Secondary outcomes included the longitudinal dynamics of the Angpt-2/Angpt-1 ratio over 96h, parasite clearance kinetics, clinical outcomes, and safety metrics.
Results: One hundred eighty children were enrolled; 91 were assigned to rosiglitazone and 89 to placebo. Children that received rosiglitazone had a steeper rate of decline of Angpt-2 over the first 96h of hospitalization compared to children that received placebo; however, the trend was not significant ($P = 0.288$). A similar non-significant trend was observed for the Angpt-2/Angpt-1 ratio ($P = 0.347$). All other secondary and safety outcomes were similar between groups ($P > 0.05$).
Conclusions/Learning Points: Adjunctive rosiglitazone at this dosage was safe and well tolerated but did not significantly affect the longitudinal kinetics of circulating Angpt-2. The results of our study do not discount the potential utility of rosiglitazone in a larger clinical trial as an adjunctive therapy with different doses and routes of administration for pediatric severe malaria. Moreover, the Angpt-Tie2 pathway remains a valid target for adjunctive malaria therapies.

O0064 / #930

CONGENITAL CMV MONTHLY INTERNATIONAL VIRTUAL CLINICS: A CCMVNET EUROPEAN INITIATIVE

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

Despoina Gkentzi[1], Daniel Blázquez-Gamero[2], Vassiliki Papaevangelou[3], Horst Buxmann[4], Roberto Pedrero[5], Simon Drysdale[6], Hermione Lyall[7]
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Backgrounds: The Congenital CMV Network (cCMVnet) is a European initiative promoting international collaboration, research and educational activities in cCMV. In 2020 the Network established the European cCMV registry collecting data on epidemiology, clinical characteristics, long term sequelae and treatment of infants born with cCMV. An online virtual clinic has also been initiated, a forum for clinicians to review complex cases and treatment strategies.

Methods: From February 2021, via an online platform, monthly virtual clinics were established (last Wednesday of the month). A standardized slide set is available for case presentations including: history, clinical and laboratory data, imaging, treatment, and clinical questions for discussion (usually around 20 minutes per case).

Results: Sixteen monthly virtual clinics have run so far, reviewing 64 patients. Approximately 40 clinicians across multiple specialties (general paediatrics, neonatology, paediatric infectious diseases, audiology, obstetrics, ENT, virology) and countries (including Spain, UK, Greece, Germany, Estonia, Iceland, Denmark) have attended each clinic. Recommendations from the cCMVnet steering committee and other experts in the field were provided, and summarised in anonymised feedback. Issues discussed include management of preterm infants with cCMV (12 cases), treatment options when cCMV is diagnosed after the neonatal period (11), treatment related side effects (5), brain MRI imaging considerations(8), deranged liver function during treatment(4), hearing impairment(4).

Conclusions/Learning Points: Overall, this educational activity received highly positive verbal feedback from the participants. The clinic highlights the gaps in treatment guidelines and the urgent need for further clinical research. Our future plan is to create a bank of anonymised complex cCMV cases available as a training tool. Anyone wishing to discuss a case, please contact ccmvnet@gmail.com.

O0065 / #1586

EARLY NEUROIMAGING FINDINGS AND NEURODEVELOPMENTAL OUTCOMES OF CHILDREN WITH CCMV

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

Valeria Rubinacci[1], Manuela Martin Bejarano[2], Roberto Pedrero[3], Noelia Medina[4], Raquel Lara Tomé[4], Ana Martinez De Aragòn[5], Constanza Liebana[5], Sara Vila[6], Noemi Núñez Enamorado[6], Ana Camacho[6], Joaquín De Vergas[7], Ángela Manzanares[8], Serena Villaverde[8], Berta Zamora[2], Daniel Blázquez-Gamero[8]
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Backgrounds: Congenital CMV (cCMV) is one of the leading non-genetic causes of pediatric sensorineural hearing loss (SNHL) and neurocognitive impairment. We aim to study the prevalence of anomalies in cUS and MRI and their possible association with SNHL and neurodevelopment.
Methods: Retrospective study performed in a prospective cohort of 32 pediatric patients with cCMV infection. Clinical and neurological examination with Bayley-III Neurodevelopmental Scale, neuro-imaging and hearing evaluation by auditory brainstem responses were performed.
Results: At birth, anomalies in cUS were detected in 12 (38.7%) patients being lenticulostriate vasculopathy (n=7), subependymal cysts (n=7) and white matter abnormalities (WMA) the most frequent findings. MRI resulted abnormal in 18 (60%) patients, most of them with WMA (n=9) and periventricular cysts (n=3). SNHL was present in 6 patients, all of which had abnormal cUS and MRI. Last follow-up visit was performed at 23.4 [IQR 11.4-26.2] months of age. Mean Bayley z-scores in cognitive combined IQ, combined language and combined motor scales were within the normal range (-0.2,-0.7,-0.8).When evaluating the presence of WMA in cUS we found relevant differences in expressive language Z scores (-0.9 vs 0; p=0.005). For calcifications in cUS, differences were seen in expressive language (-1 vs 0;p=0.018) and in fine and gross motor Z scores (-1 vs -0.1 and -1.7 vs -0.2; p = 0.048 and 0.05, respectively). We did not find significant differences when evaluating WMA and calcifications in MRI.
Conclusions/Learning Points: In cUS but not in MRI, children with WMA showed worse results in expressive language, and children with calcifications in expressive language and in fine and gross motor z-scores. Higher sensitivity of MRI allows to detect milder WMA not associated with worse Bayley z-scores. All patients with SNHL had abnormal neuroimaging.

O0066 / #429

PREDICTION OF C-REACTIVE PROTEIN DYNAMICS DURING MEROPENEM TREATMENT IN NEONATES AND INFANTS

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

Hiie Soeorg[1], Helgi Padari[2], Mari-Liis Ilmoja[3], Koit Herodes[4], Karin Kipper[4], Irja Lutsar[1], Tuuli Metsvaht[2], Neomero Consortium[5]
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Backgrounds: Sepsis is major cause of mortality in neonates/infants. C-reactive protein (CRP) has been proposed to inform on the effect of antibiotic treatment. We aimed to develop a joint pharmacokinetic-pharmacodynamic model of CRP and meropenem in neonates/infants and evaluate its performance to predict CRP dynamics.
Methods: Data from neonates/infants in two previous studies in two Estonian NICUs (a meropenem PK study in VLBW neonates (Padari et al. 2012), the NeoMero studies (Lutsar et al. 2020, Germovsek et al. 2018)) were analysed. Turnover, effect compartment and transit compartment models of CRP as a function of meropenem concentration or cumulative area under the curve (AUC) were evaluated. The percentage of neonates/infants was calculated in whom the ratio of the 5th treatment day CRP to peak value was predicted with error of <0.2 ($P_{0.2}$).
Results: From 60 neonates/infants (median (range) gestational age 27.6 (22.6-40.9) weeks; postnatal age 13 (2-89) days) 351 CRP concentrations (maximum value 65.5 (13-358.4) mg/L) were collected. Turnover model of CRP as a function of meropenem cumulative AUC provided the best fit. The EC50 (AUC inducing half maximum meropenem effect) was smaller in neonates/infants in the NeoMero studies, allowing other earlier antibiotic treatment for up to 24 hours, and larger if S. aureus/enterococci were cultured in the blood/CSF (Figure). Considering the CRP peak within 72 (48) hours of the start of treatment and using data available at 0, 24, 48 and 72 hours after the start of treatment, $P_{0.2}$ was 69.7%, 63.6%, 72.7%, 75.8% (63.6%, 57.6%, 72.7%, 78.8%),
respectively.

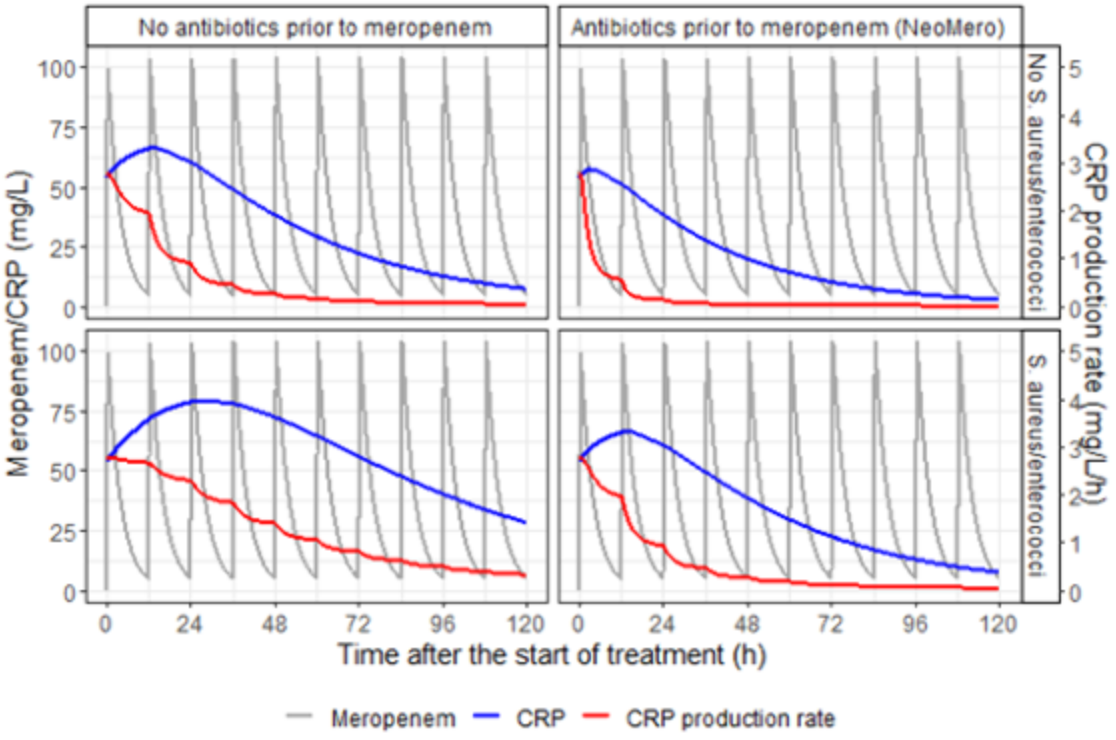

Figure. Meropenem (grey) and C-reactive protein (blue) concentration (mg/L) and CRP production rate (mg/L/h) (red) during meropenem treatment with 20 mg/kg q12h in a neonate with weight of 846 g and initial CRP 54 mg/L.

The equation describing C-reactive protein (CRP) dynamics: $\frac{\mathbf{dCRP}}{\mathbf{dt}} = \mathbf{K}_{in} \cdot \left(1 - \frac{AUC^{H}}{EC_{50}^{H} + AUC^{H}}\right) \cdot \left(1 - \frac{\mathbf{CRP}}{\mathbf{POP_{max}}}\right) - \mathbf{K_{out}} \cdot \mathbf{CRP}$

$\mathbf{EC_{50}=565.5 \cdot (0.36)^{NM} \cdot (2.81)^{S.a./ent.} \cdot e^{\eta 2}}$ mg·h/L (**NM** – if the neonate/infant was included in the NeoMero studies then NM=1, otherwise NM=0; **S.a./ent** – if *S. aureus* or enterococci were cultured in the blood/CSF, then S.a./ent=1, otherwise S.a./ent=0; $\eta_2 \sim N(0,1.09)$) – meropenem cumulative area under the curve (AUC) that produces half maximum CRP inhibition; **H=2.22** – slope function; $\mathbf{K_{out}=0.03}$ mg/L/h – rate of CRP elimination; $\mathbf{K_{in}=2.77 \cdot (CRP_0/35.8) \cdot e^{\eta 1}}$ mg/L/h (**CRP_0** – CRP value prior to the start of meropenem treatment; $\eta_1 \sim N(0, 0.84)$) – maximum rate of CRP production; $\mathbf{POP_{max}=358.4}$ mg/L – maximum value of CRP in the population.

Conclusions/Learning Points: Pharmacokinetic-pharmacodynamic model of meropenem and CRP can predict CRP dynamics with acceptable accuracy in most neonates/infants. The relationship between meropenem exposure and its effect is influenced by causative agent and prior other antibiotic therapy.

O0067 / #392

CHANGING EPIDEMIOLOGY OF GROUP B STREPTOCOCCAL INFECTIONS AMONG NEONATES IN PORTUGAL: 2005-2019 SURVEILLANCE

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

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Backgrounds: Group B streptococci(GBS) remains a leading cause of neonatal invasive disease despite prophylactic approaches.
Methods: We characterized 301 GBS isolates from neonatal invasive infections in Portugal. Information on serotype, multilocus sequence type(MLST), surface proteins, pilus island(PI) profiles, and antimicrobial resistance determining genes was obtained from PCR and Sanger sequencing for 218 isolates (2005-2015) and from Illumina high-throughput sequencing, after data analysis by mapping/de novo assembly approaches, for 83 isolates (2016-2019).
Results: Serotypes III(60%), Ia(20%), Ib(9%) V(4%), II(3%), IV(1%) and VI(0.7%), VIII(0.3%) and IX(0.3%) representing 9 clonal complexes(CC) were found. CC17 included 51% of all isolates, mostly III/ST17/rib/PI-1+PI-2b, associated with late-onset disease(LOD)(P=0.02). Serotype Ib, representing mostly Ib/ST1/alp3/PI-1+PI-2a, increased in the study period(P<0.05). Macrolide resistance increased(P<0.05), associated with the ermB gene, being overrepresented among serotype Ib isolates(P<0.001) and in CC1(P<0.001). While representatives of CC17 were mostly susceptible to macrolides, we identified a recent sub-lineage characterized by the loss of PI-1(CC17/PI-2b), simultaneously resistant to macrolides, lincosamides, tetracycline, and aminoglycosides (high-level resistance).
Conclusions/Learning Points: The stability and dominance of a few genetic lineages among GBS recovered from neonatal invasive infections in Portugal, namely the hypervirulent ST17/III/rib/PI-1+PI-2b, which remains responsible for the majority of infections, suggests it is extremely well adapted to this niche. The emergence of the Ib/CC1 lineage had been mostly restricted to non-pregnant adult disease and was the major driver of the increase in macrolide resistance in invasive adult infections in Portugal. The expansion of the Ib/CC1 lineage in this collection may suggest a shift in the serotypes and clones causing neonatal disease, which may impact the vaccine formulations currently under development. The emergence of a macrolide resistant CC17 sub-lineage is puzzling given the decrease in macrolide consumption in Portugal.

O0068 / #692

GROUP B STREPTOCOCCUS DETECTION IN NON-PREGNANT FEMALES TO EVALUATE CONCEPT DETECTION TEST FOR MATERNAL CARRIAGE

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

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Backgrounds: Group B Streptococcus (GBS) cause severe infection and sepsis in neonates, with high mortality and sequelae. Maternal vaginal carriage allows for transmission to the foetus either during pregnancy or intrapartum. Neonatal infection can be difficult to diagnose, and few countries offer maternal screening to detect GBS carriage during pregnancy. Current guidelines dictate that maternal screening should occur in gestation week 35-37. With GBS being a transient coloniser, this means the maternal carriage status may have shifted from the point of screening to the point of labour.
Methods: We have developed a test for GBS carriage, which could be used intrapartum on the mother, or postpartum on the neonate, using lipid vesicles lysed by GBS virulence factors. To test the potential utility of the sensor, a small pilot healthy human study was conducted, recruiting 100 non-pregnant female participants, over the age of 18 to detect GBS carriage (REACH, EP 22 072). Participants donated two swabs, one of which is tested using our novel detection test, and the other is used for standard microbiological detection of GBS.
Results:

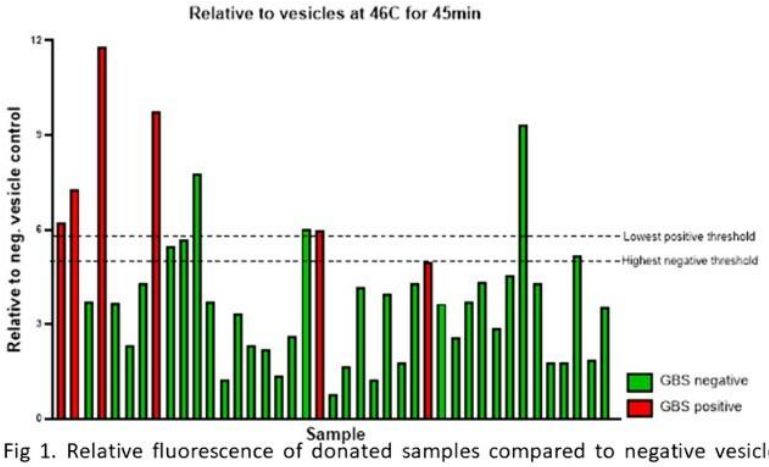

Fig 1. Relative fluorescence of donated samples compared to negative vesicle control. Green colour is GBS negative, red is GBS positive. Highest negative threshold is set at 5, with lowest positive threshold set at 5.8, n = 42.

At time of writing (January, 2023), 42 participants has been enrolled, GBS carriage rate in the study was found to be 14.3%, as confirmed by the clinical microbiology ECM (Enriched Culture Medium) test. Current test sensitivity (TP/TP+FN) was found to be 83%; specificity (TN/TN+FP) is 91% (Figure 1).
Conclusions/Learning Points: This test has potential for cost effective, rapid detection of maternal and neonatal GBS carriage, without the need of advanced equipment.

O0069 / #2273

MATERNAL VAGINAL MICROBES AND EARLY-ONSET NEONATAL INFECTION IN A RESOURCE-LIMITED, HIGH-DISEASE BURDEN SETTING; A NESTED-CASE CONTROL STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

Maryke Nielsen[1], Charlotte Van Der Veer[2], Vita Nyasulu[2], Bridget Freyne[3], Baleke Ndamala[2], Queen Dube[1], Kondwani Kawaza[1], Josephine Langton[1], Luis Gadama[4], Stephen Gordon[5], Enitan Carrol[6], Neil French[6], David Lissauer[2]
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Backgrounds: Early Onset Neonatal Infection (EO-NI) has traditionally been associated with Gram-positive bacteria such as Streptococcus agalactiae (GBS). The roles of other suspected EO-NI causative micro-organisms (referred to as pathobionts) are incompletely understood. Disruption in the transmission of beneficial micro-organisms (e.g. lactobacilli) due to maternal vaginal dysbiosis may increase the infant's vulnerability to infection with hospital-associated opportunistic pathobionts. Our aim was to assess whether a Lactobacillus-deficient microbiome and/or carriage of pathobionts associates with EO-NI.
Methods: Vaginal swabs were collected prospectively in a maternal/neonatal cohort and nested case-control study at the Queen Elizabeth Central Hospital, Blantyre, Malawi. Extracted DNA was sequenced on the Illumina HiSeq platform using the 16srRNA V4 region. Data analysis and taxonomy assignment were done using DADA2 and the SILVA 16S reference database respectively. Relative abundances of key bacterial taxa were summarized into clinically relevant bacterial groups.
Results: A total of 544 samples (n=62 cases, n=150 matched controls, n=332 cohort) collected between May 2019 and March 2020, were successfully sequenced. Overall, the median relative abundance of Lactobacillus spp and bacterial vaginosis (BV) associated bacteria was 55.4% and 24.0% respectively and this did not significantly differ between cases and controls. Cases had a higher median relative abundance of pathobionts (0.4% vs 0.2%) compared to controls but not significantly so (p=0.401). Overall, mothers of infants with low birth weight (<2500g) had a higher median relative abundance of BV-associated bacteria compared with mothers of normal-weight infants (34.9% vs 20.6%; p=0.017). Additionally, Lactobacillus spp. dominance (>90% relative abundance) associated with normal birth weight (>2500g; p=0.037).
Conclusions/Learning Points: The maternal vaginal levels of lactobacilli and pathobionts did not significantly associate with EO-NI. Mothers of low-birthweight infants had lower levels of lactobacilli and higher levels of BV-associated bacteria.

O0070 / #1287

DAPTOMYCIN USE FOR PERSISTENT COAGULASE NEGATIVE STAPHYLOCOCCAL (CONS) BACTEREMIA IN A NEONATAL INTENSIVE CARE UNIT, CASE SERIES 2011-2022

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

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Backgrounds: During the last two decades the incidence of late onset sepsis (LOS) has increased due to improved survival of premature neonates. Persistent bacteremia (PB) in LOS is defined as two or more positive blood cultures obtained on different calendar days during the same infectious episode. Although rare, PB should be treated aggressively in order to prevent adverse outcomes. Daptomycin, a lipopeptide antibiotic, has been used in neonates with persistent CoNS bacteremia with promising results.
Methods: In this retrospective, observational, case series study we present data of neonates, treated with daptomycin, during the period 2011 - 2022, in the Neonatal Intensive Care Unit (NICU) University General Hospital of Patras, Greece.
Results: There were 12 patients included in the study and 66.7% (8/12) were male. Median gestational age and mean birthweight were 32 weeks (IQR 31-34) and 1840±867.4 grams, respectively. 70% (7/10) were delivered by emergency cesarean section and 60% (6/10) were intubated at birth. Antibiotic course, duration of treatment and causative pathogens are shown in figure 1. Decision to start daptomycin (6mg/kg/dose twice daily) was taken on day 10 (IQR 7-15) of infection. None of the infants had focal complications or meningitis. No renal, hepatic, muscular or gastrointestinal adverse events were observed. 8% (1/12) developed seizures while on treatment with daptomycin (intracranial hemorrhage and meningitis were excluded). 91.6% (11/12) of infants were discharged and 8% (1/12) passed away due to multiple prematurity complications.
Conclusions/Learning Points: Daptomycin monotherapy showed an adequate cure rate in premature neonates with persistent CoNS bacteremia in a tertiary NICU. In our study, daptomycin was effective and well tolerated; the safety profile, however, needs to be confirmed in larger studies and randomised controlled

trials.

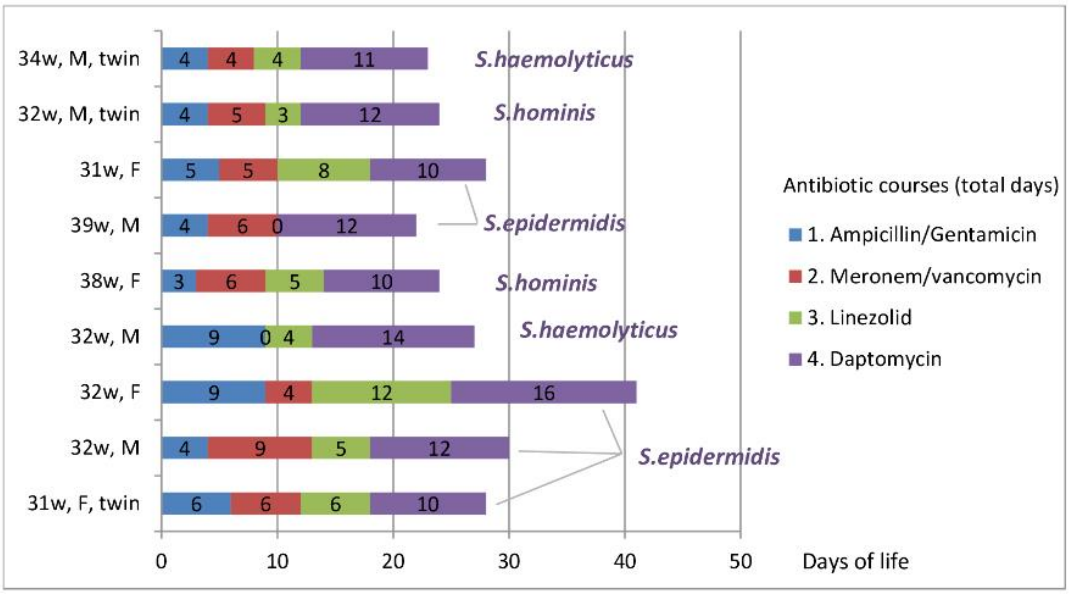

Figure 1. Antibiotic course, total days of treatment and causative pathogen (per patient per course). Courses 1,2 were empiric and courses 3,4 were targeted. Y axis corresponds to days of life.

O0071 / #924

HEARING OUTCOMES AT 24 MONTHS IN ASYMPTOMATIC OR MILDLY SYMPTOMATIC CONGENITAL CYTOMEGALOVIRUS ACCORDING TO TREATMENT GROUP

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

Serena Villaverde[1], Roberto Pedrero[2], Vassiliki Papaevangelou[3], Garyfallia Syridou[4], Hermione Lyall[5], Helen Payne[5], Marie Antoinette Frick[6], Pere Soler-Palacín[7], Fernando Baquero[8], Paula Rodriguez Molino[8], Claudia Fortuny[9], María Ríos-Barnes[10], Jesus Saavedra-Lozano[11], Miguel Sánchez[12], Xavier Bringué[13], Elisenda Moliner[14], Laura Castells[15], Oihana Muga[16], Isabel Vives-Oñós[17], Despoina Gkentzi[18], Giuseppina Lombardi[19], Alfredo Tagarro[20], Elena Colino[21], José A Couceiro[22], Horst Buxmann[23], Simon Drysdale[24], Daniel Blázquez-Gamero[1]
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Backgrounds: Congenital CMV (cCMV) is the main cause of non-genetic childhood hearing loss (HL). Evidence for treatment in asymptomatic/mildly symptomatic cCMV (A/mild cCMV) is still lacking. We describe hearing outcomes at 24 months of age for infants with A/mild cCMV, depending on whether or not they received antiviral treatment.
Methods: A multicenter study was performed in an European cohort. Included children had an asymptomatic or mild cCMV infection (A/mild cCMV). A/mild cCMV was defined as the presence of all of the following: normal physical examination (excluding SGA), with normal ALT and platelets (ALT <80 U/L, platelets >100,000 cs/mm3), absence of HL at birth and with normal or non-severe findings in cranial imaging (venticulostriated vasculopathy, germinolysis, caudothalamic or subependymal cysts and/or focal/multifocal white matter abnormalities). Main outcome was presence of HL at 24 months of age, defined as a hearing thresholds over 25 dB in any ear (by ABR).
Results: 196 were included. 68/196(34.7%) received antiviral treatment (figure 1). Children treated with antivirals had lower gestational age, lower birth weight, smaller head circumference, and maternal primary infection was less frequent. Most infants with mild abnormalities in imaging were treated. Nine patients (4.6%) developed HL at 24 months. In the HL group 2 of 9 patients presented minor abnormalities in MRI and received antiviral treatment. At 24 months, HL was similar in treated versus non-treated infants (4.6% vs 6.3%;
p=0.6).

TABLE 1: Clinical and imaging variables according to treatment group

	All Population (N = 196)	Treated children (N = 68)	Non treated children (N = 128)	p-value
Male, n (%)	91 (46.4)	34 (50.0)	57 (44.5)	0.465
Age at diagnosis (days), mean (SD) [N = 192]	1.9 (2.72)	2.4 (3.16)	1.6 (2.41)	0.034
Gestational age at delivery (weeks), mean (sd) [N =186]	37.6 (2.5)	36.8 (3.02)	38.1 (2.06)	**0.008**
Birth Weight (gr), mean (sd) [N = 169]	2880.4 (753.16)	2597.0 (832.88)	3040.5(655.74)	**<0.001**
Birth head circumference (cm), mean (sd) [N = 128]	33.1 (2.64)	32.3 (2.87)	33.7 (2.33)	**0.003**
ALT (GPT) (U/L), mean (sd) [N = 116]	20.6 (12.79)	19.8(14.3)	21.3 (11.54)	0.175
Platelets (cs/mm3), mean (sd) [N = 135]	276077.5 (96669.3)	247320.8 (107390)	277302.6(89157.5)	0.326
Maternal primary infection, n (%)	109 (62.6)	26 (42.6)	83 (73.5)	**<0.001**
Congenital CMV diagnosis first 21 days, n (%)	130 (66.3)	44 (64.7)	86 (67.2)	0.504
Child first cranial ultrasound findings, n (%)				
Child first cranial ultrasound abnormal	20 (11.6)	13 (21.3)	7 (6.3)	**0.003**
Lenticulostriate Vasculopathy	11 (6.2)	9 (14.5)	2 (1.7)	**0.001**
Caudothalamic / Subependymal Cysts /germinolysis	6 (3.4)	3 (4.8)	3 (2.6)	0.434
Child first cranial MRI findings, n (%)				
Child first cranial MRI abnormal	16 (8.7)	13 (21.3)	3 (2.5)	<0.001
White matter abnormalities (focal/multifocal)	12 (6.1)	9 (13.2)	3 (2.3)	0.002
Caudothalamic / Subependymal Cysts /germinolysis	4 (2.0)	4 (5.9)	0 (0.0)	0.006
Hearing loss 24 MONTHS (>25 dB in at least one ear)	**9 (4.6)**	**3 (4.6)**	**6 (6.3)**	**0.658**

Conclusions/Learning Points: One third of children with asymptomatic/mild cCMV were treated with antivirals. At 24 months the incidence of HL was similar among treated and untreated children. Larger numbers, and longer follow up is required to ascertain whether early treatment is protective at older ages, highlighting the importance of the CCMVNET international registry.

O0072 / #539

DOES BCG VACCINATION PROTECT INFANTS FROM HETEROLOGOUS INFECTIONS BY INDUCING EMERGENCY GRANULOPOIESIS? A SECONDARY ANALYSIS OF TWO RANDOMISED CONTROLLED TRIALS.

Oral Presentations Session
ORAL PRESENTATION SESSION 07: NEONATAL & CONGENITAL

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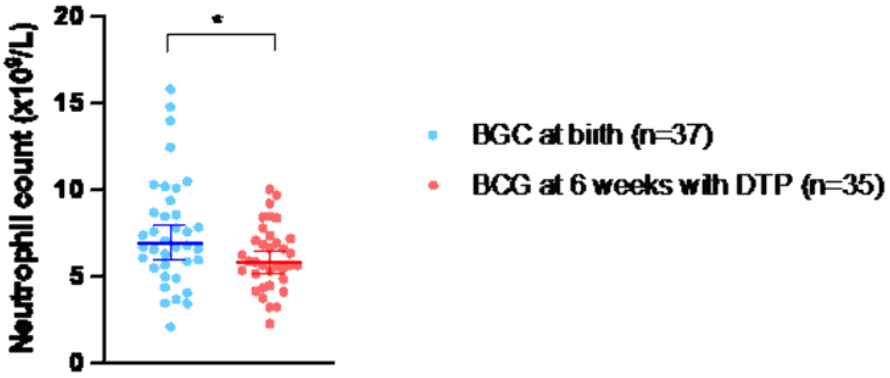
Backgrounds: BCG vaccination protects neonates against non-tuberculous heterologous infections and death in high-morbidity countries. The mechanisms underlying these non-specific beneficial effects are incompletely understood. BCG-induced emergency granulopoiesis protects newborn mice against polymicrobial sepsis, but the evidence for a BCG-induced rise in granulocytes in human neonates is limited.
Methods: BCG-induced emergency granulopoiesis was investigated using full blood counts collected during two randomised controlled trials of differing BCG vaccination timings conducted in 120 Gambian and 240 Ugandan neonates. Neutrophil counts determined by automatic counter were available from Gambian infants at birth, days of life (DOL)1-3 and from Ugandan infants at birth, DOL5-9 and at age 6- and 10-weeks (+/-7 days). Comparisons between BCG-vaccinated and naïve infants in both studies, as well as early (birth) vs. delayed (at 6-weeks) BCG-vaccination in Ugandan infants, were conducted using linear regression.
Results: No significant differences in granulocyte/neutrophil counts were found at most short and longer-term post-intervention blood-sampling time-points, when comparing BCG-vaccinated with BCG-naïve Gambian and Ugandan infants. However, BCG-vaccinated female infants had a significant increase in neutrophils between baseline and DOL2-3 compared to BCG-naïve female infants (1.37 vs. 0.70 fold-change, p=0.006). Male infants showed the opposite trend (0.62 vs.1.11 fold-change, p=0.07, interaction by sex p=0.01). Infants BCG-vaccinated at birth had higher neutrophils 1-day after non-specific stimulation from their second dose of primary immunisations compared to infants who received BCG at 6-weeks (GMR 1.17 (1.00-1.36), p=0.05, Figure
1).

Neutrophil count 1 day after EPI vaccinations at 10 weeks



Effect more pronounced in boys (GMR 1.27 (1.03–1.61))

Conclusions/Learning Points: We did not find strong evidence for BCG-induced emergency granulopoiesis in Ugandan and Gambian infants, to explain BCG's non-specific effects. The possibility of a sex-differential effect of BCG on acute neutrophil production, and enhancement of neutrophil responses following exposure to heterologous stimuli should be explored in prospective studies.

O0073 / #408

INCREASE IN INVASIVE GROUP A STREPTOCOCCAL INFECTIONS IN CHILDREN IN THE NETHERLANDS, A SURVEY AMONG 7 HOSPITALS IN 2022

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

Evelien Van Kempen[1], Patricia Bruijning-Verhagen[2], Dorine Borensztajn[3], Clementien Vermont[4], Marjolijn Quaak[4], Jo-Anne Janson[5], Ianthe Maat[6], Kim Stol[7], Bart Vlaminckx[8], Jantien Wieringa[9], Nina Van Sorge[10], Mirjam Van Veen[11], Navin Boeddha[12]
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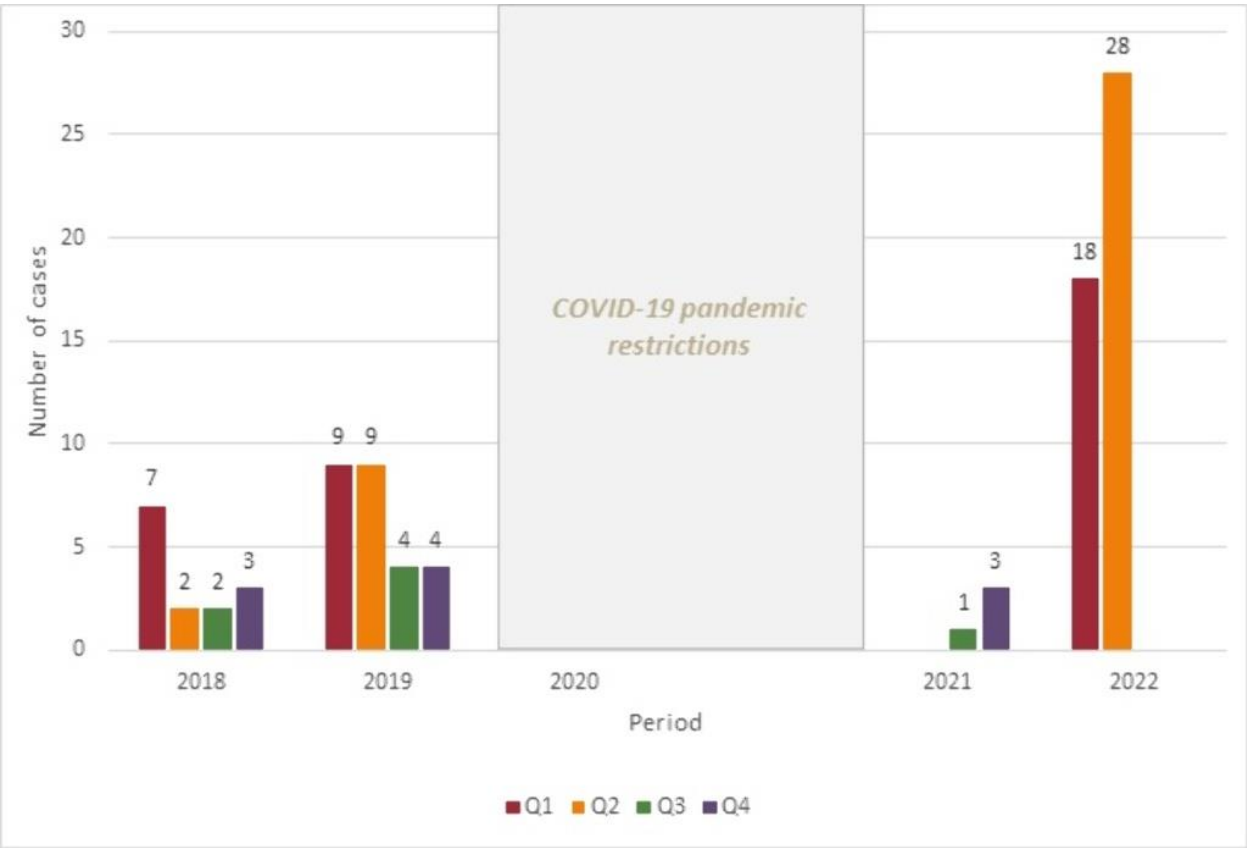
Backgrounds: Since early 2022, pediatricians in the Netherlands have observed a rise in pediatric cases of severe invasive group A streptococcal (iGAS) disease, including several deaths. National surveillance also reported an increase in the following iGAS clinical presentations: necrotizing fasciitis and toxic shock syndrome. However, other clinical presentations of iGAS are not systematically recorded. Aim was to determine whether case numbers were indeed elevated compared to the pre-COVID-19 period and to gain more insight into the spectrum of clinical presentations and disease severity.
Methods: We performed a survey regarding microbiology confirmed pediatric iGAS cases in seven Dutch hospitals. Cases were included between 01-07-2021 and 30-06-2022 (i.e. P2), to capture recent trends, and compared to cases from pre-COVID-19 years 01-01-2018 - 31-12-2019 (i.e. P1). Aggregated data were collected on age-category, year-quarter, clinical diagnosis, coinciding or preceding influenza or varicella infection and outcome (mortality, PICU admission).
Results: In P2 (12 months), 61 pediatric iGAS cases were reported (5.1/month) versus 56 cases in P1 (24 months, 2.3/month). A 3-fold increase occurred early 2022, most pronounced in <5-year olds. Main diagnosis in P1 was sepsis (26%), compared to pneumonia with empyema (28%) in P2. No cases of necrotizing fasciitis were reported in P1, while in P2 this clinical presentation represented 11% of diagnoses. PICU admission occurred in 21% of cases in P1 and in 32% of cases in P2. One death was reported in P1 (1/39; 3%) versus 5/57 (9%) in
P2.



Conclusions/Learning Points: There is a substantial surge in pediatric iGAS cases in the Netherlands since early 2022, some with fatal outcome, that requires further evaluation. Clinicians and parents should be vigilant and aware of unusual pediatric presentations such as necrotizing fasciitis.

O0074 / #1037

TIME AND SPACE KDETS: KAWASAKI DISEASE EXPOSURES IN TIME AND SPACE TO VIRUSES

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

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Backgrounds: Kawasaki disease is an uncommon vasculitis affecting children less than five years old. The aetiology remains poorly understood, although preceding infective triggers are widely suggested. We aimed to determine whether Kawasaki disease incidence was related to community respiratory virus circulation and to describe viral associations prior to and during the COVID-19 pandemic. SNOTWATCH is a de-identified ecologic analysis platform capturing population level multiplex polymerase chain reaction (PCR) molecular diagnostic results together with hospital encounters. We used this platform to investigate the associations between respiratory viruses and Kawasaki disease at a population level in both time and space.
Methods: Spatiotemporal associations between Kawasaki disease across Victoria, Australia, and nine respiratory viruses (adenovirus, SARS-CoV-2 (severe acute respiratory syndrome-coronavirus-2), hMPV (human metapneumovirus), influenza A, influenza B, parainfluenza, picornavirus, parechovirus and RSV (respiratory syncytial virus)) detected at two large hospital networks from July 2011- November 2021 were studied through Poisson regression analysis.
Results: Results from 153,153 multiplex PCR tests and 1,081 Kawasaki disease presentations demonstrated an association of Kawasaki disease with hMPV (1.52 risk ratio (RR), 99%CI 1.27-1.82) and RSV (1.43 RR, 99%CI 1.17-1.73) before the COVID-19 pandemic, and no associations observed during the pandemic with community lockdowns used extensively in Victoria to limit viral transmission.
Conclusions/Learning Points: With a large sample size and the granularity of a spatiotemporal analysis, our findings confirm the importance of understanding viral circulation patterns and their implications for paediatric health outcomes. If these results are confirmed, with successful RSV vaccine phase 3 clinical trials already reported and hMPV vaccine clinical trials underway, the possibility of Kawasaki disease being at least partially vaccine-preventable is an exciting prospect.

O0075 / #1911

THE PREVALENCE AND BURDEN OF EPSTEIN-BARR VIRAL CO-INFECTION IN UK YOUTH LIVING WITH PERINATALLY ACQUIRED HIV.

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

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Backgrounds: Considerable evidence implicates co-infecting Epstein-Barr virus (EBV) as a driver of B-cell lymphoproliferation in people living with HIV. Yet, the prevalence and burden of EBV in youth living with perinatally acquired HIV (YLWPaHIV) is underrepresented, despite their increased risk of lymphoma.
Methods: EBV co-infection was determined in a cohort (N=48) of virally HIV-suppressed (<80 copies/mL) YLWPaHIV by quantifying EBNA1 IgG in plasma (ELISA), and EBV-DNA in saliva (PCR), and PBMCs (ddPCR) at a single time point. Seropositivity was explored alongside clinical data, including, $CD4^+$ and $CD8^+$ T-cell counts, histories of HIV-suppression, and duration ART treatment. Flow cytometric and LUMINEX assays measured immune activation and inflammation associated with lymphoma development.
Results: In this cohort (male 60%, black ethnicity 82%, median and [IQR]: age 23 [20-28], $CD4^+$ count 652 cells/mL [540-848], age of ART initiation 7 [2-12], lifetime HIV-supressed 69% [48-88%]), EBV seropositivity was 92%, with salivary EBV-DNA detected in 42%. Participants with detectable cell-associated EBV-DNA [30%] had shorter durations of lifetime HIV-suppressed [**P=0.0065] and reduced $CD4^+$:$CD8^+$ ratios [**P=0.0049], compared to those with undetectable cell-associated EBV-DNA. Higher measurements of EBNA1 IgG and cell-associated EBV-DNA negatively correlated with delayed ART initiation during childhood [*P=0.0107, r=-0.3854; *P=0.0148, r=-0.6947; respectively]. When investigating B-cell activation, greater Ki67 [*P=0.0319] and B-lymphocyte-induced maturation protein-1 (latent to lytic switch inducer) [*P=0.0089] expression was seen in late memory B-cells of those with undetectable salivary EBV-DNA (latent), compared to detectable.
Conclusions/Learning Points: Our study highlights a correlation between EBV suppression and YLWPaHIV's duration of ART treatment and duration of life HIV-suppressed. Associations between latent and reactivated states of EBV infection, immune activation and inflammation, and clinical outcomes must be investigated in larger YLWPaHIV cohorts to better understand the burden of co-infection.

O0076 / #468

RISK FACTORS FOR SEVERE RESPIRATORY SYNCYTIAL VIRUS INFECTION DURING THE FIRST YEAR OF LIFE: DEVELOPMENT AND VALIDATION OF A CLINICAL PREDICTION MODEL

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

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Backgrounds: Novel immunisation methods against respiratory syncytial virus (RSV) are emerging, but our knowledge of risk factors for severe RSV disease is insufficient for their optimal targeting. Our aim was to screen comprehensive registry data with machine learning methods to identify predictors for RSV hospitalisation before 1 year of age, and develop a clinical prediction model for targeting RSV immunoprophylaxis.
Methods: Using nationwide healthcare and population registries from Finland and Sweden, we studied infants born between 6/1997 - 5/2020 (n=2.8 million) and their parents and siblings. Based on data-driven screening, we created a 16-variable logistic regression model and compared it to a machine learning (XGboost) model including all 1509 variables.
Results: We identified several novel predictors for RSV hospitalisation, most notably esophageal malformations (adjusted odds ratio (aOR) 3.11, 95% confidence interval 1.86 - 5.19) and lower-complexity congenital heart defects (CHD, aOR 1.43, 1.25 - 1.63), in addition to known predictors such as severe CHD (aOR 2.89, 2.28 - 3.65). In validation data, the clinical prediction model's C-statistic was 0.766 (0.742 - 0.789) in Finland and 0.737 (0.710 - 0.763) in Sweden. The prediction model performed equally to the machine learning model in Finland (C-statistic 0.771, 0.754 - 0.788). Calibration varied according to epidemic intensity, but average calibration was good. In the top 10% of infants having the highest predicted risk for RSV hospitalisation, the immunisation would have had a number-needed-to-treat of 23 in Finland and 40 in Sweden in preventing hospitalisations, assuming 60% effectiveness.
Conclusions/Learning Points: The identified predictors and the prediction model can be used in guiding RSV immunoprophylaxis in infants. The breadth of the associated variables warrants further research to study their mechanisms.

O0077 / #626

RISK OF MENINGOCOCCAL DISEASE IN PRETERM COMPARED TO TERM INFANTS: THE RESULTS OF THE IMPS STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

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Backgrounds: Invasive meningococcal disease (IMD) is most common in the first year of life and immunity relies on complement and antibody mediated killing. Because of their immature immunity, preterm infants may be at increased risk of IMD and may present differently compared to term infants. This study explored the incidence, clinical characteristics and outcomes of IMD in infants less than one year of age in England.
Methods: This was a retrospective analysis of IMD cases in infants in England during 01 September 2015 to 31 August 2020. Cases were identified through national surveillance conducted by the UK Health Security Agency.
Results: There were 393 IMD cases over the five-year period and 274 (67.7%) were due to meningococcal serogroup B. Gestational age was available for 92.4% (n=363) of infants, including 87.6% (n=318) born at term and 12.4% (n=45) premature (<37 weeks gestation). Overall IMD incidence was 12.4/100,000 infants, but was higher in those born prematurely (18.2/100,000) compared to those born at term (10.9/100,000; incidence rat ratio, 1.66; 95%CI; 1.58-1.72). There were no differences in clinical presentation or course of illness between term and preterm infants. At least one sequelae was reported in 36.8% preterm compared to 19.6% term infants (p=0.02).
Conclusions/Learning Points: We found an increased incidence of IMD in preterm infants, no difference in presentation or clinical course between term and preterm infants, but at least one sequelae was reported in significantly more preterm infants compared with term infants.

O0078 / #694

RESIDUAL BURDEN OF VARICELLA IN A HIGH VACCINATION COVERAGE AREA: A POPULATION DATABASE ANALYSIS IN ITALY (2004-2021)

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

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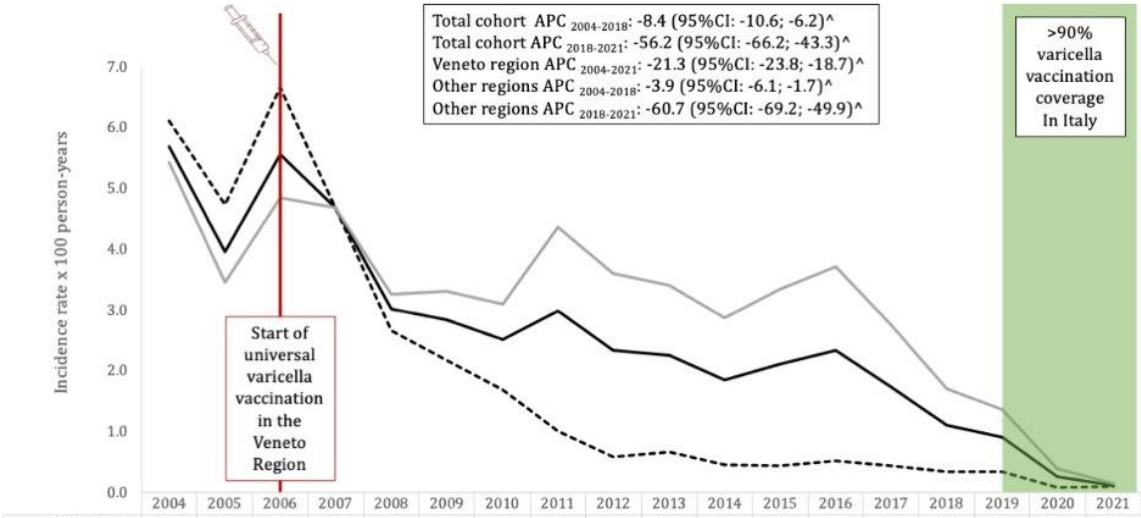
Backgrounds: Routine childhood immunization has dramatically reduced varicella incidence. In Italy, universal varicella vaccination (VV) was included in the national immunization calendar in 2017, even if some regions offered VV before. VV coverage reached 90% in 2019, with differences between Italian regions. Due to limitations in electronic health record databases in capturing varicella episodes, we aimed to assess the burden of varicella disease in the pediatric population using a primary-care database.
Methods: Data from a comprehensive database including 161 family pediatricians in Italy (Pedianet) was analyzed. Incidence rates (IR) of varicella (ICD-9-CM code 052, 052.0–52.9) were evaluated in subjects <15 years of age between January 2004 and December 2021 by calendar year and region. Subjects were followed up from 2004, or the enrollment date, until the end of assistance or the study period or the date of varicella. Comorbidities and complications were recorded. Significant trends over the years were assessed as average annual percent changes (APC) using the joint-point regression.
Results: 440,567 children were included in the study. 64,434 varicella index cases were recorded. Nationwide, the IR decreased annually by 8.4% from 5.7 in 2004 to 1.1 x 100 person-years in 2018 and by 56.2% from 1.1 in 2018 to 0.1 in 2021. Following the VV implementation in 2006 in Veneto Region, the IR significantly decreased, ranging from 6.1 in 2004 to 0.1x 100 person-years in 2021 (Figure1).

Figure 1. Annual IR of varicella in the Veneto region and the total cohort. Pedianet, 2004-2021



Children with gastroenterological and immune diseases had higher IR (3.5 and 3.3 x 100 person-years, respectively) than the overall cohort.

Conclusions/Learning Points: This retrospective and comprehensive analysis further confirmed that the implementation of universal VV programs drastically reduces the IR of varicella.

O0079 / #1258

POST-PANDEMIC WINTER TRENDS IN INVASIVE PNEUMOCOCCAL DISEASE IN ENGLAND

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

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Backgrounds: The COVID-19 pandemic and its related social distancing restrictions were associated with large declines in invasive pneumococcal disease (IPD) cases. With the easing of restrictions, cases in children increased above pre-pandemic levels during the first post-pandemic year (2021/2022), especially in 1–4-year-olds. In adults, however, cases remained below 45% compared to pre-pandemic years.
Methods: We conduct enhanced surveillance of IPD cases received through routine laboratory notifications of IPD cases in England and provide a national reference laboratory service for confirmation and serotyping at the UK Health Security Agency. Here we report winter trends in the post-pandemic period.
Results: Overall, there were 1,764 IPD cases during July to December 2022. Cases in children <15 years were lower (n=150) compared to the same period in the previous year (n=203) but similar to the three-year pre-pandemic average for this time period (2017-2019; n=157). In adults, there were 1,614 IPD cases during July to December 2022 vs an average of 2,381 between July-December of the previous three pre-pandemic years and 1,488 cases between July-December 2021.
Conclusions/Learning Points: Cases in children appeared to have returned to pre-pandemic levels in the latest winter period, despite large increases in circulating respiratory viruses. Adult cases also appear to have stabilised but remain substantially below pre-pandemic levels.

O0080 / #1417

PAEDIATRIC HEPATITIS CLUSTERS IN VICTORIA AUSTRALIA: EXPLORING POTENTIAL RESPIRATORY VIRAL ASSOCIATIONS

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

Rana Sawires[1], Joshua Osowicki[2], Hazel Clothier[3], Michael Fahey[4], Jim Buttery[3]
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Backgrounds: Beginning in early 2022, clusters of severe paediatric hepatitis were reported in Europe and the USA. To date, no cause has been identified, although human adenovirus 41 has been proposed in a proportion of cases. We examined population data over 11 years for hepatitis clusters in Victoria, Australia, and whether any were spatiotemporally associated with community transmission of common respiratory viruses.
Methods: The Victorian Agency for Health Information (VAHI) collates, analyses and shares health data from public hospitals across the Australian state of Victoria (population 6.5 million). Data are stored by ICD-10-AM codes and hepatitis cases were identified using a broad set of relevant codes which included hepatitis without a specific aetiological agent. Only paediatric hepatitis cases (<20 years old) were included. Nine respiratory viruses (adenovirus, SARS-CoV-2 (severe acute respiratory syndrome-coronavirus-2), hMPV (human metapneumovirus), influenza A, influenza B, parainfluenza, picornavirus, parechovirus and RSV (respiratory syncytial virus)) detected at two large hospital networks were included. We used SaTScan™ to analyse clusters of paediatric hepatitis and respiratory adenoviruses in Victoria. Negative binomial regression analysis was performed to determine associations between hepatitis and respiratory viruses across Victoria between 1 July 2011 and 30 June 2022.
Results: Several positive associations were observed in Victoria between paediatric hepatitis clusters and respiratory viruses in our spatiotemporal analysis, including with picornaviruses. A positive association was not found with respiratory adenoviruses or SARS-CoV-2. Increased hepatitis clusters were observed in 2021 and 2022, as noted internationally.
Conclusions/Learning Points: These findings suggest that the current severe hepatitis outbreak is a novel phenomenon that requires further etiological investigation. Common circulating respiratory viral pathogens appear to be associated with paediatric hepatitis, and the robust association with picornaviruses warrants further investigation, including by subtype—rhinoviruses and enteroviruses.

O0081 / #857

GENOMIC INVESTIGATIONS OF ACUTE HEPATITIS OF UNKNOWN AETIOLOGY IN CHILDREN

Oral Presentations Session
ORAL PRESENTATION SESSION 08: PUBLIC HEALTH

Sofia Morfopoulou[1], Sarah Buddle[1], Oscar Torres Montaguth[1], Laura Atkinson[2], José Afonso Guerra-Assunção[1], Mahdi Moradi Marjaneh[3], Riccardo Zenezini Chiozzi[4], Nathaniel Storey[2], Luis Campos[5], Ciaran Hutchinson[5], John Counsell[6], Gabriele Pollara[7], Sunando Roy[1], Cristina Venturini[1], Mahdad Noursadeghi[7], Maesha Deheragoda[8], Nedim Hadzic[8], Tassos Grammatikopoulos[8], Rachel Brown[9], Chayarani Kelgeri[10], Konstantinos Thalassinos[4], Simon Waddington[11], Thomas Jacques[5], Emma Thomson[12], Michael Levin[3], Julianne Brown[2], Judith Breuer[1]
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Backgrounds: Since the first reports in April 2022 of hepatitis of unknown aetiology occurring in UK children, over 1000 cases have been reported worldwide, including 278 cases in the UK, with the majority younger than 6 years old.
Methods: Using a combination of genomic, transcriptomic, proteomic and immunohistochemical methods, we undertook investigation of 38 cases, 67 age-matched immunocompetent controls and 21 immunocompromised comparator subjects, performing HAdV or AAV2 whole viral genome sequencing in a further 34 controls.
Results: We detected high levels of adeno-associated virus 2 (AAV2) DNA in liver, blood, plasma or stool from 27/28 cases. We found low levels of Adenovirus (HAdV) and Human Herpesvirus 6B (HHV-6B), in 23/31 and 16/23 respectively of the cases tested. In contrast, AAV2 was infrequently detected at low titre in blood or liver from control children with HAdV, even when profoundly immunosuppressed. AAV2, HAdV and HHV-6 phylogeny excluded emergence of novel strains in cases. Histological analyses of explanted livers showed enrichment for T-cells and B-lineage cells. Proteomic comparison of liver tissue from cases and healthy controls, identified increased expression of HLA class 2, immunoglobulin variable regions and complement proteins. HAdV and AAV2 proteins were not detected in the livers. Instead, we identified AAV2 DNA complexes reflecting both HAdV and HHV-6B-mediated replication.
Conclusions/Learning Points: We hypothesize, that high levels of AAV2 replication products aided by HAdV and in the most severe cases also by HHV-6B may have triggered immune-mediated hepatic disease in genetically and immunologically predisposed children.

O0082 / #1178

EFFICACY OF NIRSEVIMAB AGAINST RSV LOWER RESPIRATORY TRACT INFECTION HOSPITALIZATION IN INFANTS: PRELIMINARY DATA FROM THE HARMONIE PHASE 3B TRIAL

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

Simon Drysdale[1], Katrina Cathie[2], Florence Flamein[3], Markus Knuf[4], Andrea Collins[5], Helen Hill[6], Friedrich Kaiser[7], Robert Cohen[8], Christian Felter[9], Natalya Vassilouthis[9], Jing Jin[9], Mathieu Bangert[9], Simon Royal[10], Saul Faust[11], Pierre Tissieres[12], Harmonie Investigators[1]
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Backgrounds: Nirsevimab is a monoclonal antibody with an extended half-life that is licensed in the UK and EU to protect infants against lower respiratory tract infection (LRTI) due to respiratory syncytial virus (RSV) during their first RSV season. In this pragmatic trial conducted in the UK, France, and Germany (EudraCT 2022-000099-20), we evaluated nirsevimab for the prevention of hospitalization due to RSV-associated LRTI in infants. Here we report the preliminary results.
Methods: We individually randomised infants (≥29 weeks gestational age) in an open label 1:1 ratio to receive a single intramuscular injection of nirsevimab (<5 kg 50 mg; ≥5 kg 100 mg), or no intervention (standard of care) before or during the RSV season. Following a single physical visit participants were monitored remotely for RSV LRTI hospitalization (primary endpoint, defined as treating physician decision to admit to in-patient care with confirmed RSV) and/or very severe RSV LRTI (secondary endpoint, defined as SpO2 <90% and oxygen supplementation). Efficacy will be evaluated through the RSV season. Adverse events (AEs) will be monitored for 365 days.
Results: At the time of the primary analysis, 8058 infants were randomized, 4037 in nirsevimab group and 4021 in the no intervention group. Of these, 3916 (48.6%), 1912 (23.7%) and 2230 (27.7%) were ≤3.0, >3.0 and ≤6.0, and >6.0 months of age Efficacy against RSV LRTI hospitalization was 83.21% (95% CI: 67.77%, 92.04%) and 75.71% (32.75%, 92.91%) against very severe RSV LRTI.
Conclusions/Learning Points: A single dose of nirsevimab given before or during the RSV season protected infants against RSV LRTI hospitalization and very severe RSV LRTI in a pragmatic clinical trial conducted in real-world settings.

O0083 / #1126

AN OPEN-LABEL, PHASE 2 STUDY EVALUATING CELL-MEDIATED IMMUNE RESPONSE AND SAFETY OF A TETRAVALENT DENGUE VACCINE IN CHILDREN AND ADOLESCENTS AGED 4–16 YEARS

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

Sanja Mandaric[1], Charissa Borja-Tabora[2], Xavier Saez-Llorens[3], Shibadas Biswal[4], Manja Brose[1], Raphael Gottardo[5], Alice Faccin[1], Julie Anne L. Dimero[2], Rodrigo De Antonio[3], Nathali Montenegro[3], Darlene Fladager[4], Nicolas Folschweiller[1], Heather Friberg[6], Jeffrey Currier[6], Mayuri Sharma[4], Vianney Tricou[1]
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Backgrounds: TAK-003, a tetravalent dengue vaccine, demonstrated efficacy and safety against symptomatic and hospitalized dengue in a long-term phase 3 study. As a robust cell-mediated immune (CMI) response is important for immunity, this open-label phase 2 study evaluated T-cell responses to TAK-003 in healthy 4- to 16-year-old participants in dengue-endemic regions (NCT02948829).
Methods: 200 participants were enrolled to receive TAK-003 at Days 1 and 90. Dengue serostatus was tested at baseline (seropositivity: reciprocal neutralizing antibody [NAb; MNT_{50}] titer ≥10 for ≥1 serotype). The primary endpoint was CMI response rate at Day 120 (defined as interferon-gamma [IFN-γ] enzyme-linked immunospot response >3 times baseline and ≥5 spots per well). Peptide pools for non-structural (NS) proteins NS1, NS3, and NS5 matching DENV-1, -2, -3, and -4 were used for stimulation. Secondary endpoints included further evaluation of CMI, NAb responses and safety. Participants were followed up to 3 years post-second vaccination.
Results: CMI response rate against any peptide pool at Day 120 was 86.1% (seropositive participants: 82.0%; seronegative participants: 91.8%) and remained stable through Day 270. CMI response rate at Day 120 to peptide pools matching DENV-1, -2, -3, and -4 were 64.7%, 85.0%, 69.2%, and 63.6%, respectively, and remained elevated through Day 270. Multifunctional (secretion of ≥2 cytokines among IFN-γ, interleukin-2 and tumor necrosis factor-α) CD4+ and CD8+ T-cell responses were observed, independent of baseline serostatus. NAb titers and seropositivity rates remained high against all four DENV serotypes through Year 3. TAK-003 was well-tolerated with no important safety risks identified.
Conclusions/Learning Points: TAK-003 elicited multifunctional, cross-reactive T-cell responses against all four DENV serotypes, irrespective of participant baseline serostatus, in 4- to 16-year-old participants living in dengue-endemic regions.

O0084 / #2092

PHASE 3, RANDOMIZED, ACTIVE-CONTROLLED TRIAL DEMONSTRATES NONINFERIORITY OF PENTAVALENT MENINGOCOCCAL MENABCWY VACCINE TO MENB-FHBP + MENACWY-CRM, PROVIDING HIGH DEGREE OF PROTECTIVE IMMUNITY IN HEALTHY 10–25-YEAR-OLDS

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Backgrounds: Serogroups A/B/C/W/Y cause nearly all invasive meningococcal disease (IMD). This study evaluated safety and noninferiority of seroresponses of a pentavalent MenABCWY vaccine compared with the licensed vaccines MenB-fHbp and MenACWY-CRM.
Methods: This phase 3, observer-blinded, active-controlled study randomized 10–25-year-olds (2:1; n=2431), stratified according to prior ACWY vaccination history, to receive MenABCWY (Months 0,6) or MenB-fHbp (Months 0,6) and MenACWY-CRM (Month 0). Immunogenicity evaluations utilized serum bactericidal assays with human complement (hSBA) against serogroup A/C/W/Y strains and 4 diverse, vaccine-heterologous serogroup B (MenB) strains. Noninferiority was achieved if the lower bounds of the 95% CIs for the differences in percentages of participants achieving ≥4-fold titer rises over baseline (ie, seroresponses) or hSBA titers ≥lower limit of quantitation (LLOQ) for all strains combined (ie, composite response; MenB only) in the MenABCWY versus MenB-fHbp + MenACWY-CRM groups was >−10%. Safety was also evaluated.
Results:

Table. Percentages of Participants Achieving ≥4-fold Rises in hSBA Titer from Baseline or Composite Response

MenA/MenC/MenW/MenY Endpoint Strain	ACWY-Naive: MenABCWY + Saline n[a]/N[b] (%) (95% CI[c])	ACWY-Naive: MenB-fHbp + MenACWY-CRM n[a]/N[b] (%) (95% CI[c])	ACWY-Naive: Difference[d] ([MenABCWY + Saline] − [MenB-fHbp + MenACWY-CRM]) (95% CI[e])	ACWY-Experienced: MenABCWY + Saline n[a]/N[b] (%) (95% CI[c])	ACWY-Experienced: MenB-fHbp + MenACWY-CRM n[a]/N[b] (%) (95% CI[c])	ACWY-Experienced: Difference[d] ([MenABCWY + Saline] − [MenB-fHbp + MenACWY-CRM]) (95% CI[e])
≥4-fold rise in hSBA titer from baseline[f] to 1 month after MenABCWY Dose 1 or a single MenACWY-CRM dose						
MenA	484/498 (97.0) (95.1, 98.3)	242/254 (95.3) (91.9, 97.5)	1.7 (−1.0, 5.3)	416/439 (94.8) (92.2, 96.7)	220/227 (96.9) (93.7, 98.8)	−2.2 (−5.2, 1.4)
MenC	315/501 (62.9) (58.5, 67.1)	152/257 (59.1) (53.0, 65.1)	10.5 (3.0, 17.9)	410/439 (93.4) (90.7, 95.5)	214/226 (94.7) (90.8, 97.2)	−1.3 (−4.9, 2.9)
MenW	390/492 (79.3) (75.4, 82.8)	172/244 (70.5) (64.9, 75.4)	8.8 (−0.1, 13.1)	417/428 (97.4) (95.4, 98.7)	214/222 (96.4) (93.0, 98.4)	1.0 (−1.6, 4.6)
MenY	405/494 (82.0) (78.3, 85.3)	175/248 (70.6) (64.5, 76.2)	11.4 (5.0, 16.2)	417/442 (94.3) (91.8, 96.3)	209/223 (93.7) (89.7, 96.5)	0.6 (−3.0, 5.0)
≥4-fold rise in hSBA titer from baseline[f] to 1 month after MenABCWY Dose 2 or a single MenACWY-CRM dose						
MenA	437/447 (97.8) (95.9, 98.9)	242/254 (95.3) (91.9, 97.5)	2.5 (−0.2, 5.0)	381/385 (98.8) (97.0, 99.6)	220/227 (96.9) (93.7, 98.8)	1.8 (−0.5, 4.5)
MenC	421/451 (93.3) (90.6, 95.5)	132/252 (52.4) (46.0, 58.7)	41.0 (34.4, 47.5)	362/380 (93.8) (90.9, 96.0)	214/226 (94.7) (90.8, 97.2)	−0.9 (−4.6, 3.3)
MenW	427/439 (97.3) (95.2, 98.6)	178/244 (73.0) (66.9, 78.4)	24.3 (18.8, 30.4)	365/376 (97.1) (94.8, 98.5)	214/222 (96.4) (93.0, 98.4)	0.7 (−2.2, 4.3)
MenY	421/446 (94.4) (91.8, 96.3)	175/248 (70.6) (64.5, 76.2)	23.8 (18.0, 30.1)	380/387 (98.0) (96.0, 99.4)	209/223 (93.7) (89.7, 96.5)	−2.7 (−6.6, 3.8)

MenB Endpoint Strain (fHbp variant) or time point	ACWY-Naive and ACWY-Experienced Combined: MenABCWY + Saline n[a]/N[b] (%) (95% CI[c])	MenB-fHbp + MenACWY-CRM n[a]/N[b] (%) (95% CI[c])	Difference[d] ([MenABCWY + Saline] − [MenB-fHbp + MenACWY-CRM]) (95% CI[e])
≥4-fold rise in hSBA titer from baseline[f] to 1 month after Dose 2			
PMB80 (A22)	646/778 (83.0) (80.2, 85.6)	313/396 (79.0) (74.7, 82.9)	4.0 (−0.7, 8.9)
PMB2001 (A56)	771/807 (95.5) (94.3, 97.2)	378/400 (94.5) (91.8, 96.5)	1.1 (−1.0, 4.3)
PMB2948 (A24)	567/833 (68.1) (64.8, 71.2)	239/418 (57.2) (52.3, 62.0)	10.9 (5.2, 16.6)
PMB2707 (A44)	731/845 (86.5) (84.0, 88.7)	332/419 (79.2) (75.0, 83.0)	7.3 (2.9, 11.9)
Composite hSBA response [hSBA titer ≥LLOQ for all 4 MenB strains]			
Baseline[f]	10/812 (1.2) (0.6, 2.3)	8/403 (2.0) (0.9, 3.9)	-
1 Month after Dose 2	591/755 (78.3) (75.2, 81.2)	263/383 (68.7) (63.8, 73.3)	9.6 (4.2, 15.2)

fHbp=factor H binding protein; hSBA=serum bactericidal activity assay using human complement; LLOQ=lower limit of quantitation; LOD=limit of detection; MenA, MenB, MenC, MenW, and MenY=*Neisseria meningitidis* serogroup A, serogroup B, serogroup C, serogroup W, and serogroup Y; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY-CRM= quadrivalent meningococcal CRM conjugate vaccine; MenB-fHbp=bivalent rLP2086.

LLOQ=1:8 for all MenA, MenC, MenW, and MenY serogroups and A56, B24, and B44; LLOQ=1:16 for A22.

4-fold increase is defined as follows: (1) For participants with a baseline hSBA titer <LOD (1:4), a response is defined as an hSBA titer ≥1:16. (2) For participants with a baseline hSBA titer ≥LOD and <LLOQ, a response is defined as an hSBA titer ≥4 times the LLOQ. (3) For participants with a baseline hSBA titer ≥LLOQ, a response is defined as an hSBA titer ≥4 times the baseline titer.

[a]n=number of participants who achieved the endpoint noted.

[b]N=number of participants with valid and determinate hSBA titers for the specified strain at both the specified time point and baseline (≥4-fold responses) or number of participants with valid and determinate hSBA results for all 4 strains (composite hSBA response).

[c]Exact 2-sided CI based upon the observed proportion of participants, using the Clopper and Pearson method.

[d]Difference in proportions ([MenABCWY + saline] − [MenB-fHbp − MenACWY-CRM]) expressed as a percentage.

[e]2-sided CI (based on Miettinen and Nurminen) for the difference in proportions, expressed as a percentage.

[f]Baseline is defined as the blood draw prior to Dose 1.

Seroresponses were noninferior for 1 (ACWY-naive, 62.9%–97.0%; ACWY-experienced, 93.4%–97.4%) or 2 (ACWY-naive, 93.3%–97.8%; ACWY-experienced, 93.0%–97.1%) MenABCWY doses compared with 1 MenACWY-CRM dose (ACWY-naive, 52.4%–95.3%; ACWY-experienced, 93.7%–96.9%), regardless of ACWY experience (Table). For serogroup B, seroresponses for each test strain 1 month after MenABCWY Dose 2 (68.1%–95.9%) and percentages with composite responses (78.3%) were noninferior to MenB-fHbp after Dose 2 (57.2%–94.5% and 68.7%, respectively; Table). Reactogenicity,

which was mostly mild to moderate in severity, and adverse events were reported at similar frequencies across groups; no reactogenicity events led to study withdrawal.
Conclusions/Learning Points: MenABCWY administered on a 0-,6-month schedule induced robust, noninferior immune responses against all 5 serogroups compared with concomitantly administered MenB-fHbp and MenACWY-CRM and was safe and well tolerated. These findings support use of MenABCWY to simplify protection against IMD and potentially raise MenB vaccination rates. Funded by Pfizer.

O0085 / #2645

EFFECTIVENESS, IMMUNOGENICITY AND SAFETY OF A PENTAVALENT MENINGOCOCCAL ABCWY VACCINE IN ADOLESCENTS AND YOUNG ADULTS: RESULTS FROM A PHASE 3, RANDOMIZED, CONTROLLED CLINICAL STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Background: A meningococcal (Men) serogroups ABCWY vaccine could provide a practical approach towards broad protection against invasive meningococcal disease.
Methods: The effectiveness, immunogenicity and safety of an investigational MenABCWY vaccine and licensed 4CMenB and MenACWY-CRM vaccines were compared. In the observer-blind study (NCT04502693), 3651 healthy individuals aged 10–25 years were randomized (5:5:9:1) to receive 4CMenB (3-dose schedule: 0-2-6 months), 4CMenB (2-dose schedule: 0-6 months), investigational MenABCWY vaccine (2-dose schedule: 0-6 months) or MenACWY-CRM (1 dose: 0 month; control). Primary objectives of the MenABCWY analyses included demonstration of vaccine effectiveness (VE), using enc-hSBA (human serum bactericidal antibody assay using endogenous complement in each vaccinee's serum) against a panel of 110 diverse invasive meningococcal serogroup B (MenB) strains, with 2 approaches: test-based (percentages of samples without bactericidal serum activity against MenB strains post-last MenABCWY dose vs post-MenACWY dose) and responder-based (percentage of participants whose sera kill ≥70% strains at 1 month post-last dose). Other primary objectives included demonstrations of the non-inferiority of effectiveness of MenABCWY vs 4CMenB, immunological non-inferiority of MenABCWY vs MenACWY-CRM in MenACWY vaccine-naïve individuals, and safety.
Results: The 2-dose MenABCWY schedule met the pre-defined criteria for success for both VE endpoints. The non-inferiority of effectiveness of MenABCWY vs 2-dose 4CMenB and immunological non-inferiority vs 1-dose MenACWY were also demonstrated (see table). The safety profile of MenABCWY was in line with that of 4CMenB, with no safety concerns.

VE, and effectiveness and immunological non-inferiority of investigational MenABCWY vaccine

Test-based VE[1]	**Samples without bactericidal serum activity, %**			
	MenABCWY, N=25,715	**MenACWY, N=4374**	**Relative risk (95% CI)**	**MenABCWY VE, % (95% CI)**
	17.4	79.0	0.22 (0.21, 0.23)	77.9 (**76.6**, 79.2)
Responder-based VE[2]				84.1 (**81.4**, 86.5) N=817 (subjects)

Effectiveness non-inferiority[3]	**Samples with bactericidal serum activity, % (95% CI)**		**Group difference, % (95% CI)**
	MenABCWY, N=25,715	**4CMenB (0–2 M), N=27,569**	
	82.5 (82.1, 83.0)	83.1 (82.7, 83.6)	-0.6 (**-1.3**, 0.0)

Immunological non-inferiority[4]	**MenABCWY**		**MenACWY (control)**		
	Subjects, N	**% with 4-fold rise in hSBA titre (95% CI)**	**Subjects, N**	**% with 4-fold rise in hSBA titre (95% CI)**	**Group difference, % (95% CI)**
MenA	1170	97.0 (95.9, 97.9)	112	85.7 (77.8, 91.6)	11.3 (**5.9**, 19.0)
MenC	1189	97.2 (96.1, 98.1)	114	50.0 (40.5, 59.5)	47.2 (**38.1**, 56.3)
MenW	1185	97.0 (95.9, 97.9)	115	61.7 (52.2, 70.6)	35.3 (**26.9**, 44.5)
MenY	1196	96.7 (95.6, 97.7)	119	69.7 (60.7, 77.8)	27.0 (**19.4**, 35.8)

CI, confidence interval; hSBA, human serum bactericidal antibody assay; M, study month; N, number of samples or subjects; VE, vaccine effectiveness

[1] Percentages of samples without bactericidal serum activity by enc-hSBA against MenB strain panel at 1 M post-last MenABCWY dose vs post-MenACWY dose. Relative risk = percentage of samples without bactericidal serum activity in MenABCWY group / percentage in control MenACWY group. **Test-based VE demonstrated with lower limit (LL) of 2-sided 95% CI >65%**

[2] Percentage of participants whose sera kill ≥70% strains by enc-hSBA against MenB strain panel at 1 M post-last dose. **Responder-based VE demonstrated with LL of 2-sided 95% CI >65%**

[3] Percentages of samples with bactericidal serum activity by enc-hSBA against MenB strain panel at 1 M post-last MenABCWY dose and post-2 4CMenB doses (group that received third dose at M 6). **Effectiveness non-inferiority demonstrated with LL of 2-sided 95% CI for group difference above -5%**

[4] Percentages of MenACWY vaccine-naïve participants with 4-fold rise in hSBA titres against serogroups A, C, W, Y at 1 M post-last MenABCWY dose and 1 M post-MenACWY dose. **Immunological non-inferiority demonstrated with LL of 2-sided 95% CI for group difference above -10%**

Conclusions/Learning Points: The investigational MenABCWY vaccine is effective against a panel of 110 diverse invasive MenB strains and its safety profile is acceptable. Two MenABCWY doses given 6 months apart are non-inferior to 2 doses of 4CMenB and 1 dose of MenACWY in 10–25 year-old individuals.

O0086 / #2176

PHASE 3 SAFETY AND IMMUNOGENICITY STUDY OF A 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV20) ADMINISTERED IN A 3-DOSE INFANT IMMUNIZATION SERIES

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Backgrounds: Pneumococcal conjugate vaccines have reduced vaccine-type pneumococcal disease. This study assessed PCV20, which contains the components of the 13-valent pneumococcal conjugate vaccine (PCV13) and 7 additional conjugates in a 3-dose infant immunization series.
Methods: This phase 3 study (NCT04546425) was conducted in Europe and Australia. Infants (randomized 1:1) received 3 doses of PCV20 or PCV13 at ages 2–3, 4–5, and 11–12 months. Primary objectives included noninferiority of PCV20 to PCV13 based on serotype-specific immunoglobulin G (IgG) geometric mean ratios (GMRs; 2-fold noninferiority criterion) 1 month after Doses 2 and 3, and participants (%) with predefined IgG concentrations 1 month after Dose 2 (10% noninferiority criterion). The 7 additional serotypes in the PCV20 group were compared with the lowest result in the PCV13 group for the noninferiority evaluation. Dose 2 primary objectives were included based on scientific advice from the Committee for Medicinal Products for Human Use. The totality of immunogenicity data was assessed for serotypes missing noninferiority. Safety assessments included local reactions, systemic events, and adverse events.
Results: Of 1207 participants (PCV20, n=603; PCV13, n=604), 1173 (97.2%) completed all visits. Nineteen of 20 serotypes met statistical noninferiority criterion for IgG GMR 1 month after Dose 3; serotype 6B narrowly missed (lower 95% bound=0.48). After Dose 2, 16 serotypes met noninferiority for ≥1 of the immunogenicity objectives. Functional responses were elicited by PCV20 after Doses 2 and 3; booster responses were observed after Dose 3. The overall safety profile of PCV20 was similar to PCV13.
Conclusions/Learning Points: A 3-dose infant series of PCV20 had a safety profile similar to PCV13 and elicited responses expected to protect against pneumococcal disease due to the 20 vaccine serotypes.

O0087 / #1183

PERTUSSIS IMMUNIZATION DURING PREGNANCY BLUNTS INFANTS' PERTUSSIS TOXIN IGG-ANTIBODIES BUT PERTUSSIS TOXIN NEUTRALIZATION CAPACITY REMAINS LESS AFFECTED AFTER TWO DOSES OF PRIMARY VACCINATION

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Backgrounds: Immunization during pregnancy (IP) has proven effective in preventing pertussis in young infants but causes blunting of the infants' pertussis vaccine responses. We aimed to evaluate the blunting effect of IP on quantity and functionality of infants' anti-pertussis toxin (PT) IgG antibodies after primary pertussis vaccination.
Methods: We used a prospective, interventional, open-label controlled study design to evaluate the effect of immunization with tetanus-diphtheria-acellular pertussis (Tdap) vaccine at 30-35 weeks of pregnancy on DTaP vaccine responses of the infants. Geometric mean concentration (GMC) of anti-PT IgG antibodies and titer of PT neutralizing antibodies (PTNAs) were determined in infants born to vaccinated mothers in comparison with infants born to unvaccinated mothers at 6 months of age. Antibody concentrations of filamentous hemagglutinin, pertactin, diphtheria toxin, and tetanus toxin were also determined. Infants received their primary DTaP vaccines at 3 and 5 months of age.
Results: In total, 69 mother-infant pairs completed the study, 47 mothers and infants in the immunization during pregnancy group (Arm1), and 22 mothers and infants in the control group (Arm2). At six months of age, GMC (95% CI) of anti-PT IgG antibodies was 68 IU/ml (56-83) in Arm1 and 142 IU/ml (99-204) in Arm2. Infants in Arm1 had a higher PTNA titer than Arm2 in cord blood 178 (126-252) vs 40 (23-70) and at 3 months of age 65 (48-88) vs 28 (18-43), but equal at 6 months of age 113 (90-143) vs 117 (80-169), respectively. However, the fold increase of PTNAs from 3 to 6 months was 1.75 in Arm1 and 4.13 in Arm2 ($p < 0.001$).
Conclusions/Learning Points: IP seems to blunt more infants' anti-PT IgG antibody responses to pertussis vaccines than PTNA capacity by 6 months.

O0088 / #1088

INFLUENCE OF MATERNAL IMMUNIZATION AND PRIMARY VACCINATION WITH ACELLULAR OR WHOLE-CELL PERTUSSIS VACCINE ON THE MUCOSAL ANTIBODY RESPONSE IN INFANTS

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Backgrounds: Pertussis is an acute respiratory tract infection caused by the bacterium Bordetella pertussis (Bp). Although maternal vaccination programs protect against disease in early life, their effect on the infant's subsequent response to primary pertussis vaccination is not fully understood.
Methods: The Gambian Pertussis Study (GaPS), performed as part of the PERISCOPE consortium, is a randomised, double-blind controlled clinical trial in pregnant women, exploring the impact of aP vaccination in pregnancy on the immunogenicity in infants randomized to receive either an aP or wP vaccine. In an immunological sub study, we analyzed vaccine-induced nasal antibody responses to Bp, measuring antibody binding to wildtype Bp bacteria (Bp_wt) and an isogenic Bp deletion mutant that lacks all aP vaccine antigens.
Results: Our results show that infants born to mothers vaccinated with aP during pregnancy have significantly higher nasal IgG binding levels to Bp_wt prior to primary vaccination compared to infants born to mothers vaccinated with a control (tetanus-toxoid) vaccine. Subsequent primary vaccination of infants with wP results in significantly higher nasal IgG binding compared to aP, both at 5 and 9 months of age. At 9 months of age, aP-vaccinated infants born to mothers vaccinated with aP during pregnancy had significantly lower nasal IgG levels compared to the three other groups.
Conclusions/Learning Points: Our study demonstrates that maternal vaccination results in increased nasal antibody levels in infants, and furthermore identifies clear differences in nasal antibodies induced after primary aP versus wP vaccination. Clinical significance of the findings remains to be established.

O0089 / #1059

MATERNAL COVID-19 VACCINATION REDUCES THE ODDS OF NEONATAL RESPIRATORY DISTRESS IN THE COVID OUTCOMES IN MOTHER-INFANT PAIRS (COMP) STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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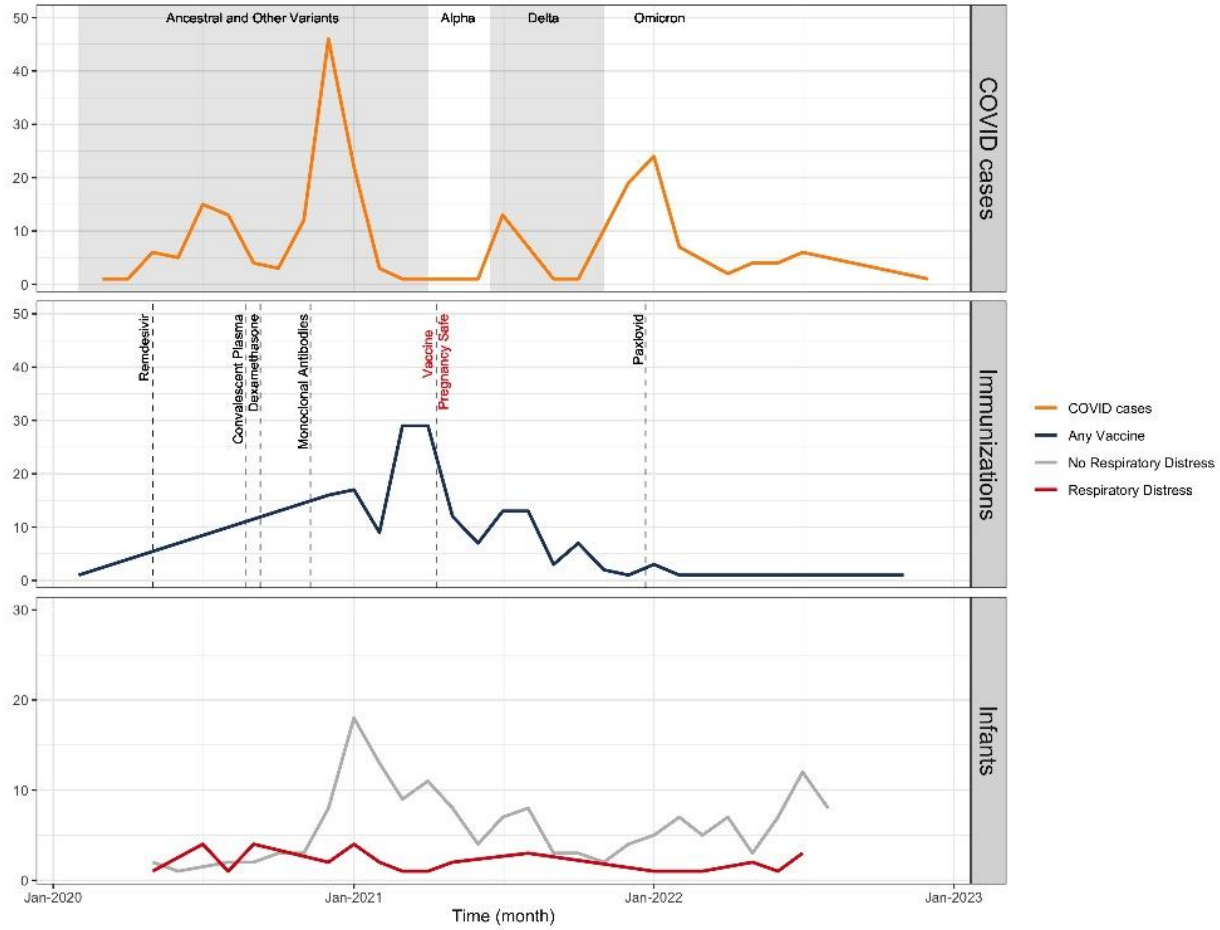
Backgrounds: Respiratory Distress (RD) has been reported in SARS CoV-2-exposed uninfected (SEU) term neonates born to women with COVID-19 during pregnancy. Prior studies suggest that prenatal exposure may activate an inflammatory cascade in the newborn's airway. However, associations of maternal COVID-19 vaccination on neonatal RD remain unknown.
Methods: We recruited a longitudinal cohort of pregnant women with confirmed SARS-CoV-2 during pregnancy and their infants in Los Angeles, CA. Maternal disease severity was defined by NIH criteria. We explored multifactorial associations between maternal COVID-19 parameters and infant RD.
Results: Twenty-nine of 227 women (13%) had severe/critical COVID-19; 199 infants born between 4/2021 to 8/2022 had neonatal data available with 17% (n=34) diagnosed with RD. Of these, 38% (n=14) were full-term and none tested positive for SARS CoV-2. 17% of infants (n=34) in the cohort were premature. Causes of RD included: Respiratory Distress Syndrome (47%), Transient Tachypnea of the Newborn (16%), and infectious etiologies (16%). 157 mothers (69%) were unvaccinated with severe/critical disease present in 16% (n=23), whereas only 4% of vaccinated mothers (n=3) had severe/critical disease. Neonatal RD was associated with maternal disease severity (OR:4.5, 95%CI:1.49-13.10), prematurity (OR:15.41, 95%CI:6.55-38.07), and absence of maternal COVID immunization (OR:3.74, 95% CI:1.47-11.49). RD was not associated with trimester of COVID-19 in pregnancy (OR:1.03, 95%CI:0.49-2.18) nor maternal race/ethnicity (OR:0.91, 95%CI:0.39-2.23). After adjusting for prematurity, OR of RD in neonates born to unvaccinated women was 4.25 (95%CI:1.2-20.7). When pregnant women received > 1 mRNA vaccine dose prior to infection, OR of neonatal RD was 0.33 (95%CI:0.1-0.96), a 67%
decline.

FIGURE 1: Maternal COVID cases, maternal immunizations, and cases of infant respiratory distress over time



Conclusions/Learning Points: Unusually high rates of RD were observed in SEU infants born to women with COVID-19 during pregnancy. Maternal vaccination against COVID-19 reduced maternal disease severity and frequency of neonatal RD.

O0090 / #1801

CO-ADMINISTRATION OF VACCINES AGAINST ROTAVIRUS AND GROUP B MENINGOCOCCUS IS ASSOCIATED WITH AN INCREASED ROTAVIRUS VACCINATION COVERAGE: A 5-YEAR RETROSPECTIVE POPULATION STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Backgrounds: In Italy Rotavirus vaccination (RVV) coverage is scattered and suboptimal. The narrow time frame to complete the schedule is a major barrier to vaccine uptake, and co-administration with other vaccines may potentially increase the coverage. We aimed at studying the impact on RVV coverage of the co-administration of RVV and Meningococcal Group B vaccines (MenB), a practice often applied although not included into product labels.
Methods: Regional Vaccination Registry was used to conduct a retrospective cohort study in children born in Campania Region (January 2016-December 2020) and receiving vaccines scheduled in the first year of life.
Results: A total of 224.110 children were enrolled during the study period. Overall, 60.614 (27.0%) completed the RVV schedule, with a progressive increase over time (from 1.15% in 2016 to 56.92% in 2020), in parallel with MenB/RVV co-administration (from 0.7% in 2016 to 46.85% in 2020). Monovalent RVV schedule (2-doses) was completed in 91.1% of children compared to pentavalent RVV Schedule (3-doses) in 81.3% ($p<0.00001$). Children receiving RVV/MenB co-administration had a significant higher chance to complete RV schedule compared to those receiving RVV alone during a specific appointment (94.78% vs 72.26%, Prevalence Ratio -PR- 1.275, 95%IC 1.245-1.295 $p<0.00001$). The positive effect of RVV/MenB co-administration was more evident for children receiving pentavalent RVV (PR 1.288) than monovalent RVV (PR 1.115), this evidence was confirmed when adjusted for confounding variables (i.e.year of vaccination, local health district,gender).
Conclusions/Learning Points: Although still far from the target, RVV coverage has increased in recent years in Campania Region. Co-administration with MenB vaccine may aid in achieving this goal, especially for pentavalent RVV. Further safety data are needed to support co-administration as a key tool to increase coverage.

O0091 / #1202

A COMMUNITY BASED TRIAL FOR ASSESSING THE UPTAKE OF CHILDHOOD VACCINES THROUGH COMMUNITY MOBILIZATION AND AN INNOVATIVE CONDITIONAL COLLECTIVE COMMUNTIY INCENTIVE

Oral Presentations Session
ORAL PRESENTATION SESSION 09: VACCINES

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Backgrounds: Despite the decline in under-five mortality by over 60% in the last three decades, majority of the child mortality is still attributable to communicable and infectious diseases that are not only preventable but also treatable.
Methods: The interventions were formally evaluated prospectively in a three-arm cluster randomized controlled trial to evaluate the impact of community engagement and demand creation strategy, involving conditional community-based incentives(CCI) on uptake of childhood immunizations and sanitation and hygiene behaviors in a rural setting of Pakistan: community mobilization and Incentivization (CMI); community mobilization only (CM); and control group. The CCI were an innovative strategy as it involved serial incremental targets of collective improvement in community behavior related to improvement in the coverage of a composite indicator of fully immunized children (FIC), and sanitation index (SI). The evaluation was done by an independent data collection and analysis team at baseline and end line This trial is registered with ClinicalTrials.gov, number NCT03594279
Results: At the end of the two-year intervention, 59.16% children were fully immunized in the CMI group, 43.7% in the CM, and 46.57% in the control group; SI in the CMI group was a mean of 10.15 (9.73, 10.57), followed by CM group 9.32 (8.91, 9.73) and the control group 8.93 (8.47, 9.38); The multivariate results suggest that there was a significant improvement in the CMI group for FIC (relative risk (RR) 1.27,95%confidenceinterval (CI)1.02-1.58), total SI (β:0.99,95%CI:0.13-1.85) and exclusive-breastfeeding (RR:1.79,95%CI:1.39-2.29), a significant decrease in prevalence of diarrhea (RR:0.65:95%CI:0.46-0.94).
Conclusions/Learning Points: Despite the challenges associated with the strategy of community mobilization and CCI, CMI was effective in increasing the coverage of essential interventions and can be an effective strategy for behavior change, enhanced acceptance and improve coverage of recommended health interventions.

O0092 / #1123

PAEDIATRIC WEIGHT-BASED DOSING FOR BETA-LACTAMS RESULTING IN ADULT-EQUIVALENT ATTAINMENT OF PHARMACODYNAMIC TARGETS AS PREDICTED THROUGH ALLOMETRIC SCALING

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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Backgrounds: To ensure applicability of EUCAST breakpoints, antimicrobials should not be used at lower doses than listed in EUCAST dosing tables. However, a paediatric minimal dosing table has not yet been developed and its development is complicated by a lack of high-quality pharmacokinetic (PK) study data to inform adequate dosing. Allometric scaling is commonly accepted as an empiric pharmacokinetic scaling approach for paediatric patients down to an age of approximately one year.
Methods: Adult target attainment was calculated for a 70kg-person using, where possible, the same parameters as for EUCAST breakpoint setting. For paediatric body weights of 10, 20, 30 and 40 kg, target attainment was calculated using PK parameters scaled from adults using theory-based allometry. The taskforce selected schedules based on ≥80% relative target attainment (but preferentially 100%) compared to adults over all modelled body weights, low frequency of dosing where possible and consistency with adult EUCAST recommendations. Where adult-equivalent target attainment cannot be expected with commonly acceptable dosing schedules, plans were made for future review of alternative (i.e. observed in high-quality PK studies) evidence for adequate target attainment.
Results: For most beta-lactams, adult-equivalent target attainment can likely be achieved with dosing schedules within the accepted range. Table 1 shows minimum dosing for commonly used beta-lactams with highlights where suggested doses are higher than used in most

Agent	Standard Dosage (in mg/kg BW)	High Dosage (in mg/kg BW)	Max. daily dose
Penicillins			
Benzylpenicillin	32.5 x 4	30 x 6	14.4g
Ampicillin	40 x 4	75 x 4	15g
Amoxicillin IV	35 x 3	50 x 6	12g
Amoxicillin PO	15 x 2	27 x 3	3g
Amoxicillin-clavulanic acid IV	37 x 3	37 x 4	8g
Amoxicillin-clavulanic acid PO (8:1 or 7:1)	15 x 2	30 x 3	8g
Piperacillin-tazobactam	80 x 4	100 x 4 3hr inf	16g
Phenoxymethylpenicillin	15 x 4	none	3.6g
Cloxacillin IV	17 x 6	none	12g
Cloxacillin PO	under review	none	6g
Flucloxacillin IV	12.5 x 4	none	12g
Flucloxacillin PO	20 x 4	none	3g
Cephalosporins			
Cefalexin	under review	none	6g
Cefazolin	23 x 2	50 x 3	6g
Cefotaxime	50 x 3	50 x 4	12g
Ceftazidime	50 x 3	100 x 3	6g
Ceftriaxone	50 x 1	80 x 1	4g
Cefuroxime IV	50 x 3	50 x 4	4.5g
Cefuroxime PO	under review	under review	1g
Carbapenems			
Meropenem	40 x 3	30 x 3 3hr inf	4.5g

recommendations.

Conclusions/Learning Points: Using allometric scaling accounts for differences in metabolism resulting in non-linear dependency of drug clearance on body weight and does not correct for differences in maturation. Findings from allometric scaling provide a first basis for discussion with the aim to develop a EUCAST dosing table for children.

O0093 / #68

OPTIMIZATION OF BETA-LACTAM DOSING REGIMENS IN NEONATAL INFECTIONS - CONTINUOUS AND EXTENDED ADMINISTRATION VERSUS INTERMITTENT ADMINISTRATION

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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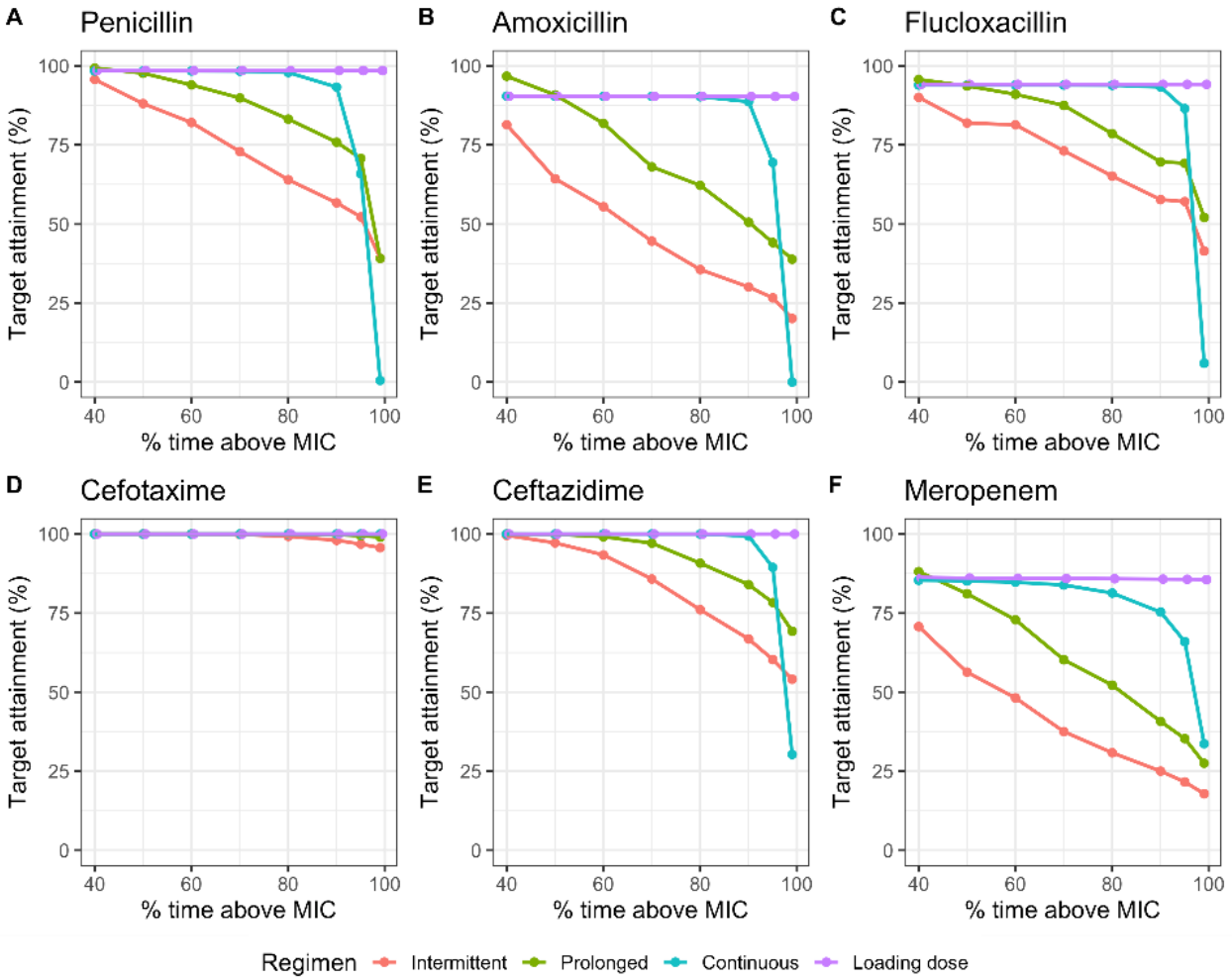
Backgrounds: Neonatal infections and especially neonatal sepsis are a major cause of morbidity and mortality. The cornerstone of treatment of neonatal infections are beta-lactam antibiotics. Clinical success of antibiotics is dependent on the use of safe and effective dosing regimens. However, despite the common use of these antibiotics, it is currently unknown which beta-lactam dosing regimens are optimal. In this pharmacokinetic-pharmacodynamic simulation study, we aimed to compare the treatment with continuous versus intermittent infusion of β-lactam antibiotics for neonates with infectious diseases.
Methods: We selected population pharmacokinetic models of penicillin G, amoxicillin, flucloxacillin, cefotaxime, ceftazidime and meropenem and performed a Mote Carlo simulation with 30 000 neonates. Four different dosing regimens were simulated, intermittent infusion in 30 minutes, prolonged infusion in four hours, continuous infusion and continuous infusion with a loading dose. The first 48 hours of therapy were simulated. The primary endpoint was 90% probability of target attainment (PTA) for 100% $\int T > MIC$.
Results: For all antibiotics except cefotaxime, continuous infusion with a loading dose resulted in a higher PTA compared to other dosing regimens (Figure 1). Sufficient exposure using continuous infusion (PTA>90%) with a loading dose was reached for amoxicillin (90.3%), penicillin G (PTA 98.4%), flucloxacillin (PTA 94.3%), cefotaxime (PTA 100%) and ceftazidime (PTA 100%). Higher meropenem (PTA 85.5%) doses might be needed to treat severe infections in neonates. Ceftazidime and cefotaxime dose might be unnecessary high, as even with dose reductions a PTA>90% was retained.



Conclusions/Learning Points: Continuous infusion with a loading dose leads to a higher PTA compared to continuous, intermittent or prolonged infusion and can improve antibiotic treatment in neonates. Our models suggest continuous infusion treatment as preferable in neonatal infections, instead of the currently used intermittent dosing regimen.

O0094 / #599

RAISING AWARE-NESS OF ANTIMICROBIAL STEWARDSHIP CHALLENGES IN PAEDIATRIC EMERGENCY CARE: RESULTS FROM THE PERFORM STUDY ASSESSING CONSISTENCY AND APPROPRIATENESS OF ANTIBIOTIC PRESCRIBING ACROSS EUROPE

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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Backgrounds: Optimisation of antimicrobial stewardship is key to tackling antimicrobial resistance (AMR). We described patterns of empiric antibiotic use in European paediatric Emergency Departments (EDs) and characterised appropriateness and consistency of prescribing.
Methods: Febrile children attending ED with suspected infection and venepuncture for diagnostics tests were recruited to the BIVA study in PERFORM (Personalised Risk assessment in Febrile illness to

Optimise Real-life Management), and cases were phenotyped using the validated PERFORM probability algorithm. Empiric systemic antibiotic use was determined in view of assigned final ‘bacterial’ or ‘viral’ phenotype. Antibiotics were classified according to WHO AWaRe (Access, Watch, Reserve).
Results: Of 2130 participating children, 1549 (72.7%) were assigned a ‘bacterial’ and 581 (27.3%) a ‘viral’ phenotype. A total of 1318 (85.1%) patients with a ‘bacterial’ and 269 (46.3%) with a ‘viral’ phenotype were prescribed empiric antibiotics during the first two days of admission. Of all patients treated with antibiotics, the majority (87.8% in ‘bacterial’ and 87.0% in ‘viral’ group) received parenteral antibiotics. The top three antibiotics prescribed were third-generation cephalosporins, penicillins and penicillin/beta-lactamase inhibitor combinations. 61.0% in the ‘bacterial’ and 80.3% patients in the ‘viral’ group receiving antibiotics had ≥ one WHO Watch antibiotic prescribed. The proportion of Watch antibiotic use was similar in initial and final syndrome classifications.
Conclusions/Learning Points: Differentiating bacterial from viral aetiology in febrile illness on initial ED presentation remains challenging, resulting in over-prescription of antibiotics. Of note, a significant proportion of patients with a final ‘viral’ phenotype received systemic antibiotics during admission, predominantly classified as WHO Watch. Rapid and accurate point-of-care tests in the ED differentiating between bacterial and viral aetiology, could significantly improve antimicrobial stewardship, and help stem the rising tide of AMR. Funding: EU H2020 programme, GA No 66830

O0095 / #1600

SUCCESS OF AMOXICILLIN ORAL CHALLENGES IN CHILDREN AT LOW RISK OF ALLERGY REQUIRING ANTIBIOTIC IN THE EMERGENCY DEPARTMENT

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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Backgrounds: Up to 10% of children are labelled as penicillin allergic, requiring the use of suboptimal antibiotics. The aim of this study was to assess the success of the oral amoxicillin challenges in our emergency department (ED).
Methods: This is an ongoing prospective observational study conducted at a tertiary care pediatric hospital. Children considered at low risk of penicillin allergy (https://www.inesss.qc.ca) and requiring amoxicillin were prescribed an amoxicillin challenge on a pre-written order set. In the absence of a reaction, patients were discharged with an amoxicillin prescription. Parents were contacted one month after the challenge to assess for late onset reactions.
Results: Since June 2021, 70 children underwent an amoxicillin challenge in the ED. The most frequent discharge diagnoses were otitis media (65%). The challenge was successful in the ED for 69/70 (99%) patients. Sixty-two (89%) patients were successfully contacted for a follow up phone call. In total, 7/62 (11%) of the children had a reported reaction: one (1%) child had an immediate reaction in the ED, while 6/62 (10%) had a rash 1 to 61 days after the first dose of antibiotics. No severe reactions were reported. A correlation between the amoxicillin administration and the delayed reaction was considered less likely for 3/6 patients because of the later onset of symptoms (28-61 days). The three other patients were considered not to have a penicillin allergy after formal assessment at the allergy clinic.
Conclusions/Learning Points: Using a standardized pre-written order set for an amoxicillin challenge in the ED allowed 99% of participating children to be discharged safely with an amoxicillin prescription, and rapidly remove the label of “penicillin allergy”. Despite about 10% of the children presenting a rash after discharge, none were considered to have a late onset reaction after follow-up.

O0096 / #616

ANTIBIOTIC USE AND ECONOMIC BURDEN OF VARICELLA INFECTION AMONG PEDIATRIC PATIENTS: A RETROSPECTIVE COHORT ANALYSIS OF REAL-WORLD DATA IN FRANCE

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

Stephanie Kujawski[1], Caroline Casey[2], Herve Haas[3], Amisha Patel[2], Christina Diomartari[2], Victoria Banks[2], Tim Holbrook[2], Manjiri Pawaskar[1]
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Backgrounds: Although varicella is considered a mild disease, varicella-related complications are often treated with antibiotics or antivirals. The extent to which these antimicrobial agents are used in the management of varicella in France is not well documented. This study assessed antibiotics and antivirals use in the management of varicella in France.
Methods: A retrospective cohort study using electronic medical records from general practitioners (GPs) and specialist consultations in France (Cegedim Strategic Data-Longitudinal Patient Database [CSD-LPD]) was conducted. Children <18 years of age with a first varicella diagnosis during January 2014 to December 2018 with 3-month follow-up available were included. Descriptive analyses were performed to assess varicella-related complications, medication use and healthcare resource (HCRU) costs in the 3-month follow-up period.
Results: 48,027 children were included. Mean age at diagnosis was 3.73 years [SD 2.41] and 52.4% were male. 15.3% (n=7,369) children had ≥1 varicella-related complication. Top complications were ear, nose, and throat conditions (38.0%, n=2,798), respiratory infections (36.0%, n=2,642) and ophthalmic infections (20.4%, n=1,502). 25.1% (n=12,045) were prescribed an antibiotic, with 18.7% (n=8,982) prescribed systemic antibiotics and 9.5% (n=4,545) non-systemic antibiotics. Only 2.2% were prescribed antivirals. The most prescribed antibiotic was amoxicillin (51.7%, n=6,231/12,025). Higher proportions of patients with varicella-related complications were prescribed antibiotics compared with those without complications (68.1% vs. 17.3%). Annualized varicella-related medication and HCRU costs were €333,465, with €53,001 attributed to medication costs, €249,192 attributed to GP and €31,272 to specialist consultation costs.
Conclusions/Learning Points: A considerable proportion of children with varicella experienced complications and were treated with antibiotics in France. Varicella management is associated with significant medication and HCRU costs. Varicella poses significant clinical and economic burden in France.

O0097 / #635

METAGENOMIC ANALYSIS OF THE NEONATAL INTESTINAL RESISTOME

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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Backgrounds: The intestinal microbiome forms a major reservoir for antibiotic resistance genes (ARGs). Little is known about the neonatal intestinal resistome.
Methods: Shotgun metagenomics was used to analyse the resistome and factors that influence the abundance of ARG in stool samples collected at one week of age from 393 healthy, term-born neonates without direct antibiotic exposure.
Results: Overall, 913 ARGs belonging to 27 classes were identified. The most abundant ARGs were those conferring resistance to tetracyclines, quaternary ammonium compounds, and macrolide-lincosamide-streptogramin-B. Phylogenetic composition was strongly associated with the resistome composition. Other factors that were associated with the abundance of ARGs were delivery mode, gestational age, birth weight, feeding method and antibiotics in the last trimester of pregnancy. Sex, ethnicity, probiotic use during pregnancy, and intrapartum antibiotics had little effect on the abundance of ARGs.
Conclusions/Learning Points: Even in the absence of antibiotic exposure, the neonatal intestine harbours a high abundance and variety of ARGs.

O0098 / #1254

CESAREAN SECTION AND INTESTINAL FLORA OF THE NEWBORN - FINDINGS OF FECAL SCREENING BEFORE TRANSFER OF MATERNAL FECAL MICROBIOME

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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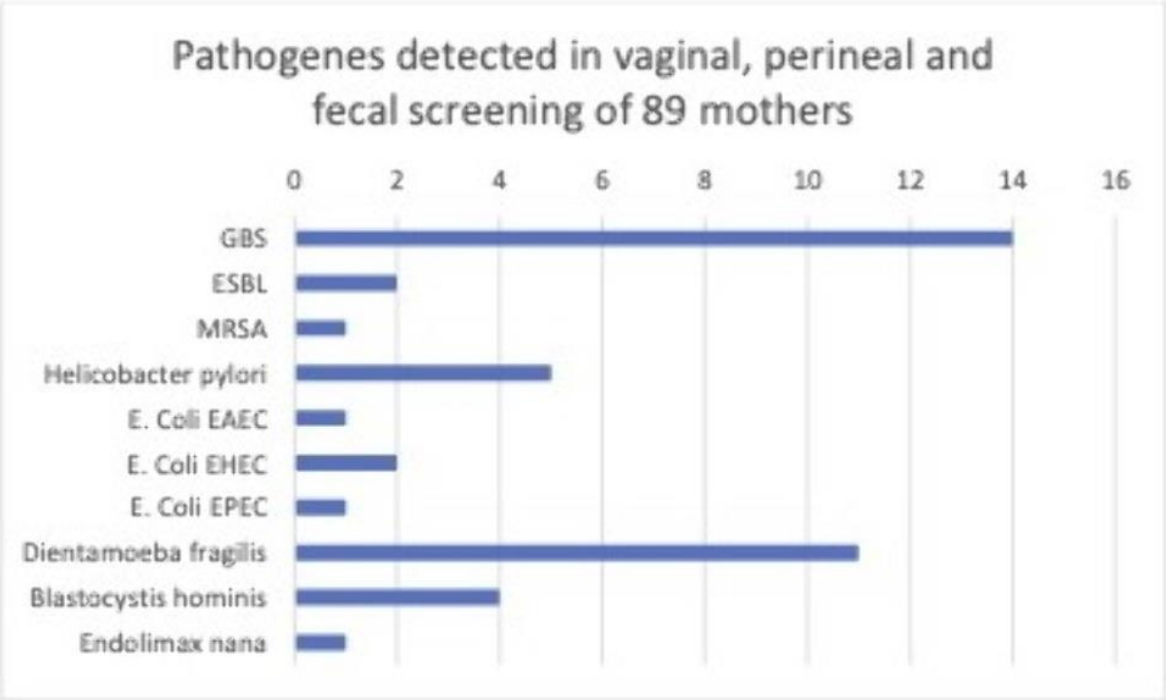
Backgrounds: Normal microbial colonization process from the mother to the newborn is disrupted by birth by caesarean section (CS). We assess, whether in CS-delivered infants, the intestinal microbiome could be successfully and safely normalized by postnatal oral transfer of maternal fecal microbiome (FMT). In this double-blinded randomized placebo-controlled trial, we assess the difference in heterogeneity of the intestinal microbiome between the transplant and placebo groups from birth to 24 months of age. Safety of the transplant is of crucial concern and the transplant is screened thoroughly. Here, we present findings from screening of fecal transplants from healthy mothers.
Methods: 100 healthy pregnant women scheduled for elective CS are recruited. After screening and randomization, within two hours of delivery, the newborns are given 3.5 mg of the transplant from their own mothers or placebo mixed in mother's milk. Screening is performed according to European guidelines that have been adapted for the use of FMT to newborn infants.
Results: We have recruited 89 mothers. All mothers were asymptomatic, no prescribed courses of antibiotics or travelling outside the European Union region within three months of screening. 38 (43%) were found positive in our screening tests (Figure 1). 30 infants have received the transplant/placebo without any noticeable side effects.



Conclusions/Learning Points: The maternal screening of fecal, perineal, and vaginal samples is crucial for safety of the transplant process. Our positivity rate of 43% underlines the importance of rigorous screening. Recruitment continues until end of January 2023. Our primary outcome measurement is assessed when the study subjects are 3 months of age, approximately 5/2023. Reference for the protocol: Carpen N et al, BMC Pediatrics, 2022, https://doi.org/10.1186/s12887-022-03609-3

O0099 / #1692

EXPLORING THE ROLE OF THE HOST NASOPHARYNGEAL MICROBIOTA ON HOST RESPONSE TO RSV INFECTION UTILISING OXFORD NANOPORE SEQUENCING

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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Backgrounds: Distinguishing between bacterial and viral infections is aided by host markers of inflammation, such as elevated levels of C-reactive protein (CRP). However, markers of inflammation are not specific to bacterial infections. Patients with respiratory syncytial virus (RSV) frequently demonstrate inflammatory marker levels overlapping those of bacterial infections. Given the significant role the nasopharyngeal (NP) microbiota has in determining respiratory health, it is possible these systemic inflammation responses in patients with viral infections are influenced by the patients' respiratory microbiota.
Methods: The nasopharyngeal microbiota of paediatric RSV patients with an inflammatory response indicative of a bacterial infection and those with a typical viral-like inflammatory response were profiled. Throat swabs were collected as part of the PERFORM study (GA No. 668303); DNA was extracted and sequenced using Oxford Nanopore 16S to create profiles at the genus and species level. Statistical models were employed to contrast the sequencing profiles between children with RSV response indicative of a bacterial infection and those with a typical viral-like inflammatory response.
Results: Using average-linkage hierarchical clustering and random forest analysis, we assessed the correlation of NP microbiota profiles with existing blood marker data. Microbiota profiles showed significant differences between patients with typical viral-like inflammatory responses to RSV (n=25) and those with high inflammatory responses (n=9). Further analysis is being conducted to identify taxa that are prominent in determining the difference in these two groups.
Conclusions/Learning Points: Identifying prominent taxa in determining the microbiota profiles of RSV patients with a typical inflammatory response compared to those with a high inflammatory response can elucidate the mechanisms in these responses. This work is expected to improve our understanding of RSV pathogenesis in children and optimise the use of host-based diagnostics for RSV infections.

O0100 / #2212

LACHNOSPIRACEAE BACTERIA PRESENT IN INTESTINAL MICROBIOTA OF CHILDREN WITH RECURRENT RESPIRATORY INFECTIONS INDUCE IGA LEVELS

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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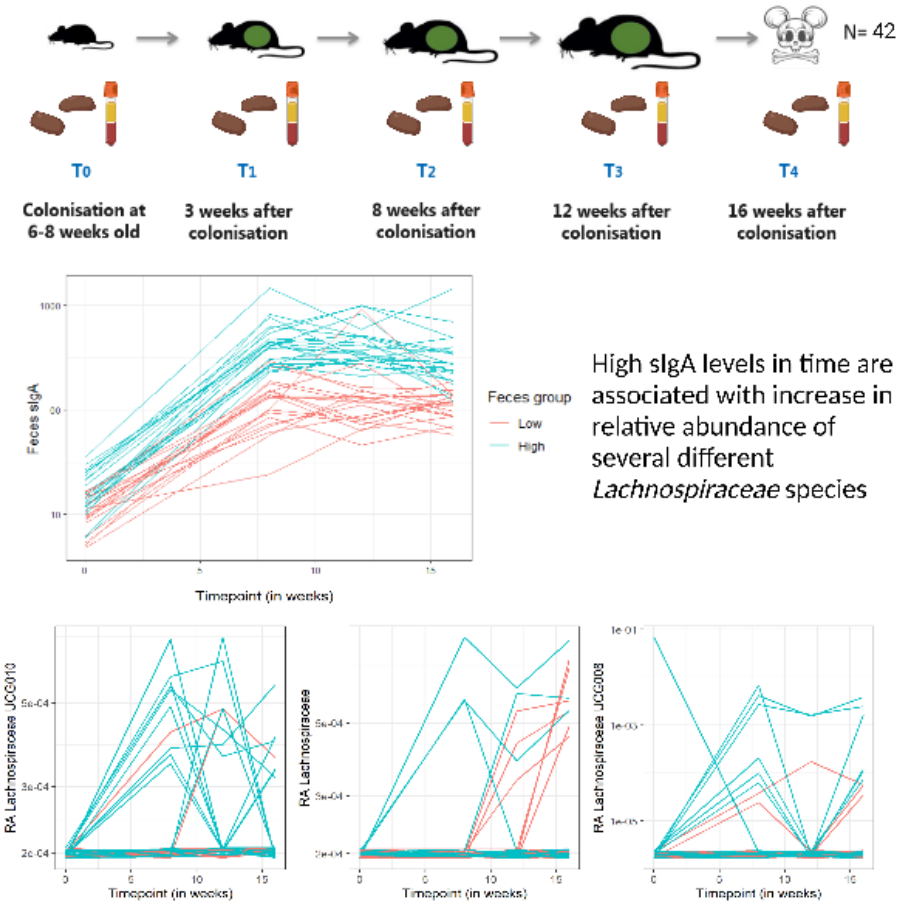
Backgrounds: IgA deficiency is common in young children, with recurrent respiratory tract infections (rRTIs) as the most common clinical manifestation. While the exact etiology of IgA deficiency remains unknown, germ-free mouse experiments have shown that IgA production starts after microbial colonization. We investigated the intestinal microbiota of children with IgA deficiency and its influence on IgA induction.
Methods: We collected serum and feces from children <7 years with rRTIs with and without IgA deficiency (-2SD below age-normalized IgA levels), without recent antibiotic use. Microbiota composition was determined by 16S-rRNA-sequencing and IgA antibody concentrations were measured with ELISA. We collected serum and feces samples upon colonization of germ-free mice, using oral gavage, at baseline and after 3, 8, 12 and 16 weeks (Figure) to analyse the fecal microbiota composition in relation to serum and fecal IgA levels.
Results:

Figure: Germ-free mice inoculated with feces from children <7 years with recurrent respiratory tract infections with and without IgA deficiency



We included 82 children with rRTIs of whom 38% had an IgA deficiency. Microbiota composition of IgA deficient children differed significantly, as compared to symptomatic controls (PERMANOVA R^2 2.2%, p=0.01, corrected for age). In 42 mice colonized with microbiotas from children with rRTIs, we found a strong induction of IgA levels between baseline and 8 weeks, which stabilized around 12 weeks. Several members of the Lachnospiraceae family were associated with IgA induction in both serum and feces (Figure).

Conclusions/Learning Points: The altered microbiota composition in young IgA deficient children compared to symptomatic controls suggests that the microbiota might play a role in IgA deficiency in early life. Examining the IgA inducing role of the microbiota from pediatric patients in germ-free mice revealed that members of the Lachnospiraceae family were able to induce IgA levels. This study reveals the microbial dynamics of IgA production using pediatric fecal samples.

O0101 / #1572

PROSPECTIVE VALIDATION OF MODEL-INFORMED PRECISION DOSING OF VANCOMYCIN IN NEONATES AND INFANTS

Oral Presentations Session
ORAL PRESENTATION SESSION 10: ANTIMICROBIALS & ANTIBIOTIC STEWARDSHIP & MICROBIOME

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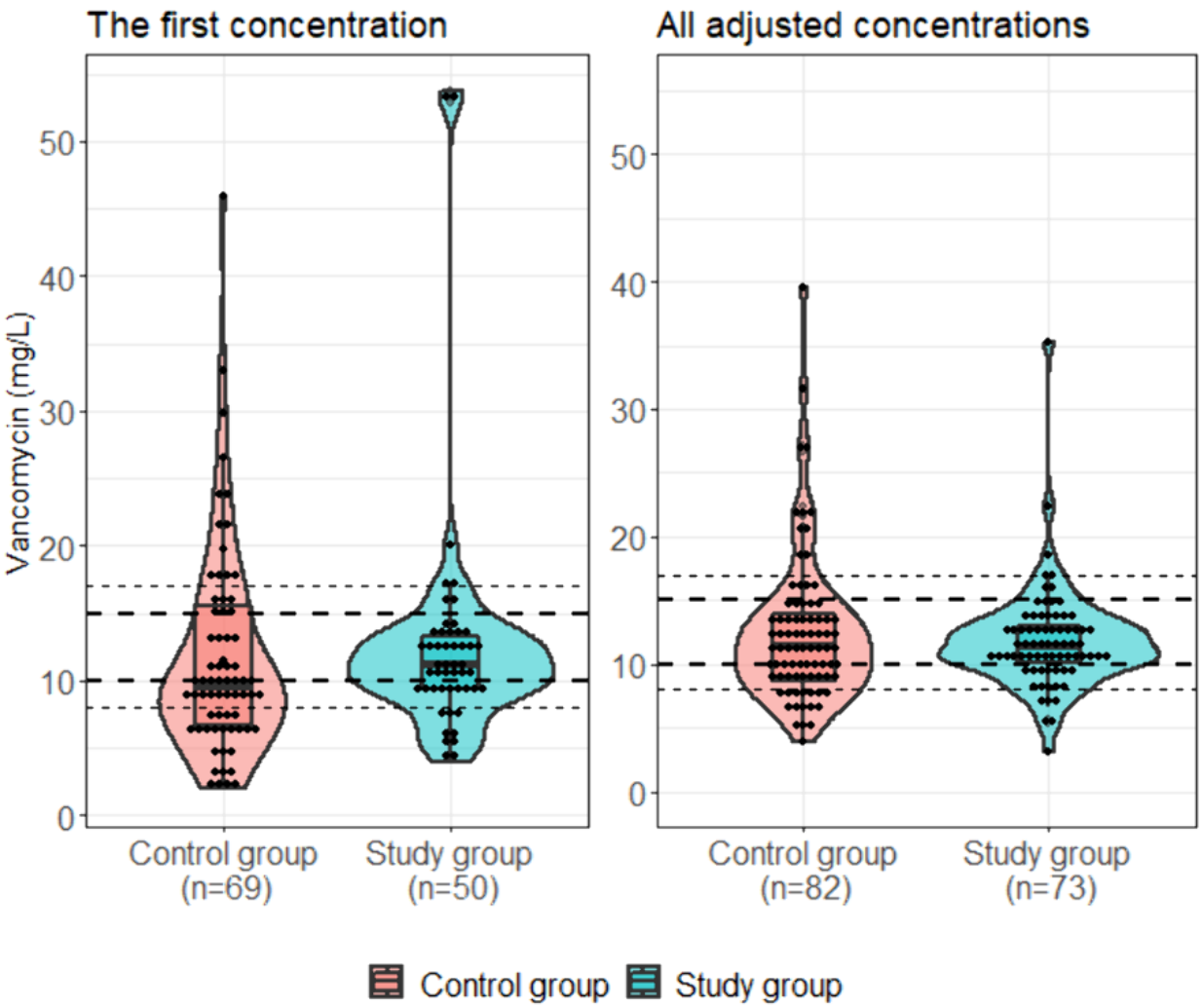
Backgrounds: Therapeutic target of vancomycin, frequently trough concentration (C_{tr}) of 10-15mg/l, is achieved in <30% of neonates/infants with standard dosing. We aimed to prospectively validate whether model-informed precision dosing (MIPD) improves vancomycin therapeutic target attainment (TA) in neonates/infants compared with conventional dosing.
Methods: This prospective clinical trial included neonates/infants with late-onset sepsis treated with vancomycin from three NICUs in Estonia between 29.05.2019-16.06.2021. Neonates/infants treated with conventional dosing of vancomycin between 01.01.2016-31.05.2019 served as control group. In the study group, initial dose to achieve steady-state C_{tr}10-15mg/l was based on population predictions from pharmacokinetic model by Zhao et al. 2013. Thereafter dose was adjusted every 36-48h based on measured C_{tr} value(s). The percentage of neonates/infants attaining the optimization target ($PTA\%_{10\text{-}15mg/l}$) and clinically acceptable target of C_{tr}8-17mg/l ($PTA\%_{8\text{-}17mg/l}$) was compared between the groups.
Results: Neonates/infants in the study group (n=48, with 50 episodes) had smaller GA (median (range) 26.6 (23-41.3) vs 27.3 (23-41.1) weeks; p=0.003), but similar PNA (9.5 (3-69) vs 10 (1-66) days) compared with controls (n=66, with 85 episodes). C_{tr}-s in the study group were more often within the optimization target compared with the control group (Figure).
$PTA\%_{10\text{-}15mg/l}$ improved from 26.1% in the study group to 50% in the control group (p=0.007) for the first and 40.2% to 56.2% (p=0.04) for all adjusted concentrations; $PTA\%_{8\text{-}17mg/l}$ accordingly from 47.8% to 76% (p=0.002) and from 68.3% to 84.9% (p=0.01). Compared with the control group, the study group had similar average daily doses (26.1 (10-59.4) vs 24.8 (15-67.7) mg/kg/d, respectively), nephrotoxicity (none had acute kidney injury) and ototoxicity (failed otoacoustic emissions in 8.3% vs 20%) rates.



Conclusions/Learning Points: Individualized dosing with MIPD software significantly improves the achievement of vancomycin target in neonates/infants, without increasing the risk of side effects.

O0102 / #321

A NOVEL COMBINATION OF HOST PROTEIN BIOMARKERS TO DISTINGUISH BACTERIAL FROM VIRAL INFECTIONS IN FEBRILE CHILDREN IN EMERGENCY CARE

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

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Backgrounds: Distinguishing bacterial from viral infections based on clinical signs and symptoms in febrile children attending the Emergency Department (ED) is challenging. The addition of biomarkers contributes to the diagnostic process. Therefore, the aim of this study is to determine a novel combination of host protein biomarkers and to assess its performance in distinguishing bacterial from viral infection in febrile children attending EDs.
Methods: A literature search was performed to identify blood protein biomarkers able to distinguish bacterial and viral infections (May 2015-May 2019). We selected seven protein biomarkers: PCT, TRAIL, IL-4, IL-6, IP-10, IFN-gamma and LCN2. These were measured in blood plasma using a bead-based immunoassay in children with a confirmed bacterial or viral infection attending seven EDs in the Netherlands, recruited as part of the PERFORM project (https://www.perform2020.org/). We used generalized linear modelling to classify bacterial and viral infections, and applied a previously developed feature selection algorithm to select the optimal combination of proteins. Additionally, we performed a subgroup analysis of this protein signature in patients with CRP < 60 mg/L, representing a clinically challenging diagnostic group.
Results: 102 children were included (N=67 definite bacterial; N=35 definite viral). Individual performance of the seven biomarkers in classifying bacterial versus viral infections ranged from 60.8%-74.5% AUC. TRAIL, LCN2 and IL-6 were identified as the best 3-protein signature with an AUC of 86% (95%CI 71.3%-100%). In 57 patients with CRP levels < 60 mg/L, in which CRP would not be able to classify, the 3-protein signature had an AUC of 85.1% (95%CI 75.3%-94.9%).
Conclusions/Learning Points: We demonstrate a promising novel combination of three host protein biomarkers; TRAIL, LCN2 and IL-6, which performs well in classifying bacterial and viral infections in febrile children in emergency care.

O0103 / #436

THE DIAGNOSTIC KAWASAKI DISEASE GENE EXPRESSION PROFILING (KIDS-GEP) CLASSIFIER HAS A GOOD PERFORMANCE IN BOTH COMPLETE AND INCOMPLETE KAWASAKI DISEASE PATIENTS

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

Rowan Kuiper[1], Chisato Shimizu[2], Daphne Huigh[1], Adriana Tremoulet[2], Deniz Lehnert[1], Daniëlle Van Keulen[1], Michael Levin[3], Jane Burns[2]
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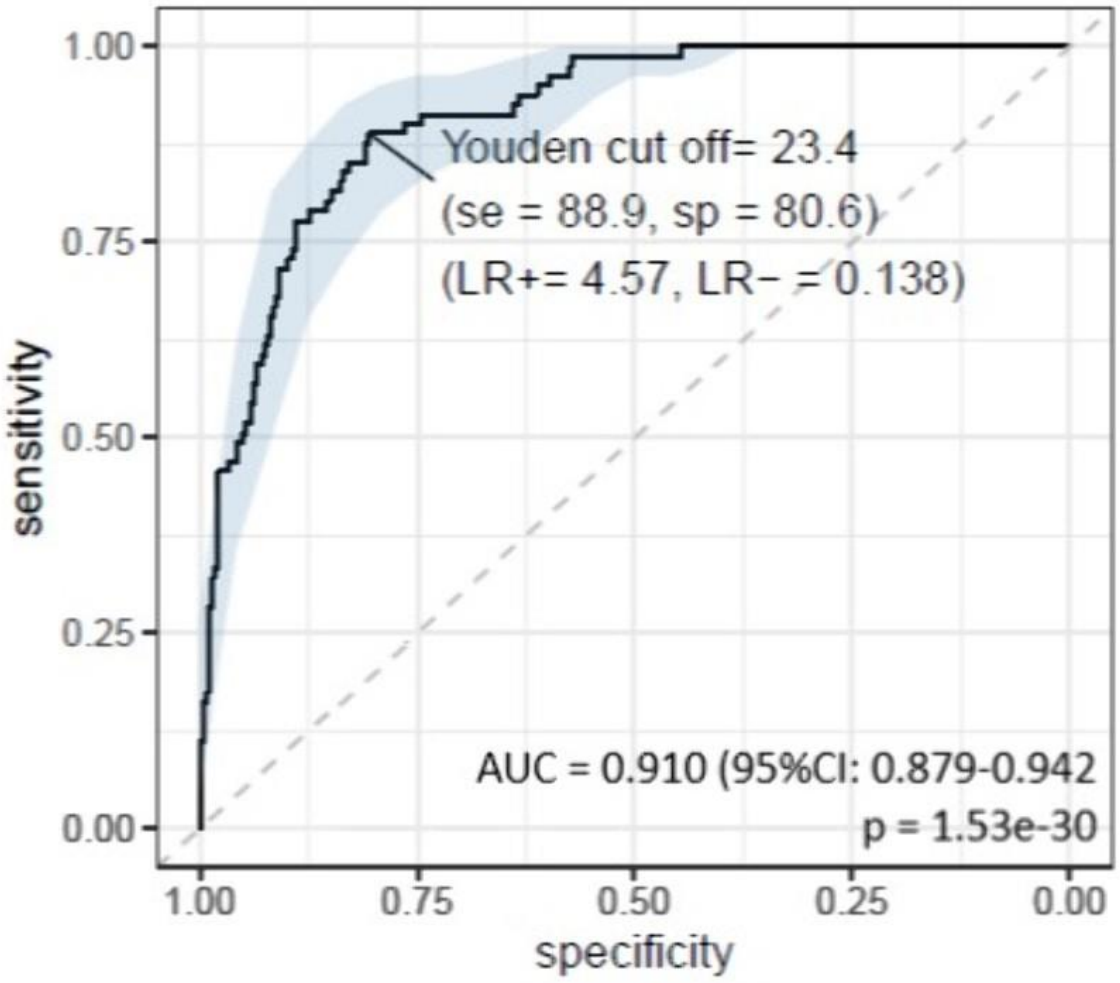
Backgrounds: Kawasaki disease (KD) is a systemic vasculitis that can result in coronary artery aneurysms (CAA). Treatment with intravenous immunoglobulin (IVIG) is effective against CAA, but should be started as early as possible within the first 10 illness days. Diagnosing KD can be challenging, especially in patients with incomplete KD, who present with fewer clinical signs but have similar CAA risks. Studies showed that up to 1 in 6 KD patients are diagnosed after 10 illness days. In this study, we retrospectively investigate if the previously described KiDs-GEP classifier, a blood-based 12-gene host response classifier that aids diagnosis of KD, identifies both complete and incomplete KD patients in an independent US cohort.
Methods: We performed the KiDs-GEP classifier in 81 KD patients (14.8% incomplete KD) and 324 febrile controls who had ≥1 clinical criterion for KD. Blood samples were obtained within the first 7 illness days and before IVIG treatment. All patients were under 18 years of age and diagnosed between 2010 and 2019 at Rady Children's Hospital in San Diego.
Results: The KiDs-GEP classifier distinguished KD patients from febrile controls with an area under the curve of 0.910, a sensitivity of 88.9% and a specificity of 80.6%. In the subset of complete and incomplete KD patients, the sensitivity was 88.4% and 91.7%,
respectively.



Conclusions/Learning Points: The KiDs-GEP classifier correctly identified 88.9% of KD patients in the first week of illness and performed similarly for complete and incomplete KD patients. These results indicate that the KiDs-GEP classifier can be a valuable tool to aid early diagnosis of KD.

O0104 / #2153

VALIDATION OF THE EMERGENCY DEPARTMENT- PAEDIATRIC EARLY WARNING SCORE (ED-PEWS) IN FEBRILE CHILDREN IN LOW- AND MIDDLE-INCOME COUNTRIES: A MULTICENTRE OBSERVATIONAL STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

Naomi Kemps[1], Navin Boeddha[2], Natanael Holband[3], Amadu Juliana[3], Godfrey Kavishe[4], Kristina Keitel[5], Kevin Van 'T Kruys[3], Elizabeth Ledger[6], Henriette A Moll[1], Rainer Tan[7], Stefan Unger[8], Effua Usuf[9], Joany Zachariasse[1]
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Backgrounds: In acute care settings, early recognition of children at risk of serious illness is essential in preventing morbidity and mortality, particularly in low- and middle-income countries (LMICs). This study aimed to validate the Emergency Department-Paediatric Early Warning Score (ED-PEWS), a simple score solely based on vital parameters, for the recognition of high urgency in febrile children in LMICs.
Methods: This observational study is based on previously collected clinical data from diverse (primary care to academic) acute care settings in LMICs. This analysis was restricted to children presenting with fever, but other inclusion criteria and study periods (2010-2021) varied. We simulated the ED-PEWS, consisting of patient age, consciousness, work of breathing, respiratory rate, oxygen saturation, heart rate, and capillary refill time, based on the available vital parameters upon ED presentation. Performance was assessed by the area under the curve (AUC), sensitivity, and specificity (previously defined cut-offs < 6 and ≥ 15). The outcome measure was for each setting a composite marker of high urgency.
Results: In total, 9,254 visits of febrile children were included from four settings: Gambia rural (n=6,567), Gambia urban (n=501), Suriname (n=590), and Tanzania (n=1,596). Performance was highest in Gambia urban (0.80 (95%CI 0.70-0.89)), and lowest in Tanzania (0.62 (95%CI 0.55-0.67)). The low-urgency cut-off showed a high sensitivity in all settings ranging from 0.93 (95%CI 0.89-0.95) to 1.00 (95%CI 0.97-1.00). The high-urgency cut-off showed a specificity ranging from 0.71 (95%CI 0.66-0.75) to 0.95 (95%CI 0.94-0.95). ED-PEWS performance was better than the local triage systems.
Conclusions/Learning Points: The ED-PEWS, or at least components, appear to have potential in improving the identification of high urgency children presenting with febrile conditions in LMICs.

O0105 / #283

EXHALED BREATH ANALYSIS: A PROMISING TRIAGE TEST FOR TUBERCULOSIS IN YOUNG CHILDREN - KENYA

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

Else Bijker[1], Walter Mchembere[2], Jan-Willem Gerritsen[3], Henny Oord[3], Jonathan Smith[4], Kimberly Mccarthy[4], Eleanor Click[4], Kevin Cain[4], Rinn Song[1]
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Backgrounds: The diagnosis of paediatric pulmonary tuberculosis (TB) is difficult, especially in young infants who cannot expectorate sputum spontaneously. Breath testing has shown promise in diagnosing respiratory tract infections of various aetiologies in adults and children, but data on paediatric TB are limited.
Methods: We performed a prospective cross-sectional study in Kisumu, Kenya. We recruited children younger than five years with symptoms and/or chest radiography findings suggestive of TB (2013-2015). Xpert MTB/RIF and culture were done on multiple samples as microbiological reference standard. Children were clinically classified (confirmed, unconfirmed, or unlikely TB) according to international criteria. We analysed exhaled-breath measurements of volatile organic compounds conducted with a hand-held battery-powered nose device (Aeonose, The eNose Company, Zutphen, The Netherlands). For data analysis, machine learning with artificial neural networks (ANN) was applied using samples classified as positive (confirmed TB) or negative (unlikely TB) to predict TB diagnoses. Sensitivity, specificity, positive and negative predictive value (PPV, NPV), and their 95% confidence intervals (CI) were used to assess accuracy.
Results: Breath analysis was performed in 124 children: 22 (18%) had confirmed TB, 40 (32%) had unconfirmed TB, and 62 (50%) had unlikely TB. The area under the curve of the optimal model was 0.73. At a sensitivity of 86% (CI 62-96%), this resulted in a specificity of 42% (95% CI 30-55%), NPV of 90% (CI 71-97%) and PPV of 35% (CI 23-49%). Using the trained ANN, 40 unconfirmed TB cases that were not part of the training set were classified, labelling 26 children as positive and 14 as negative.
Conclusions/Learning Points: Exhaled breath analysis shows promise as a triage test for TB in young children, although the WHO target product characteristics were not met.

O0106 / #1035

ADHERENCE TO GUIDELINES FOR SURGICAL INFECTIONS: INTERVENTION OR NOT? THE PERFORM EXPERIENCE

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

Daisy Thomas[1], Fabian Van Der Velden[2], Enitan Carrol[3], Werner Zenz[4], Henriette A Moll[5], Ulrich Von Both[6], Maria Tsolia[7], Marko Pokorn[8], Taco Kuijpers[9], Shunmay Yeung[10], Dace Zavadska[11], Tisham De[12], Jethro Herberg[12], Victoria Wright[12], Michiel Van Der Flier[13], Andrew Pollard[14], Luregn Schlapbach[15], Colin Fink[16], Philipp Agyeman[17], Federico Martinon-Torres[18], Michael Levin[12], Perform Consortium[12], Marieke Emonts[2,19]
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Backgrounds: Early detection of children with suspected infection requiring surgical intervention is challenging but crucial to improve outcome. Archetypal surgical infections are increasingly managed conservatively, suggesting research and guidance revision is required. Aims Identify factors associated with surgical management of paediatric febrile illness Independently analyse three syndromes with high surgical intervention incidence and potential clinical impact: suppurative central nervous system (CNS) infection, septic arthritis, and appendicitis.
Methods: Prospective data collection of patients with suspected infection, requiring venepuncture, presenting to the Emergency Department (2016-2019) within Personalised-Risk-Assessment-in-Febrile-Illness-to-Optimise Real-Life-Management (PERFORM). Logistic regression was used to identify features associated with surgical intervention.
Results: 52 potential risk factors and 15 outcome variables were analysed in 4931 episodes. When adjusted for confounding, surgical intervention (n=431) was associated with: older age (OR 1.06 (95%CI 1.03-1.08)), recent surgery (OR 1.98 (95%CI 1.08-3.60)), gastrointestinal comorbidity (OR 1.37 (95%CI 1.10-2.18)), circulatory support requirement (OR 2.37 (95%CI 1.66-3.38)), severe vomiting (OR 1.70 (95%CI 1.16-2.48)), and neutrophilia (OR 1.01 (95%CI 1.01-1.02)). Surgical patients were more likely to have bacterial infection (OR 5.70 (95%CI 4.54-7.16)). There were no presentation differences between treatment groups in suppurative CNS infection (n=10) and septic arthritis (n=28), and lower than hypothesised surgical incidence rates (50%, 72% respectively). In appendicitis (n=105), we observed minimal presentation differences and no outcome differences.
Conclusions/Learning Points: Older age, gastrointestinal comorbidities, recent surgery, vomiting, neutrophilia, and circulatory support are associated with surgical intervention. Non-surgical treatment

remains divisive for some infections, but appears justified in appendicitis, where surgical intervention is utilised unsystematically with no differences in outcome variables.Older age, gastrointestinal comorbidities, recent surgery, vomiting, neutrophilia, and circulatory support are associated with surgical intervention. Non-surgical treatment remains divisive for some infections, but appears justified in appendicitis, where surgical intervention is utilised unsystematically with no differences in outcome variables.

O0107 / #514

OPTIMISING COMPUTER AIDED DETECTION TO IDENTIFY PULMONARY TUBERCULOSIS ON CHEST X-RAY IN SOUTH AFRICAN CHILDREN

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

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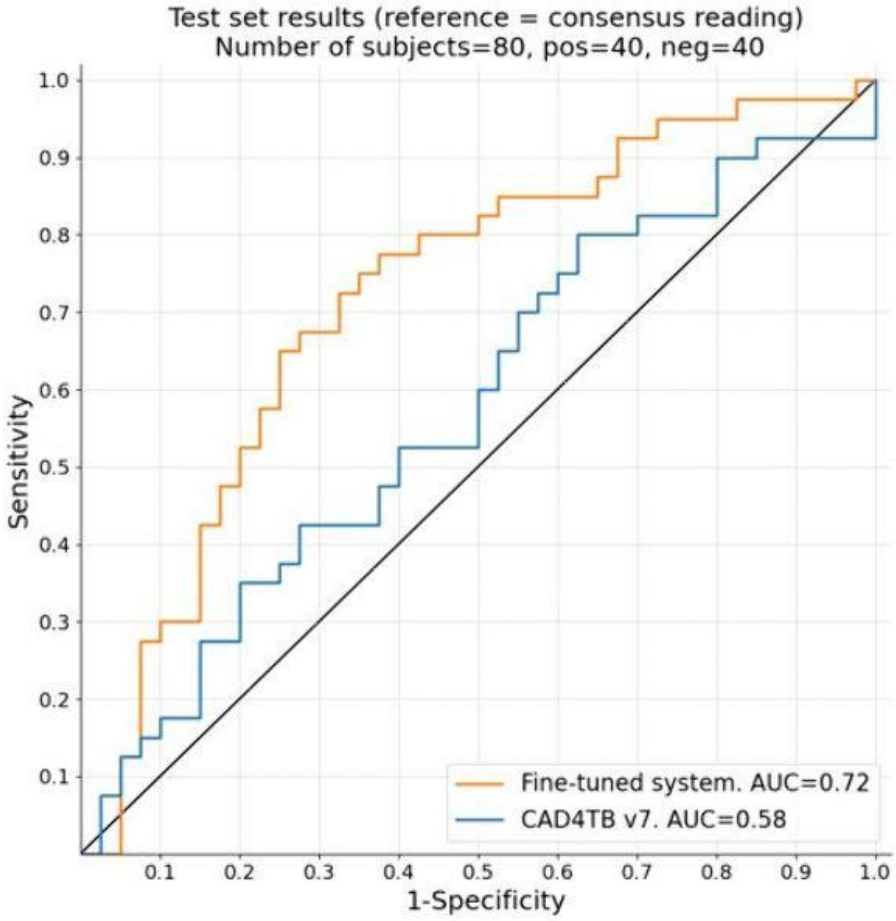
Backgrounds: There is a reliance on clinical algorithms, which include chest x-ray, to diagnose paediatric TB. Computer aided detection (CAD) for tuberculosis on chest x-ray shows promise in adults. We aimed to measure and optimise an adult CAD system, CAD4TB, to identify radiological features of tuberculosis on chest x-ray in children with presumptive tuberculosis.
Methods: We used chest x-rays from 620 children <13 years enrolled in a tuberculosis diagnostic study in South Africa. A panel of human expert readers classified each chest x-ray as ‘tuberculosis’ or ‘not tuberculosis’ to establish a radiological reference read. Of the 525 chest x-rays included, 80 (40 with a reference of ‘tuberculosis’ and 40 with ‘not tuberculosis’) were allocated to an independent test set. The remainder made up the training set. The performance of CAD4TB to identify ‘tuberculosis’ versus ‘not tuberculosis’ on chest x-ray against the radiological reference read was calculated. The CAD4TB software was then fine-tuned using the training set. We compared the performance of the fine-tuned model to the original model.
Results:

Figure 1. Receiver operating characteristic curves illustrating the performance of CAD4TB v7.0 before and after fine-tuning (reference standard is the radiological read established by a panel of expert readers)



Results The area under the receiver operating characteristic curve (AUC) of the original CAD4TB model was 0.58. After fine-tuning the AUC improved to 0.72 (p=0.0016). Fig 1.

Conclusions/Learning Points: In this first-ever description of CAD to identify tuberculosis on chest x-ray in children, we demonstrated a significant improvement in CAD4TB's performance after fine-tuning with paediatric chest x-rays. We recommend replicating the described methods using a larger chest x-ray dataset from a diverse population and evaluating the role of CAD within treatment-decision algorithms for paediatric tuberculosis.

O0108 / #527

DISCOVERY AND VALIDATION OF A SIX-MARKER TRANSCRIPTOMIC SIGNATURE FOR DIAGNOSIS OF CHILDHOOD TUBERCULOSIS IN AN AFRICAN MULTI-COUNTRY COHORT

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

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Backgrounds: Approximately 1.2 million children develop tuberculosis (TB) disease annually, resulting in 230,000 deaths. Microbiological diagnosis of TB remains challenging in children. Gene expression signatures in blood may offer a fast, reliable, non-sputum-based diagnostic test. However, gene expression signatures in adult populations underperform in children, while the few paediatric studies focus on specific countries. We undertook a multi-country gene expression signature discovery study to identify an accurate signature for paediatric TB.
Methods: Whole blood was collected from 571 children presenting to healthcare facilities in South Africa, Malawi, Kenya and The Gambia between 2008 and 2018 with suspected TB. Cases included pulmonary or extra-pulmonary TB, with or without HIV-infection; 264 (48%) had microbiologically confirmed TB and 307 (52%) other respiratory diseases (OD). RNA extraction and RNA-sequencing were done on blood samples collected at enrolment. Quality control, batch correction and normalisation were performed on the data prior to differential expression and feature selection analyses in R.
Results: Amongst 571 children (48 [18.1-93.8] median [IQR] age in months; 219 HIV-infected), differential expression analysis identified 178 candidate biomarker genes. A feature selection algorithm with cross-validation (using a training-test split at 80:20) performed on the 178 genes, identified a 6-gene signature to distinguish TB from OD with an AUC of 91.2%, sensitivity of 80.0% and specificity of 92.2%. Cross-platform validation by RT-qPCR showed an AUC of 88.3% regardless of HIV status, and 90.2% in the HIV-uninfected participants, and was followed by RT-qPCR validation on independent cohorts that had not been used for discovery.
Conclusions/Learning Points: A 6-gene signature met the minimum WHO Target Product Profile criteria for a non-sputum-based test for paediatric TB, which can be used to develop a novel, rapid and inexpensive point-of-care test for childhood TB.

O0109 / #2674

MENINGITIS NON-INVASIVE SCREENING BASED ON A NOVEL, ULTRASOUND-BASED TRANSFONTANELLAR DEVICE: A PROOF-OF-CONCEPT STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

Sara Ajanovic[1], Beatrice Jobst[2], Rita Quesada[2], Javier Jimenez[2], Manuela Lopez[3], Eva Valverde[4], Marta Ybarra[5], M. Carmen Bravo[4], David Muñoz[6], Ana Alarcón[6], Martín Iriondo[6], Carles Luaces-Cubells[6], Adelina Pellicer[5], Fernando Cabañas[3], Quique Bassat[1]
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Background: Meningitis is a life-threatening condition that requires prompt diagnosis and urgent treatment. Signs and symptoms at presentation are unspecific, especially among young infants and newborns, justifying the need for lumbar punctures (LP) to obtain cerebrospinal fluid (CSF) for ruling out or confirming meningitis. In high-income settings, more than 95% of the LPs are negative and up to 45% traumatic. The aim of this study is to validate a novel transfontanellar ultrasound-based technique to screen for meningitis, designed to non-invasively count white blood cells (WBC) in the CSF using deep learning (DL) models, to correctly classify patients according to their WBC count in CSF.
Methods: In three Spanish University Hospitals, we prospectively recruited patients under one year of age, with a not-yet closed fontanelle and a LP performed within the preceding 24h due to suspected meningitis (2021-2023). Images showing the backscatter pattern from the CSF were obtained using a customized ultrasonic probe, working at a central frequency of 20MHz and a spatial resolution below 10 mm. A DL model was trained to classify the CSF patterns according to the white blood cells count values obtained through the LP (gold standard comparator), setting a 30 cells/mL threshold to define meningitis and controls.
Results: We recruited 16 participants on which 17 LPs were performed (one patient with meningitis had 2), 7 resulting positive for meningitis and 10 with a negative result. The device showed a sensitivity of 100% and a specificity of 90%, with only one non-meningitis case misclassified.
Conclusions/Learning Points: Our device based on ultrasound and DL shows an exciting potential as a non-invasive rapid automated screening tool to accurately rule out or confirm meningitis, and spare up to 90% of LPs in patients without meningitis.

O0110 / #2522

IDENTIFICATION OF A HOST PROTEIN SIGNATURE FOR DIFFERENTIATING BETWEEN KAWASAKI DISEASE AND OTHER PAEDIATRIC INFECTIOUS AND INFLAMMATORY DISEASES

Oral Presentations Session
ORAL PRESENTATION SESSION 11: BIOMARKERS & DIAGNOSTICS

Heather Jackson[1], Diego Estrada-Rivadeneyra[1], Chisato Shimizu[2], Stephanie Menikou[1], Adriana Tremoulet[3], Lachlan Coin[4], Aubrey Cunnington[1], Shea Hamilton[1], Jane Burns[2], Jethro Herberg[1], Myrsini Kaforou[1], Michael Levin[1]
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Background: Kawasaki disease (KD) remains an important childhood problem worldwide. Although treatment with immunoglobulin and other immunomodulators reduces the risk of coronary artery aneurysms, diagnosis and treatment is often delayed because clinicians cannot easily distinguish KD from other febrile conditions. There is an urgent need for a diagnostic test. We aimed to identify protein biomarkers as the basis for a diagnostic test for KD.
Methods: Patients with KD (n=38), MIS-C (n=79), bacterial (n=43), and viral (n=40) infections were recruited to the NIH-funded PREVAIL study and the EU-funded PERFORM/DIAMONDS studies. Patients were phenotyped using a standardised algorithm. The plasma proteomes were characterised for patients using the SomaScan assay, a targeted proteomic method that measures over 7,000 proteins. Feature selection was performed to identify a diagnostic signature for distinguishing between KD and other infections and inflammatory conditions. Using an independent SomaScan dataset, the levels of the proteins included in the diagnostic signature were explored in patients with KD compared to healthy controls.
Results: Through feature selection and differential abundance analysis, a four-protein signature was identified which distinguished KD from MIS-C, bacterial and viral infections with an AUC of 94.9% (95% confidence-interval: 90.4%-99.4%). High performance was observed for each of the sub-comparisons (KD vs. MIS-C/KD vs. bacterial/KD vs. viral), with AUCs consistently over 93%. Three of these proteins were measured in the independent SomaScan dataset, and all three showed concordant directions of change between KD and healthy controls.
Conclusions/Learning Points: Despite the clinical similarities between KD and other infectious and inflammatory conditions, there are key differences in protein abundance profiles that can be used in diagnostic contexts. It will be necessary for the proteins reported here to undergo further validation prior to development into tests with clinical utility.

O0111 / #2653

NIRSEVIMAB EFFICACY AGAINST RSV LOWER RESPIRATORY TRACT INFECTION IN PRETERM AND TERM INFANTS BY SUBTYPE: POOLED ANALYSIS OF PHASE 2B AND PHASE 3 MELODY TRIALS

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

Shabir Madhi[1], Amanda Leach[2], Manuel Baca Cots[3], Celeste Cummings[4], Alexander Currie[5], Ron Dagan[6], Joseph Domachowske[7], Amy Grenham[2], Laura Hammitt[8], Ulrika Wählby Hamren[9], Elizabeth Kelly[2], Conrado Juan Llapur[10], William Muller[11], Jose M. Novoa Pizarro[12], Xavier Saez-Llorens[13], Eric A. F. Simões[14], Therese Takas[2], Tonya Villafana[2]
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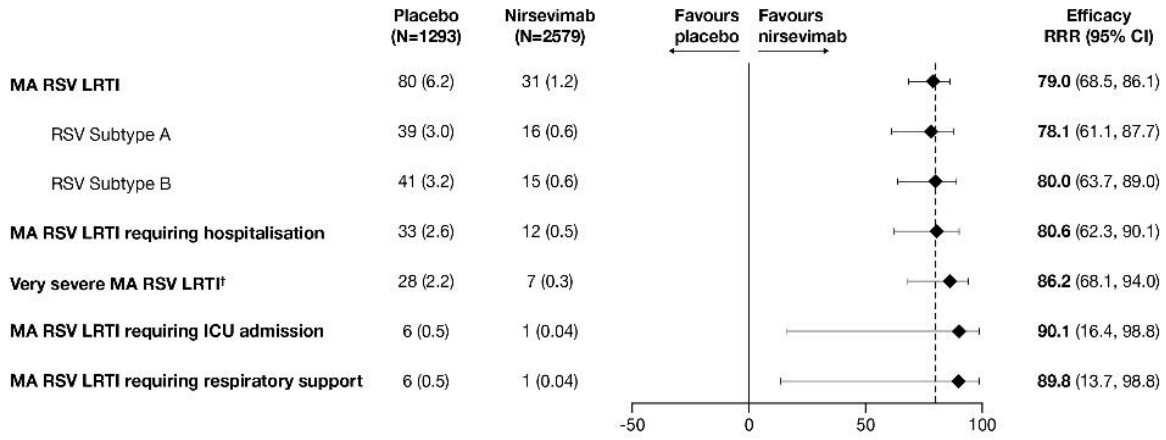
Background: Nirsevimab, a monoclonal antibody with extended half-life, is authorised in the European Union and Great Britain for preventing respiratory syncytial virus (RSV) lower respiratory tract disease in neonates and infants entering their first RSV season. We report an updated post hoc pooled efficacy analysis of the authorised dose of nirsevimab against RSV by severity and subtype through 150 days post-dose in healthy term and preterm infants ≥29 weeks gestational age (wGA).
Methods: Data were pooled from two double-blind, randomised trials: Phase 2b (infants ≥29 to <35 wGA; NCT02878330) and Phase 3 MELODY following enrolment completion (infants ≥35 wGA; NCT03979313). Data were analysed for all participants who received the authorised dose of nirsevimab (infants <5 kg, 50 mg; ≥5 kg, 100 mg) before their first RSV season. Efficacy is calculated as relative risk reduction versus placebo.
Results: Overall, 3872 participants received nirsevimab (n=2579) or placebo (n=1293). Demographics were similar across treatments. Nirsevimab demonstrated an efficacy of 79.0% (95% confidence interval [CI] 68.5, 86.1) against medically attended (MA) RSV lower respiratory tract infection (LRTI), 80.6% (95% CI 62.3, 90.1) against cases requiring hospitalisation, 86.2% (95% CI 68.1, 94.0) against very severe disease, 90.1% (95% CI 16.4, 98.8) against cases requiring ICU admission and 89.8% (95% CI 13.7, 98.8) against cases requiring respiratory support (Figure). Consistent efficacy against MA RSV LRTI was also observed across RSV subtypes and participant subgroups (by age at randomisation, sex, ancestry, weight or geographical region).
Conclusions/Learning Points: In a large, pooled analysis of healthy term and preterm infants ≥29 wGA who received the authorised dose of nirsevimab prior to their first RSV season, nirsevimab demonstrated consistent efficacy across severities and subtypes of MA RSV LRTI, including subpopulations, through 150 days post-

dose.

Figure. Pooled analysis of the efficacy of nirsevimab in reducing varying severities of MA RSV LRTI across the Phase IIb and Phase III MELODY studies*



Dashed line refers to 80% RRR. RRR and its corresponding 95% CI (mid-p adjusted) were estimated based on an exact conditional method using PROC GENMOD with no strata.

*For all participants who received the authorised dose of nirsevimab (infants <5 kg, 50 mg; ≥5 kg, 100 mg).

†Defined as those cases of hospitalisation for MA RSV LRTI that required supplemental oxygen or intravenous fluids.

CI, confidence interval; ICU, intensive care unit; LRTI, lower respiratory tract infection; MA, medically attended; RRR, relative risk reduction; RSV, respiratory syncytial virus.

O0112 / #2606

UNPRECEDENTED HIGH RATES OF GROUP A STREPTOCOCCUS NASOPHARYNGEAL CARRIAGE IN INFANTS AND TODDLERS IN FRANCE, 2022-2023

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

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Background: Like many countries, France faced a major increase in invasive Group A Streptococcal infection (iGAS) and scarlet fever during the fall and winter of 2022-2023. Whether the current peak of iGAS correlates with high rates of GAS transmission and carriage and the community remains poorly investigated.
Methods: Since 2006, from October to June of each year, in a prospective nasopharyngeal (NP) carriage study, 90 pediatricians throughout France have enrolled more than 900 children per year, aged 6 to 24 months with acute otitis media. GAS strains were identified by colony morphology, Gram staining, beta-hemolysis on blood agar, and mass spectrometry.
Results: GAS was scarce during the first NP study years, 0.3% (3/894) in 2006, and 0.6% in 2016 (6/942); no GAS strain was isolated during the other years. However, among the 552 children (mean age ± SD: 13.1 ± 4.9 months) enrolled between October 2022 and January 2023, 49 GAS were isolated (49/552, 8.9%; study ongoing). GAS was frequently associated with other otopathogens (41/49, 83.7%), most often Haemophilus influenzae (27/49, 55.1%), Moraxella catarrhalis (23/49, 46.9%) and Streptococcus pneumoniae (15/49, 30.6%). For 30/49 (61%) GAS strains, emm-typing was performed by multiplex PCR. The distribution of emm-typing was emm-type 12 (46.7%), followed by emm-type 1 (23.3%), emm-type 4 (10.0%), emm-type 75 (10.0%), emm-type 28 (6.7%) and emm-type 89 (3.3%).
Conclusions/Learning Points: Our data of our well-established surveillance showed a 15-times increase in GAS carriage in 2022-2023 compared to previous years. It likely indicates a greater GAS circulation even in young children, several months after the relaxation of non-pharmaceutical COVID-19 mitigation interventions. The recent surge in iGAS correlates with high rates of GAS carriage in infants and toddlers in the community.

O0113 / #2456

PEDIATRIC SEVERE INVASIVE STREPTOCOCCAL A INFECTIONS: FRENCH NATION-WIDE PICUS COHORT STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

Camille Bréhin[1], Guillaume Le Balle[2], Lionel Berthomieu[2], Claire Poyart[3], Isabelle Parent Du Chatelet[4], Jean-Paul Guthman[4], Stéphane Leteurtre[5], Yves Gillet[6], Etienne Javouhey[7]
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Background: An increase Group A Streptococcus (iGAS) infections has been observed in France and other European countries since September 2022. The French Pediatric Intensive Care, the French Pediatric Infectious Diseases expert's groups and the French national public health agency have launched a nationwide alert to describe the most severe cases.
Methods: Patients with iGAS hospitalized in Pediatric Intensive Care Unit (PICU) were included retrospectively and prospectively from September 1, 2022 to January 31 in French PICUs via the PICURe network. Epidemiological, bacteriological and clinical data were collected from confirmed (positive GAS in culture, PCR or antigen in sterile media) and probable (positive GAS antigen in non sterile media with clinical presentation) cases. Molecular analysis included the determination of the emm gene and superantigen profile.
Results: During the studied period, 37 PICUs have declared 129 children with severe iGAS infections (103 confirmed and 26 probable cases). Median age was 3.4 years (IQR: 1.2-6). The predominant clinical presentation was severe respiratory forms with 50% (64/129) of children presenting with pleuropneumonia. No severe cutaneous forms occurred. A viral co-infection was observed in 53% of patients (69/129). Blood culture was positive in 27% of cases. Among the 129 patients, 11 died (8.5%). A total of 21 invasive isolates (from blood, pleural fluid, synovial fluid, and cerebrospinal fluid) were anlysed at the national reference center for streptococci. The predominant type was M1 (13 isolates). Each emm type was associated with one or more exotoxin gene profiles.
Conclusions/Learning Points: An increase incidence of severe iGAS in children is confirmed in France. Physicians must be alerted to severe iGAS and evoke them especially in a child presenting a severe respiratory picture, in order to adapt the treatment.

O0114 / #2684

SURGE IN LOWER RESPIRATORY TRACT INVASIVE GROUP A STREPTOCOCCUS INFECTIONS IN CHILDREN DURING WINTER 2022

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

Rebecca Guy[1], Lucy Findlater[2], Katie Wrenn[3], Alicia Demirjian[1,4,5], Juliana Coelho[1], Colin Brown[1], Theresa Lamagni[1]
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Background: Following low incidence of invasive group A Streptococcus (iGAS) infections during the COVID-19 pandemic, increases were noted in England during 2022. In November 2022, increases in unusual lower respiratory tract infection (LRTI) iGAS (including empyema) in children <15y were notified by paediatricians. We look in more depth at the reports of iGAS LRTI presentation in children.
Methods: Laboratory-confirmed iGAS notification data for children <15y in England between October 2022 and January 2023 were linked to a range of UK Health Security Agency surveillance databases. Cases were investigated by demographic, clinical presentation, emm type, respiratory virus co-infection and 7-day all-cause mortality.
Results: In the four-month window, 236 cases of LRTI iGAS were recorded, 56% occurring in December 2022. Fifty-five per-cent (129) were male with a median age of 4y (inter-quartile range 2y-6y). Ethnicity was known in 61% cases (143), of which 71% were 'White' (101) and 18% (26) were 'Asian/Asian British'. Cases were distributed across all regions of England. Fifty-one per-cent of cases had a pleural fluid specimen (120). Strain typing (available for 133 cases) identified 74% (98) as emm1.0, and 17% (22) as emm12.0. Respiratory virus co-infections were identified in 42% of cases (99; 28% >1 co-infection); 42% cases with co-infection recorded human metapneumovirus and 34% respiratory syncytial virus. A total of 35 deaths (all-cause <7d iGAS diagnosis) were reported.
Conclusions/Learning Points: iGAS infections in children, particularly LRTI, showed a marked increase in late 2022, potentially reflecting reduced exposure during the COVID-19 pandemic. Whilst the excess numbers of cases and deaths seen in 2022 may equate to those prevented during the pandemic, the transmission intensity and rapidity had a detrimental effect on healthcare-service delivery, antimicrobial supply, and fuelled public concern.

O0115 / #2661

UPSURGE OF PEDIATRIC INVASIVE STREPTOCOCCUS PYOGENES (GROUP A STREPTOCOCCUS) INFECTIONS IN PORTUGAL DOMINATED BY M1UK AND EMM12 LINEAGES

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

Catarina Gouveia[1], Ana Carvalho[1], Fernanda Rodrigues[2], Luís Varandas[1], Paula Bajanca-Lavado[3], Célia Bettencourt[3], Joana Gomes-Silva[4], Mário Ramirez[4], José Melo-Cristino[4], Ana Friães[4], . The Portuguese Group For The Study Of Streptococcal Infections[5], . Portuguese Study Group Of Pediatric Invasive Streptococcal Disease[6]
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Background: Multiple countries have recently issued alerts regarding an ongoing rise of invasive infections caused by Group A Streptococcus (iGAS). This study reports the most recent epidemiological and molecular surveillance data of pediatric iGAS in Portugal.
Methods: Demographic and clinical characteristics of pediatric (<18 yrs) iGAS between 1-Sep-2022 and 28-Feb-2023 were recorded as part of an ongoing national prospective surveillance. The emm type, multilocus sequence type (ST), and number of $M1_{UK}$-characteristic SNPs were obtained from whole-genome sequencing data of all available isolates (n=19).
Results: We recorded 39 confirmed iGAS cases (GAS identified in a normally sterile site) and 2 probable cases [streptococcal toxic shock syndrome (STSS) and GAS identified in a nonsterile site]. The median age was 3.0 years (IQR 2-6 years), 56% females. The most frequent diagnoses were pneumonia (42%), bacteraemia without focus (25%), osteoarticular infection (21%), sepsis (15%), and STSS (13%), with one death. The case fatality rate (CFR), ICU admission, and length of stay were similar to previous years. The most common lineage was emm1-ST28 (n=8, of which 7 presented the 27 $M1_{UK}$-characteristic SNPs), followed by emm12-ST36/242 (n=6), emm89-ST101 (n=2), emm4-ST39, emm22-ST46, and emm87-ST62 (n=1 each).
Conclusions/Learning Points: Between Sep-2022 and Feb-2023, the 41 paediatric iGAS cases in Portugal were significantly more numerous than in the same period of pre-pandemic years (2014-2020; average 11.8 cases, 95% confidence interval 8.4-15.2), with no increase in the CFR. This upsurge is not associated with an emerging new lineage but with multiple lineages previously circulating in Portugal, with a clear dominance of the $M1_{UK}$ sub-lineage and emm12 (68%). In contrast to recent reports from Denmark, the speC gene was not detected in any emm1 isolate.

O0116 / #2452

EPIDEMIOLOGICAL IMPACT OF THE PAEDIATRIC LIVE ATTENUATED INFLUENZA VACCINE (LAIV) PROGRAMME ON GROUP A STREPTOCOCCUS (GAS) INFECTIONS IN ENGLAND

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

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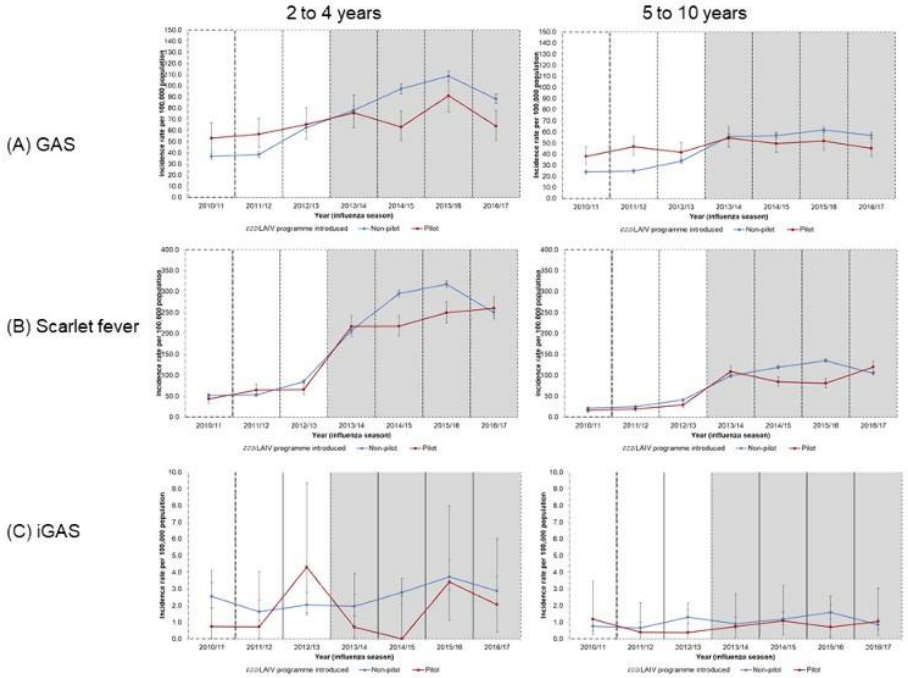
Background: Group A Streptococcus (GAS) infections, including invasive disease (iGAS) are secondary bacterial infections associated with influenza infections. The universal paediatric live attenuated influenza vaccine (LAIV) programme introduced in England from the 2013/14 influenza season was incrementally implemented, introducing cohorts of children annually from 2-16 years. Additionally, a series of geographically discrete pilot areas offered the LAIV to all pre- and primary- school age children. This differential roll-out of the programme allowed for the impact assessment of the programme on the incidence rates of GAS infections among pilot and non-pilot areas.
Methods: Cumulative incidence rate ratios (IRRs) of GAS, scarlet fever (SF) and iGAS, comparing pilot and non-pilot areas were estimated using Poisson regression, within each season by age-group. The overall effect of the pilot programme between the pre- (2010/11-2012/13 seasons) and post-introduction (2013/14- 2016/17 seasons) periods was assessed using negative binomial regression by comparing the pre-/post- programme changes in incidence between pilot/non-pilot areas (rIRR = ratio of IRR).
Results: Reductions in IRRs of GAS and SF were observed within most post-LAIV programme seasons, among the 2-4 and 5-10 years. Significant reductions were seen among 5-10 years (rIRR of 0.57 (95% CI: 0.45 to 0.71; p-value: <0.001); 2-4 years (rIRR of 0.62 (95% CI:0.43 to 0.90; p-value: 0.011) and 11-16 years (rIRR of 0.63 (95% CI: 0.43 to 0.90; p-value: 0.018) for GAS infections when assessing the overall effect of the programme. A non-significant reduction was also seen for iGAS in 2–4-year-olds (rIRR of 0.58 (95% CI: 0.21 to 1.65; p-value=0.31)).



Conclusions/Learning Points: Our findings highlight the paediatric LAIV programme reducing the incidence of GAS and iGAS infections among children and support attaining high uptake of childhood influenza vaccination.

O0117 / #2575

1 AND 2 YEAR MULTIDISCIPLINARY FOLLOW-UP OF PAEDIATRIC INFLAMMATORY MULTISYSTEM SYNDROME (PIMS-TS) PATIENTS AT A UK TERTIARY PAEDIATRIC HOSPITAL: A RETROSPECTIVE COHORT STUDY

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

Sarah Johnson[1], Justin Penner[1], Richard Issitt[2,3], Karlie Grant[1], Ashwin Pandey[1], Laura Kmentt[1], Dimitrios Champsas[4], Omar Abdel-Mannan[4], Kim Mckenzie[5], Zoe Berger[6], Rebecca Arnold[6], Yael Hacohen[4], Karyn Moshal[1]
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Background: PIMS-TS was first observed in spring of 2020. Six-month follow-up was reassuring, but it was unknown whether long-term sequelae would be experienced or whether different variants would affect clinical phenotypes/outcomes.
Methods: Children (<18 years) meeting the Royal College of Paediatrics and Child Health diagnostic criteria for PIMS-TS were followed by a multidisciplinary team at six weeks, six months, one and two years. PIMS-TS waves were determined by the corresponding prevalence of primary circulating SARS-CoV-2 variant (>50%).
Results: 160 children were included (wave one=45; wave two=79 and wave three=36). 59% (96) were male with a median age of 10.1 years (IQR 7.9-12.6). Symptoms were similar across all waves. Days of hospitalisation decreased with time (10.7 days wave one vs1 vs 1.8 days wave two+three). More patients were ventilated in wave one (12, 7, 2 respectively). Inotropic support was received in the majority of wave two (86%), vs 40% in wave one and 47% in wave three. Inflammatory markers normalised by six weeks and continued to be normal up to two years in all patients except one. There were no PIMS-TS relapses. 11 patients remain under follow-up: cardiology-5, gastroenterology-5, nephrology-1. The main symptoms reported at 1-2 year included abdominal pain (n=5) and myalgia (n=2). All patients required a graduated home exercise programme and were offered supportive psychology and intensive inpatient rehabilitation.
Figure 1: Heatmap showing symptoms by chronological order of admission

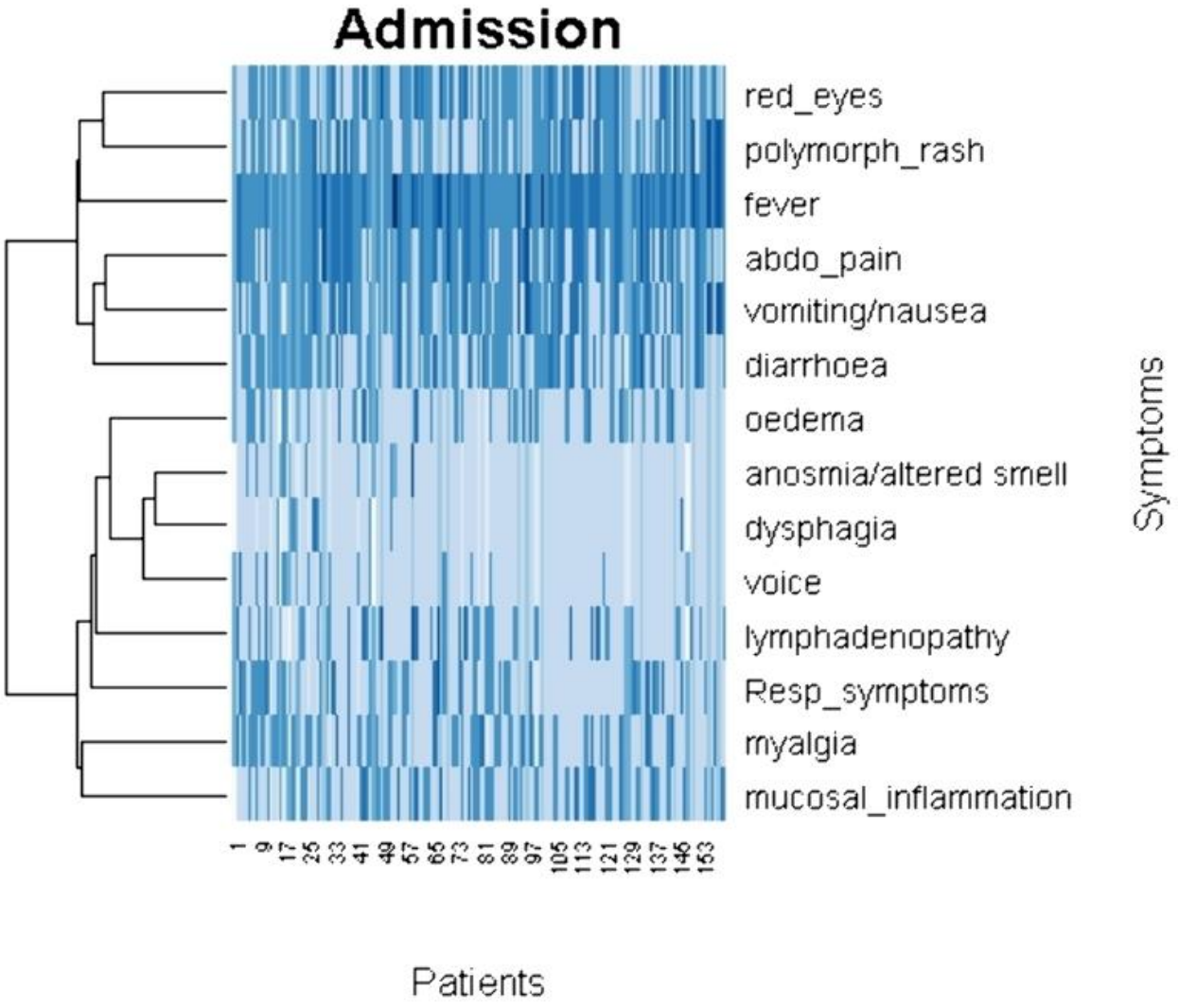

Figure 2: Heatmap with symptoms at 2-year follow-up

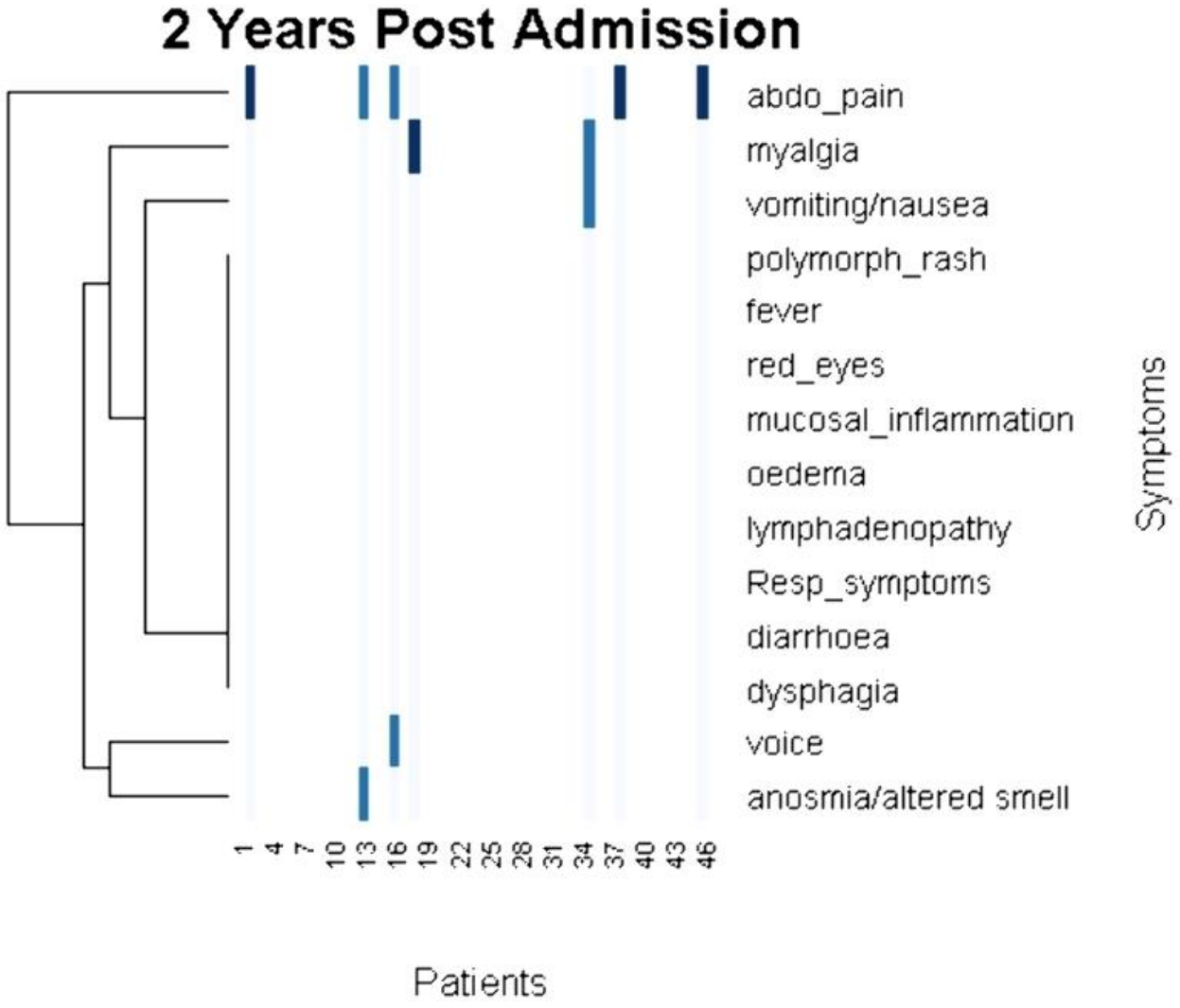

Table 1: Laboratory results at admission and follow-up.

	At Presentation		6 Weeks -Post Admission		6 Months Post-Admission		1 Year Post Admission		2 Years Post Admission	
	Median [IQR]	Completeness (%)	Median [IQR]	Completeness (%)	Median [IQR]	Completeness (%)	Median [IQR]	Completeness (%)	Median [IQR]	Completeness (%)
Max CRP (0–20 mg/L)	253 [163 - 328]	85.6	5 [5 - 5]	72.7	5 [5 - 5]	32.7	5 [5 - 122]	12.5	50 [16 - 87]	3.7
Max Ferritin (15·1–70·0 µg/L)	841 [428 - 1696]	91.2	27.8 [16.4 - 38.1]	78.9	29.5 [20.4 - 41.6]	42.1	114 [29.1 - 816]	14.5	340 [92.1 - 618]	12.9
Max Lactate dehydrogenase (360–730 U/L)	865 [679 - 1079]	88.1	547 [482 - 651]	69.6	529 [476 - 699]	29.6	692 [580 - 1050]	11.2	706 [445 - 726]	2.2
Max Troponin (0–34 ng/L)	129 [39 - 432]	89.4	12 [0 - 12]	36	27 [11 - 49]	4.4	105 [80 - 359]	5.9	339 [241 - 437]	1.5
Max NT-proBNP (23–157 pg/mL)	13193 [4730 - 28702]	81.9	40 [22 - 76]	40.4	20 [20 - 28]	6.9	14080 [3672 - 15720]	6.6	23820 [23069 - 24570]	1.5
Max WBC age-dependent norm	18.2 [13.1 - 25.6]	87.5	6.45 [5.35 - 8.45]	89.4	6.49 [5.42 - 7.89]	84.9	7.35 [6.09 - 10.5]	42.8	9.34 [6.18 - 14.9]	5.8
Max Neutrophils age-dependent norm	14.3 [9.8 - 20.6]	92.5	2.98 [2.03 - 4.38]	92.5	3.02 [2.18 - 3.8]	84.9	3.4 [2.37 - 4.97]	43.4	5.28 [4.03 - 9.75]	5.8
Min Lymphocytes (1·2–5·2 × 10^9/L)	0.87 [0.56 - 1.26]	91.2	2.72 [2.16 - 3.34]	92.5	2.78 [2.22 - 3.5]	84.9	2.9 [2.22 - 3.41]	43.4	1.78 [1.31 - 2.67]	5.8
Max Platelets (150–450 × 10^9/L)	510 [292 - 511]	93.8	332 [78 - 373]	92.5	307 [264 - 368]	84.9	324 [276 - 395]	43.4	348 [297 - 461]	5.8
Max Fibrinogen (1·7–4·0 g/L)	5.85 [4.62 - 6.98]	88.8	2.7 [2.3 - 3.1]	86.3	2.7 [2.3 - 3.2]	40.9	3.2 [2.6 - 4.8]	17.8	4.7 [3.8 - 6.13	4.4
Max D-dimers (0–312 µg/L)	2543 [1392 - 5308]	89.4	135 [85 - 196]	75.2	128 [89 - 224]	28.3	852 [140 - 2015	11.8	6607 [5666 - 7548]	1.5
Max ALT (10–45 U/L)	55 [35 - 103]	90	16 [13 - 22]	92.5	17 [14 - 21]	96.2	19 [14.5 - 29]	41.4	24 [19 - 33]	5.8
Max Creatinine (µmol/L) age-dependent norm	53.5 [42 77.2]	92.5	41 [32 - 50]	95	46 [39 - 55]	87.4	50 [40 - 63.5]	44.1	51 [43 - 71]	6.6
Min albumin (37–56 g/L)	25 [23 - 29]	92.5	45 [43 - 47]	95	46 [44 - 48]	86.8	45 [43 - 47]	42.8	41.5 [36.2 - 43.2]	5.8
Max vitamin D (>50 nmol/L)	20 [15 - 36.2]	75	67 [25.5 - 75.5]	16.8	69.5 [49.2 99]	66.7	67 [51.5 - 90.5]	9.2	..	..

Conclusions/Learning Points: PIMS-TS patients have a sustained recovery after the initial, severe acute episode. Across waves, symptoms were similar, length of stay reduced and less intubation was required. This may have reflected greater insights into treatment rather than severity.

O0118 / #2714

SAFETY, REACTOGENICITY AND IMMUNE RESPONSE OF MODIFIED VACCINIA ANKARA–BAVARIA NORDIC (MVA-BN) VACCINE AGAINST MPOX IN CHILDREN

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

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Background: In response to a national mpox outbreak in England, children exposed to a confirmed mpox case were offered Modified Vaccinia Ankara–Bavaria Nordic (MVA-BN), a third-generation smallpox vaccine, for post-exposure prophylaxis. We assessed the safety and reactogenicity, as well as humoral and cellular immune responses, following the first reported use of MVA-BN in children.
Methods: Children receiving MVA-BN for post-exposure prophylaxis were followed-up after vaccination and requested to complete a post-vaccination questionnaire and have blood tests at one and three months post-vaccination.
Results: Between June 01 and November 30, 2022, 87 children had one MVA-BN dose and none developed any serious adverse events or developed mpox disease after vaccination. Their median age was 5 years, (IQR 5-9, range 0-14). Of the 45 children with complete questionnaires, 16 (36%) reported no symptoms, 18 (40%) reported local reaction only and 11 (24%) reported systemic symptoms with or without local reactions. Seven children provided a first blood sample and five provided a second at a median of six and 15 weeks post-vaccination, respectively. All children had poxvirus IgG antibodies with levels well-above the cut-off limit. Assessment of reactivity to 27 recombinant VACV and mpox virus proteins showed humoral antigen recognition, primarily to mpox virus antigens B6, B2, and VACV antigen B5, with waning of humoral responses observed between the two timepoints. All children demonstrated robust T-cell responses to whole ModifiedVaccinia Ankara (MVA) virus and a select pool of conserved pan-Poxviridae peptides. A balanced CD4+ and CD8+ T cell response was evident at 6 weeks, which was retained at 15 weeks post-vaccination.
Conclusions/Learning Points: A single dose of MVA-BN for post-exposure prophylaxis was well-tolerated in children and induced robust antibody and cellular immune responses up to 15 weeks after vaccination.

O0119 / #2520

COMPARISON OF EPIDEMIOLOGIC, CLINICAL FEATURES, AND SEVERITY OF PEDIATRIC INFLUENZA-RELATED HOSPITALIZATIONS BETWEEN THE 2012-2020 PERIOD AND 2021-22 SEASON: CANADIAN IMMUNIZATION MONITORING PROGRAM, ACTIVE

Oral Presentations Session
ORAL PRESENTATION SESSION 12: LATE BREAKING

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Background: The epidemiology of influenza during the COVID-19 pandemic showed atypical features. We aimed to describe the pre-pandemic epidemiologic characteristics and clinical outcomes of pediatric influenza hospitalizations, comparing them to those of the 2021-2022 season.
Methods: Analysis of data from a national active surveillance program evaluating influenza-related hospitalizations in children aged 0-16 years was conducted from 2012-2022 by the Canadian Immunization Monitoring Program, ACTive, which covers ~90% of national tertiary-care pediatric beds. Key epidemiologic, clinical, and severe outcomes data from the 2012-2020 period was compared to data from 2021-2022. Adjustment for multiple comparisons was not done.
Results: A total of 8271 influenza hospitalizations (43% females, median age=3 years [IQR=1.2-6.5]) were recorded, of whom, 72% were caused by influenza A. Overall, 7944 hospitalizations occurred during 2012-2020 (average/season=827.1), 0 in 2020-21, and 327 in 2021-2022. By comparing the 2012-2020- and 2021-2022-time frames, a higher number of subjects aged >=10 years in 2021-2022 (18% vs 12.2%, p=0.001) and a higher number of cases aged 6-23 months in 2012-2020 (24.5% vs 19%, p=0.018) were noticed. While the proportion of children with comorbidities was similar (45.4% vs 45%, 2012-2020 and 2021-2022, respectively), the types of comorbidities between periods differed (table). Neurological influenza manifestations were lower during 2021-2022 (7.3% vs 11.4%,p=0.018). Seventeen percent and 11% of children required ICU admission in the 2012-2020 and 2021-2022 periods, respectively (p=0.003). A greater proportion of patients required ventilatory support during 2012-2020 (10.2% vs 3.7%, p<0.001). Forty-four deaths (average/season=5.5) were recorded in 2012-2020, compared to one death in 2021-2022 with no difference in the mortality rate per season
(p=0.69).

TABLE.

	2012-2022 period				*2012-2020 period*	*2021-2022 period*	
	All influenza§ N	Influenza A N (%)	Influenza B N (%)	P value	All influenza§ N (%)	All influenza§ N (%)	P value
Cases	8271	5910 (71.5%)	2317 (28%)	-	7944 (96)	327 (4%)	0.001
Age classes, N (%)							
<6 months	1092 (13.2%)	881 (14.9%)	211 (9.1%)	<0.001	1046 (13.2%)	46 (14.1%)	0.067
6-23 months	2029 (24.5%)	1553 (26.3%)	462 (19.9%)	<0.010	1967 (24.5%)	62 (19%)	0.018
24-59 months	2280 (27.6%)	1660 (28.1%)	603 (26%)	0.06	2185 (27.6%)	95 (29.1%)	0.540
5-9 years	1864 (22.5%)	1665 (19.7%)	690 (29.8%)	<0.001	1799 (22.5%)	65 (19.9%)	0.240
>/= 10 years	1006 (12.1%)	651 (11%)	351 (15.1%)	<0.001	947 (12.2%)	59 (18%)	0.001
Underlying Disorders#, N (%)							
None	4517 (54.6%)	-	-	-	4337 (54.6%)	180 (55%)	0.516
*Chronic lung disorder**	1487 (18%)	-	-	-	1431 (18%)	56 (17.1%)	0.682
Path. affecting respiratory function	1328 (17.1%)	-	-	-	1328 (16.7%)	86 (26.3%)	<0.001
Diabetes and other metabolic disorder	233 (2.8%)	-	-	-	230 (2.9%)	3 (0.9%)	0.034
*Morbid obesity**	83 (1%)	-	-	-	73 (0.9%)	10 (3.1%)	0.002
Cancer	270 (3.3%)	-	-	-	269 (3.4%)	1 (0.3%)	0.002
*Immunosuppression**	180 (2.2%)	-	-	-	179 (2.3%)	1 (0.3%)	0.018
*Haemoglobinopathy**	236 (2.9%)	-	-	-	233 (2.9%)	3 (0.9%)	0.032
Influenza vaccination current season, N (%)	805 (9.8%)	-	-	-	766 (9.6%)	39 (11.9%)	0.831
Not vaccinated	5239 (63.3%)				4976 (62.6%)	263 (80.4%)	
Unknown vaccination status	2227 (26.9%)				2202 (27.7%)	25 (7.6%)	
Clinical manifestation, N (%)							
Apnea	212 (2.6%)	156 (2.6%)	56 (2.4%)	0.565	203 (2.6%)	9 (2.8%)	0.825
Myocarditis/cardiomyopathy	141 (1.7%)	95 (1.6%)	46 (2%)	0.235	131 (1.6%)	10 (3.1%)	0.054
Encephalitis/encephalopathy/seizures	946 (11.4%)	681 (11.5%)	260 (11.2%)	0.699	922 (11.4%)	24 (7.3%)	0.018
Pneumonia	2421 (29.3%)	1790 (30.3%)	617 (26.6%)	0.001	2340 (29%)	81 (24.8%)	0.068
ICU admission and outcomes							
Admitted to ICU, N (%)	1409 (17%)	1027 (17.4%)	377 (16.3%)	0.23	1373 (17.3%)	36 (11%)	0.003
Ventilatory support (%)	819 (9.9%)	586 (9.9%)	232 (10%)	0.89	807 (10.2%)	12 (3.7%)	<0.001
Death, N (%)	45 (0.54%)	27 (0.5%)	18 (0.8%)	0.08	44 (0.55%)	1 (0.3%)	0.819

§ All influenza included: Influenza A and B coinfections, only influenza A, and only influenza B

Underlying disorders included also the following diseases (2021-2022 vs 2012-2020 time frames): Chronic heart disease (2.1% vs 3.6%, p=0.656), Chronic renal disease (1.8% vs 2.2%, p=0.646), Inherited and acquired immunodeficiency (0.3% vs 1.7%, p=0.055), Chronic anemia (0.9% vs 1.4%, p=0.630). Categories were not mutually exclusive.

* Chronic lung disorder (i.e., asthma, bronchopulmonary dysplasia, and cystic fibrosis). Morbid obesity: body max index (BMI) greater than 95% for their age. Immunosuppression (i.e., due to underlying disease or therapy). Haemoglobinopathy (i.e., sickle cell disease).

Conclusions/Learning Points: The flu epidemiology shifted during the COVID-19 pandemic without cases in the first season and then older and less severe in the second season.

PD0001 / #847

TURNING THE TIDE - INCREASING SUSCEPTIBILITY TO CO-AMOXICLAV IN ESCHERICHIA COLI URINARY TRACT INFECTION - A TEN-YEAR REVIEW OF SUSCEPTIBILITY TRENDS AND CLINICAL MANAGEMENT

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

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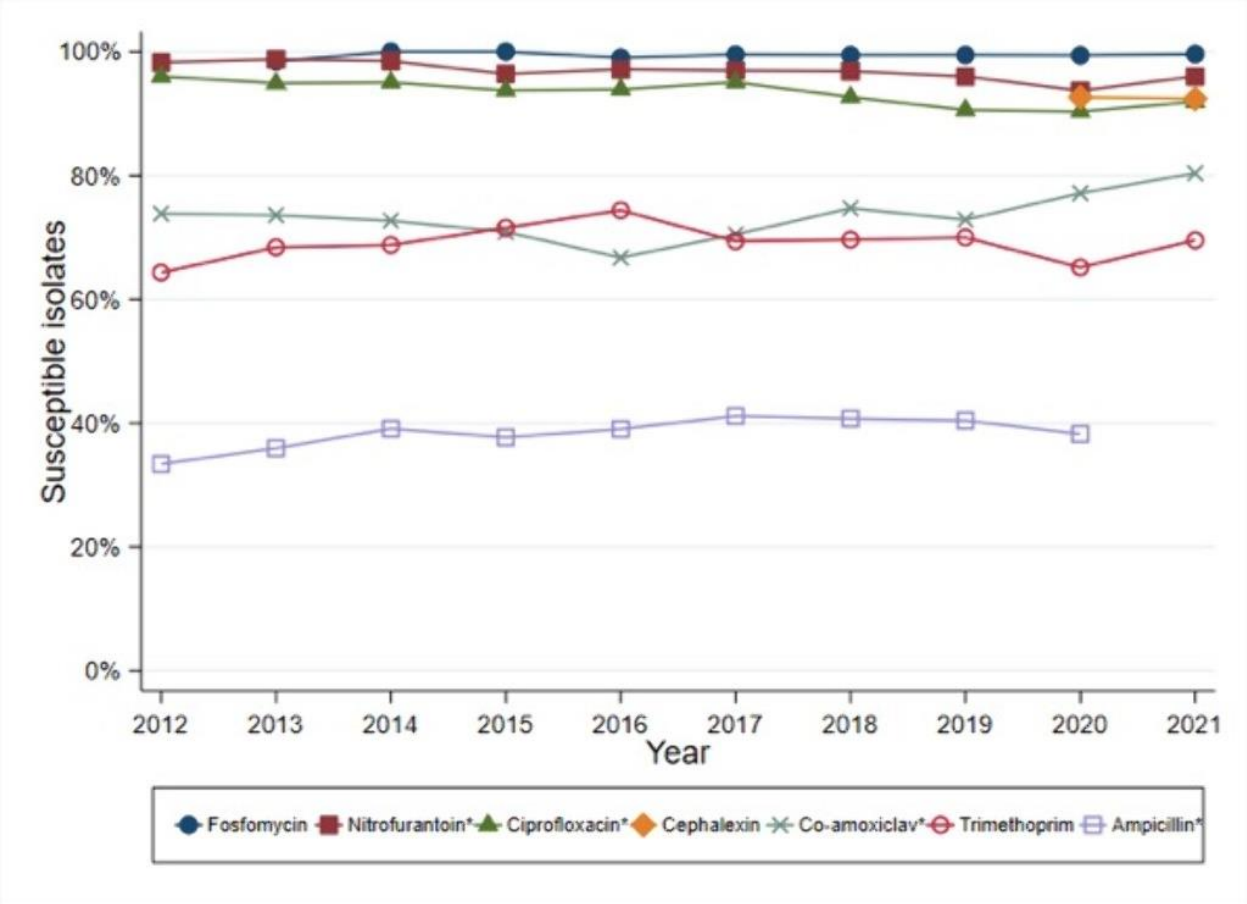
Backgrounds: Escherichia coli is the predominant pathogen in paediatric urinary tract infection (UTI). Previous local, national and international studies have demonstrated increasing antimicrobial resistance (AMR), including to co-amoxiclav. We sought to examine the AMR patterns of urinary E.coli isolates, and to review treatment and outcomes of a hospitalised subset of patients.
Methods: E.coli isolated from patients aged ≤14 from 2012-2021 from a single Irish hospital were analysed. Trends in susceptibility were assessed for statistical significance. A retrospective chart review was performed on inpatients ≥2 months 2016-2021 with upper UTI to review treatment and outcomes. Treatment was compared to institutional guidance (co-amoxiclav and gentamicin).
Results: E.coli accounted for 71.2% of significant isolates (9,314). Susceptibility to co-amoxiclav significantly increased over time, from 66.7% to 80.4% between 2016-2021. Trends were similar in the subset of admitted patients with confirmed E.coli UTI. Susceptibility to gentamicin decreased in recent years, from 93.8% to 79.7% since 2017. Of 222 admitted clinical cases reviewed, 45.5% were treated with both co-amoxiclav and gentamicin as-per-guideline, and 39.2% treated with co-amoxiclav alone. The proportion receiving both agents increased over the study period. In this admitted cohort, 25.6% of isolates were non-susceptible to co-amoxiclav alone, while only 1% were non-susceptible to both co-amoxiclav and gentamicin. 9% of patients were treated with co-amoxiclav and despite non-susceptible isolates clinically improved, and were
discharged.



Conclusions/Learning Points: Co-amoxiclav susceptibility among E.coli isolates increased significantly over the study period. This was temporally associated with national and local stewardship measures to reduce co-amoxiclav use, and suggests potential reversal of previous trends of increasing AMR. Conversely, reducing susceptibility to gentamicin is concerning and requires monitoring. Non-adherence to guideline, associated with an increased risk of treatment with non-susceptible agents, decreased over the study period.

PD0002 / #676

USE OF CEFIDEROCOL IN THE MANAGEMENT OF CHILDREN WITH INFECTION OR COLONISATION WITH MULTIDRUG-RESISTANT GRAM-NEGATIVE BACTERIA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Hanna Schmid[1], Li-An Brown[2], Bairavi Indrakumar[3], James Hatcher[2], Alaisdair Bamford[1,4]
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Backgrounds: Cefiderocol is a novel siderophore cephalosporin, representing a treatment option for infections with multidrug-resistant Gram-negative bacteria (MDR-GNB). Clinical data on paediatric use is limited.
Methods: All treatment episodes with cefiderocol in paediatric inpatients at Great Ormond Street Hospital, London, UK in 2021/2022 were retrospectively identified through pharmacy dispensing data and reviewed for demographics, indications, targeted organisms, dosing, outcome and tolerability.
Results: Fifteen episodes of cefiderocol use were recorded in 12 children, aged between 0.4-15.6 years (median 3.4y, weight 4-60kg), half of whom were immunocompromised. Nine episodes represented serious/invasive infections with MDR-GNB, including Stenotrophomonas maltophilia, Acinetobacter baumanii, Pseudomonas aeruginosa and Pseudomonas putida. Treated conditions were pulmonary, bloodstream and skin infections. Median treatment duration was 11 days with clinical response seen in 5/9 cases. All but one patient had co-infections, and all received co-administration of other antimicrobials. In a further 5 episodes, cefiderocol was either empirically or prophylactically administered, in view of known colonisation with MDR-GNB. Overall 30-day mortality was 17%, with cause of death primarily attributed to underlying disease. Tolerability was favourable, with mild transaminitis and purple urine discoloration noted in one case each, neither leading to treatment discontinuation. One patient developed desquamating skin changes while on treatment with cefiderocol, which were later attributed to graft-versus-host disease but led to early discontinuation.
Conclusions/Learning Points: We present the largest cohort of children treated with cefiderocol. Specific clinical response to its therapeutic use remains difficult to assess, given the complex nature of the patient cohort and isolation of multiple infecting/colonising organisms with co-administration of other antimicrobials. A lower 30-day mortality was demonstrated, when compared to literature reviewing adult cases, and good tolerability. Further research is needed to evaluate cefiderocol as a treatment option in paediatric MDR-GNB infection.

PD0003 / #1071

PREDISPOSING FACTORS AND CLINICAL FEATURES OF FLUCLOXACILLIN-INDUCED HEPATOTOXICITY AMONG CHILDREN.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Stefan Coombs[1], Laure Pittet[2], Kailey Tang[3], Amanda Gwee[3,4,5]
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Backgrounds: Flucloxacillin-induced hepatotoxicity is well-established in adults. However, there are few paediatric studies of flucloxacillin-induced hepatotoxicity despite this drug being among the most commonly prescribed in children. We aimed to determine the incidence of flucloxacillin-induced hepatotoxicity in children receiving IV therapy as well as identify risk factors for this adverse drug reaction.
Methods: Retrospective audit of children admitted to the Royal Children's Hospital over a 24-month period (2019-2021). Patients were included if they were aged between 0-18 years and: (i) received IV flucloxacillin and had liver function tests determined prior to and within 60-days of the start of therapy; and (ii) if the IV flucloxacillin treatment course was at least 24-hours.
Results: Overall, the incidence of hepatotoxicity was 66/394 (17%). Of those with hepatotoxicity, the median age was 1.1 years (range 0.3-11.9), 43 (65%) received ≥2 concomitant hepatotoxic medications and 23 (35%) were receiving total parental nutrition. The median timing of onset of hepatotoxicity after commencement of flucloxacillin was 4 days (range 2-7). Severe hepatotoxicity (CTCAE ≥ grade 3) occurred in 9/66 (14%) for bilirubin, 13/66 (20%) for alanine transaminase and 10/66 (15%) for gamma-glutamyl transferase. Predisposing factors for hepatotoxicity were increasing age (OR 1.06 per additional year, 95%CI 1.01-1.10, p=0.02) with adolescents aged 12-18 years having the highest risk (OR 5.10, 95%CI 2.02-12.85, p=0.001), and ≥2 concomitant hepatotoxic medications (OR 2.51, 95% CI 1.02-6.18, p=0.05). The median time to resolution of hepatotoxicity after cessation of flucloxacillin was 5 days (range 2-10).
Conclusions/Learning Points: In children, older patients and those receiving two or more concomitant hepatotoxic medications are at greater risk of flucloxacillin-induced hepatotoxicity.

PD0004 / #1836

FREQUENCY AND FACTORS ASSOCIATED WITH INAPPROPRIATE ANTIBIOTIC PRESCRIPTIONS DURING INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI) CONSULTATIONS AMONG CHILDREN AGED 2-59 MONTHS IN PRIMARY HEALTH CENTERS BURKINA FASO, GUINEA, AND MALI, JUNE 2021 TO FEBRUARY 2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Désiré Néboua[1], Cédric Besnier[2], Emelyne Gres[2], Gildas Boris Hedible[2], Bokol Lucie Peters[2], Sarah Louart[3], Valéry Ridde[4], Valeriane Leroy[2]
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Backgrounds: In low-income countries, data assessing appropriateness of antibiotic prescriptions is scarce, mainly hospital-based. We analyzed antibiotic prescriptions and correlates of inappropriate prescriptions in children attending IMCI consultations in primary health centers (PHCs) in three West African countries (Burkina Faso, Guinea and Mali), as part of the AIRE project, held with NGO' support (ALIMA, Solthis, Terre des hommes).
Methods: A multicenter cross-sectional study of all children aged 2-59 months seen as outpatients who received an IMCI consultation in four public PHCs per country was conducted between June 2021 and February 2022. Those eligible for Pulse Oximetry measurement were included with parent's consent. A standardized algorithm was developed based on national IMCI guidelines to define inappropriate antibiotic prescriptions based on the non-proprietary name of antibiotic prescribed: either the antibiotic wasn't recommended but prescribed (over-prescription), or it was recommended but not prescribed (missed treatment opportunity). In Mali, correlates of over antibiotic prescriptions were analyzed using mixed-effects logistic regression models with a random effect on the inclusion site.
Results: Among the 6,796 children included, a significant proportion of IMCI consultations (65.5%) resulted in the prescription of >1 antibiotic. Over-prescription and missed opportunity for antibiotic concerned 36% and 19% of children respectively. In Mali, young age (2-11 months), household density >5 persons vs <5 (aOR:1.64;95% CI: 1.21-2.21), hypoxemia (SpO2<90%) (aOR:2.47;95% CI: 1.01-6.06) and previous antibiotherapy (aOR:0.81;95% CI: 0.65-0.99) were independently associated with over-prescription for the sub-population of IMCI simple and moderate cases (N=776).
Conclusions/Learning Points: The frequency of inappropriate antibiotic prescriptions was high in under-5 in the three countries. Understanding the determinants of inappropriate antibiotic prescribing will enable health authorities and policy makers to design relevant interventions to promote a better rational use of antibiotics in PHC in Africa

PD0005 / #597

ANTIMICROBIAL ACTIVITY OF CEFTAZIDIME-AVIBACTAM, CEFTOLOZANE-TAZOBACTAM, CEFIDEROCOL AND NOVEL DAROBACTIN ANALOGS AGAINST MULTI-DRUG-RESISTANT PSEUDOMONAS AERUGINOSA ISOLATES FROM PEDIATRIC AND ADOLESCENT CYSTIC FIBROSIS PATIENTS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Laura Kolberg[1], Michael Marner[2,3], Julia Horst[1,4,5], Nils Böhringer[3,5,6], Johannes Hübner[1,7], I Dewa Made Kresna[3], Yang Liu[3], Ute Mettal[3], Lei Wang[3], Melanie Meyer-Buehn[1], Sanja Mihajlovic[2], Matthias Kappler[1], Till Schäberle[2,3,6], Ulrich Von Both[1,5,7]
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Backgrounds: Antimicrobial resistance (AMR) and multi-drug-resistant gram-negativ (MRGN) pathogens are an increasing threat to health care. Patients with chronic pulmonary disease, like cystic fibrosis (CF), are particularly vulnerable and depend heavily on effective antibiotic therapy. We evaluated antimicrobial activity of recently licensed drugs ceftazidime-avibactam (CZA), ceftolozane-tazobactam (C/T) and cefiderocol (FDC) as well as two novel preclinical antibiotics, darobactin B (DAR B) and B9 (DAR B9), against clinical Pseudomonas aeruginosa isolates from CF patients.
Methods: Between 2006 and 2018, 66 MRGN P. aeruginosa samples were obtained from CF patients at a paediatric tertiary care hospital in Munich, Germany. Antimicrobial susceptibility to CZA, C/T, and FDC was determined by gradient diffusion testing using Etest Strips (Liofilchem, Roseto degli Abruzzi, Italy). Minimum inhibitory concentrations (MIC in µg/mL) were determined. Antimicrobial activity was assessed as MIC still showing efficacy in 50% or 90% of isolates. Antipseudomonal activity of darobacin B and B9 was assessed by micro-broth-dilution assays. MIC was defined as lowest concentration inhibiting growth by at least 80% relative to the growth control.
Results: Of 66 investigated P. aeruginosa isolates, 53% were resistant to CZA, 49% to C/T and 30% to FDC, including 52 isolates obtained from CF patients prior to market introduction of CZA and C/T. Both novel preclinical compounds performed better (CZA and C/T) or in close range to the licensed drugs (FDC).
Conclusions/Learning Points: Our results highlight the necessity of global consistency in antibiotic stewardship to prevent AMR from further impairing the potency of antibiotics. Since resistance to CZA, C/T and FDC may be due to pre-existing resistance mechanisms there is an urgent need to support the development of novel antimicrobials, preferably with a new mode of action such as darobactin B and B9.

PD0006 / #726

ANTIMICROBIAL RESISTANCE OF STREPTOCOCCUS PNEUMONIAE ISOLATES CAUSING INVASIVE PNEUMOCOCCAL DISEASE IN 17 HOSPITALS OF COLOMBIA.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Germán Camacho-Moreno[1,2,3], Aura Leal[1,2], Jaime Patiño Niño[2,4], Vivian Moreno[2], Ivan Gutierrez Tobar[2,5,6], Sandra Beltrán[2,7], Martha Álvarez-Olmos[2,8], Cristina Mariño Drews[2,9], Rocio Barrero Barreto[2,10,11], Juan Pablo Rojas[2,12,13], Fabio Espinosa[2,14], Catalina Arango Ferreira[2,15], María Suarez[2,16], Monica Trujillo[2,17], Eduardo López Medina[2,18], Pio López[2,19], Wilfrido Coronell[2,20], Nicolas Ramos[2,21], Alejandro Restrepo[2], Anita Montañez[2]
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Backgrounds: Invasive Pneumococcal Disease (IPD) is a cause of morbidity and mortality in children. Some Streptococcus pneumoniae isolates are resistant to antibiotics used for IPD, such as beta-lactams and macrolides. Increased resistance has been reported in Colombia.
Methods: A descriptive study in pediatric patients with IPD admitted in 10 hospitals of Bogotá, and 4 hospitals of Cali, 2 of Medellin and 1 of Cartagena in 2017-2022. Data on serotype(Spn) and resistance were obtained.(preliminary data).
Results: 344 cases of IPD were found. Susceptibility profile information was obtained for 320(93%) isolates; 290(90.7%) were non-meningeal (NM) and 30(9.3%) meningeal (M). Regarding non-meningeal, 21.3% were penicillin-resistant, and 7.5% showed intermediate susceptibility; 10.3% were resistant to ceftriaxone and 12% had intermediate susceptibility. Meningeal isolates showed 40% resistance to penicillin, 10% resistance to ceftriaxone, and 6.6% intermediate susceptibility. Resistance to macrolides was 50.3%, to clindamycin 36.8%, and to trimethoprim sulfa 37.8%. All isolates were susceptible to vancomycin. Only 25% of the isolates were susceptible to all antibiotics; 22.5% were multi-resistant. The serotype most resistant to penicillin was 19A (34.3%), 23,9% was associated with multiresistance and only 8,3% were susceptible to all antibiotics.
Conclusions/Learning Points: An increase in antibiotic resistance is observed in relation to previous reports associated with emergence of multiresistant S. pneumoniae serotype 19A. Colombia changed to PCV 13 in July 2022. The impact of the vaccine change needs to be monitored.

PD0007 / #1099

ANTIMICROBIAL RESISTANCE ISLANDS: A NEW WEAPON FOR PATHOGENS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

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Backgrounds: In the fight against antimicrobial resistance, very little is known about, microbial resistance to disinfectants and antiseptics. How resistance to disinfectants develops and how this resistance is transferred between bacteria is largely unknown. Genomic islands are portions of the bacterial genetic code where resistance genes can be found grouped together. These resistance genes converge together and then mobilise as a unit, transferrable within a microbial population. An increasing number of hospital-acquired infections and outbreaks by Serratia marcescens prompted research into Serratia sp. HRI, an isolate with high antimicrobial resistance capabilities. Specifically, whether resistance islands harbouring multiple resistance genes could be found.
Methods: Genomic island prediction software (IslandViewer4) and bioinformatic gene annotation programs (RAST, psi-BLAST, PGAP) were used to find any resistance islands and identify any antimicrobial resistance genes in the highly resistant Serratia sp. HRI.
Results: Bioinformatic analysis revealed 9 resistance islands, containing both antibiotic and biocide/disinfectant resistance genes. A number of genes encoding for multidrug efflux pumps belonging to the MFS, ABC and DMT efflux families were found. Antibiotic resistance islands containing genes macrolide, erythromycin (emrE) and biclomycin resistance were identified. In addition, two genomic islands were identified harbouring disinfectant resistance genes (smr).
Conclusions/Learning Points: Numerous resistance islands are present within the highly resistant bacterium and can contribute to both antibiotic and disinfectant resistance. The presence of both antibiotic and disinfectant resistance genes within one bacterium is a major cause for concern as eradication of this isolate in a healthcare setting would be a great challenge. Serratia marcescens is an important emerging pathogen in hospitals. This work shows that these pathogens are capable of resistance to antibiotics and disinfectants simultaneously and that these resistance genes are on highly transferable genetic elements.

PD0008 / #377

COMPARATIVE EFFECT OF FOUR ANTIMALARIAL TREATMENTS ON HAEMATOCRIT IN CHILDREN IN SOUTHWEST OF NIGERIA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

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Backgrounds: Anaemia in malaria has both central (dyserythropoiesis) and peripheral causes (phagocytosis of both infected and uninfected erythrocytes and haemolysis). Some antimalarial drugs also cause intravascular hemolysis leading to anemia. However, it is often difficult to disentangle the anemia effect of malaria from its treatments.
The aim of this study was carried out to compare the change in hematocrit following four antimalarial treatments.
Methods: Data were extracted from 313 case record forms of children that met the eligibility criteria aged 3-119 months enrolled in antimalarial clinical trials in Southwest Nigeria between 1998 and 2014. Change in haematocrit level from baseline through 28 days follow up period were compared among children treated with artemether-lumefantrine (82), artovaquone-proguanil (41), artesunate-amodiaquine (156) and chloroquine (34). Repeated measures analysis was done by fitting a general linear model (GLM).
Results: The median age of the study population was 25 months and 54% were males. The mean differences (95% CI) in haematocrit from baseline were 4.7 (95% CI = 3.6, 5.8), 4.4 (95% CI = 2.7, 6.0), 3.8 (95% CI = 3.0, 4.7) and 2.4 (95% CI = 0.5, 4.4), for artemether-lumefantrine, artovaquone-proguanil and artesunate-amodiaquine and chloroquine, respectively. Using the general lineal model, repeated measure analysis showed that there were significant differences in the mean haematocrit level over the 28-day follow-up among the four treatment groups ($p<0.05$).
Conclusions/Learning Points: All children experienced increases in haematocrit after treatment, with artesunate-amodiaquine appearing to result in a greater increase in haematocrit than other antimalarial drugs.

PD0009 / #148

QUALITY OF ANTIBIOTIC PRESCRIBING FOR PEDIATRIC COMMUNITY-ACQUIRED PNEUMONIA IN OUTPATIENT CARE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Ariana Saatchi[1], Manon Haverkate[1], Jennifer Reid[2], Salimah Shariff[2], Marcus Povitz[3], David Patrick[4,5], Michael Silverman[6], Andrew Morris[7], James Mccormack[1], Fawziah Marra[1], Fawziah Lalji[1]
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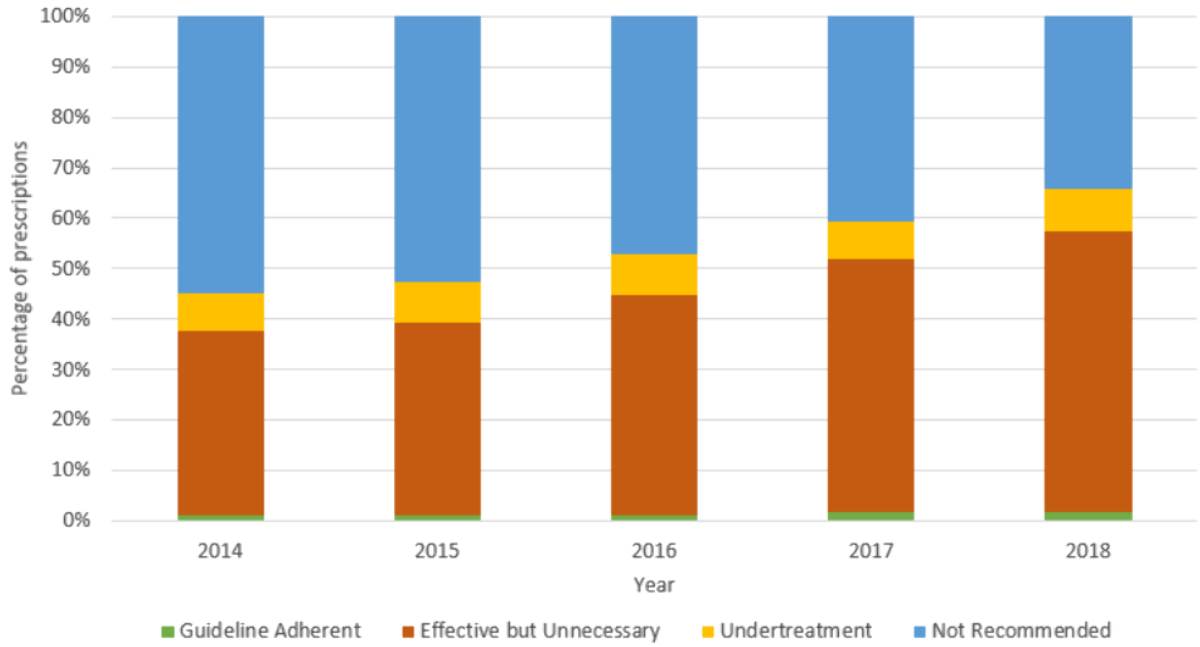
Backgrounds: Antibiotics remain the primary treatment for community acquired pneumonia (CAP), however rising rates of antimicrobial resistance may jeopardize their future efficacy. With higher rates reported in the youngest populations, effective treatment courses for pediatric pneumonia are of paramount importance. This study is the first to examine the quality of pediatric antibiotic use by agent, dose and duration.
Methods: A retrospective cohort analysis included all outpatient physician visits for pediatric CAP (aged < 19 years) in the province of British Columbia, between January 1 2014 to December 31 2018. Relevant practice guidelines were identified, and treatment recommendations were extracted. Categories of prescribing included: guideline adherent, effective but unnecessary, undertreatment, and not recommended. Proportions of attributable-antibiotic use were examined by prescribing category, and then stratified by age and sex.
Results: A total of 40,527 episodes of pediatric CAP were identified. Of those, 31,347 (77.3%) resulted in an antibiotic prescription. Amoxicillin is the recommended treatment for pediatric CAP, accounting for 48% of all prescriptions. The majority (83.6%) of amoxicillin use was “effective but unnecessary”, with 2.8% fully “guideline adherent”. Excessive durations were the hallmark of “effective but unnecessary” prescriptions (97.1%), while excessive average daily dose was present in 48.9%. A remaining 13.5% was classified as “undertreatment”, wherein sub-therapeutic dosing was the leading determinant. Overall, 98.6% of antibiotic use for pediatric CAP was not adherent, by agent, dose and/or duration.

Figure 1. Percentage of outpatient antibiotic use for paediatric CAP by category of prescription quality by year



Conclusions/Learning Points: This study is the first in Canada to examine prescribing quality for paediatric CAP by agent, dose and duration. Promoting the use of first-line agents, and shifting prescribing to reflect evidence-based shorter treatment courses are targets for paediatric stewardship. Study results highlight the importance of examining the quality of prescriptions across other common indications.

PD0010 / #1691

IMPACT OF A HOSPITAL ANTIMICROBIAL STEWARDSHIP PROGRAM ON THE TREATMENT OF ACUTE HEMATOGENOUS BONE AND JOIN INFECTIONS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Marta Agüera[1], María Ríos-Barnes[2], David Moreno Romo[3], Anna Gamell Fulla[4], Victoria Fumado[5], Eneritz Velasco Arnaiz[4]
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Backgrounds: Antimicrobial stewardship programmes(ASP) contribute to reducing unnecessarily prolonged antimicrobial courses. We aimed to describe the impact of a hospital ASP on the antibiotic treatment of acute hematogenous bone and joint infections(BJI) from 2017 in children in a tertiary referral hospital. ASP also changed first-line empiric antibiotics in the local protocol in June 2020 (from third generation-cephalosporin+cloxacillin combination to cefuroxime in <5 years old and from cloxacillin/6h to cefazolin/8h in ≥5 years old).
Methods: Unicentric retrospective study comparing pediatric patients(0-18 years) with acute hematogenous BJI admitted to a tertiary hospital in Barcelona(Spain) one year before (2016, period 1[P1]) and six years after (2017-22, period 2[P2]) the implementation of a multifaceted ASP with prospective audit as a primary strategy. Demographic and clinical characteristics and antibiotic treatment before and after ASP implementation and protocol change are described and compared.
Results: Figure 1 shows the main demographic and clinical characteristics of the 225 patients included. The length of parenteral antibiotic treatment(LPA) and the length of hospital stay(LOS) were significantly lower in P2 (median[IQR] days, P1: 9 [7-15] vs P2: 7 [5-8]; p=0.003; and P1: 9 [7-16] vs P2: 7 [5-9]; p=0.005, respectively), also in cases with positive blood culture (median[IQR] days of LPA and LOS, P1: 15 [10-20] vs P2: 9 [7-12], p=0.030 and p=0.049, respectively).
After June 2020, 3rd generation of cephalosporin use decreased in patients <5 years old (61/91 [67%] vs 4/38 [10%] cases; p<0.001). In patients ≥5 years-old cloxacillin utilization decreased (50/63 [79%] vs 5/32 [15%]), and cefazolin use increased (4/63 [6%] vs 18/32 [56%])
(p<0.001).

Figure 1. Demographic and clinical characteristics of patients with acute hematogenous BJI during period 1 (2016) and period 2 (2017-2022). We used Chi-squared and F-Fisher tests to compare categorical variables and U-Mann-Whitney test to cpmapre quantitative variables. Data are shown as number (percentatge) or median (IQR).

	Period 1 (2016) n= 24	Period 2 (2017-2022) n= 201	p-value
Age (years)	2.2 (1.4-10.5)	3.2 (1.4-10.8)	0.713
Sex (male)	11 (45.8%)	136 (67.7%)	0.034
Clinical characteristics			
Fever	11 (45.8%)	128 (63.7%)	0.130
Limp	16 (66.7%)	139 (69.1%)	0.995
Mobility limitation	14 (58.3%)	114 (56.7%)	0.902
Analytical parameters			
ESR (mm/h) *	25 (17-32)	22 (10-34)	0.582
RCP (mg/L) **	64 (23.5-160.2)	59 (28.5-114.5)	0.963
Procalcitonin (ng/mL)^	5.0 (0-5)	15 (0-55.5)	0.421
Positive blood culture	7/16 (43.8%)	55/178 (30.9%)	0.035
Etiological agent			0.272
Sterile	10 (41.7%)	92 (45.8%)	
SAMS	7 (29.1%)	50 (24.9%)	
SARM	2 (8.3%)	7 (3.5%)	
Kingella kingae	3 (12.5%)	19 (9.5%)	
S. pneumoniae	0 (0%)	7 (3.5%)	
S. pyogenes	0 (0%)	7 (3.5%)	
Others	2 (8.3%)	16 (8.0%)	
Diagnosis			0.551
SA	8 (33.3%)	74 (36.8%)	
OM	13 (54.2%)	114 (56.7%)	
OA	3 (12.5%)	13 (6.5%)	
Sequelae after antibiotic	0 (0%)	12 (6%)	0.369

IQR: interquartile range; ESG: erythrocyte sedimentation rate; CRP: C reactive protein; SAMS: *Staphylococcus aureus methicillin-sensible*; SAMR: *Staphylococcus aureus methicillin-resistant*; SA: septic arthritis; OM: osteomyelitis; OA: osteoarthritis. *Period 1: n=13; period 2: n=118. **Period 1: n= 24, Period 2: n=196; ^Period 1: n=9, Period 2: n=101.

Conclusions/Learning Points: After ASP implementation, the use of generation cephalosporin, the length of parenteral antibiotic treatment and hospital stay in children with acute hematogenous BJI were safely reduced.

PD0011 / #1769

QUALITY AND QUALITY USE OF ANTIBIOTICS TO TREAT BLOODSTREAM INFECTIONS IN HOSPITAL-ADMITTED CHILDREN UNDER-FIVE IN A LOW-RESOURCE FIELD SETTING

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Bieke Tack[1,2,3], Daniel Vita[4], Emmanuel Ntangu[5], Japhet Ngina[5], Pathy Mukoko[6], Dina Vangeluwe[7], Jaan Toelen[3,8], Karel Allegaert[8,9,10], Octavie Lunguya[11,12], Raffaella Ravinetto[13], Jan Jacobs[1,2]
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Backgrounds: Quality-assured, appropriate antibiotics are essential for treatment of bloodstream infection, but are challenging in low-resource settings. In children admitted to Kisantu district hospital (DR Congo), we report field observations on quality and quality use of antibiotics (excluding appropriate antibiotic choice and ingredient quality).
Methods: Children under-five with suspected bloodstream infection were enrolled in a cohort study (01/08/2021 – 31/07/2022, NCT04850677). Treatment was documented until day 3, and until discharge for non-typhi Salmonella bloodstream infection. We performed a standardized visual inspection of antibiotics.
Results: Antibiotics were administered to 98.4% (1838/1867) of children. In only 61.7% (1135/1838) children, treatment was initiated on the admission day. Most frequent initial antibiotics were ceftriaxone (84.3%, 1550/1838) and cefotaxime (11.7%, 216/1838). Ciprofloxacin and azithromycin were used to treat third-generation cephalosporin resistant non-typhi Salmonella infections. Oral ciprofloxacin suspension was out-of-stock for 12-months nationwide. Minimum one prescribed dose was missed in 2.9% (67/2300) of prescriptions, most (46/67) for cefotaxime, due to failure to administer cefotaxime every 6 hours outside the twice-daily routine administration rounds (43/46). In 77.6% of prescriptions, calculated doses were not feasible to administer (e.g. gentamicin prescription 7.5mg/kg/dose for 8.9kg child = 66.75mg = 1.67ml). In 20.6% (37/180) of intravenous ciprofloxacin prescriptions, administered versus prescribed doses differed >16%, due to inaccurate aliquoting of multidose vials (Fig1). For 21/21 prescriptions of azithromycin tablets, unscored tablets were split and crushed, hampering accurate dosing. In oral suspensions, dosing accuracy was impaired by lack of instructions for reconstitution, tools to measure reconstituting volumes, and dosing devices (Fig1). Furthermore, access to safe (sterile) water was
limited.

Figure 1. Poor quality and quality use of antibiotics in a field setting:
A. Multidose use of a single-dose perfusion vial with inaccurate aliquoting of the vial indicated with tape.
B. Poorly packaged powder for suspension with absent instructions for reconstitution & absent dosing device.
C. Splitting an unscored tablet in four & crushing it to administer it to a 12 month old infant.
D. Administering the "dissolved" crushed powder to a 12 month old infant.
E. Inhomogenous suspension & caking of reconstituted powder.

Conclusions/Learning Points: Challenges for quality and quality use of antibiotics were delayed prescribing, inaccurate dosing, stock-outs and lack of formulations adapted to a pediatric, low-resource setting.

PD0012 / #2508

BENCHMARKING CROSS-SITE ANTIBIOTIC CONSUMPTION IN PAEDIATRIC HAEMATOLOGY-ONCOLOGY INPATIENTS WITH ROUTINELY COLLECTED ELECTRONIC PRESCRIBING DATA: A PILOT STUDY IN TWO UK TERTIARY UNITS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 01: ANTIMICROBIALS (STATION 01)

Samuel Channon-Wells[1], Caroline Herin[1], Ismail Elbeshlawi[1], Juliet Gray[2], Sanjay Patel[2], Stephane Paulus[1]
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Background: Systematic antimicrobial consumption data in paediatric inpatients is lacking, both in quantity and quality. Our pilot study demonstrates how the use of routinely collected electronic prescribing data can bridge this gap in a high-risk paediatric population.
Methods: We conducted an observational study comparing intravenous antibiotic use at two UK paediatric Haematology-Oncology units in Oxford and Southampton from 2018-2022. Monthly Days-of-Therapy (DOT) per 100-patient-days (PD) for intravenous antibiotics were extracted from antimicrobial surveillance systems at each site. We report total and specific antibiotic consumption. Linear regression and autoregressive moving average models were used to estimate trends.
Results: The total patient-days included were 18,505 for Oxford and 24,427 for Southampton. Median monthly DOT-per-100-PD for total intravenous antibiotic consumption at each site were similar (25.9 and 29.4). Total antibiotic consumption declined at both sites during the study period, with estimated annual yearly reduction in DOT-per-100-PD of 2.7 (95% confidence interval (CI): 0.7-4.7) for Oxford and 3.9 (95% CI: 2.2-5.6) for Southampton. Median intravenous consumption was similar for Carbapenems, Piperacillin/tazobactam and Aminoglycosides, whilst Ceftriaxone and Teicoplanin use demonstrated approximately threefold relative difference in median monthly consumption between sites. Meropenem, Piperacillin/tazobactam, Teicoplanin, Vancomycin and Gentamicin all demonstrated a statistically significant reduction in use over time at either one or both sites, and was most marked for Piperacillin/tazobactam and Vancomycin (Figure
1).

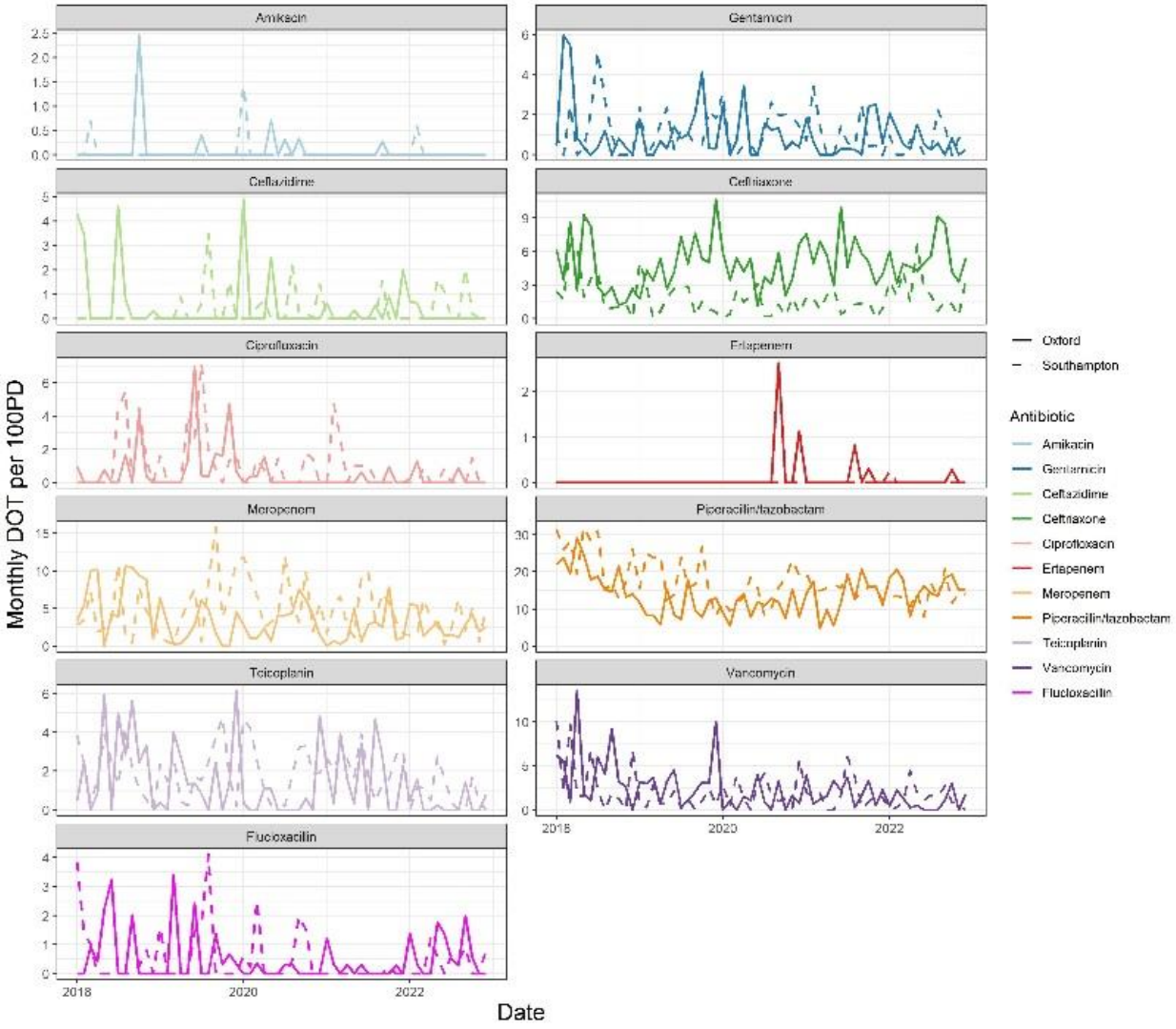

Figure 1: Monthly DOT-per-100-PD across the entire study period, separated by each antimicrobial and site. Solid line indicates results from Oxford site, and dashed line indicates results from Southampton site.

Conclusions/Learning Points: Routinely collected electronic prescribing records provide granular benchmarking data of antibiotic use in paediatric Haematology-Oncology patients across different sites. This approach can highlight areas to target antimicrobial stewardship interventions and evaluate their impact. This methodology should be rolled out more widely to establish a national framework for consumption reporting, and can be applied to other high-risk paediatric groups, including neonatal and paediatric intensive care units.

PD0013 / #2152

THE ADDED VALUE OF USING PULSE OXIMETER ROUTINELY INTO THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS GUIDELINES TO BETTER IDENTIFY AND MANAGE SEVERE CASES AMONG CHILDREN UNDER-5 YEARS OLD IN WEST AFRICA, JUNE 2021 TO JUNE 2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Gildas Boris Hedible[1], Désiré Neboua[2], Lucie Peters Bokol[1], Gildas Anago[2], Zineb Zair[1], Severin Lenaud[3], Honorat Agbeci[1], Abdoul Guaniyi Sawadogo[4], Desire G Kargougou[5], Bertrand Meda[6], Jacques Seraphin Kolie[7], Sarah Louart[2], Valéry Ridde[8], Valeriane Leroy[1]
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Backgrounds: The Integrated Management of Childhood Illness (IMCI) guidelines for children under 5 is a symptom-based algorithm adapted to the primary health center (PHC) level in resource-limited countries. Hypoxemia is a life-threatening event often underdiagnosed clinically. The AIRE project, UNITAID-funded, has implemented routine use of Pulse Oximeter (PO) into IMCI consultations at PHCs in Burkina Faso, Guinea, Mali and Niger. We measured the added value of IMCI+PO use to improve the diagnosis and care-management of hypoxemia.
Methods: In 16 AIRE PHC research sites (4/country), all children aged 0-59 months attending IMCI consultations, except those aged 2-59 months classified as green without cough or breathing difficulties were eligible for PO use, and enrolled in a cross-sectional study with parental consent. Severe cases were followed-up during 14 days.
Results: From June 2021 to June 2022, 39,360 children attended IMCI consultations at the research PHCs, of whom 31,600 (80.2%) was eligible for PO use. Overall, 9,8% were identified as severe cases using IMCI alone (3,103/31,600; 95%CI: 9.5–10.2); and 60 cases newly identified. Prevalence of severe case using IMCI+PO was at 10% (3,103+60)/31,600; 95%CI: 9.7–10.3). Overall +1.9% (60/3,103; 95%CI: 1.5-2.5) were detected using PO alone. This added value was heterogeneous between countries: +0.9% (95%CI: 0.1-3.4), +0.3% (95%CI: 0.09-0.9), +3.2% (95%CI: 2.3-4.2), +2.9% (95%CI: 1.4-5.2), in BF, Guinea, Mali, Niger, respectively. Among the 60 additional severe cases identified only with PO, 25 of them were included and followed, 21 (84%) were transferred to district hospital but only 11 (44%) received an oxygen therapy.
Conclusions/Learning Points: The added value of IMCI+PO was estimated globally to +2% to better identify severe cases, with a similar effect except in Guinea and Burkina Faso. Their appropriate management remains challenging for West African governments.

PD0014 / #457

INCREASED RISK OF LONG-TERM SEQUELAE FOLLOWING CHILDHOOD BACTERIAL MENINGITIS IN SWEDEN: 1987-2021

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

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Backgrounds: Survivors of bacterial meningitis are at risk for long-term disabling sequelae. The objective of this study was to describe the frequency and severity of sequelae following childhood bacterial meningitis in Sweden.
Methods: This is a matched cohort study of individuals diagnosed with bacterial meningitis in childhood (<18 years) between 1987 and 2021. Cases of bacterial meningitis were matched with controls regarding sex, birth year, and place of residence. Post-meningitis sequelae were identified in the nationwide Swedish National Patient Register (cognitive disabilities, seizures, hearing loss, motor function disorders, visual disturbances, behavioral disorders, and intracranial structural injury) and further stratified by three major causes of bacterial meningitis (Streptococcus pneumoniae, Neisseria meningitidis, and Haemophilus influenzae).
Results: The cohort included 3,623 individuals diagnosed with bacterial meningitis in childhood (cases) and 32,607 matched general population controls. The mean age at diagnosis was 4.1 years and median follow-up time was 23.7 years. Cases had a higher cumulative incidence of all seven sequelae relative to the controls. The highest absolute risk of sequelae was found for visual disturbances, hearing loss, and behavioral disorders. The estimated hazard ratios (HRs) for sequelae showed a significant increased risk for cases relative to controls for all categories of sequelae. The estimated adjusted HR (95% confidence intervals) showed a largest relative risk for intracranial structural injury 29.4 (18.3-47.4), seizures 4.76 (4.01-5.65), and motor function disorders 4.70 (3.94-5.60) (Table 1). The adjusted HRs for cognitive disabilities, seizures, hearing loss, motor function disorders, visual disturbances, and intracranial structural injury were significantly higher for Streptococcus pneumoniae compared to Haemophilus influenzae and compared to Neisseria
meningitidis.

Table 1: Risk for Sequelae: Adjusted* Hazard Ratios (HR)

	Events		Rate (per 100,000 person-years)		HR (95%CI)
	Bacterial Meningitis (n=3623)	Controls (n=32,607)	Bacterial Meningitis (n=3623)	Controls (n=32,607)	
Cognitive Disability	265	610	352	86.6	3.3 (2.8-3.8)
Seizures	249	398	332	56.4	4.8 (4.0-5.7)
Hearing Loss	461	961	635	137	4.1 (3.7-4.6)
Motor Function Disorders	263	354	351	50.1	4.7 (3.9-5.6)
Visual Disturbances	478	1523	654	219	2.3 (2.0-2.5)
Behavioral Disorders	370	2315	494	335	1.4 (1.3-1.6)
Intracranial Structural Injury	214	58	284	8.16	29.4 (18.3-47.4)

* Adjusted for age at the index date, the index year, sex, education of mother, education of father, birth characteristics (5-minute Apgar score, birth weight, head circumference), and seven pre-existing condition (malignancies, perinatal complications, psychiatric disorders, central nervous system disease, congenital di traumatic injuries, and operations in the nervous system).

Conclusions/Learning Points: The results highlight the increased risk for long-term disabling sequelae among individuals in Sweden diagnosed with childhood bacterial meningitis, particularly pneumococcal meningitis.

PD0015 / #746

SUSTAINED HERD PROTECTION AGAINST INVASIVE PNEUMOCOCCAL DISEASE (IPD) IN YOUNG INFANTS, 10 YEARS POST PCV7/PCV13 IMPLEMENTATION WITH A 2+1 DOSE SCHEDULE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

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Backgrounds: PCV7 and PCV13 were implemented in the Israeli infant immunization plan using a 2+1 schedule (2, 4, 12m) in 2009 and 2010, respectively. Despite the wide adoption of the 2+1 schedule globally, head-to-head studies comparing this schedule with the originally licensed 3+1 schedule were not done, resulting in still prevailing doubts about whether the 2+1 and 3+1 schedules provide similar indirect protection. To assess the extent of indirect (herd) protection from PCV13-vaccinated children to non-immunized/partially immunized infants, we compared the annual IPD rates in the late PCV13 period (2016-2019) vs. the pre-PCV period (2004-2008) in children <4m (scheduled for ≤1 dose), 4-6m (immediate post-dose 2), 7-12m (a few months post-dose 2), and 13-23m (post-dose 3 [booster dose]).
Methods: The methodology of the nationwide IPD prospective study in children (the IsraNIP program) was previously described (Ben-Shimol, CID 74:1639-1649, 2022). There were 286,500, 311,500, and 367,900 children <24 months in Israel in 2004, 2009, and 2019 respectively. PCV13 serotypes (VT13), non-VT13, and total IPD incidence rates in the late-PCV13 (2016-2019) vs. pre-PCV (2004-2008) period were calculated for each age group.
Results:

		Pre-PCV (2004-2008)	Late-PCV (2016-2019)	IRR* Late vs. Pre
Children <4 months				
	VT13	20.8 ± 7.9	1.6 ± 1.1	0.08 (0.03-0.26)
	non-VT13	3.4 ± 3.9	7.7 ± 0.9	2.26 (0.81-6.26)
	Total	24.2 ± 6.9	9.3 ± 0.5	0.38 (0.21-0.68)
Children 4-6 months				
	VT13	12.3 ± 1.5	0.9 ± 0.6	0.09 (0.02-0.68)
	non-VT13	2.4 ± 0.9	5.7 ± 1.8	2.01 (0.63-6.42)
	Total	14.7 ± 2.0	6.6 ± 1.5	0.44 (0.22-0.89)
Children 7-12 months				
	VT13	49.4 ± 2.9	1.6 ± 1.3	0.03 (0.01-0.11)
	non-VT13	8.2 ± 2.6	17.9 ± 3.9	2.22 (1.14-4.29)
	Total	57.6 ± 3.4	19.6 ± 4.9	0.34 (0.23-0.50)
Children 13-23 months				
	VT13	82.7 ± 4.8	1.5 ± 0.3	0.02 (0.01-0.06)
	non-VT13	6.3 ± 2.2	25.4 ± 3.4	4.09 (2.00-8.35)
	Total	89.3 ± 2.8	26.9 ± 3.1	0.30 (0.22-0.42)

* Incidence Rate Ratio

The incidence rate ratio of IPD caused by VT13 during the late PCV13 vs. pre-PCV period for children <4m, 4-6m, 7-12m, and 13-23m were 0.08, 0.09, 0.03, and 0.02, respectively (Table). Reductions for all age groups scheduled to be post-dose 2 exceeded 95%, with no significant difference between the groups scheduled to be post-dose 2 vs. the post-booster group.

Conclusions/Learning Points: The 2+1 PCV13 schedule was highly protective for those not completely vaccinated, with similar rates of VT13 IPD, suggesting that the high impact of the 2+1 schedule is similar to that of the 3+1 schedule.

PD0016 / #701

SARS-COV-2 PANDEMIC INDUCED CHANGES IN SEROYPE PREVALENCE AMONG CHILDREN WITH INVASIVE PNEUMOCOCCAL DISEASE (IPD) IN GERMANY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

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Backgrounds: Infant PCV vaccination was universally recommended in Germany in 2006. SARS-CoV-2 reached Germany at the beginning of March 2020. Here, we present data on the serotype distribution of invasive IPD cases among children under the age of 18 years, before and during the pandemic.
Methods: IPD in children in Germany has been monitored since 1997. Isolates were serotyped using the Neufeld Quellung reaction.
Results: From June 2020-March 2021, only 55 cases were reported, compared to 189 cases in the same period one year earlier. From June 2021-March 2022 case numbers increased to 169, and in the current season 137 cases have been reported thus far (June 2022-January 2023). Serotype distributions in June 2019-March 2020, June 2021-March 2022 and June 2022-Jan 2023, were similar but differed from June 2020-March 2021. Prevalence of serotypes 3 and 8 was strongly reduced, serotypes 10A, 15C, 23A and 23B increased. Serotype 24F strongly decreased only during June 2021-March 2022. PCV13-serotype prevalence was 23.8% (PCV15: 32.3%, PCV20: 55.0%) in June 2019-March 2020, and decreased to 7.3% (9.1%, 30.9%) in June 2020-March 2021. After June 2021, PCV13 prevalence increased to 35.8% (40.1%, 56.2%). This increase was most prevalent among children 2-4y. (47.1%, 51.0%, 56.7%) and 5-17y. (42.9%, 47.6%, 69.0%). Among children 0-1y., PCV13 prevalence reduced to pre-pandemic levels (13.6%). Most prevalent PCV13 serotypes were 3 and 19A.
Conclusions/Learning Points: During the SARS-CoV-2 pandemic IPD case numbers were strongly reduced. Due to non-pharmaceutical interventions (NPI) numbers of reported IPD cases decreased till June 2021, when NPI were relieved and numbers quickly increased to pre-pandemic levels. Serotypes 3 and 8 were less prevalent, 10A, 15C, 23A and 23B increased. After June 2021, higher numbers of PCV13-type IPD were observed among older children.

PD0017 / #878

EPIDEMIOLOGY OF BLOODSTREAM INFECTIONS AND ASSOCIATION WITH CARBAPENEM-RESISTANT COLONIZATION IN PEDIATRIC ONCOLOGY PATIENTS: FIVE-YEAR RESULTS OF A TWO-CENTER STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Violetta Magdalini Darda[1], Elias Iosifidis[1], Maria Kourti[1], Charalambos Zarras[2], Angeliki Kassomenaki[3], Paraskevi Mantza[3], Efthymia Protonotariou[3], Lemonia Skoura[3], Athanassios Tragiannidis[4], Emmanuel Hatzipantelis[4], Asimina Galli-Tsinopoulou[4], Eugenia Papakonstantinou[5], Emmanuel Roilides[1]
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Backgrounds: Bloodstream infections (BSI) can be life-threatening, especially caused by carbapenem-resistant (CR) isolates, due to restricted therapeutic options. The association between CR-colonization and CR-BSI has been described mainly in adults. The aim of this study was to assess the epidemiology of BSI and its correlation to CR gut colonization in pediatric oncology patients.
Methods: Patients (≤16 years) treated in two pediatric oncology centers between 2018 and 2022 were retrospectively screened for BSI and CR colonization. The patients with BSI, those with CR-colonization, and those that were CR-colonized and developed BSI were recorded. All blood and colonization isolates were recorded. Logistic regression between BSIs due to Gram-negative or other bacteria among CR-colonized patients was performed.
Results: A total of 372 patients were hospitalized during the study period. Females were 52.2% and the median age was 5 (IQR:7.5) years. Sixty-two (16.7%) patients were found CR-carriers. Seventy-three (19.6%) patients acquired BSI of which 4 (5.5%) were due to CR isolate. The majority (75%) of patients with CR-BSI were CR-carriers (similar antimicrobial susceptibility testing). Gram-negative bacteria predominated (65.8%) compared to Gram-positive pathogens (30.1%). Three fungemias (4.1%) were also noted. Twenty-one (43.8%) patients with Gram-negative BSI were CR-carriers, compared to 5 (20%) with other BSIs (OR: 3.11, 95%CI: 1.06-10.59). Escherichia coli was the most frequent (35.4%) Gram-negative bacteria, whereas Staphylococcus aureus was the most frequent Gram-positive bacteria (47.4% of Gram-positive isolates, MRSA: 33.3%).
Conclusions/Learning Points: Gram-negative bacteria were the most frequently isolated pathogens in pediatric oncology patients with BSI. CR-carriers are three times more likely to acquire Gram-negative BSI and CR-BSI, compared to non-CR carriers. These findings could help to choose the appropriate use of empirical antibiotic treatment according to the local epidemiology.

PD0018 / #926

INVASIVE PNEUMOCOCCAL DISEASE IN CHILDREN: EPIDEMIOLOGIC AND CLINICAL TRENDS DURING THE COVID-19 PANDEMIC.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Giannina Izquierdo[1,2], Carolina Rivacoba[1], Marcela Zuñiga[2,3], Dona Benadoff[2,4], Javiera Albornoz[2], Paula Chavez[2], Paula Leal[1], Rodolfo Villena[1,2]
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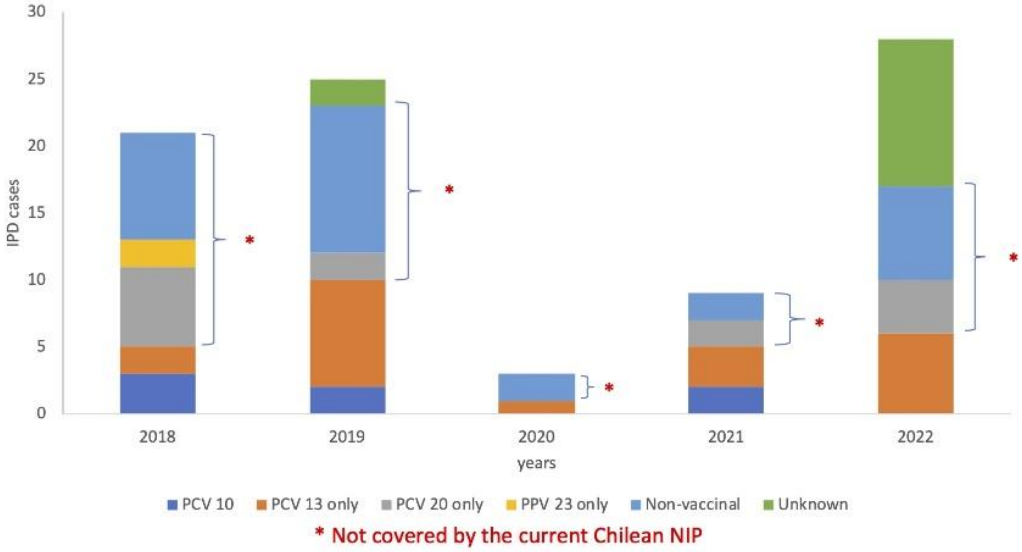
Backgrounds: During the Covid-19 pandemic many countries experienced a significant reduction of Invasive Pneumococcal Disease (IPD). A risk of rebound after the lifting of restrictions has been suggested. The aim of this study is to describe the epidemiological and clinical trend of IPD in the pre and postSARS-CoV-2 periods.
Methods: Descriptive study of IPD cases, admitted at 3 tertiary pediatric hospitals in Santiago, Chile, during preSARS-CoV-2 (2018–2019) and postSARS-CoV-2 (2020-2022) periods. Epidemiologic, clinic and microbiologic data were obtained from clinical and microbiological records, Public Health Institute and National Immunization Program (NIP).
Results: 86 cases were reported, 47 pre and 39 postSARS-CoV-2 respectively with a significant reduction in 2020. Median age 26 months (p25-75 12.7-57), 59% males. The most frequent diagnoses were: complicated/bacteremic pneumonia (40.6%), bacteremia (19,7%), septic shock (15.1%) and meningitis (4,6%).Median length of hospitalization: 7.5 days (p25-75 4-15), PICU admission: 43%; 30 days-CFR: 3.5%. There was no difference between the pre and postSARS-CoV-2 periods regarding number of IPD cases (Figure 1), PICU admission and 30 days-CFR, as the proportion of meningitis, bacteremia and septic shock, except for an increase trend of complicated pneumonias. Pneumococcal serotype identification occurred in 73 cases (85%); being 19A (16,4%), 24F (13,6%) and 3 (10,9%) the most prevalent. Included in PCV-10: 9,5%; PCV-13 only: 27,4% and PCV-20 only: 19%. Non-vaccinal serotypes: 41%. 57% of cases occurred in fully vaccinated subjects, and vaccine failure was evidenced in 8 cases (comorbidities: 50% 71%: 2+1 schedule), without deaths.
Conclusions/Learning Points: Significant reductions in IPD were observed during the postSARS-CoV-2 period, but sustained increase has been evidenced after restrictions were eased. Despite non-vaccinal serotypes being predominant, a high vaccine coverage is of paramount importance to maintain population

protection.

Figure 1. IPD cases by serotypes, Chile 2018-2022



PD0019 / #1602

ACUTE LOWER TRACT INFECTION IN HOSPITALIZED PATIENTS: 2022 INFLUENZA SEASON IN ARGENTINA. A MULTICENTER STUDY.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Angela Gentile[1], Maria Del Valle Juarez[1], Gabriela Ensinck[2], Oscar Lopez[3], Lucía Romero Bollon[1], Tatiana Fernandez[4], Andres Gioiosa[4], Gustavo Lazarte[2], Silvina Lobertti[2], Andrea Graboviezki[3], Silvia Villordo[3], Gabriela Gregorio[4]
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Backgrounds: Respiratory disease is 3rd cause of death in Argentina. Influenza vaccine is mandatory for children between 6-24 months. Objectives: to describe the clinical and epidemiologic patterns of ALRI and influenza (IF) infection in four Argentina different regions.
Methods: A prospective, multicenter cross-sectional study of patients admitted for ALRI in Buenos Aires province, Buenos Aires city, Rosario and Misiones between January and December 2022. Virological diagnosis was made by real time-PCR or Film Array. A multivariate analysis was performed to found independent predictors (IP) of influenza infections factors comparing with others viruses.
Results: A total of 1,636 ALRI were included; 98.2% tested (1606) and 70,9% (1139) had positive results. Viral distribution: RSV 27.8%, Rhinovirus 21.1% Metapneumovirus 13.5%; Influenza 8.7 %[(60% type A, 40% type B (Victoria)], Parainfluenza 8.7%, Adenovirus 5.2%; SARS-CoV-2 5%; Picornavirus 2.1%. Median age:11 months (RI=5-30mo). ALRI lethality: 0.6% (9/1606): Influenza: 2.2% (3/139); Rhinovirus: 0.6% (2/339); Metapneumovirus: 0.5% (1/217). Influenza (n=139) showed a bimodal pattern (EW9-14 late summer; EW38-45 spring). Median age:27 months (IR:7-71 months). Age distribution:<6 months (20.1%), 6-23 months (31%), 2-4 yrs. (17.3%), >5 yrs. (31.7%). Influenza vaccination coverage (6-24 months):28.7% (over 512 vaccination cards evaluated). Most frequent clinical feature was consolidated pneumonia(76.3%); 10.8% were born preterm, 60.4% had comorbidities; 10.4% required AVM and 11.8% CAFO. From 6-24 months influenza cases (n=43), 40 had vaccination card and only 20% had complete schedule. Influenza infection independent predictors: pneumonia as clinical presentation [OR:3,6 (CI95%=2,3-5,4) p<0,001] and malnourishment [OR:2,5 (IC95%=1,2-5,3) p=0,0139].
Conclusions/Learning Points: 62% of IF cases had less than 5 years (group involved in transmission). Influenza had the highest lethality rate. Vaccine coverage was low.

PD0020 / #1623

IMMUNE RESPONSES TO VACCINATION IN HIV VERTICALLY-INFECTED PATIENTS: A LONG TERM EVALUATION.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Annachiara Zin[1], Daniele Mengato[2], Andrea Francavilla[3], Lorenzo Chiusaroli[1], Carlo Giaquinto[1], Daniele Donà[1], Osvalda Rampon[1]
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Backgrounds: Despite successful antiretroviral therapy (ART), people living with HIV are at risk of suboptimal vaccine response, exposing this vulnerable population to common vaccine-preventable diseases.
Methods: This was a cross-sectional observational study investigating humoral responses to vaccination in HIV-vertically infected patients. We analyzed the seroprotection rate at specific time points since primary immunization for diphtheria, tetanus, measles, mumps, rubella, varicella and hepatitis B, reviewing the serological analysis and medical records available for each patient from 2004 to 2022. Only vaccinated patients were included in the study, and booster doses were excluded. Associations between vaccine outcome and predictive factors were analyzed.
Results: 82 vertically-infected patients were included; all were on ART with a median age of 24 years (IQR 16-29) at enrollment. Two years after the last vaccine dose, the seroprotection rate was 71% for diphtheria, 79% for tetanus and measles, 67% for mumps, 87% for rubella and 54% for varicella. After five years, 50-70% of patients maintain protective antibodies, dropping to 50-58% after ten years. After 20 years, protection is < 30% for all vaccines, except for rubella (47%). Seroprotection for hepatitis B is the lowest: only 60%, 37%, 24% and 7.5% maintained protective IgG titre after, respectively, 2-5-10 and 20 years since vaccination. Patients who maintained protective antibody levels over time were younger, started ART by 12 months, and were fully vaccinated after being started on ART ($p<0.05$).
Conclusions/Learning Points: In this small-size population of HIV vertically-infected patients, seroprotection to vaccination was lower and less durable than expected in the general population. Therefore, periodic seroprotection monitoring and revaccination are crucial in managing these patients. Early initiation of ART seems to create the most favorable conditions for optimizing vaccination outcomes.

PD0021 / #1700

DETECTION AND MOLECULAR CHARACTERIZATION OF HUMAN PARECHOVIRUS IN RESPIRATORY INFECTIONS IN LOMBARDY (NORTHERN ITALY), FROM AUGUST TO DECEMBER 2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Laura Pellegrinelli, Arlinda Seiti, Cristina Galli, Valeria Primache, Giovanni Anselmi, Emanuela Matteucci, Sandro Binda, Elena Pariani
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Backgrounds: Human Parechovirus (HPeV) is generally associated with mild respiratory and/or gastrointestinal infection. However, it may occasionally cause severe disease such as meningitis, encephalitis and acute flaccid paralysis, particularly in young children. This study aimed at: 1) detecting and investigating the role of HPeV in respiratory infections in Lombardy from August to December 2022; 2) molecularly characterizing HPeV strains.
Methods: Nasal-pharyngeal swabs (NPSs) were collected from influenza-like illness (ILI) paediatric outpatients (0-14 years) in the framework of the Italian influenza surveillance network (InfluNet&RespiVirNet) and from acute respiratory infections (ARI) outpatients in the framework of RSV surveillance study (RSVComNet). NPSs were collected from August 1, to December 30, 2022. All NPSs were tested by real-time RT-PCR targeting the untranslated region of HPeV. The VP1/VP3 region (nt 2159-2458) of all HPeV-positive samples was sequenced.
Results: 832 NPSs were collected from as many ILI (n=733) and ARI (n=99) cases. HPeV was detected in 5.7% (n=48) of NPSs: 4.6% (34/733) collected from ILIs, and 14.1% (14/99) from ARIs. The median age of HPeV-positive cases was 1 year (IQR: 2.25 years). HPeV was identified from week 37-2022 to week 50-2022 peaking in week 48-2022. 87.5% (42/48) of HPeV-positive cases were children ≤4 years. In 93.8% of HPeV-positive samples another respiratory virus was detected. 40% (19/48) of HPeV strains were sequenced and their molecular characterization revealed that: 10% (2/19) were subtype 1, 16% (3/19) subtype 3, 21% (4/19) subtype 5, and 53% (10/19) subtype 6.
Conclusions/Learning Points: In our series, HPeV was detected in nearly 6% of cases, mainly in children ≤4 years with ARI. In most samples HPeV was detected with another respiratory virus. Molecular characterization of detected strains showed the co-circulation of several subtypes, with HPeV-6 being the predominant.

PD0022 / #1757

THE OUTPATIENT AND INPATIENT PEDIATRIC POPULATION OF MANHIÇA DISTRICT THROUGH A GENDER LENS: A 17-YEAR RETROSPECTIVE STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Núria Balanza[1], Sara Ajanovic[1], Aura Hunguana[2], Rosauro Varo[1], Justina Bramugy[2], Arsenio Nhacolo[2], António Sitoe[2], Llorenç Quintó[1], Sozinho Acácio[2], Khátia Munguambe[2], Inacio Munduapege Mandomando[2], Charfudin Sacoor[2], Caterina Guinovart[1], Quique Bassat[1]
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Backgrounds: Gender-based health inequalities in the pediatric population have been previously reported in different countries, especially in South Asia, but data are scarce in others regions like sub-Saharan Africa. In this study we analyzed whether girls differ over boys with respect to health-seeking behavior, clinical management, and outcomes in the district of Manhiça, Mozambique.
Methods: Retrospective analysis of data collected through the Manhiça morbidity surveillance system on all pediatric visits to seven outpatient clinics (>1.1 million) and all admissions (>41,000) to the Manhiça District Hospital between 2004-2020. Minimum community-based incidences rates (MCBIRs) of outpatient visits and hospital admissions were estimated using demographic surveillance system data. Data were stratified by age groups (<3 months, 3-59 months, 5-9 years, and 10-<15 years) and calendar years.
Results: Girls represented a slightly lower overall percentage of pediatric outpatient visits (49.2%) and hospital admissions (45.1%) than boys. Girls accounted for 50.3% of children <15 years old living in the study area during the study period. Consequently, MCBIRs of outpatient visits and hospital admission were also marginally lower in girls. Both groups reported similar number of days with symptomatology before arriving to a health post or being admitted to the hospital. Severity traits at presentation tented to be more frequent among male outpatients and inpatients, although patterns changed by age group. The hospital case fatality rate in girls was 4.2% and in boys it was 4.1%.
Conclusions/Learning Points: We did not find important differences in terms of access to health system and outcomes between boys and girls. More in-depth research focused on potential differences according to syndrome or specific diseases is warranted to continue evaluating whether inherent gender biases may affect health outcomes.

PD0023 / #602

QUALITY OF LIFE IMPACT OF VARICELLA ON CHILDREN AND THEIR FAMILIES IN THE UK – THE QOLPOX STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 02: PUBLIC HEALTH I (STATION 02)

Robin Marlow[1], Marion Roderick[2], Jennifer Oliver[3], Zoe Gray[3], Adam Boon[3], Isabel Rowbotham[3], Francesca Spickett-Jones[3], Elyna Seymour[3], Delia Bethell[4], Katrina Cathie[5], Paul Heath[6], Steve Jones[7], Jenny Langlands[8], Fiona Shackley[9], Clara Thompson[10], Elizabeth Whittaker[11], Suzanne Wilkins[12], Jamie Lopez-Bernal[13], Gayatri Amirthalingam[13], Fernanda Rodrigues[14], Adam Finn[3]
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Backgrounds: Varicella is still a ubiquitous disease of childhood in the UK, whilst highly effective and safe vaccines have been routinely used in other countries for more than 20 years. UK assessments of varicella vaccines did not meet the National Institute for Health and Care Excellence cost utility threshold, in part due to limited data quantifying the quality of life (QoL) lost in children.
Methods: We carried out a prospective multicentre observational study recruiting families while their child was suffering with acute chickenpox infection or secondary complications. We included both cases admitted to hospital and community cases. Quality of life was assessed using standard tools: EQ5D-5L + CHU9 for children and EQ5D-5L for both carers. In hospitalised patients, assessments were carried out daily until discharge, weekly for 1 month then a follow-up at six months. In the community arm, assessments were daily until back to normal health.
Results: Between 2018 and 2022 we recruited 128 hospitalised and 68 community cases. In children the mean Quality Adjusted Life Year (QALY) loss was 38.7 (36.2-40.2)/1000 hospitalised and 5.8 (5.5-6.6)/1000 community cases. Primary carers lost 20.4(19.2-22.1)/1000 hospitalised or 2.1(2.0-2.4)/1000 community cases. Secondary carers lost 16.9(15.9-18.6)/1000 hospitalised and 0.6 (0.3-0.7)/1000 community cases. Mean length of hospital stay was 4.5days (IQR 1-4.8) but total length of illness in hospitalised cases was a median of 30 days (IQR 23-37).
Conclusions/Learning Points: This detailed prospective assessment of QoL loss from chickenpox has found it to be 1.5 times larger for community cases and 10 times larger for hospitalised children than that used in previous economic assessments and has also demonstrated substantial QALY loss for both primary and secondary carers. These data can be used to help parameterise new assessments of UK varicella vaccine cost utility.

PD0024 / #1793

A PHASE 3 TRIAL EVALUATING THE SAFETY AND IMMUNOGENICITY OF A 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE IN HEALTHY CHILDREN 15 MONTHS THROUGH 17 YEARS OF AGE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Jay Meyer[1], Peter Silas[2], G. Laïssa Ouedraogo[3], Kathleen Mcelwee[3], Georgina Keep[4], James Trammel[3], Yahong Peng[3], Ingrid Scully[5], William Gruber[5], Daniel Scott[3], Wendy Watson[3]
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Backgrounds: A 20-valent pneumococcal conjugate vaccine (PCV20) was developed to extend protection against pneumococcal disease. Safety and immunogenicity findings are reported for PCV20 in children 15 months through 17 years of age.
Methods: This phase 3, single-arm study (NCT04642079) enrolled healthy US children (≥15 to <24 months, ≥2 to <5 years, ≥5 to <10 years, ≥10 to <18 years of age) to receive a single dose of PCV20. Children <5 years of age had ≥3 PCV13 doses before enrolment. Local reactions and systemic events were collected for 7 days; adverse events (AEs) and serious AEs (SAEs) were collected for 1 and 6 months, respectively. Immunoglobulin G (IgG) concentrations and opsonophagocytic activity (OPA) titers to vaccine serotypes were measured in sera before and 1 month after vaccination.
Results: 831 study participants were vaccinated (201–216 per cohort). Local reactions and systemic events were predominantly mild/moderate in intensity. Pain at injection site was the most common local reaction reported across all age groups. AE frequencies ranged from 4.4% in the oldest age cohort to 23.9% in the youngest; headache and muscle pain (older age cohorts), fatigue (≥2 to <5 years of age), and irritability (≥15 to <24 months of age) were the most common. SAEs were uncommon. IgG geometric mean fold-rises (GMFRs) from before to 1 month after PCV20 for the 7 additional serotypes and the PCV13 serotypes ranged from 10.5–1847.7 and 2.9–127.9, respectively, and OPA GMFRs ranged from 11.5–983.6 and 2.8–147.9, respectively, across age cohorts.
Conclusions/Learning Points: PCV20 had a satisfactory safety profile and immune responses with the potential to extend the benefit for the 7 additional vaccine serotypes in children 15 months through 17 years of age.

PD0025 / #2129

PERSISTENCE OF HSBA TITERS ELICITED BY A PENTAVALENT MENABCWY VACCINE AND IMMUNOGENICITY, SAFETY, AND TOLERABILITY OF A BOOSTER DOSE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

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Backgrounds: Comprehensive protection of adolescents and young adults against meningococcal disease requires protection from serogroups A/B/C/W/Y. Previous results demonstrated safety and immunogenicity of a primary series of a MenABCWY vaccine composed of 2 licensed vaccines, MenB-fHbp and MenACWY-TT. We report persistence of immune responses from that study and safety and immunogenicity of a booster dose.
Methods: This active-controlled study randomized 10–25-year-olds stratified according to prior ACWY vaccination history to receive MenABCWY (Months 0,6) and saline (Month 0) or MenB-fHbp (Months 0,6) and MenACWY-CRM (Month 0). Booster doses of the assigned vaccine were administered 4 years later. Immune responses during the 48 months after primary vaccination and 1 month after booster were evaluated in serum bactericidal activity assays using human complement (hSBA) against serogroup A/C/W/Y strains and 4 diverse, vaccine-heterologous MenB strains. Safety was evaluated.
Results: During the 48 months after primary vaccination, 62.0%–100% of ACWY-naive MenABCWY recipients and 38.1%–95.2% of ACWY-naive MenACWY-CRM recipients had hSBA titers ≥1:8 (lower limit of quantitation [LLOQ]) for serogroups A/C/W/Y; respective percentages among ACWY-experienced participants were 98.7%–100% and 89.7%–100% (Figure). Percentages of participants with MenB hSBA titers ≥LLOQ (1:8 for A56, B24, and B44 strains; 1:16 for A22 strain) declined initially before plateauing, generally remaining higher than baseline through 48 months. After the booster, 100% of participants achieved hSBA titers ≥1:8 for serogroups A/C/W/Y (Figure). For MenB strains, percentages of participants achieving hSBA titers ≥LLOQ were higher postbooster than after the primary series. Postbooster reactogenicity events were similarly frequent across groups; no safety concerns were identified.

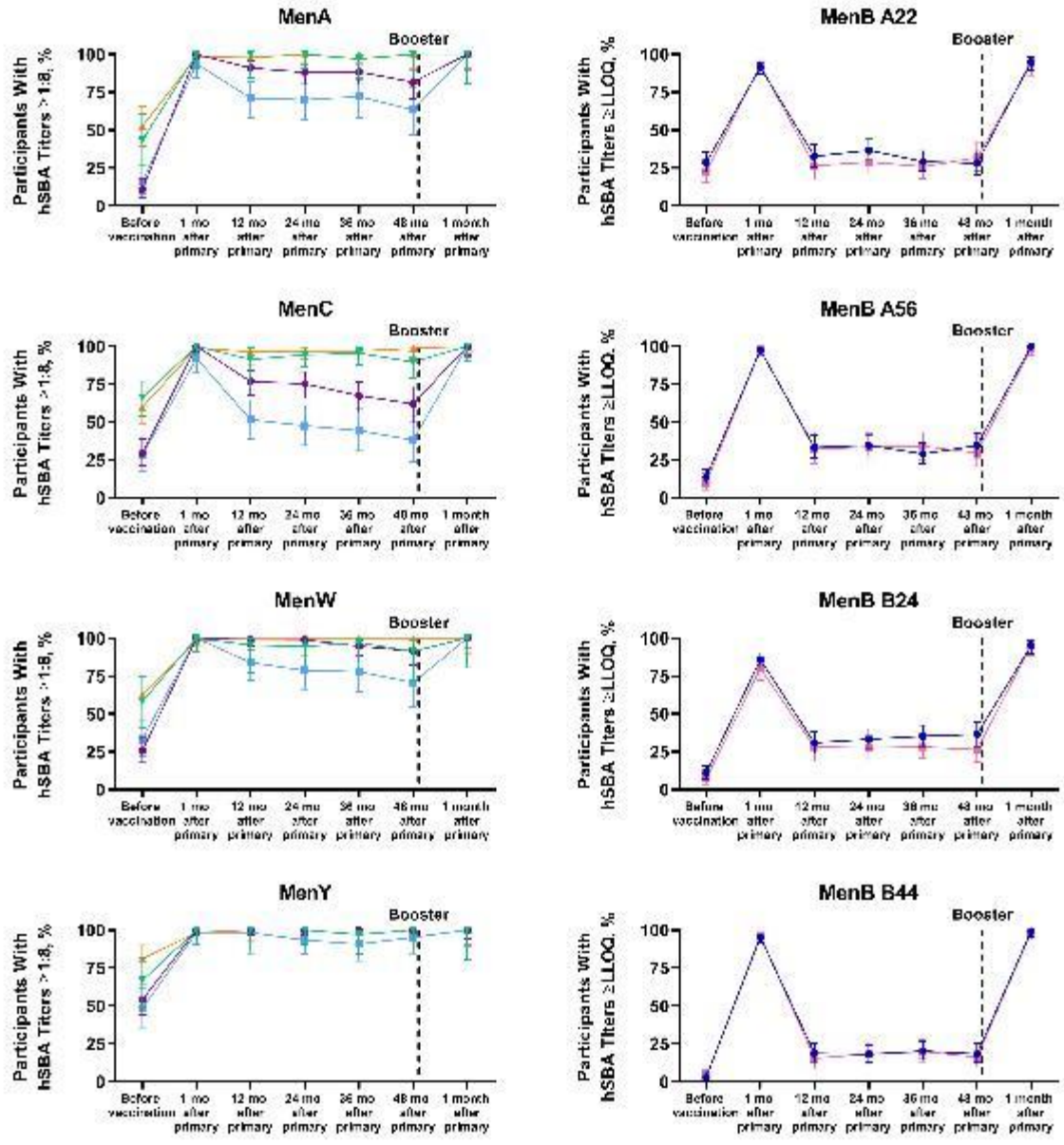

Figure. Percentages of participants in each group achieving hSBA titers ≥1:8 (MenA, MenC, MenW, and MenY) or ≥LLOQ (MenB) at each time point. Error bars represent 95% CIs. LLOQ=1:16 for A22 and 1:8 for A56, B24, and B44 (more stringent than the accepted correlate of protection of ≥1:4). MenB strains are indicated by the vaccine-heterologous fHbp variants they express. Data for all prebooster time points use the mITT population: ACWY-naive MenABCWY–saline n=70-112; ACWY-naive MenB-fHbp+MenACWY-CRM, n=41-64; ACWY-experienced MenABCWY+saline, n=40-100; ACWY-experienced MenB-fHbp+MenACWY-CRM, n=22-72; combined MenABCWY–saline, n=138-212; combined MenB-fHbp+MenACWY-CRM, n=85-136. Data for 1 month after booster used the booster-evaluable immunogenicity population: ACWY naive MenABCWY–saline, n=60; ACWY naive MenB-fHbp+MenACWY-CRM, n=37; ACWY experienced MenABCWY+saline, n=39-73; ACWY-experienced MenB-fHbp+MenACWY-CRM, n=17-51; combined MenABCWY+saline, n=122-126; combined MenB-fHbp+MenACWY-CRM, n=61-66. fHbp=factor H binding protein; hSBA=serum bactericidal activity assay using human complement; LLOQ=lower limit of quantitation; MenA, MenB, MenC, MenW, and MenY=Neisseria meningitidis serogroup A, serogroup B, serogroup C, serogroup W, and serogroup Y; MenABCWY=pentavalent serogroups A, B, C, W, Y vaccine; MenACWY-CRM=quadrivalent meningococcal CRM conjugate vaccine; MenB-fHbp=bivalent rLP2086; rLP2086=recombinant lipidated, non-surface-exposed, factor H binding protein 2086 antigen.

Conclusions/Learning Points: A single MenABCWY vaccine combining MenB-fHbp and MenACWY-TT was safe, well-tolerated, demonstrated immunopersistence, and induced immunologic memory regardless of ACWY history, offering early and boostable protection throughout adolescence. Funded by Pfizer.

PD0026 / #1304

HOW DID THE HARMONIE TRIAL RECRUIT OVER 5000 INFANTS IN WINTER 2022/23? DEFINING A NEW MODEL OF COLLABORATION FOR INDUSTRY-SPONSORED CLINICAL TRIALS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Saul Faust[1,2], Katrina Cathie[1], Andrea Collins[3], Helen Hill[4], Florence Flamein[5], Markus Knuf[6], Christian Felter[7], Natalya Vassilouthis[8], Sophie Wague[8], Mathieu Bangert[9], Friedrich Kaiser[10], Robert Cohen[11], Sara Tullberg[12], M Frances[12], Pierre Tissieres[13], Simon Royal[14], Simon Drysdale[15]
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Backgrounds: Sanofi set out to design a large international multicentre trial further evaluating the efficacy of nirsevimab in preventing RSV LRTI hospitalisations in infants (EudraCT 2022-000099-20). The impact of the COVID-19 pandemic on clinical and research capacity required a novel approach to conventional industry-sponsored studies.
Methods: Sanofi and academic investigators worked together to design and deliver a feasible trial that prioritized the minimisation of burden on families, site staff and health systems. This was achieved through: i) Study design and protocol based on researcher, clinician and public advice; ii) Use of digital systems including patient-facing documentation and, where possible, e-consent; iii) Family friendly patient information sheets; iv) Ensuring Clinical Research Organisation (CRO) and study systems supported family and researcher experience. Data capture included digital health record interrogation and remote participant follow-up. To expedite trial set up, the UK, French and German public health regulatory agencies were consulted to identify potential obstacles. Weekly study management meetings of lead investigators, Sponsor and CRO (LabCorp) continued throughout the trial.
Results: The trial opened at over 250 sites, supported by National Institute of Health Research infrastructure (UK), the PEDSTART network (France) and NETSTAP e.V.(Germany). At abstract submission, >5000 infants have been recruited. The single primary outcome was RSV hospitalization based on clinician decision and this was met within 11 months of protocol approval and within 4 months of trial opening.
Conclusions/Learning Points: We demonstrated the success of redefined relationships between a pharmaceutical company, academic investigator groups and a CRO by successfully setting up and delivering at speed a large industry-sponsored trial designed with families and researchers in mind. Participants and researchers are more likely to take part in studies that make taking part easy.

PD0027 / #716

EFFECTIVENESS OF THE 10- AND 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINES (PCVS) TO PREVENT SEROTYPE 19A INVASIVE PNEUMOCOCCAL DISEASE (IPD) IN QUEBEC, CANADA. A CANADIAN IMMUNIZATION RESEARCH NETWORK (CIRN) STUDY.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

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Laval University, Social And Preventive Medicine-criucpq, Québec, Canada

Backgrounds: In the province of Quebec, a childhood pneumococcal immunization program was implemented in December 2004 and 2+1 PCV7 doses were offered to low-risk infants at 2, 4 and 12 months of age. PCV7 was replaced by PCV10 in 2009, by PCV13 in 2011, by PCV10 in 2018 and by a mixed schedule (MS) consisting of 2 PCV10 + 1 PCV13 doses in 2020 with no catch-up in all instances. Objective was to assess the effectiveness (VE) of different schedules to prevent serotype 19A IPD.
Methods: IPD cases in children 2–59 months during the years 2009–2021 were identified throughout mandatory IPD notification and laboratory surveillance data. Parents were interviewed and immunization records reviewed. VE was estimated by the indirect cohort method, using 19A IPD cases and non-vaccine serotype IPD controls within multivariate logistic regression models.
Results: 214 19A IPD cases and 395 IPD controls were analyzed. VE for at least one dose was 64% [11%-86%] for PCV10 and 71% [35%-87%] for PCV13. VE for 3 doses was 80% [37%-94%] for PCV10, 79% [46%-92%] for PCV13 and 88% [58%-97%] for MS. VE tended to be lower after 2 doses only: 43% [-70%-81%] for PCV10, 52% [-52%-80%] for PCV13. Protection provided by a 2+1 PCV10 schedule tended to be of shorter duration compared to a 2+1 PCV13 schedule or a MS, the latter two schedules having similar waning protection curves over time.
Conclusions/Learning Points: A 2+1 PCV10 schedule seems to provide less robust protection against 19A IPD than a 2+1 PCV13 or MS, the latter two seeming almost equivalent. When PCV10 can be obtained at lower cost than PCV13, a mixed 2 PCV10 + 1 PCV13 schedule may be economically attractive.

PD0028 / #2124

PENTAVALENT MENABCWY MENINGOCOCCAL VACCINE ADMINISTERED ON A 0-,12-MONTH SCHEDULE IS SAFE AND WELL-TOLERATED AND PROVIDES A HIGH DEGREE OF PROTECTIVE IMMUNITY IN HEALTHY ADOLESCENTS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Jake Jones[1], Mary Tipton[2], Lefteris Zolotas[3], Jason Maguire[4], Kelly Belanger[5], Beth Moughan[4], Yanping Liu[4], Roger Maansson[4], Robert O'Neill[5], Paul Balmer[4], Paula Peyrani[4], Johannes Beeslaar[3]
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Backgrounds: Neisseria meningitidis serogroups A/B/C/W/Y cause the vast majority of meningococcal disease globally, with disease incidence highest among infants and adolescents. Safety and immunogenicity of a pentavalent MenABCWY vaccine have been previously reported for a 2-dose, 0-,6-month schedule. This study assessed the safety and immunogenicity of extended interval dosing schedules of MenABCWY.
Methods: In this phase 2b, observer-blinded study, meningococcal vaccine-naive 11–14-year-olds were randomized 1:1 to receive MenABCWY (Month 0,12) or MenABCWY (Month 0,36). Here we report results for the Month 0,12 schedule. Immune responses were evaluated by serum bactericidal activity assays using human complement (hSBA) for serogroups A/C/W/Y and 4 diverse, vaccine-heterologous serogroup B (MenB) test strains. Endpoints included percentages of participants achieving seroprotective hSBA titers (ie, ≥lower limit of quantitation [LLOQ]; 1:16 [A22 strain] or 1:8 [other strains], more stringent than the 1:4 correlate of protection) and ≥4-fold rises from baseline in hSBA titers (ie, seroresponses). Safety was also evaluated.
Results: Among the 121 MenABCWY recipients, 96.6%–100.0% and 99.1%–100.0% achieved seroprotective hSBA titers for each of the MenB test strains and serogroups A/C/W/Y, respectively, at 1 month after the second dose (Table). At this time point, 92.9%–100.0% and 98.2%–99.1% of participants achieved seroresponses for the MenB test strains and A/C/W/Y serogroups, respectively, and 96.4% had hSBA titers ≥LLOQ for all 4 MenB strains combined (ie, composite response; Table). Related adverse events were mostly attributable to reactogenicity-type events, with no safety concerns identified.

Table. Percentages of Participants with Seroprotective hSBA Titers[a]						
Serogroup/strain	Before First Dose			1 Month After Second Dose		
	N[b]	n[c] (%)	(95% CI)[d]	N[b]	n[c] (%)	(95% CI)[d]
MenB strain[e]						
A22	114	8 (7.0)	(3.1, 13.4)	113	112 (99.1)	(95.2, 100.0)
A56	116	3 (2.6)	(0.5, 7.4)	115	115 (100.0)	(96.8, 100.0)
B24	116	2 (1.7)	(0.2, 6.1)	113	111 (98.2)	(93.8, 99.8)
B44	116	1 (0.9)	(0.0, 4.7)	116	112 (96.6)	(91.4, 99.1)
All MenB strains combined (composite response)	–	–	–	110	106 (96.4)	(91.0, 99.0)
MenA	116	8 (6.9)	(3.0, 13.1)	116	115 (99.1)	(95.3, 100.0)
MenC	115	11 (9.6)	(4.9, 16.5)	116	115 (99.1)	(95.3, 100.0)
MenW	114	19 (16.7)	(10.3, 24.8)	115	115 (100.0)	(96.8, 100.0)
MenY	113	37 (32.7)	(24.2, 42.2)	114	114 (100.0)	(96.8, 100.0)

fHbp=factor H binding protein; hSBA=serum bactericidal assay using human complement; LLOQ=lower limit of quantitation; MenA, MenB, MenC, MenW, and MenY=*Neisseria meningitidis* serogroup A, serogroup B, serogroup C, serogroup W, and serogroup Y.

[a]Seroprotective titers were defined as titers ≥LLOQ, where LLOQ=1:16 for A22; 1:8 for A56, B24, and B44; and 1:8 for MenA, MenC, MenW, and MenY.

[b]N=number of participants with valid and determinate hSBA titers for the specified strain at the given sampling time point. These values are used as the denominators for the percentage calculations.

[c]n=number of participants achieving the defined hSBA titer for the specified strain at the given sampling time point.

[d]Exact 2-sided confidence intervals based on the observed proportion of participants, using the Clopper and Pearson method.

[e]MenB strains are indicated by the vaccine-heterologous fHbp variants they express.

Conclusions/Learning Points: MenABCWY administered on a 2-dose, 0-,12-month schedule is well tolerated, with a safety profile consistent with that of a 0-,6-month schedule, and induces robust bactericidal responses for all 5 serogroups. Funded by Pfizer.

PD0029 / #1188

MEASLES-MUMPS-RUBELLA (MMR) VACCINATION AT 6 MONTHS OF AGE: REACTOGENICITY AND SERIOUS ADVERSE EVENTS IN A PLACEBO-CONTROLLED RANDOMIZED TRIAL

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Dorthe Vittrup[1], Andreas Jensen[2], Michelle Malon[2], Anne Zimakoff[2], Jesper Sørensen[2], Jannet Svensson[1], Lone Graff Stensballe[2]
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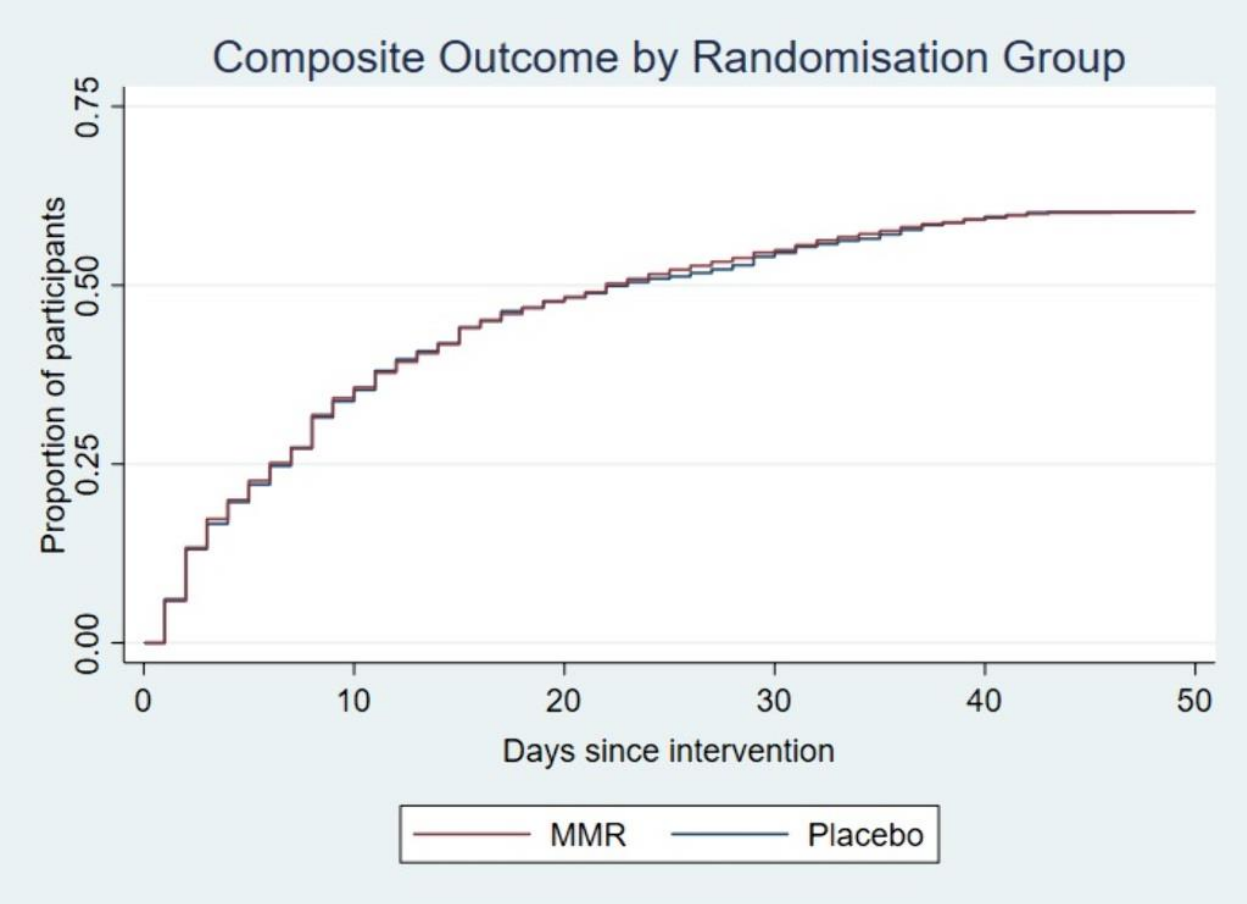
Backgrounds: Measles is a highly contagious viral disease that can be effectively prevented by vaccination. However, measles case numbers are increasing in all WHO regions. In 2019 vaccine hesitancy was named one of the ten biggest health threats by WHO. To accommodate hesitancy, high quality RCTs are important to document safety. MMR vaccines are well-tolerated and well investigated in children above twelve months of age, but little is known about MMR vaccines in infants less than twelve months of age and especially in infants less than nine months of age.
Methods: In this double-blind placebo-controlled RCT, 6540 healthy infants were randomized 1:1 to receive either M-M-R VaxPro or placebo (solvent only) at five to seven months of age. Parents were asked to fill out a diary card if any untoward event happened regardless of the suspected cause. Study personnel called the parents six weeks after randomization and registered all reported events. Data were analyzed using Cox regression stratified by sex, prematurity and site since the randomization was stratified by these factors.
Results: Data was successfully collected for 99% of the population (N=6465). Mean follow-up was 44.5 days. Hazard ratio (HR) between randomization groups was 1.00 (95% CI 0.94-1.07) regarding any non-severe reaction following MMR (composite outcome, see figure). No symptom-specific outcome differed significantly between randomization groups either. Severe adverse events (SAE) occurred in 25 individuals (16 MMR, 9 placebo, HR 1.77 (95% CI 0.78-4.01)), but all were deemed unrelated to intervention.



Conclusions/Learning Points: MMR vaccination at 5-7 months of age was associated with little to no increased risk of short-term adverse reactions and SAEs.

PD0030 / #1459

SAFETY AND IMMUNOGENICITY OF THE LIVE-ATTENUATED VARICELLA VACCINE IN SOLID ORGAN TRANSPLANT RECIPIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Pierre-Philippe Piche-Renaud[1], Erika Lee[2], Catherine Ji[3], Jenny Huang[4], Elizabeth Uleryk[5], Chia Wei Teoh[6], Shaun Morris[1], Karina Top[7], Julia Upton[8], Manav Vyas[9], Upton Allen[1]
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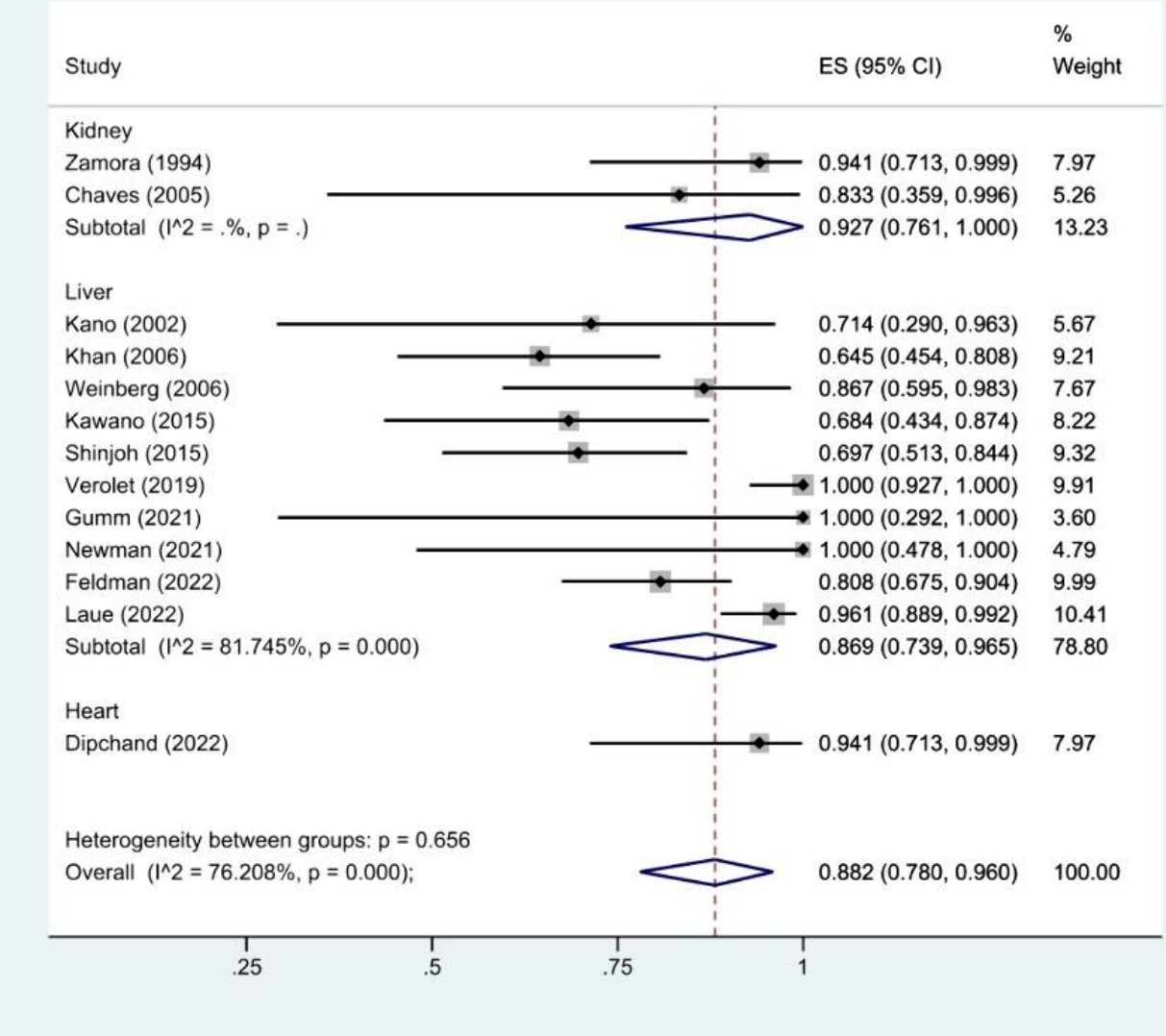
Backgrounds: Recent recommendations in solid organ transplant (SOT) recipients have been more permissible on the use of the live-attenuated varicella vaccine (LAVV) if certain eligibility criteria are respected. The purpose of this study was to synthesize the available evidence on the immunogenicity, safety and effectiveness of the LAVV when administered in the post-transplant period.
Methods: Medline and EMBASE were searched using predefined terms to identify relevant studies. Included articles reported varicella vaccine administration in the post-transplant period in children and adults. Pooled proportion of transplant recipients who seroconverted, who developed vaccine-strain varicella and who had vaccine failure (varicella disease) were generated.
Results: After screening and full-text review, nineteen articles (15 studies and 4 case reports) were included in the review. The articles reported on 715 SOT recipients who received the LAVV in the post-transplant period, with 330 (46.2%) having immunological investigations performed after vaccination. The pooled proportion of vaccinees who seroconverted was 88.2% (95% confidence interval 78.0%-96.0%, n=283/330) and was comparable between liver, kidney and heart transplant recipients, although most studies reported on liver transplant recipients (Figure). The pooled proportion of vaccinees who developed vaccine-strain varicella was 0% (0%-1.2%, n=13/635) and the pooled proportion of vaccine failure was 0.8% (0%-4.9%, n=8/279). Most studies followed clinical guidelines for administering live-attenuated vaccines with criteria that could include being at least one-year post-transplant, two months post-rejection episode, and on low-dose immunosuppressive
medications.



Conclusions/Learning Points: Varicella vaccination in transplant recipients was overall safe in the included studies, with few cases of vaccine-strain induced varicella or vaccine failure, and while it was immunogenic, the proportion of people who seroconverted was lower than that seen in the general population. Our data support varicella vaccination in select solid organ transplant recipients.

PD0031 / #1773

A PHASE 3, RANDOMIZED, DOUBLE-BLIND TRIAL TO EVALUATE THE SAFETY OF A 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PVC20) IN HEALTHY INFANTS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Gabriella Hajdu[1], Teena Hughes[2], G. Laïssa Ouedraogo[3], Laurence Flint[4], Mariano Young[3], Vrunda Parikh[4], Dung-Yang Lee[3], Yahong Peng[3], William Gruber[4], Daniel Scott[3], Wendy Watson[3]
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Backgrounds: PCV20 was developed to expand protection for pneumococcal disease. It contains the components of PCV13 plus conjugates for 7 additional serotypes. Reported here are findings from a trial describing the safety of PCV20 in infants.
Methods: In this phase 3, multi-country, double-blind study (NCT04379713), healthy infants born at ≥34 weeks gestation were randomized 2:1 to receive 4 doses of PCV20 or PCV13 at 2, 4, 6, and 12–15 months of age. The primary objective evaluated the tolerability and safety of PCV20. Safety assessments included local reactions and systemic events within 7 days after each vaccination, adverse events (AEs) from Dose 1 to 1 month after Dose 3 and from Dose 4 to 1 month after Dose 4, and serious adverse events (SAEs) from Dose 1 through 6 months after the last dose.
Results: Participants (99.5%) received ≥1 dose of PCV20 (n=1006) or PCV13 (n=505) and 91.7% received all doses. Frequencies of local reactions and systemic events after each dose were generally similar in the PCV20 and PCV13 groups, with most reported as mild or moderate. The most common local reaction was injection site pain (PVC20, 24.7%–40.5%; PVC13, 26.8%–42.0%), and irritability (PVC20, 54.8%–68.2%; PVC13, 54.7%–68.5%) was the most common systemic event. Frequencies of AEs were 29.6% and 27.6% through 1 month after Dose 3 and 15.1% and 15.8% from Dose 4 through 1 month after Dose 4, in the PVC20 and PVC13 groups, respectively. SAEs were reported in 4.4% of the PCV20 group and 5.6% of the PCV13 group; none were related to the vaccines.
Conclusions/Learning Points: PVC20 administered as a 4-dose series had a tolerability and safety profile similar to PVC13.

PD0032 / #306

SAFETY PROFILE OF FOUR-COMPONENT SEROGROUP B MENINGOCOCCAL VACCINE (4CMENB) ACROSS CLINICAL TRIALS AND POST-LICENSURE SURVEILLANCE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Woo Yun Sohn[1], Rafik Bekkat-Berkani[1], Silvia Cenci[2], Emilia Occhipinti[2], Helen Marshall[3], Gary Marshall[4,5], James Conway[6], Victoria Abbing-Karahagopian[7]
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Backgrounds: The most serious consequence of Neisseria meningitidis infection is invasive meningococcal disease (IMD) which has a fatality rate of 4–20%, depending on age and serogroup (overall estimated at 8%). In developed countries, Neisseria meningitidis serogroup B is the most common cause of IMD. The vaccine 4CMenB (Bexsero®), administered to prevent IMD caused by serogroup B, is approved in >50 countries and currently utilised in 10 national immunisation programmes (NIPs).
Methods: 4CMenB safety data were reviewed from published clinical trials, global surveillance studies and post-marketing experience generated over 9 years of use.
Results: Data from 229 publications were reviewed, together with spontaneous reports in the GSK database. 4CMenB was generally well tolerated across clinical trials involving ~9000 recipients. In these trials, there was a higher incidence of short-term fever in infants following coadministration of 4CMenB with routine vaccines versus routine vaccines administered alone. No safety concerns have arisen in enhanced surveillance assessments following the introduction of 4CMenB into the UK NIP, for which coadministration with routine vaccines is recommended. Kawasaki disease, which was reported in clinical trials and initially considered a concern, was not linked to 4CMenB in longitudinal surveillance studies. Febrile convulsions were reported in small numbers of recipients during clinical trials and surveillance studies, with incidence comparable with those reported following other routine vaccines. These findings have been corroborated by post-licensure spontaneous adverse event reporting after >74 million doses were distributed globally.
Conclusions/Learning Points: No safety concerns for 4CMenB emerged following the review of clinical evidence, post-licensure pharmacovigilance and real-world experience. Overall, the data have confirmed a favourable benefit–risk profile for 4CMenB.

PD0033 / #669

MEASURING HESITANCY TOWARD MATERNAL VACCINES: DEVELOPMENT OF A MATERNAL VACCINE HESITANCY SCALE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Jeannette Comeau[1], Marie-Claude Couture[2], Ning Yan Gu[3], Tasmiah Nuzhath[4], Annette Regan[5]
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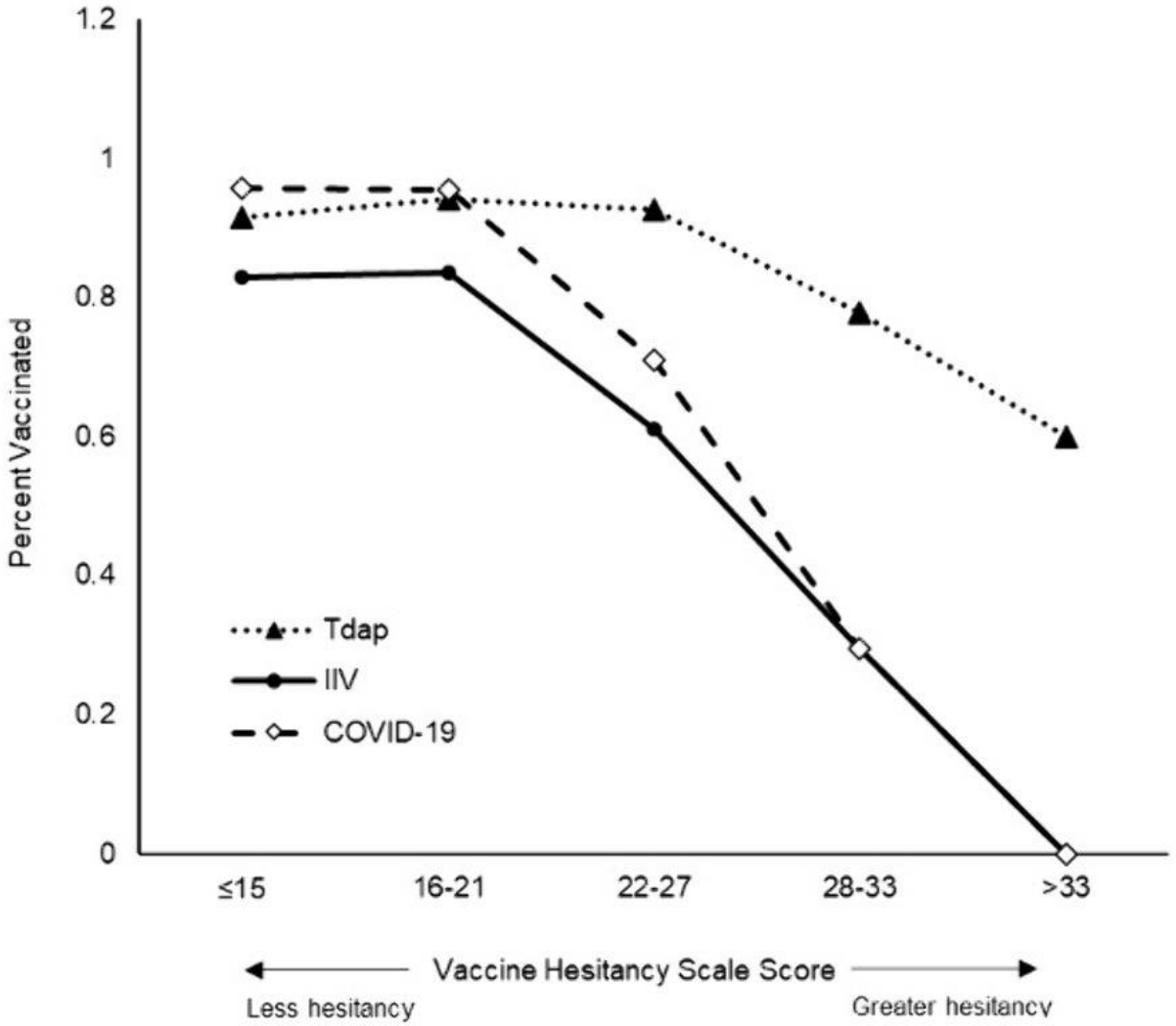
Backgrounds: Maternal immunization offers protection against severe vaccine-preventable diseases to newborns. However, uptake of vaccines during pregnancy remains suboptimal, and despite extensive research on determinants and predictors of maternal vaccination, there is currently no tool to measure hesitancy toward vaccination during pregnancy.
Methods: We analyzed data from a national cross-sectional survey of 872 US adults 18-49 years of age who had given birth during the past 6 months. Participants self-reported uptake of influenza, Tdap, and COVID-19 vaccines during their most recent pregnancy and completed the adult Vaccine Hesitancy Scale (aVHS). The aVHS is a scale initially developed by the SAGE Working Group on Vaccine Hesitancy and recently modified for application to adult vaccines, with higher scores indicating greater hesitancy to vaccines. We performed confirmatory factor analysis using structural equation modeling with maximum likelihood estimators. We examined mean aVHS scores for both vaccinated and unvaccinated respondents. We also compared vaccination rates for each vaccine by aVHS quintile.
Results: Confirmatory factor analysis indicated moderate fit of the aVHS among postpartum adults (Standardized Root Mean Residual [SRMR] = 0.063; Tucker-Lewis Index = 0.856), which modestly improved after removing item 5 (SRMR 0.052; Tucker-Lewis Index = 0.882). The mean aVHS score was 20.1 (range: 9 to 41) and was lower for vaccinated compared to unvaccinated respondents for COVID-19 vaccine (-5.8) and influenza vaccine (-3.7), and less so for Tdap vaccine (-2.0). We observed lower uptake of influenza and COVID-19 vaccines associated with higher aVHS scores and weaker declines in the uptake of Tdap vaccine
(Figure).



Conclusions/Learning Points: Currently available tools for measuring vaccine hesitancy in adults do not perform optimally for all vaccines recommended during pregnancy. A tool specifically designed to measure hesitancy toward maternal vaccines is needed.

PD0034 / #1542

IMPACT OF POLICY MAKERS' DECISIONS ON INVASIVE MENINGOCOCCAL B DISEASE VACCINATION UPTAKE IN FRANCE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 03: VACCINES (STATION 03)

Robert Cohen[1], Alain Martinot[2], Joel Gaudelus[3], Alina Gruber[4], Lilya Mediouni[4], Maxime Denigot[5], Patricia Gelin[6], Jean-Paul Stahl[7]
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Backgrounds: In France, vaccination against invasive meningococcal B (MenB) disease is recommended since June 2021 and reimbursed since April 2022 for all infants from 2 months to 2 years. This vaccination is not mandatory, unlike those against 11 diseases included in the national immunization program up to 2 years. Through the 'Vaccinoscopie' study, we measured the impact of the new policy on mothers' attitude towards MenB vaccination and on the vaccine coverage rate (VCR).
Methods: Vaccinoscopie is a French annual survey conducted since 2008. The online standardized questionnaire was carried out from September 09,2022 to October 10,2022 on a representative sample of 1500 mothers of infants aged 0–35 months.
Results: Nearly 88% of mothers perceived MenB vaccination as essential/useful. Compared to 2021, the proportion of mothers aware of this vaccination increased from 54.3% to 67.9% in 2022 ($p<0.05$). This increase was greater in mothers whose child was followed in maternal and infant protection (40.2% vs 71.1%, $p<0.05$). About 82% of mothers would vaccinate their child aged 0–23 months against MenB if recommended by a healthcare professional (HCP), mentioning the recommendation/reimbursement beforehand. VCR increased from 5.9% to 19.4% ($p<0.05$) for at least 1 dose in children aged 12–23 months, and from 4.9% to 30.1% in children aged 2–11 months ($p<0.05$) (2021 vs 2022). VCR progressed the least in infants followed by general practitioners.
Conclusions/Learning Points: These results confirm the positive impact of MenB vaccine recommendation and reimbursement on its uptake in France. However, its VCR is still low compared to mandatory vaccinations. As for other vaccines, mothers' acceptance and HCPs' adherence are also key success factors. Communication and education on MenB vaccination must be reinforced to improve the uptake, especially among general practitioners.

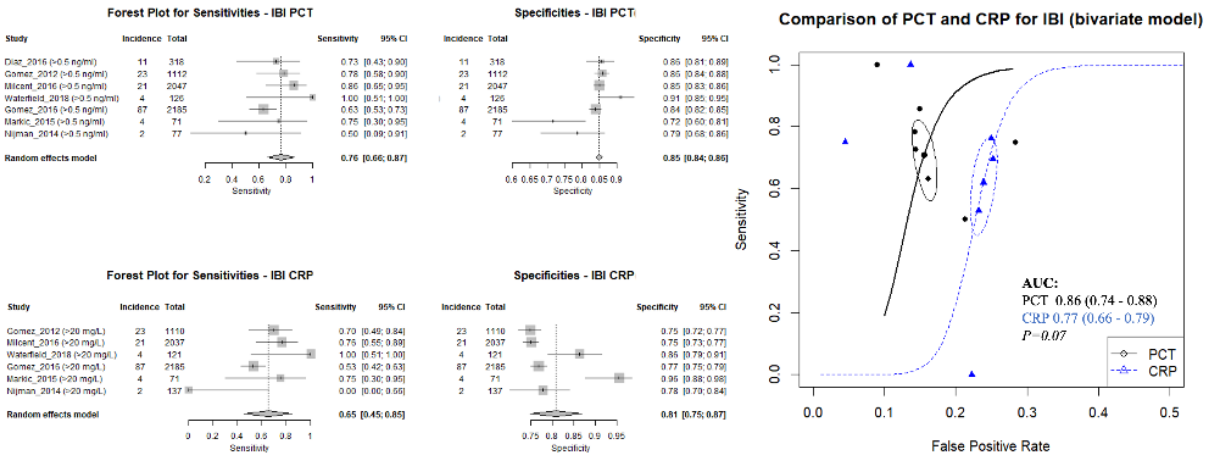
PD0035 / #585

THE DIAGNOSTIC TEST ACCURACY OF PROCALCITONIN (PCT) AND C-REACTIVE PROTEIN (CRP) IN THE DETECTION OF BACTERIAL INFECTIONS IN FEBRILE INFANTS LESS THAN 90 DAYS OF AGE. A SYSTEMATIC REVIEW AND META-ANALYSIS.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

Hannah Norman-Bruce[1], Etimbuk Umana[2], Clare Mills[1], Hannah Mitchell[3], Lisa Mcfetridge[3], David Mccleary[1], Thomas Waterfield[1]
[1]Queen's University Belfast, Wwiem, Belfast, United Kingdom, [2]Queen's University Belfast, Wwiem, Belfast, Ireland, [3]Queen's University Belfast, School Of Mathematics, Belfast, United Kingdom

Backgrounds: Procalcitonin (PCT) and C-reactive protein (CRP) are widely used biomarkers in the assessment of febrile infants under 90 days of age. In Europe and the USA, PCT is typically favoured whereas CRP is favoured in the UK. The aim of this systematic review and meta-analysis is to report the test accuracy of PCT and CRP in identifying young infants with invasive and serious bacterial infections (SBI/IBI).
Methods: This systematic review and meta-analysis was registered with PROSPERO and the protocol written adherent to PRISMA-P standards. The full protocol is available as an open access publication. An electronic search of MEDLINE, EMBASE, Web of Science and The Cochrane Library was conducted. Eligible studies were selected and assessed for quality and generalisably using GRADE and QUADAS-2 tools. Data were extracted using a standardised data extraction tool. Pooled sensitivities and specificities and area under the curve(AUC) were calculated incorporating a range of cut-off values.
Results: 13 studies, involving 7497 participants, were included in the meta-analysis. The pooled sensitivity/specificity of PCT(>0.5ng/ml) to detect IBI was 0.76/0.85 and CRP(>20mg/L) was 0.65/0.81respectively. For SBI, the pooled sensitivity/specificity of PCT was 0.52 /0.91 and CRP was 0.67/0.85 respectively. The AUC for diagnosis of IBI [0.86 for PCT, 0.77 for CRP, p=0.07] and SBI [0.83 for PCT , 0.82 for CRP, p=0.95]. The optimal cut-off value for PCT was 0.4ng/ml(IBI) and 0.17ng/ml(SBI). The optimal cut-off value for CRP was 12.4mg/L(IBI) and 17.6mg/L(SBI).



Conclusions/Learning Points: This review and meta-analysis is the largest review of its type including over 7000 infants. The AUC for PCT and CRP for identifying infants with IBI and SBI was not statistically different. This suggests that PCT is not superior to CRP as a biomarker in this age group.

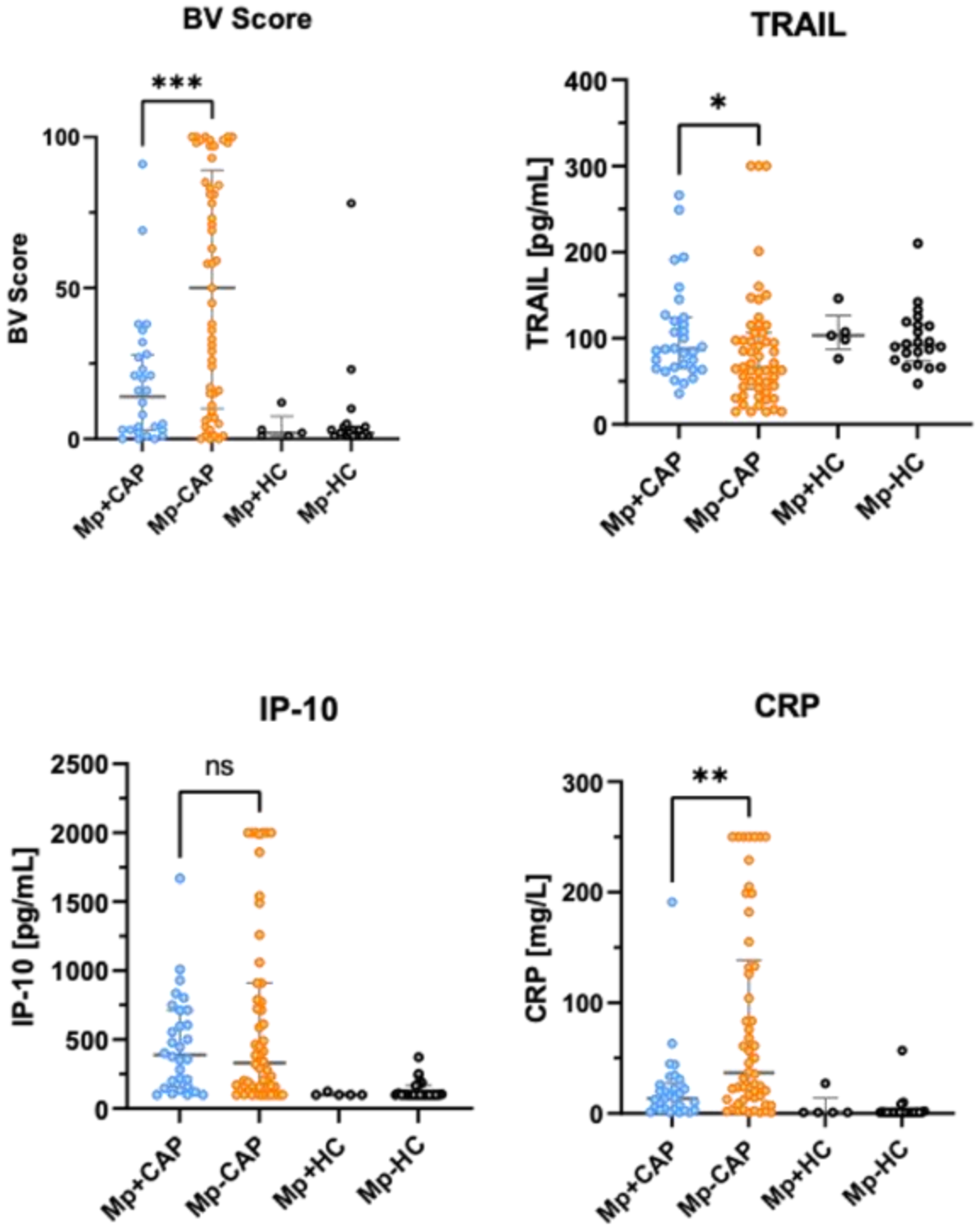
PD0036 / #1118

COMBINATORIAL HOST-RESPONSE BIOMARKER SIGNATURE (BV SCORE) AND ITS SUBANALYTES TRAIL, IP-10, AND CRP IN CHILDREN WITH MYCOPLASMA PNEUMONIAE PCR-POSITIVE COMMUNITY-ACQUIRED PNEUMONIA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

Cihan Papan[1,2], Semjon Sidorov[3], Beat Greiter[3], Nina Bühler[2], Sören Becker[2], Patrick Sauteur[3]
[1]University Hospital Bonn, Institute For Hygiene And Public Health, Bonn, Germany, [2]Saarland University, Centre For Infectious Diseases, Institute Of Medical Microbiology And Hygiene, Homburg, Germany, [3]University Children's Hospital Zurich, Division Of Infectious Diseases And Hospital Epidemiology, Zürich, Switzerland

Backgrounds: Novel host-response biomarkers to differentiate between bacterial and viral aetiology in children with respiratory infections have previously shown high diagnostic accuracies. However, their expression in Mycoplasma pneumoniae (Mp) infections has been understudied. Due to its distinctive microbiological characteristics, we hypothesized that levels of combinatorial host-response biomarker signature (BV score) and its subanalytes TRAIL, IP-10, and CRP in Mp PCR-positive community-acquired pneumonia (CAP) would differ from the levels found in Mp PCR-negative CAP.
Methods: This is a post-hoc analysis of a previously published cohort of paediatric CAP patients. Mp PCR-results were confirmed with the measurement of Mp-specific IgM antibody-secreting cells (ASCs) by enzyme-linked immunospot (ELISpot) assay, which differentiated between Mp infection and carriage. We analysed BV scores (ranging 0-100, with 0-34 being suggestive of viral aetiology, and 66-100 indicating bacterial aetiology), TRAIL (pg/mL), IP-10 (pg/mL), and CRP (mg/L) serum levels. Measurements were performed using Liaison MeMed BV on a Liaison XL. We compared biomarker levels between Mp PCR-positive CAP (Mp+CAP) and Mp PCR-negative CAP (Mp-CAP).
Results: Of 83 CAP patients, 29 were Mp PCR-positive; among 25 healthy controls, five were Mp PCR-positive (carriers). BV scores were lower (median 16.0, interquartile range [IQR] 3.0-28.0 vs. 54.0, IQR 12.0-84.8; p=0.0006), while TRAIL levels were higher (87.5, IQR 66.5-124.0 vs. 65.5, IQR 42.5-103.9; p=0.02) in Mp+CAP compared with Mp-CAP patients. CRP were lower among Mp+CAP patients (13.9, IQR 4.5-25.9 vs. 36.7, IQR 13.0-132.8; p=0.003), while IP-10 levels were comparable between the two groups (400.0, IQR 160.0-711.0 vs. 331.0, IQR 154.3-878.8; p=0.94). Figure 1 displays the distribution of measurements including healthy
controls.



Conclusions/Learning Points: BV scores in Mp+CAP yielded atypically low, viral levels. Our findings show that novel biomarkers can have limitations for atypical bacteria which underscores the role of microbiological testing to guide targeted antibacterial treatment.

PD0037 / #1163

MMP-13/TIMP-3 RATIO DIFFERENTIATES BETWEEN TICK-BORNE ENCEPHALITIS AND LYME NEUROBORRELIOSIS IN CHILDREN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

Kacper Toczylowski[1], Dawid Lewandowski[1], Diana Martonik[2], Marta Sawicka[1], Ewa Bojkiewicz[1], Marta Wozinska[1], Artur Sulik[1]
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Backgrounds: Tick-borne encephalitis (TBE) and Lyme neuroborreliosis (LNB) are frequent causes of meningitis in children in northeastern Poland. The diagnosis of TBE and LNB is based on serological tests, which are time-consuming, not always readily available and might produce false results. Differentiation between these two tick-borne diseases is crucial in tailoring treatment plans. It has been previously shown that matrix metalloproteinases (MMPs) play crucial roles in the pathophysiology of various diseases, including neuroinfections. We therefore aimed at comparing serum profiles of MMPs in children with TBE and LNB in order to identify possible biomarkers of these diseases.
Methods: Serum samples were collected from 21 children hospitalized with TBE and 21 children with LNB. We measured pre-treatment concentrations of 5 different MMPs (MMP-1, MMP-3, MMP-7, MMP-8, MMP-13), their inducers (TNF-α, IL-6 and EMMPRIN), and 4 inhibitors of MMPs (TIMP 1-4).
Results: Children with TBE had significantly elevated MMP-7 (3402.4± 1530.2 vs. 1666.3± 514.6 pg/mL; p<0.001), MMP-8 (20468.4± 14982.8 vs. 8787.7± 5281.6 pg/mL; p=0.002), MMP-13 (1394.5± 468.8 vs. 396.6± 350.8 pg/mL; p<0.001), TNF-α (13.8 ±14.0 vs. 6.8±5.2 pg/mL; p=0.037), and IL-6 (20.1±16.7 vs. 8.8±6.1 pg/mL; p=0.006). Total serum concentration of MMP inhibitors (the sum of 4 TIMPs) was lower in TBE compared to LNB (267210.3±52086.0 vs. 384301.3±91282.0 pg/mL; p<0.001). MMP-13/TIMP-3 ratio equal to or higher than 0.02 differentiated TBE from LNB with 92% sensitivity and 93% specificity (AUC, 0.933; 95%CI, 0.81-1.0; p<0.001).
Conclusions/Learning Points: TBE in children is characterized by stronger systemic inflammatory response compared to LNB. We found that MMP-13/TIMP-3 ratio differentiates between these two infections with high accuracy. Previously, MMP-13 was shown to increase brain endothelium permeability. This remarkable upregulation of MMP-13 that we found possibly reflects significant involvement of the brain tissue in TBE.

PD0038 / #1213

EFFICACY OF XPERT MTB/RIF ULTRA IN COMPARISION TO XPERT MTB/RIF ASSAY FOR DIAGNOSIS OF TUBERCULOSIS IN INDIAN CHILDREN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

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Backgrounds: To evaluate the efficacy of Xpert MTB/RIF Ultra (Xpert Ultra) in comparision to Xpert MTB/RIF assay for diagnosis of Tuberculosis in Indian Children.
Methods: This is a retrospective study done in children upto 18 years of age with bacteriological (TB MGIT culture positive for mycobacterium tuberculosis) or clinically confirmed TB as per World Health Organization (WHO) case definition between January 2021 to January 2022. Sensitivity and Specificity of Xpert MTB/RIF Ultra (Xpert Ultra) and Xpert MTB/RIF assay was determined in both pulmonary (PTB) and extrapulmonary (EPTB) samples. 70 samples were subjected to Xpert Ultra and 63 samples were subjected to Xpert MTB /RIF assay. All samples were sent for TB MGIT culture.
Results: Sensitivity,specificity, Positive predictive value (PPV),Negative predictive value (NPV) and accuracy of Ultra as compared to TB MGIT culture for diagnosis of MTB was 80.6%,40.6%,60.4%,65%,61.8% respectively.Sensitivity, specificity, PPV,NPV and accuracy of Xpert MTB/RIF assay as compared to TB MGIT culture for diagnosis of MTB was 89.2%,40%,68.7%,71.4%,69.3% respectively.The sensitivity, specificity, PPV, NPV and accuracy of Xpert ultra for detection of rifampicin resistance against the diagnostic efficacy by TB culture was 92.9%, 80.0%, 86.7%, 88.9% and 87.5% respectively.The sensitivity, specificity, PPV, NPV and accuracy of Xpert MTB/RIF assay for detection of rifampicin resistance against the diagnostic efficacy by TB culture was 100.0%, 90.9%, 81.8%, 100.0% and 93.5% respectively.5 samples were tested for both Xpert MTB/RIF assay and Xpert ultra.All these 5 samples detected M.Tb by Xpert Ultra, however among these 5 samples Xpert MTB/RIF assay did not detect M.Tb in 2 samples.

Table 1: Results of Xpert Ultra, Xpert MTB/RIF assay and TB MGIT culture for detection of mycobacterium tuberculosis (MTB) and for detection of rifampicin resistance (RR).

	Xpert Ultra (n=70)	Xpert MTB/RIF (n=63)	TB MGIT culture (n=128)
MTB positive	48 (70.6%)	48 (77.4%)	71 (57.1%)
Rifampicin resistance	16 (33.2%)	27 (56.1%)	34 (52.3%)
Pulmonary (gastric lavage,BAL,sputum) samples positive for MTB	21 (out of 26 - 80.7%)	20 (out of 21 - 95.2%)	27 (out of 47- 57.4%)
Pulmonary samples positive for MTB			
1. Gastric lavage	11 (out of 13 – 84.6%)	11 (100%)	12 (out of 24 – 50%)
2. BAL	4 (out of 7 – 57.14%)	4 (out of 5 - 80%)	5 (out of 11 – 45.45%)
3. Sputum	6 (100%)	6 (100%)	10 (out of 12- 83.33%)
Extra pulmonary samples positive for MTB	28 (out of 43 – 65.11%)	28 (out of 41 – 68%)	46 (out of 84 – 54.7%)
EPTB samples positive for MTB			
Lymph node	11(out of 14 -78.57%)	5 (out of 8 – 62.5%)	14 (out of 22-63.63%)
Pleural fluid	0 (out of 4 – 0%)	2 (out of 2 -100%)	1 (out of 6 – 16.66%)
CSF	6 (out of 7 -85.71%)	3(out of 5 -60%)	2 (out of 9 -22.22%)
Ascitic fluid	0 (out of 4)	0 (out of 2)	1 (out of 6- 16.66%)
Biopsy sample	4 (out of 6- 66.66%)	7(out of 12- 58.33%)	13 (out of 18-72.26%)
Pus	5 (out of 5-100%)	9 (out of 9-100%)	14 (out of 14-100%)

Note = MTB=mycobacterium tuberculosis, BAL bronchoalveolar lavage

Conclusions/Learning Points: Xpert Ultra was not statistically superior to Xpert MTB/RIF assay for the diagnosis of TB in Indian children.

PD0039 / #1460

VALIDITY OF GENE XPERT MTB/RIF ASSAY AS A DIAGNOSTIC TOOL IN THE DETECTION OF TUBERCULAR MENINGITIS IN CHILDREN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

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Backgrounds: Tubercular meningitis (TBM) is more challenging to diagnose than other types of bacterial meningitis due to frequent atypical and varied clinical presentation, inadequate clinical sample with conventional cerebrospinal fluid culture based diagnosis and paucibacillary nature of the biological samples, which frequently results in a delay or deprivation of treatment. Role of PCR based Gene-Xpert MTB/RIF test in diagnosing TBM is yet to be validated so far. The aim of this prospective study was to evaluate the role of CSF Gene XPERT (CBNAAT) in diagnosis of tuberculous meningitis (TBM) and determine its sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV).
Methods: This prospective study enrolled 44 clinically suspected TBM patients admitted in a calendar year (2021-22). Clinical, radiological evaluation and conventional tests were done. CSF samples were subjected to routine CSF analysis, MGIT culture and CBNAAT. Children on anti-tuberculous therapy were excluded from study.
Results: The mean age of the study population was 6.4 (±3.4) years. Male to female ratio was 1:1.3. Meningeal signs were present in 54.5% children. Neurological deficits were present in 47.3%. Most common brain imaging findings were communicating hydrocephalus (47.7%) followed by meningeal enhancement (38.6%) and basal exudates (31.8%). AFB was present in direct microscopy in only 1(2.3%) case, positive growth on culture in 5 (11.4%) cases and positive Gene-Xpert test in 7 (16.0%) cases. Gene XPERT showed sensitivity, specificity, PPV, NPV and diagnostic accuracy of 42.7%, 92.5%, 76.7%, 80.4% and 88.2% respectively as compared to culture considering as gold standard. One child was rifampicin resistant.
Conclusions/Learning Points: Despite of low sensitivity of CSF Gene-Xpert (42.7%) in this study, positive result not only confirm speedy diagnosis of tuberculous meningitis but also reveal about rifampicin sensitivity status.

PD0040 / #2150

A LATERAL FLOW TEST FOR RAPID IDENTIFICATION OF PAEDIATRIC VIRAL INFECTION BASED ON HOST RESPONSE MRNA TRANSCRIPTS.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

Ruth Reid[1], Jaidan Cheema[1], Rebecca Womersley[1], Jesus Rodriguez-Manzano[2], Myrsini Kaforou[1], Pantelis Georgiou[3], Jethro Herberg[1], Michael Levin[1]
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Backgrounds: The current diagnostic pathway for identifying the cause of infection has several limitations. The clinical features of infection overlap, and diagnostic tests are expensive and lack discriminatory power. Infections can be defined by their unique host-response transcriptomic profile but there are no available cheap, quick, and accurate test platforms that leverage published host transcript signatures. We aimed to develop a lateral flow assay to detect and quantify the mRNA transcript IFI44L, a biomarker for viral infection.
Methods: An RT-LAMP nucleic acid lateral flow assay was developed for the detection of IFI44L and PPIB (housekeeping gene) by modifying primers for lateral flow (see figure for detailed explanation). 6 whole blood samples were collected from febrile children with viral (4) or bacterial (2) infection. mRNA was extracted using the Dynabeads mRNA direct kit from 300 µl of PAXgene stabilised blood (equating to <100 µl of whole blood). RT-LAMP was carried out for 30 minutes at 63 °C and 1 µl of each product was added to a universal lateral flow strip. Bands were quantified using a lateral flow reader. Results were normalised against the lateral flow control and the housekeeping
gene.

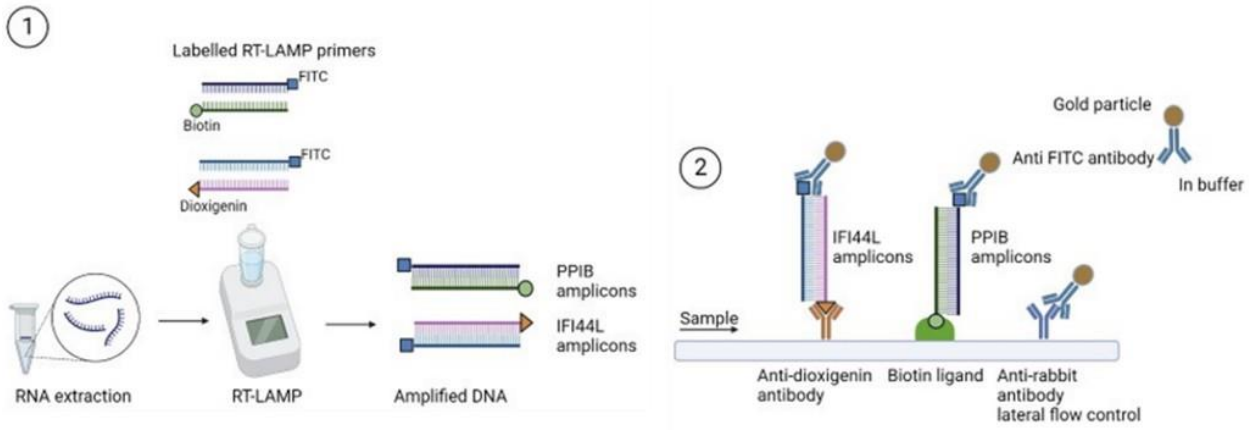

Figure: Binding of the amplified product to a specified band of the lateral flow strip is mediated by biotin-streptavidin (IFI44L) and dioxygenin-antidioxygenin (PPIB). The amplified product also contains FITC – this is required for visualisation via antiFITC gold nanoparticles contained in the lateral flow buffer. This causes the characteristic red colour change. Binding to the lateral flow strip only occurs when the specific target has amplified, as both biotin/dioxygenin and FITC are required to produce a colour change.

Results: The limit of detection was 100 copies/µl. Normalised median (95% CI) expression levels for bacterial and viral patients were 0.416, (0.145 – 1.008), n=2; and 0.723, (0.469 – 0.976), n=4, respectively. p=0.18.
Conclusions/Learning Points: These results suggest feasibility of a lateral flow test to detect and quantify host-response transcripts from whole blood. Such an approach would enable low-cost, laboratory-free, rapid diagnosis of childhood febrile illness, based on a point-of-care technology that leverages host transcript diagnostic signatures, and is suitable for use across a range of clinical settings.

PD0041 / #2183

METHODS FOR TRANSFERRING AN ELISA ONTO A SEMICONDUCTOR MICROCHIP FOR RAPID DIAGNOSTICS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

Natasha Walker[1,2], Lewis Keeble[1], Diego Estrada-Rivadeneyra[2], Shea Hamilton[2], Michael Levin[2], Pantelis Georgiou[1], Nicolas Moser[1]
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Backgrounds: Rapidly differentiating between bacterial and viral infection is essential in treatment selection and clinical outcomes. Using lab-on-chip technology to quantify host protein biomarkers has the potential to enable connected and portable diagnostics at point-of-care. The aim of this proof-of-concept study was to transfer an enzyme-linked immunosorbent assay (ELISA) onto a semiconductor platform to assess the biocompatibility of the assay on the chip surface.
Methods: We designed and optimised a colorimetric ELISA for C-reactive protein (CRP). We used a complementary metal-oxide-semiconductor (CMOS) microchip integrating thousands of electrochemical sensors with a silicon nitride surface. Four chips were treated with oxygen plasma to add hydroxyl groups. We functionalised the surface for covalent antibody binding using silane chemistry i.e. 3-(Aminopropyl)triethoxysilane (APTES) and glutaraldehyde. Monoclonal capture antibodies specific to CRP (2µg/mL) were immobilised on the surface and incubated with recombinant CRP at concentrations of 250pg/mL, 500pg/mL and 1000pg/mL. One chip was incubated with buffer solution as a negative control. We validated the assay's functionality through a colorimetric readout. The colorimetric difference between the CRP concentrations were assessed using MATLAB as a colour processing software.
Results: The ELISA standard curve detected CRP at concentrations between 31.25pg/mL and 1000pg/mL. There were significant variations in colour intensity as quantified by the image processing algorithm between the three concentrations and the negative control after 30 minutes. This showed the successful translation of the ELISA onto the silicon nitride surface.
Conclusions/Learning Points: This study demonstrated the biocompatibility of a CRP-ELISA on a CMOS-based rapid diagnostic platform. These results will be used in further studies using this electrochemical platform to offer real-time and rapid detection of host proteins.

PD0042 / #1024

ARE CHILDREN WITH PROLONGED FEVER AT A HIGHER RISK FOR SERIOUS ILLNESS? A PROSPECTIVE OBSERVATIONAL STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

Ruud Nijman[1], Chantal Tan[2], Nienke Hagedoorn[3], Daan Nieboer[4], Jethro Herberg[5], Anda Balode[6], Ulrich Von Both[7], Enitan Carrol[8], Irini Eleftheriou[9], Marieke Emonts[10], Michiel Van Der Flier[11], Ronald De Groot[12], Benno Kohlmaier[13], Emma Lim[10], Federico Martinon-Torres[14], Marko Pokorn[15], Franc Strle[15], Maria Tsolia[16], Shunmay Yeung[17], Joany Zachariasse[18], Dace Zavadska[19], Werner Zenz[13], Michael Levin[1], Clementien Vermont[20], Henriette A Moll[21], Ian Maconochie[5]
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Backgrounds: A prolonged fever is considered a warning sign for serious infection in the NICE childhood fever management guidelines. We aimed to describe the characteristics and clinical outcomes of children with fever >=5 days presenting to emergency departments (EDs) and compare these to children with a shorter duration of fever.
Methods: Design: Prospective observational study, embedded in PERFORM study Setting: 12 European EDs Patients: Consecutive febrile children <18 years between January 2017-April 2018. Interventions: Children with fever >=5 days and their risks for serious bacterial infection (SBI) were compared with children with fever <5 days, including diagnostic accuracy of non-specific symptoms, warning signs, and C-reactive protein (mg/L). Main outcome measures: SBI and other non-infectious serious illness
Results: 3778/35705 (10.6%) of febrile children had fever ³5 days. Incidence of SBI in children with fever ³5 days was higher than in those with fever <5 days (8.4% vs. 5.7%). Triage urgency, lifesaving interventions and intensive care admissions were similar for fever ³5 days and <5 days. Several warning signs had good rule in value for SBI with specificities >0.90, but were observed infrequently (range: 0.4%-17%). Absence of warning signs was not sufficiently reliable to rule out SBI (sensitivity 0.92 (95% CI 0.87-0.95), negative LR 0.34 (0.22-0.54)). CRP <20mg/L was useful for ruling out SBI (negative LR 0.16 (0.11-0.24)). There were 66 cases (1.7%) of non-infectious serious illnesses, including 21 cases of Kawasaki Disease (0.6%), 28 inflammatory conditions (0.7%) and 4 malignancies.
Conclusions/Learning Points: Children with prolonged fever have a higher risk of SBI, warranting a careful clinical assessment and diagnostic work up. Warning signs of SBI occurred infrequently, but if

present, increased the likelihood of SBI. Although rare, clinicians should consider important non-infectious causes of prolonged fever.

PD0043 / #2181

MAKING BLOOD CULTURES COUNT - AN AUDIT OF PAEDIATRIC BLOOD CULTURE VOLUMES AND QUALITY IMPROVEMENT STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 04: DIAGNOSTICS AND BIOMARKERS (STATION 04)

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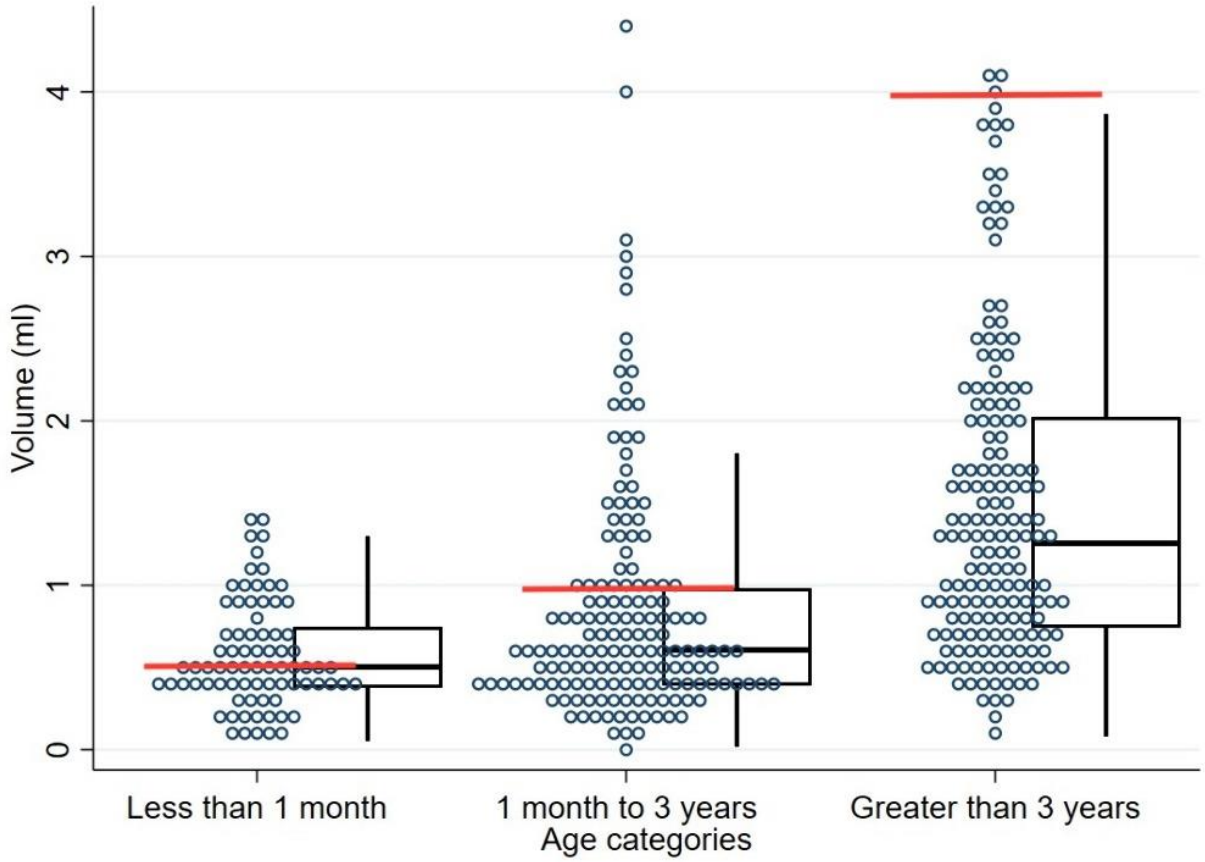
Backgrounds: Blood cultures [BCs] are the gold standard for the diagnosis of serious bacterial infection in children. It has been demonstrated the major determinant of BC sensitivity and specificity is the volume of blood inoculated into the BC bottle. Our aim was to review our BC inoculant volumes, design an intervention to improve volumes, and monitor the impact of this intervention.
Methods: The study was carried out in a single institution with paediatric and neonatal departments. All BD BACTEC™ Peds Plus™ bottles were weighed pre and post- sampling, and inoculated blood-volumes were calculated. Clinical details, including age, weight, and indication were recorded from patient notes. As per manufacturer instructions, 0.5ml is the minimum acceptable volume, while 1ml+ is the recommended volume. Age-specific recommendations were also assessed.
Results: Over a four-month period, 402 BC bottles had inoculant volumes calculated, 64 from NICU and 338 from Paediatrics. Among NICU samples, the median volume was 0.49ml [IQR 0.37,0.74], with 51.5%<0.5ml and 90.6%<1ml. Amongst paediatric samples, the median volume inoculated was 0.85ml [0.491,1.600], with 25.1% <0.5ml, and 58.6% <1ml. Overall, using age-based criteria, only 20.5% were adequately filled [see Figure]. Thirty-five BCs were positive, 10 likely contaminants, of which 9 had volumes <1ml, while of 25 significant positive cultures, 80% had volumes >1ml.



Conclusions/Learning Points: There was widespread underfilling of BC volumes in our institution, with many bottles critically underfilled. Consequently, in many cases while BCs have been sent, no meaningful test had been performed, risking missing bacteraemia. Trends whereby smaller volumes were associated with contaminants, and higher volumes associated with true positives were noted. Education sessions, policy implementation, regular feedback on performance are all currently underway, with ongoing volume assessment, and this pre/post intervention comparison will be presented.

PD0044 / #2120

DYNAMIC OF RESPIRATORY MICROBIOTA IN CHILDREN UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) BEFORE, DURING AND AFTER TREATMENT

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

Juan Pablo Torres[1,2], Mariana Izquierdo[3], Veronica De La Maza[3], Paula Catalan[4], Julia Palma[4], Salome Rivera[2], Romina Valenzuea[3], Maria Elena Santolaya[3], Mauricio Farfan[5]
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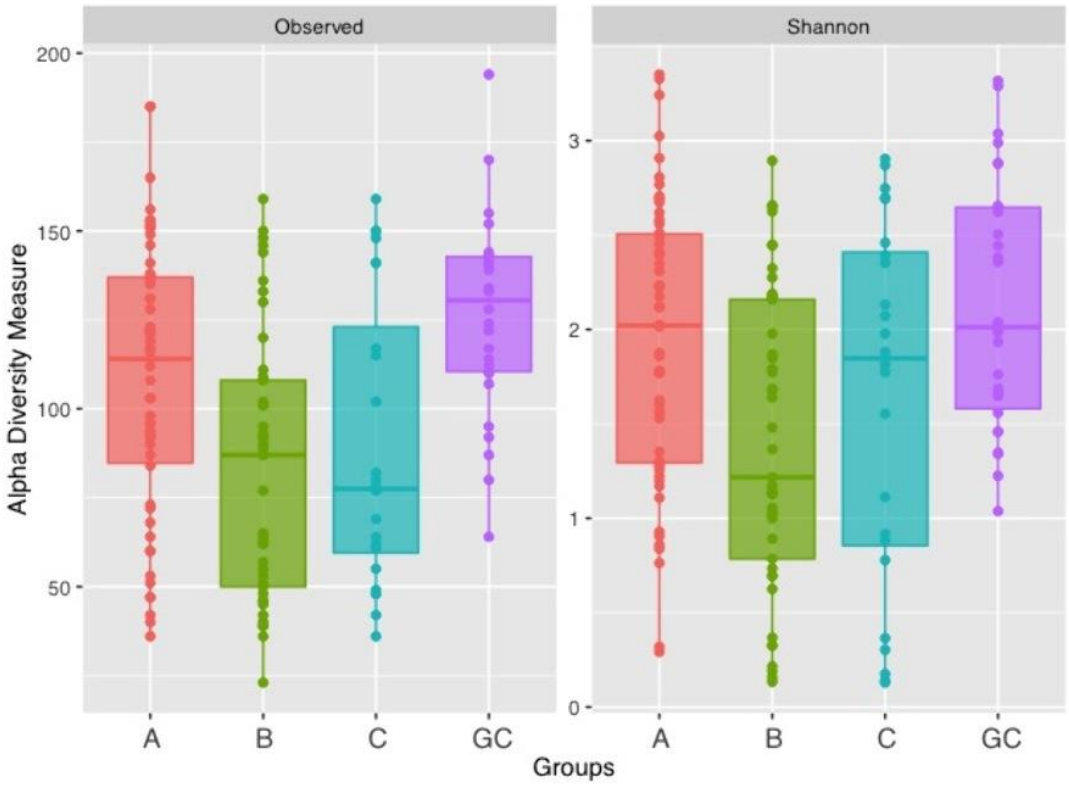
Backgrounds: Respiratory microbiota can play a key role in virus-bacteria interactions in respiratory infections, especially in immunocompromised children. The dynamic changes after HSCT and the possible role in the severity of infections is unknown. Our aim was to determine the dynamics of the composition of the respiratory microbiota in children undergoing HSCT before, during and after treatment.
Methods: Prospective cohort study, children≤18 years with cancer and HSCT admitted at Hospital Calvo-Mackenna,Chile (September-2017 to January-2022). Nasopharyngeal samples were obtained at: Group-A:2-4 weeks prior to HSCT;Group-B:day 0 of HSCT and Group-C:3 months after HSCT. Sequencing of the full length 16S rRNA using the PacBio Sequel was performed. Raw sequences were processed (Mothur-software) and data were analyzed with RStudio program. A control group(CG) of children without HSCT was included.
Results:



110 children(149 samples) were enrolled (Group-A=54/Group-B=45/Group-C=24/CG=26). We found a smaller number of taxa and diversity value (Shannon-index) for Group-B compared to Group-A and GC($p<0.05$). By Redundancy Analysis we observed differences in community structure between these 4 groups($p=0.001$). For all groups, Firmicutes was the predominant Phylum, followed by Proteobacteria and Bacteroidota. An increase of Firmicutes and a decrease of Proteobacteria were found in Group-B compared to Group-A and CG. We found Staphylococcus in children from Groups A-B-C compared to CG. Group-B had a smaller amount of Neisseria, Haemophilus and Granulicatella compared to groups A and GC.

Conclusions/Learning Points: To our knowledge, this is the first report on the dynamics of the respiratory microbiota in children undergoing HSCT. Significant changes were found at the level of diversity, community structure and bacterial genera. Dynamics of the microbiota could be relevant in the susceptibility and/or severity of respiratory infection after HSCT, however more studies are needed (ANID-PIA/ApoyoAFB220003;FONDECYT Grant 1171795).

PD0045 / #559

DIFFERENTIAL CLINICAL CHARACTERISTICS BETWEEN CHILDREN WITH TUBERCULOUS MENINGITIS (TBM) AND OTHER FEBRILE NEUROLOGICAL ILLNESSES IN AFRICAN CENTRES PARTICIPATING IN A TBM TREATMENT SHORTENING TRIAL (SURE)

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

Susan Abarca Salazar[1,2,3], Vivian Mumbiro[4], Ennie Chidziva[4], Lisa Nkole[5], Christina Zulu[5], Joyce Lungu[5], Chimuka Tembo[5], Rogers Owori[6], Nancy Nabukeera[6], Juliet Nyiramugisha[6], Hiroyuki Moriuchi[1], Suzanne Anderson[2], Diana Gibb[2], Hilda Mujuru[7], Chishala Chabala[5], Veronica Mulenga[5], Eric Wobudeya[6], Sabrina Kitaka[6], Robin Basu Roy[2]
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Backgrounds: Tuberculosis meningitis (TBM) has a high risk of mortality and sequelae in children. Early diagnosis and treatment lead to improved survival; however, available tests are neither sensitive nor rapid enough to confirm TBM. We aim to identify and validate novel biomarkers to diagnose TBM in children.
Methods: Participants: 29 days to 18 years old with suspected central nervous system infections identified as part of the screening of the SURE trial in Zambia, Zimbabwe and Uganda are classified as TBM case or non-TBM control. Data from May to December 2022 were analysed using Chi-square and t-tests with RStudio.
Results::

Variables	TBM (n = 30)	Non-TBM (n = 55)	Total (n = 85)	p
age (years), median (IQR)	4.25 (0.75, 7.2)	1.5 (0.43, 6.25)	2 (0.6, 6.5)	0.191
disease onset (days), median (IQR)	14 (7, 21)	4 (2.5, 7)	7 (3, 13.25)	< 0.001
impaired consciousness, n (%)	25 (86)	18 (38)	43 (57)	< 0.001
focal neurological signs, n (%)	18 (62)	4 (9)	22 (29)	< 0.001
pGCS, median (IQR)	8 (5.25, 12.75)	14 (11, 15)	13 (8.75, 15)	0.002
CSF WBC (cells/mm3), n (%) 5-100 >100	5 (18) 5 (18)	3 (8) 5 (14)	8 (12) 10 (15)	0.374
CSF protein (mg/dL) median (IQR)	105 (36.6, 238)	30 (19.5, 42)	39.5 (24, 108.75)	< 0.001
CSF glucose <2.5 mmol/L, n (%)	9 (36)	1 (4)	10 (20)	0.005

Conclusions/Learning Points: Children with TBM diagnosis have a longer illness duration and more serious neurological signs than controls. This study is nested in the largest ever clinical trial in paediatric TBM, therefore has a unique chance to contribute well-characterised samples to evaluate novel diagnostics to identify TBM cases.

PD0046 / #1004

CLINICAL, IMMUNOLOGICAL AND SOCIAL OUTCOME FOLLOWING TRANSITION TO ADULT CARE OF HIV-INFECTED PATIENTS – 10 YEARS CASUISTIC FROM A TERTIARY PAEDIATRIC UNIT

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Transition to adult care is a challenging period for HIV-infected young people, with increased risk of noncompliance and non-retention in care.
Methods: Clinical, immunological and social evaluation was assessed in HIV-infected patients participating in a transition program to adult care from 2012-2022 in a Tertiary Paediatric Centre. A post transition questionnaire was applied to patients with >1 year follow-up in adult care.
Results: Forty-six patients participated in the transition program and was completed in 23 (50%); of these, 61% were female with median age at transition of 18.5 (16-21) years and infection occurred by mother-to-child transmission in 91%. Median follow-up time at adult care: 6 (0.5-11) years. After transition, 2 patients were lost to follow-up (8.7%), and 30% missed at least one appointment per year. Seventeen patients (73%) changed ART (mostly simplification). Viral load and CD4 count evolution weren't different pre-transition and during follow-up (Table). New AIDS diagnosis occurred in 1 patient; no deaths recorded. Three patients (13%) have graduated in university, 70% are employed, and 17% have children, all uninfected. Biological parent death occurred in 52%. Most adults knew viral load and ART regimen (60% and 70%, respectively) but didn't know last CD4 count (90%). Transition was reported as harder than expected by 40%. Communication issues were the most relevant difficulty. The major advantage identified was higher autonomy.

CD4 count and viral load evolution

	Pre-transition n=23	**1-year-after n=21**	**5-years-after n=15**
Undetectable viral load	74%	65%	73%
CD4 count <200/mm3	8%	0%	13%

Conclusions/Learning Points: The majority of transitioned HIV-infected patients were retained in adult care and no deaths occurred. Most were virally suppressed with CD4 counts >500/mm3 1-5 years after transition. The majority are employed. Transition programs improve outcomes in HIV-infected young adults.

PD0047 / #787

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER FOLLOWING PEDIATRIC INTESTINAL TRANSPLANT: AN OLD FOE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Our center previously reported a post- transplant lymphoproliferative disorder (PTLD) rate following pediatric intestinal transplantation of 10%. Given improvements in the management of immunosuppression (IS) over the past decade, we evaluated if improvements in IS would change PTLD rate.
Methods: A single-center retrospective review of pediatric intestinal transplant between January 1, 2012 and December 31, 2022 was performed. PTLD was diagnosed using WHO classification criteria and confirmed with biopsy and PET/CT when available. Recipient characteristics, interventions and outcomes were assessed.
Results: 86 intestinal transplants were performed in 85 recipients. 40 patients received an isolated intestinal transplant and 46 received a composite transplant of intestine, liver, and pancreas. Of the 86 recipients, Epstein Barr Virus (EBV) viremia was observed in 33; 12 developed PTLD (14%); (6F, 6M); 10 had EBV+ PTLD. Median age at transplantation for the entire study cohort was 28(IQR:15-54)-months, while the median age at transplant of patients with PTLD was 35.5(IQR:15.5-122.3)-months (p=0.19). The median duration from transplant at PTLD diagnosis was 8(IQR 3-29)-months. All patient were on tacrolimus and prednisone with a median tacrolimus level of 9(6.5-14)ng/ml prior to PTLD diagnosis. There was no significant difference in PTLD rate between isolated intestine and composite transplant recipients(p=0.75). Treatment consisted of Rituximab, two patients received EBV cytotoxic T cell therapy, and 3 received systemic chemotherapy. 19 patients died during the observation period (22%). Four patients diagnosed with PTLD died during the observation period (36%) (p= 0.28). Lastly, 15 patients with EBV viremia received Rituximab. None progressed to PTLD.

Clinical Characteristics	No PTLD	PTLD[1]
Total Patients	73	12
Age at Transplant[2] (IQR)	28 (14.25-47.75)	31 (16-120.5)
Gender (%Male)	69	50
Composite Transplant	40	6
Isolated Intestinal Transplant	34	6
Survival (%)	80%	75%
EBV positivity (%)	31%	83%
Rituximab Administration for EBV Viremia**(#)	18	10
EBV copie/sml at time of rituximab/PTLD (IQR)	6,000 (3,000-21,775)	5,100 (900-5,3275)
Time post transplant for peak EBV Viremia/PTLD (IQR)[2]	13(1-57)	8.5 (2.5-27.5)
PET/CT (#)	8	11

[1] One patient was excluded due to relapsed PTLD from previous transplant prior to 2012
[2] Months

Conclusions/Learning Points: PTLD rate remains unchanged despite improvements in immunosuppression and occurs early post intestinal / composite transplant. Early use of B cell reducing therapy with Rituximab during EBV viremia may halt progression to PTLD.

PD0048 / #439

PAEDIATRIC OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY (P-OPAT): A COLLABORATIVE STUDY FROM THE P-OPAT UK NETWORK TO DESCRIBE THE ROLE OF P-OPAT IN ANTIFUNGAL THERAPY.

E-Poster Discussion

E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: There has been an increase in the paediatric population considered at risk for invasive fungal infections. Many of those will need antifungal prophylaxis or treatment for long periods. Whereas oral formulations are the preferred option in the community; different circumstances might require intravenous (iv) formulations. pOPAT has been successfully used in the UK mainly for antibiotics. Our aim was to describe the use and outcomes of pOPAT for antifungals.
Methods: Retrospective cohort study collecting data on children 0- 18 years from Oct 2017-May 2022 who used pOPAT services for iv antifungal prophylaxis or treatment at two pOPAT centres in the UK.
Results: 29 patients were included, representing 2% of total pOPAT patients during the study period. Median age was 5 years (IQR 3-13). Almost all had an underlying condition 28/29 (96.5%); dominated by haemato-oncology and transplant patients 22/29 (75.9%). 8/29 (27.6%) required antifungals for prophylaxis whilst 21/29 (72.4%) received them for treatment. 75.8% (22/29) were on a single antifungal agent while under pOPAT. Liposomal amphotericin B was the commonest antifungal prescribed (22/29 cases [75.9%]); followed by caspofungin (7/29 [24.1%]) and in one case, fluconazole (3.4%). Antifungals were delivered mainly by community nurses 19/29 (65.5%), followed by pOPAT clinics 11/29 (37.9%). Favourable outcomes (completion of pOPAT therapy with no antimicrobial change, no adverse events, cure of infection and no readmission) were achieved in 18/29 (62.0%) cases. De-escalation to orals happened in 20.7% (6/29) patients.
Conclusions/Learning Points: The study proves that pOPAT can be a safe system to deliver iv antifungals when oral formulations are not indicated,especially to prevent long hospital admissions for oncology patients.Patients tend to have good outcomes with minimal drug-related events. Further investigation and structured national recommendations are required.

PD0049 / #627

THE BURDEN OF CHILDHOOD TUBERCULOSIS IN COUNTRIES THAT MAINTAIN UNIVERSAL BCG VACCINATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Historically, childhood tuberculosis has been neglected, particularly in low-resource settings. However, tuberculosis disease in children significantly contributes to the global burden of tuberculosis and remains an important cause of global childhood morbidity and mortality.
Methods: A systematic review of research published between 2000 and 2020, in three databases (PubMed, Web of Science and SciELO), was carried out to characterise childhood tuberculosis in countries that maintain universal BCG vaccination. Studies reporting relevant epidemiological data, with a particular focus on disease outcomes, regarding children between 0 and 14 years old, were selected. Random effects meta-analysis was performed in R software.
Results: We identified 1806 references from database searching and, after screening for inclusion criteria, 35 articles reporting relevant epidemiological data from 24 countries were selected. Among children with tuberculosis, the overall proportion of unfavourable outcomes was 19.52% (95% confidence interval (CI) 14.44-25.84) and the pooled case fatality ratio was 6.06% (95% CI 4.34-8.40). A higher proportion of deaths was observed among children between 0 and 4 years old (6.56%, 95% CI 4.91-8.71) if compared to older children (4.61%, 95% CI 3.06-6.90). Pooled prevalence of HIV infection among tested children was 21.30% (CI 95% 11.89-35.17) and TB/HIV co-infected children presented a higher case fatality ratio (15.09%, 95% CI 7.86-27.02) when compared to HIV negative children (4.16%, 95% CI 2.00-8.44). The overall proportion of MDR-TB was 8.14% (95% CI 4.64-13.90).
Conclusions/Learning Points: Although limited by heterogeneity, our findings suggest a significant proportion of unfavourable outcomes, including death, particularly in younger children with tuberculosis and TB/HIV co-infected children. Therefore, global efforts to close remaining gaps, such as underreporting, underdiagnosis and inadequate treatment, should be intensified if we aim to effectively tackle the burden of childhood tuberculosis.

PD0050 / #1619

BASELINE CLINICAL CHARACTERISTICS OF CHILDREN AND ADOLESCENTS WITH TUBERCULOUS MENINGITIS IN THE SURE TRIAL (ISRCTN40829906)

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Tuberculous meningitis (TBM) in children causes significant mortality and neurological disability. Shorter and optimal treatment regimens with better neurological outcomes are an important research priority. We describe updated recruitment and baseline characteristics of children recruited into the largest ever paediatric TBM treatment trial.
Methods: SURE is a factorial phase III RCT evaluating the non-inferiority for mortality of shorter intensive 6-month (high-dose rifampicin/isoniazid, pyrazinamide, levofloxacin) vs standard 12- month antituberculosis treatment and superiority of aspirin vs placebo on neurological disability. 400 children aged <18 years with TBM are being enrolled in 3 African and 2 Asian countries.
Results: Between 3 March 2021 and 31 December 2022, 157 children (females [45%], median age 4.0 years [IQR 1.0 – 9.5]) were enrolled. Five [3%] are HIV infected with one on ART before randomisation. 28 (18%) reported history of TB contact in the preceding year. Common symptoms were: fever (147, 94%), lack of playfulness/energy (122, 78%), poor feeding/appetite (107, 68%) for median duration 15 (IQR 9,27), 14 (7,22) and 14 (7, 21) days respectively. Seizures, focal neurological signs and hydrocephalus were present in 72 (46%), 56 (36%) and 47 (32%) respectively. Eleven required VP shunts, 3 external ventricular drains and 15 were managed medically. At enrolment, 71 (45%), 60 (38%) and 26 (17%) were TBM stage I, II and III respectively.
Conclusions/Learning Points: The SURE trial has recruited 157/400 children, despite diagnostic challenges and severe disruptions caused by COVID; most children were TBM stage II/III. Follow-up for each child will be for 18 months. Several sub-studies are planned/ongoing, including evaluation of new diagnostic techniques. [Update of data presented at 5th TBM 'Closed' International Consortium Meeting, August 2022]

PD0051 / #687

INTEGRASE INHIBITORS IN CHILDREN AND ADOLESCENTS: CLINICAL USE AND RESISTANCE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Although integrase inhibitor (INI)-based regimens are now the first-line choice for all people living with HIV, experience among children and adolescents is still scarce. We describe the characteristics and outcomes of a paediatric/adolescent cohort on INI-based ART.
Methods: Retrospective analysis of HIV-infected patients below 18 years of age who started an INI-based regimen from 2007 to 2019, enrolled in the Spanish National Adult (CoRIS) and Paediatric (CoRISpe) cohorts. Resistance mutations were identified by the Stanford HIV Drug Resistance Database.
Results: Overall, 318 INI-based regimens were implemented in 288 patients [53.8% female; median age at start of 14.3 years (IQR 12.0–16.3)]. Most were born in Spain (69.1%), vertically infected (87.7%) and treatment experienced (92.7%). The most frequently prescribed INI was dolutegravir (134; 42.1%), followed by raltegravir (110; 34.6%) and elvitegravir (73; 23.0%). The median exposure was 2.0 years (IQR 1.1–3.0). The main reasons to start an INI-based therapy were treatment simplification (54.4%) and virological failure (34.3%). In total, 103 (32.4%) patients interrupted their regimen: 14.5% for simplification and 8.5% due to virological failure. Most subjects who received dolutegravir (85.8%) and elvitegravir (83.6%) did not interrupt their regimen and maintained undetectable viral load. There were only five virological failures with dolutegravir and three with elvitegravir. There were no interruptions related to adverse events. Seven patients with virological failure presented major resistance mutations to INIs; none of them were on
dolutegravir.

Table. Seven patients under virological failure carrying resistance viruses to integrase inhibitors among those with available integrase sequence.

Legend Table 3: ART, antiretroviral therapy; VL, viral load; HIV-1 RNA copies/milliliter plasma); INI, integrase inhibitors; Major DRM to INI, drug resistance mutations to INI according to Stanford v9.0. More information in https://hivdb.stanford.edu/dr-summary/resistance-notes/INSTI/. **Aa code**: A, Alanine; E, Glutamic acid; G, Glycine; H, Histidine; K, Lysine; N, Asparagine; Q, Glutamine; R, Arginine; S, Serine; Y, Tyrosine. 3TC, lamivudine; ABC, abacavir; DRV, darunavir; DTG, dolutegravir; EVGc, elvitegravir-cobicistat; FTC, emtricitabine; IN, HIV-1 integrase protein; INI, IN inhibitors; MRV, maraviroc; RAL, raltegravir; T20, enfuvirtide; TAF, tenofovir alafenamide; TDF, tenofovir disoproxil fumarate; TMC 125, etravirine; TPVr, tipranavir-ritonavir.

Patient	Age (years-old)	ART at failure	VL at failure (copies/mL)	Major DRM to INI	Salvage ART	VL after 6 months (copies/mL)
1	11.9	ABC 3TC RAL	41,800	N155H	TAF FTC EVGc	Undetectable
2	12.9	TPVr MRV RAL	36,671	E138K, S147G, Q148R	DRV T20 DTG	Undetectable
3	10.0	ABC 3TC RAL	5,501	Q148R	ABC 3TC DTG	Undetectable
4	15.4	DRVr TMC125 RAL	36,500	G140S, Q148H, E138A	TDF FTC EVGc	13,900
5	16.8	TDF FTC DRV EVGc	124,000	G140S, Q148H, E138K	3TC DRV DTG	Undetectable
6	16.0	DRVr TMC125 RAL	47,938	Y143R	TDF FTC DRVr TMC125 DTG	Undetectable
7	13.5	TAF FTC EVGc	34,800	E92Q, N155H	TAF FTC DRV	Undetectable

Conclusions/Learning Points: INI-based regimens were effective and safe for HIV treatment in children and adolescents. Dolutegravir and elvitegravir presented an excellent profile, and most patients achieved and maintained viral suppression.

PD0052 / #1708

VIRAL SUPPRESSION AND RETENTION IN HIV CARE DURING THE POSTPARTUM PERIOD AMONG WOMEN LIVING WITH HIV IN SWITZERLAND

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Low rates of postnatal retention in HIV care and viral suppression have been reported in women living with HIV (WLWH) despite viral suppression at delivery. At the same time, postpartum follow-up is of crucial importance in light of the increasing support offered in many resource-rich countries including Switzerland to WLWH choosing to breastfeed their infant, if optimal scenario criteria are met.
Methods: We longitudinally investigated retention in HIV care, viral suppression, and infant follow-up in a prospective multicentre HIV cohort study of WLWH in the optimal scenario who had a live birth between January 2000 and December 2018. Risk factors for adverse outcomes in the first years postpartum were assessed using logistic and proportional hazard models.
Results: Overall, WLWH were retained in HIV care for at least six months after 94·2% of the deliveries (694/737). Late start of combination antiretroviral therapy (cART) during the third trimester was found to be the main risk factor for failure of retention in HIV care (crude OR 3·79; 95% CI, 1·21-9·96; p = 0·011). Among mothers on combination antiretroviral therapy (cART) until at least one year after delivery, 4·4% (26/591) experienced viral failure, with illicit drugs use being the most important risk factor (HR, 13·1; 95% CI, 2·44-70·1; p = 0·003). The main risk factors for not following the recommendations regarding infant follow-up were substance use (adjusted OR, 1·90; 95% CI, 1·01 - 3·56; p = 0·046) and maternal depression (OR, 3·47; 95% CI, 1·15-10·35; p = 0·024).
Conclusions/Learning Points: Several modifiable risk factors for adverse postpartum outcome, such as late treatment initiation, substance use, and depression, were identified. These factors should be addressed in HIV care of all WLWH, especially those opting to breastfeed in resource-rich countries.

PD0053 / #1223

NONTUBERCULOUS MYCOBACTERIAL PULMONARY INFECTIONS IN CHILDREN.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Backgrounds: Nontuberculous mycobacterial (NTM) infections are increasing in immunocompromised patients and those with chronic lung diseases, such as cystic fibrosis (CF). Nevertheless, limited paediatric data are available.
Methods: Retrospective, tertiary-centre study including all paediatric patients (aged 0-18 years) with microbiological isolation of NTM in bronchoalveolar lavage or sputum, between 2013-2022.
Results: We included 40 patients (median age of 13.3 years [IQR 10.9-15.5]). CF was the most frequent underlying disease (n=16, 40%), followed by recipients of hematopoietic stem cell transplant (n=10, 25%). Four patients (10%) did not have any pre-existing medical condition. Thirteen patients (32.5%) had lymphopenia. Seven patients (17.5%) met the 2020 ATS/IDSA diagnostic criteria for NTM pulmonary disease. There were 5 patients who did not meet the criteria but were treated because of clinical and radiological findings and underlying medical conditions. The other 28 isolates were interpreted as colonizations and did not develop disease despite not being treated (median follow-up: 3.2 years [IQR 0.5-5.5]). The most common NTM species were Mycobacterium avium (n= 16, 40%), Mycobacterium intracellulare (n=7, 17.5%) and Mycobacterium abscessus (n=6, 15%). The latter was the most frequent pathogen in CF patients (n=5, 31%). Drug-resistance was tested in 27 isolates (Table). All treated patients received combined antibiotic therapy (median number of drugs used: 3.5 [IQR 3-4], median duration of treatment: 12 months [IQR 2-13.5]). No surgical treatment was needed. Nine patients died during follow-up due to underlying disease. NTM infection might have contributed to two deaths.

	***M. abscessus* (n=6)** Sensitive/tested isolates	***M. avium* complex (n=18)** Sensitive/tested isolates	***p***
Clarithromycin	2 / 6	18 / 18	0.054
Ciprofloxacin	0 / 5	0 / 1	1
Amikacin	6 / 6	1 / 1	1
Linezolid	2 / 3	1 / 1	1

Table. Antimicrobial susceptibility patterns of tested isolates.

Conclusions/Learning Points: NTM respiratory infections affect mainly children with CF or immunodeficiency. Most NTM isolates from respiratory samples are colonizations. The most frequent pathogens are members of the Mycobacterium avium complex. Mycobacterium abscessus is emerging in CF patients and is associated with high antimicrobial resistance.

PD0054 / #2523

TRANSLATING METAGENOMICS INTO CLINICAL PRACTICE OF COMPLEX PAEDIATRIC NEUROLOGICAL PRESENTATIONS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Background: Atypical or complex paediatric neurological presentations are common clinical conundrums and often remain undiagnosed despite extensive investigations. This is particularly pronounced in immunocompromised patients. The application of multidisciplinary teams (MDT) has been successful in conditions with broad ranging diagnostic possibilities. Here we show that clinical metagenomics (CMg) is a valuable adjunct diagnostic tool to be used by neuro-infection MDTs.
Methods: We included patients referred to the Great Ormond Street Hospital neuro-infection MDT where diagnostic uncertainty remained, despite a standardised comprehensive set of investigations, and subsequently referred for untargeted CMg on brain tissue and/or CSF. In a retrospective review, two clinicians independently assessed whether the CMg results in conjunction with the MDT resulted in a change of patient clinical management.
Results: 60 undiagnosed patients met the inclusion criteria. We detected the causative pathogen by CMg in 15/60 (25%), with 13 positives in 36 patients known to be immunocompromised. CMg results, even when negative, informed patient care, resulting in changes in clinical management in 43/56 (77%). Six patients had unexpected findings of pathogens not identified on prior samples. In four patients, the pathogen was found solely in the brain and was absent from all other specimens, including CSF.
Conclusions/Learning Points: CMg is particularly useful when conventional diagnostic techniques for meningoencephalopathy are exhausted and proved to be a necessary diagnostic tool for immunosuppressed patients when diagnostic uncertainty remained. CMg provided increased reassurance against an infective aetiology prior to recommending immunosuppression. Specialised MDTs should advocate for early brain biopsies and routine CMg in undiagnosed complex neurological cases affecting immunocompromised patients.

PD0055 / #2622

DISCRIMINATION OF TUBERCULOSIS INFECTION AND DISEASE USING CYTOKINE RESPONSE TO NOVEL M. TUBERCULOSIS ANTIGENS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 05: MYCOBACTERIA & IMMUNO COMPROMISED HOST (STATION 05)

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Background: Interferon-γ release assays (IGRA) have limited sensitivity in children with tuberculosis (TB) disease and do not distinguish TB infection from disease. The diagnostic performance of tests using novel stimulatory antigens and additional cytokines to distinguish TB infection from disease is the aim of this study.
Methods: In this prospective, multicentre, diagnostic study in Switzerland children < 18 years of age with TB infection, disease, or TB exposed non-infected were included. Whole blood was stimulated with ESAT-6/CFP-10 and 5 novel M. tuberculosis antigens and the following cytokines were analysed: TNF-α, sCD40L, IP-10, IL-6, IL-2, IL-1RA, IL-17, IL-13, IL-10, IFN-γ and GM-CSF. Descriptive statistics and machine learning algorithms including random forest (with 4-fold cross validation) were used to find most discriminative cytokine/antigen pairs.
Results: In total 107 children were included, of which 24 (22%) children had TB disease, and 28 (26%) TB infection. Median age was 8.9 (IQR 3.4-12.1) years and 60 (56%) were female. The stimulatory antigens ESAT-6/ CFP-10, Rv2346/47c-and Rv2031c-induced the largest difference in cytokine concentration in children with TB disease or infection versus exposed non-infected children (Figure 1). To distinguish children with TB disease or infection from exposed non-infected children a random forest model performed with an area under the curve (AUC) of 0.89 (+/- 0.07) and the most informative cytokine/antigen pairs were IL-2/ESAT-6/CFP-10, IP-10/RC2346/47 and IP-10/ Rv2031c. To distinguish children with TB disease from children with TB infection the model performed with an AUC of 0.72 (+/- 0.17) and most informative cytokine/antigen pairs were IL2/Rv0081, IFN-γ/Rv2431 and IL-17/RV0081.

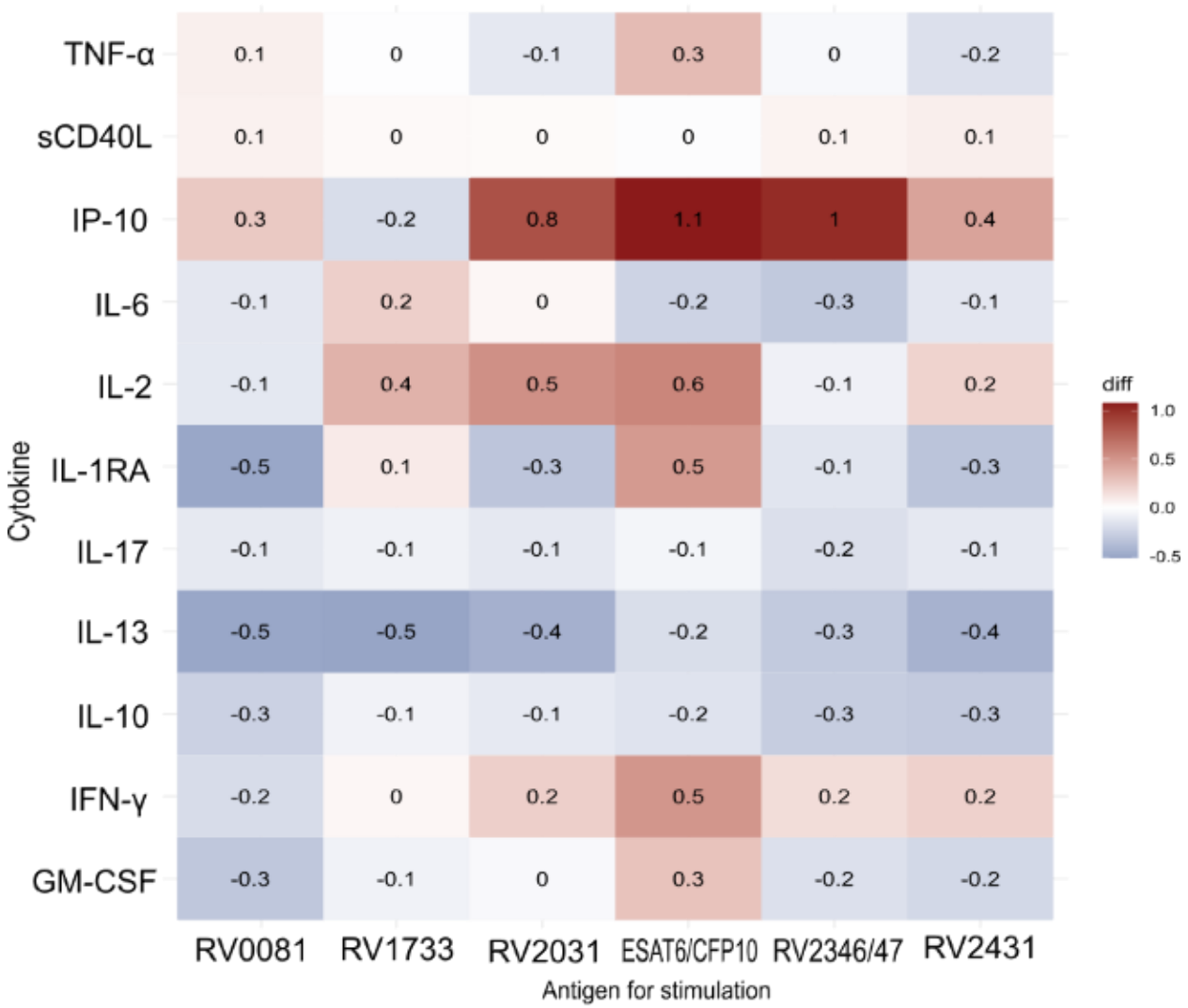

Figure 1: The mean of every antigen-cytokine pair in the groups of children with TB disease or infection and exposed children was calculated, and the difference is displayed in this figure.

Conclusions/Learning Points: This study confirms that novel cytokine-antigen pairs improve sensitivity compared to commercially available IGRAs. The discriminatory potential for these cytokine/antigen pairs to distinguish TB infection and disease is not yet optimal.

PD0056 / #324

UNDERSTANDING THE BURDEN OF RSV IN NEWBORNS AND CHILDREN DURING THEIR FIRST RSV SEASON IN PORTUGAL, 2015-2018

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: The EMA's recent approval of the first immunization for the broad infant population to prevent lower respiratory tract disease during their first RSV season calls for a better understanding on RSV's burden in this population.
Methods: We reviewed anonymized administrative data of hospitalizations potentially related to RSV in infants aged <12 months from 2015-2018, covering all public hospital discharges in mainland Portugal. Three case definitions were considered: (a) RSV-specific, (b) (a) plus unspecified acute bronchiolitis (RSV-specific & Bronchiolitis), and (c) (b) plus unspecified ALRI (RSV-specific & ALRI). Children hospitalized during epidemic seasons (November-March) were split into four cohorts according to birth date: born during RSV season (November-March); born until 3 months before RSV season (August-October); born until 7 months before RSV season (April-July); or children who have already gone through a prior RSV season since birth.
Results: A total of 6,183 RSV-specific hospitalizations were registered during epidemic seasons 2015/2016 to 2017/2018 in children aged <12 months, increasing to 11,020 for RSV-specific & ALRI hospitalizations. Hospitalizations per 1,000 infants/per season were 23.8, 38.8, and 42.3 for RSV-specific, RSV-specific & Bronchiolitis, and RSV-specific & ALRI definitions. The majority of hospitalized infants had been born outside of the RSV epidemic season (Table 1). Children without registered underlying medical conditions always accounted for over 95% of hospitalizations. Length-of-stay, severity markers and mean hospitalization costs per patient were always higher in children born during RSV season, potentially related to their age. Annual direct costs of €2.1 million were estimated for RSV-specific hospitalizations—rising to €3.8 million for RSV-specific &
ALRI.

Table 1. Potential RSV-associated hospitalizations during RSV season in children aged <12 months, per RSV case definition and time of birth (season 2015/16 to 2017/18[a])

	RSV-specific[b]					RSV-specific & Bronchiolitis[c]					RSV-specific & ALRI[d]				
	First RSV season and born in:			Not the first RSV season	Total	First RSV season and born in:			Not the first RSV season	Total	First RSV season and born in:			Not the first RSV season	Total
	Season (Nov.-Mar)	0-3 months before (Aug.-Oct.)	3-7 months before (Apr.–Jul.)			Season (Nov.-Mar)	0-3 months before (Aug.-Oct.)	3-7 months before (Apr.–Jul.)			Season (Nov.-Mar)	0-3 months before (Aug.-Oct.)	3-7 months before (Apr.–Jul.)		
Number of cases (N)	2,714	1,963	1,075	431	6,183	4,123	3,178	1,977	824	10,102	4,330	3,398	2,290	1,002	11,020
Share of cases within the RSV definition (%)[e]	43.9%	31.7%	17.4%	7.0%	100%	40.8%	31.5%	19.6%	8.2%	100%	39.3%	30.8%	20.8%	9.1%	100%
Cases without an underlying medical conditions (%)[f]	95.6%	95.8%	95.9%	95.4%	95.7%	95.6%	95.5%	95.5%	94.5%	95.5%	95.2%	94.7%	94.9%	94.6%	94.9%
Cases requiring NIV (%)	13.7%	6.0%	3.8%	3.5%	8.8%	11.7%	5.1%	3.6%	4.6%	7.5%	12.1%	5.2%	3.7%	4.5%	7.6%
Cases requiring IMV (%)	2.5%	1.0%	0.2%	0.5%	1.5%	2.2%	0.8%	0.3%	0.2%	1.2%	2.5%	1.0%	0.4%	0.4%	1.4%
Cases with a respiratory severity marker[g]	69.9%	69.8%	76.2%	76.8%	71.5%	67.7%	67.4%	74.9%	76.5%	69.7%	67.5%	66.7%	73.2%	74.2%	69.0%
In-hospital deaths (N, %)	3 (0.1%)	3 (0.2%)	1 (0.1%)	-	7 (0.1%)	3 (0.1%)	3 (0.1%)	2 (0.1%)	-	8 (0.1%)	3 (0.1%)	3 (0.1%)	2 (0.1%)	-	8 (0.1%)
Mean length-of-stay per episode (days)	6.5	5.6	5.3	5.4	5.9	6.2	5.3	4.9	4.8	5.5	6.5	5.5	5.0	4.8	5.8
Mean hospitalization cost per patient (€)	€1,210	€958	€824	€812	€1,034	€1,163	€970	€839	€854	€1,014	€1,320	€1,037	€902	€980	€1,117

ALRI - Acute lower respiratory infection; IMV - Invasive mechanical ventilation; NIV – Non-invasive ventilation; RSV - Respiratory syncytial virus.

(a) Epidemic season includes cases from November to March (both inclusive).

(b) Includes only RSV-specific diagnosis (ICD10 codes: J21.0, J12.1, J20.5 and B97.4, ICD9 codes: 079.6; 466.11, 480.1).

(c) Includes RSV-specific and acute bronchiolitis without specific virus identification diagnosis (previous ICD10 codes, plus J21.8, J21.9; or previous ICD9 codes, plus 466.19)

(d) Includes RSV-specific and other ALRI without specific virus identification diagnosis (previous ICD10 codes, plus J12.8, J12.9, J18.0, J18.8, J18.9, J21.8, J21.9, J20.8, J20.9, J22, or previous ICD9 codes, plus 466.0; 519.8; 480.3; 480.8, 480.9; 487.0; 485; 486)

(e) Percentage of cases within each RSV case definition according to time of birth

(f) The following risk factors were considered: heart disease, neuromuscular disorders, bronchopulmonary dysplasia, Down syndrome, immunodeficiency, congenital anomalies of respiratory system, congenital musculoskeletal anomalies, and cystic fibrosis. Prematurity, low birth weight and exposure to tobacco were separately assessed as they do could not be adequately assessed in the present study

(g) The created respiratory severity marker, combines the following procedures and diagnosis: supplementary oxygen therapy, hypoxemia, invasive and noninvasive ventilation and respiratory failure

Conclusions/Learning Points: Most infants hospitalized for RSV were otherwise healthy and experiencing their first RSV season, supporting the use of RSV protective options for the broad infant population.

PD0057 / #807

DIAGNOSTIC ACCURACY OF A RAPID ANTIGEN TRIPLE TEST (SARS-COV-2, RESPIRATORY SYNCYTIAL VIRUS, AND INFLUENZA) SELF-COLLECTED ANTERIOR NASAL SWABS IN CHILDREN COMPARED TO RT-PCR FROM NASOPHARYNGEAL SWABS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

Camille De Truchis De Lays[1], Corinne Levy[2], Herve Haas[3], Camille Jung[4], Stéphane Béchet[2], Loic De Pontual[1], Robert Cohen[5]
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Backgrounds: In children, respiratory infections such as SARS-CoV-2, respiratory syncytial virus, and influenza share similar clinical signs and symptoms. To distinguish between those viruses when epidemics overlap in time, the use of triple tests could be useful. The performance of the triple rapid antigen test from self-collected anterior nasal swabs (Covid Viro All-inn Triplex) has not been assessed in real-life. We aimed to compare this testing method (Triplex test) to the reverse transcription polymerase chain reaction (RT-PCR) from nasopharyngeal swabs.
Methods: From October 2022 to December 2022, we performed a manufacturer-independent cross-sectional, prospective, multicenter study involving 2 pediatric department in Jean-Verdier hospital in Bondy, France and Princess Grace hospital in Monaco. Two swabs of children less than 15 years old with respiratory symptoms were collected (a self-collected anterior nasal swab for the Triplex test and a nasopharyngeal swab for the RT-PCR).
Results: We included 164 children (median age, 1.4 years; mean age ± SD 2.7±3.5 years). The sensitivity of the triplex test compared to RT-PCR was 85.7% (95%CI 57.2; 98.2), 78.7% (95%CI 66.3; 88.1), and 82.4% (95%CI 65.5; 93.2), for SARS-CoV-2, RSV, and influenza A, respectively. The specificity was always 100% for each
virus.

Triplex	PCR+ N	PCR - N	Sensitivity IC95%	Specificity CI95%	LR- CI95%	VPP CI95%	VPN CI95%	Accuracy CI95%
SARS+	12	0	85.7	100	0.14	100	98.7	98.8
SARS-	2	150	[57.2;98.2]	[97.6;100]	[0.39;0.52]	[73.5;100]	[95.3;99.8]	[95.7;99.9]
RSV+	48	0	78.7	100	0.21	100	88.5	91.9
RSV-	13	100	[66.3;88.1]	[96.4;100]	[0.13;0.35]	[92.6;100]	[81.1;93.7]	[86.6;95.6]
Influenza A+	28	0	82.4	100	0.17	100	95.6	96.4
Influenza A-	6	131	[65.5;93.2]	[97.2;100]	[0.09;0.4]	[87.7;100]	[90.7;98.4]	[92.3;98.7]

Conclusions/Learning Points: If our data suggest that the sensitivity of the triple test is not yet optimal, the speed of the result (15 minutes) for 3 viruses could improves the management of children with respiratory infections when epidemics of Covid, Flu and RSV overlap in time. Contrary to nasopharyngeal samples, the nasal self-collected test is less discomfort for the child.

PD0058 / #1164

SEASONAL EPIDEMICS AND MACROLIDE RESISTANCE OF CHILDHOOD MYCOPLASMA PNEUMONIAE RESPIRATORY INFECTIONS IN TAIWAN, 2017-2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: Mycoplasma pneumoniae (Mp) is a common pathogen of childhood respiratory tract infections (RTIs), and macrolide resistance is a growing concern, especially in Asia. This study aimed to delineate the circulation pattern and the dynamic change of macrolide resistance of childhood Mp RTIs in Taiwan.
Methods: In this multicenter study, we prospectively enrolled 456 hospitalized children with RTIs and positive serological Mp immunoglobulin M test between March 2017 and December 2022. Oropharyngeal swabs were obtained for Mp culture. All Mp isolates were further analyzed by macrolide resistance and multilocus sequence typing analysis.
Results: In total, 186 out of 456 enrolled children were culture proven Mp RTIs. Mp infections were detected throughout whole year in Taiwan and mainly occurred from March to September, i.e., from spring and summer seasons. The overall macrolide resistance rate of Mp strains was 39.8% (74/186), but changes dynamically. The resistance rate increased in 2017-2020 and peaked at 85.7% in 2020. However, the rate plummeted down to 18.2% in 2021 and 0% in 2022 during COVID-19 period. Regarding sequence types (STs), ST3 (52.6%) was the most prevalent type, followed by ST17 (35.1%). ST3 (24 of 33, 72.7%) was predominant among macrolide-resistant strains ($p = 0.006$).
Conclusions/Learning Points: Mp infection has characteristic seasonal epidemics in Taiwan. Macrolide-resistant Mp infections have prevailed in Taiwan between 2017 and 2020 but declined sharply during COVID-19 pandemic. ST3 and ST17 are the two prevailing Mp sequence types in Taiwan, and ST3 is strongly associated with macrolide resistance. It is warranted to keep monitoring the evolving molecular epidemiology of Mp infection at local and global level.

PD0059 / #698

RESPIRATORY SYNCYTIAL VIRUS CIRCULATION ACCORDING TO THE EPIDEMIC PERIOD AMONG OUTPATIENT CHILDREN WITH BRONCHIOLITIS IN THE COVID-19 PANDEMIC ERA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: Before the COVID-19 pandemic, regular annual epidemics of bronchiolitis due to respiratory syncytial virus (RSV) were observed in the winter season which led the surveillance networks to focus on this period. With the pandemic, RSV activity was impacted by non-pharmaceutical interventions which led to unusual virus circualtion, the aim of our study was to assess the proportion of RSV positive children among ambulatory children with bronchiolitis during and outside the bronchiolitis epidemic periods.
Methods: Among 8 different regions in France 37 pediatricians participated in the OURSYN study between February 2021 and May 2022. Children <2 years old with a first episode of bronchiolitis were prospectively enrolled. For each patient, a single nasopharyngeal swab was taken for rapid diagnostic testing for RSV, SARS-CoV-2 and influenza. We matched each patient to the weekly regional bronchiolitis epidemic level defined by the French public health institute: no epidemic, pre or post-epidemic and epidemic.
Results: During the study period, 984 outpatients <2 years old with bronchiolitis were included among which 437/984 (44.4%) had a positive RSV test, 11/979 (1.1%) were positive for influenza A and/or B, and 26/979 (2.7%) for SARS-CoV-2. RSV positivity rate was 28.9% (76/263, CI95% [23.8; 34.7]) for children presenting a bronchiolitis during the non-epidemic period compared to 45.2% (28/62, CI95% [33.4; 57.5]) during the pre- or post-epidemic period and 50.5% (333/659, CI95% [46.7; 54.3]) during the epidemic period.
Conclusions/Learning Points: RSV was the most common cause for bronchiolitis in <2 years old. Our study suggests that a continuous RSV circulation may have occured in outpatients in the COVID-19 pandemic era. Further surveillance is needed to monitor RSV circulation post COVID and inform immunoprophylaxis against RSV.

PD0060 / #1327

DESCRIBING RSV PHENOTYPES AND SEASONS: HOW CAN WE PROGRESS?

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: Respiratory Syncytial Virus (RSV) causes a seasonal epidemic pediatric respiratory burden in temperate countries. COVID-19 pandemic non-pharmaceutical-interventions impacted the epidemic pattern and cases incidence. Most studies rely on hospitalization and lack a univocal clinical score. We propose new tools for RSV clinical phenotype description and season comparison.
Methods: Two observational studies were based in the pediatric tertiary care center of a French urban area: a pre-COVID-19 study based on a birth cohort from 2013 to 2019, and a per-COVID-19 study based on hospitalizations from 2019 to 2022. Medical files were extensively reviewed. Literature-described hospitalization risk factors were explored with a multivariate analysis. 4 clinical phenotypes were based on the WHO severity score: neurological (unconscious, apneas), respiratory (SpO2<93%), digestive (inability to feed), and no organ insufficiency. Seasonal comparison was performed between 2019-20 and per-COVID-19 seasons. RSV-season-length (RSL) was the number of days including the central-95%-cases. RSV-season-burden was assessed with Length-of-Stay (LOS) and Length-of-Ventilation (LOV) Areas Under the Curve (AUC).
Results: Perinatal risk factors for hospitalization were birth during the two months before or the month after the epidemic onset, prematurity, male sex, multiparity, and cesarean delivery. In the pre-COVID-19 cohort, 16% had no risk factors and presented no neurological or respiratory phenotype. Clinical phenotype comparison identified in 2021-22 more respiratory insufficiencies in older children with more chronic bronchopulmonary disease. In 2019-20, 2020-21, and 2021-22 respectively, RSL were 115, 166, and 200 days, LOS-AUC were 2582, 1274, and 3246 children-days, and LOV-AUC were 525, 293, and 674 children-days.
Conclusions/Learning Points: Perinatal risk factors can guide prevention strategies. RSL help comparing temporal distribution. Clinical phenotypes and hospital resources consumption could be useful tools to monitor the impact of future interventions on hospital burden.

PD0061 / #1409

VIRAL CO-DETECTIONS AS A RISK FACTOR FOR SEVERE RESPIRATORY SYNCYTIAL VIRUS INFECTIONS?

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: Respiratory syncytial virus (RSV) causes the majority of lower respiratory tract infections (LRTI) in infants, and viral co-detections are reported in up to 10-30% cases of hospitalized LRTI patients. However, the clinical significance of viral co-infections is unclear. This study aims to compare clinical outcomes of RSV-related LRTI hospitalized patients with/without co-detections by other respiratory viruses.
Methods: Data from hospitalized children diagnosed with RSV-related LRTI (October 2021-November 2022) were analyzed. Respiratory samples were collected from 13 secondary and 4 tertiary hospitals of the COPEDICAT network (https://www.copedicat.cat/) in Catalonia (Spain). All respiratory viruses' laboratory-confirmation was performed by a real-time multiplex RT-PCR-based assay (Allplex Respiratory Panel Assay, Seegene, South Korea).
Results: Among data collected from 636 children, 289 (45.4%) tested positive for RSV. RSV was co-detected with other respiratory viruses in 116 patients (40.1%). Overall, median age was 17 months (IQR 5-29), 52.9% were male and 29.6% had comorbidities. No demographic differences were observed between mono- and co-infected cases. In the bivariable analysis, single RSV infections had longer median intensive care unit (ICU) stay (7 versus 4 days, p=0.03), higher requirements of respiratory support with a higher proportion of patients requiring mechanical ventilation (4.1% versus 0%, p=0.016), but slightly less severe clinical score at admission (18.6% versus 21.5%, p=0.06) compared with cases with co-detections. Antibiotic prescription was higher in the co-infection group (41.7% versus 22.3%, p=0.014). In the multivariable analysis, these differences were not statistically significant but a severe clinical score at admission remained associated with RSV co-detections (OR=2.95; CI 95%: 1.00-8.68, p=0.049).
Conclusions/Learning Points: RSV co-detections in children were not associated with a worse clinical evolution after admission despite being associated with a higher severity clinical score at admission.

PD0062 / #1592

RSV BURDEN IN INFANTS ATTENDING HOSPITAL EMERGENCY DEPARTMENTS IN IBERIA. PRELIMINARY RESULTS OF THE RHEDI STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

Ana Isabel Dacosta-Urbieta[1], Jacobo Pardo-Seco[1], Irene Rivero Calle[1], Fernando Caamaño-Viña[1], Paula López Vázquez[2], Carles Luaces-Cubells[3], Pablo Ferrer-González[4], Silvia Rodríguez.Pastor[5], Pedro Flores[6], Teresa Bandeira[7], Fernanda Rodrigues[8], Mathieu Bangert[9], Rolf Kramer[10], Leticia Platero[11], Catarina Gomes[12], Gema Barbeito[13], Alberto Gómez-Carballa[1], Narmeen Mallah[1], Carmen Rodríguez-Tenreiro[1], Federico Martinon-Torres[1]
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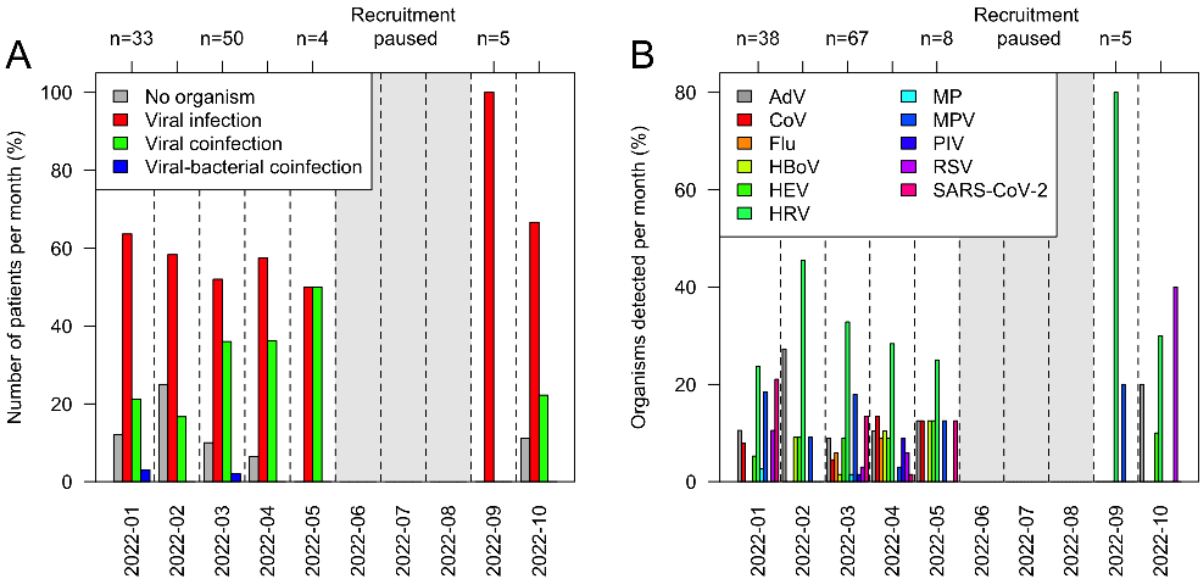
Backgrounds: SARS-CoV-2 pandemic has modified the epidemiology of respiratory viruses. The aim of RHEDI is to describe the burden of RSV and other acute respiratory infections (ARI) at Emergency Departments (ED) of Spain & Portugal in infants≤ 2 years of age. RSV season in Iberia usually runs October-to-March.
Methods: Prospective, hospital-based surveillance in ED of eight hospitals in Spain& Portugal covering six metropolitan areas. 2.000 children <2 years with ARI or otitis media attending ED will be recruited as of 8 subjects/week/site, 50% of them with LRTI. Allplex™-multiplex panel and SARS-Cov-2 will be performed in all subjects. Preliminary results of the pandemic months is reported.
Results: RHEDI surveillance started in Jan-2022. Due to impact of the pandemic, it was paused in Apr-2022 and resumed in Sep-2022. As of 22-nov-2022, 256 children were recruited. No organism was detected in 12.1% (n=31) of patients, 59.0% (n=151) suffered viral mono-infection, and 28.1% (n=72) viral coinfection and 0.8% (n=2) with viral+bacterial coinfection. The most common organisms detected were rhinovirus(n=94), adenovirus (n=35), metapneumovirus (n=34), SARS-CoV-2 (n=34), and RSV (n=24). Among all combinations, the most common microbiologic scenarios were: monoinfection with rhinovirus (18.0%, n=46), metapneumovirus (9.0%, n=23), SARS-CoV-2 (7.0%, n=18) or RSV (5.1%, n=13), while the most common viral coinfections were adenovirus+rhinovirus (4.3%, n=11), rhinovirus+SARS-CoV-2 (2.0%, n=5) and enterovirus+rhinovirus (2.0%, n=5). No differences regarding to microbiological status were observed considering clinical syndrome LRTI vs URTI (Fisher's test P-value=0.332) or hospitalization (Fisher's test P-value=0.508).



Conclusions/Learning Points: During the pandemic period, infants attending ED with ARI more frequently had rhinovirus, adenovirus, metapneumovirus, and SARS-CoV-2. RSV and influenza were less frequently detected than usually expected. RHEDI design is sensible to assess ARI burden in ED.

PD0063 / #1710

BEYOND THE COVID-19 PANDEMIC - THE HETEROGENEOUS RETURN OF THE RESPIRATORY VIRUSES

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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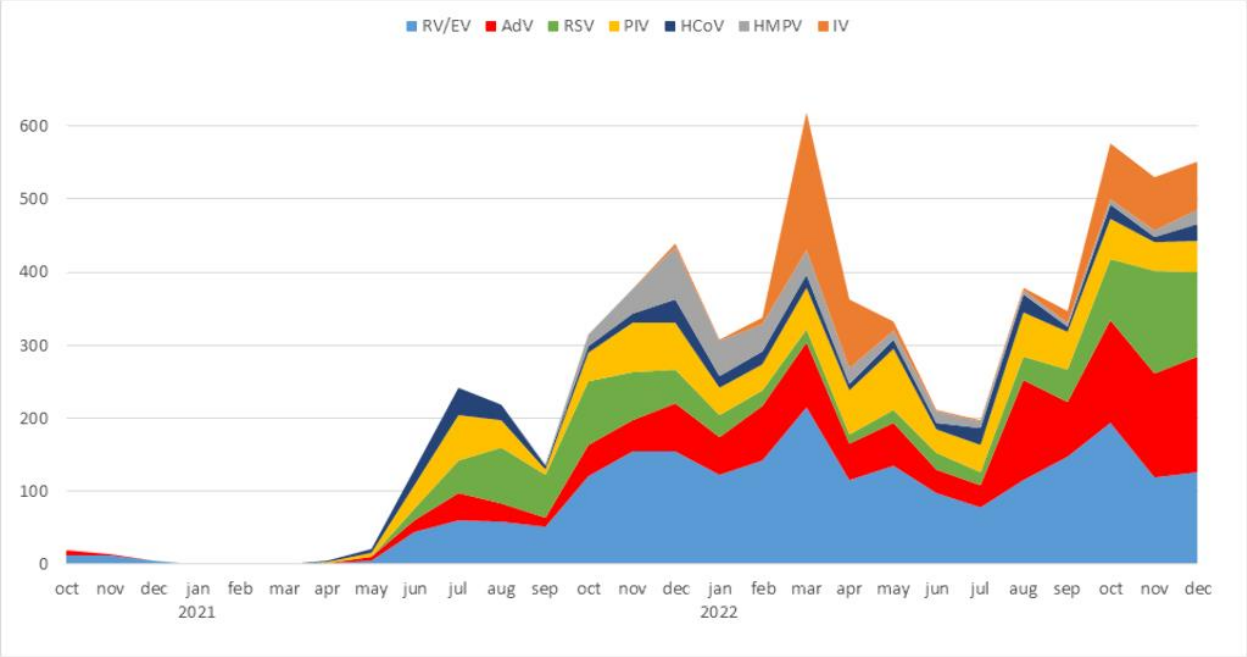
Backgrounds: COVID-19 did not displace all respiratory viruses in the same way, with persistent circulation for rhinovirus/enterovirus and adenovirus, although at lower levels. The reasons for these differences are probably multifactorial: including tropism to the lower respiratory tract vs the upper tract, duration of the infectious period, sensitivity to hydroalcoholic solutions, amongst others. The aim of this study was to characterize the resurgences of different respiratory viruses.
Methods: Observational, retrospective, descriptive study, performed in a tertiary paediatric hospital, that receives an average of 60 000 children/year in the Emergency Service, with analysis of all cases with a positive PCR in nasopharyngeal samples (FilmArray respiratory panel: RSV, Adenovirus (AdV), Rhinovirus/Enterovirus (RV/EV), Parainfluenza virus (PIV), Human coronavirus (HCoV), Human metapneumovirus (HMPV) and Influenza virus (IV)), collected as part of routine testing.
Results: The pattern of resurgences of the different viruses is presented (figure): RSV, PIV and HCoV appeared first, followed by HMPV 6 months later and IV 10 months later. FIGURE 1. Number of various respiratory viruses detected by PCR, in each month, from October 2020 to December 2022



Conclusions/Learning Points: The pattern of resurgences of the different enveloped seasonal viruses was quite heterogeneous, especially for RSV and IV. These differences should be better understood to help to predict events in future viral epidemics or pandemics.

PD0064 / #1615

DIFFERENTIAL HOST TRANSCRIPTOMIC RESPONSE TO VIRAL AND BACTERIAL PNEUMONIAS: A MULTI-COHORT STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

Sandra Viz Lasheras[1], Alberto Gómez-Carballa[1], Jacobo Pardo-Seco[2], Sara Pischedda[1], Irene Rivero Calle[1], Myrsini Kaforou[3], Heather Jackson[3], Dominic Habgood-Coote[3], Michael Levin[3], Antonio Salas[1,4], Federico Martinon-Torres[1], Euclids Consortium[1], Perform Consortium[5]
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Backgrounds: Pneumonia is one of the largest causes of death in children younger than 5 years old outside the neonatal period. Pneumonia can be caused by a wide variety of micro-organisms. Diagnosis remains challenging and is based on clinical or microbiological criteria that are often inaccurate, slow and remain unreliable for therapy and prognosis. We investigate host transcriptomic biomarkers in blood from children with viral and bacterial pneumonia and healthy controls, aiming at identifying a gene-expression signature that could help diagnosis and management of the disease.
Methods: RNA-seq data was obtained from blood of patients and controls. Data normalisation and differential expression (DE) analysis were carried out using DESeq2. We used the Reactome and GO pathway database to examine biological pathways associated with the DE genes (DEG) in pneumonia patients vs. controls and in children with a bacterial infection vs. children with viral infections. We investigated a minimum specific transcript signature to differentiate between viral/bacterial pneumonia using Parallel Regularised Regression Model Search.
Results: We identified several DEGs in the comparisons controls vs. pneumonia and viral vs. bacterial pneumonias. Functional enrichment analysis showed pathways significantly altered mostly related to the immune system response in both comparisons. Preliminary findings show a minimum host transcriptomic signature allowing to differentiate viral from bacterial pneumonias.
Conclusions/Learning Points: We found different mechanisms and genes involved in the specific response to bacterial and viral pneumonia. Our results suggest that host transcriptomic signatures could be helpful to stratify severe pneumonia condition according to its bacterial or viral origin and contribute to reduce unnecessary antibiotic prescriptions in children with respiratory infections.

PD0065 / #1134

SYSTEMATIC LITERATURE REVIEW OF THE EFFECTIVENESS AND IMPACT OF PCV13 FOR CHILDREN WITH OTITIS MEDIA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: Otitis media (OM) is one of the most common childhood illnesses and associated with a high number of ambulatory medical visits and antimicrobial prescriptions. The introduction of 13-valent pneumococcal conjugate vaccine (PCV13) was associated with reductions in all-cause OM, Streptococcus pneumoniae (Spn) OM, and vaccine-type (VT-OM) through direct and indirect protection, but estimates are difficult to compare due to use of different endpoints and study designs.
Methods: A systematic literature review (SLR) was conducted to summarize direct vaccine effectiveness and impact of PCV13 against OM in children, based on studies and conference abstracts published from January 2000 to February 2022. Studies were grouped by study design (effectiveness, impact) and endpoint (all-cause OM, Spn OM, VT-OM).
Results: Four studies reported direct vaccine effectiveness (VE) of PCV13 (Table). VE against PCV13-type OM was 62% (non-significant), 77.4%, and 86.4%. Two studies also demonstrated 86% and 67.7% VE against the 6 PCV13-nonPCV7 serotypes. Eleven studies estimated pre-post impact of PCV13 on all-cause or Spn OM, of which 4 studies from Israel also estimated impact against PCV13-type OM compared to PCV7 period (range 89-97%). No significant differences in impact against PCV7 serotypes and the additional PCV13-nonPCV7 were observed. Statistically significant PCV13 impact against all-cause OM outcomes was observed in all but one study (range: -1.7 to 80%), but impact varied substantially by age group, case definition, and comparison period. In comparison, VE and impact on Spn OM and VT-OM results were less variable.
Conclusions/Learning Points: Using PCV13 in paediatric immunization programs has contributed to

substantial direct vaccine effectiveness and population-level impact against otitis

Table. Effectiveness and Impact of PCV13 vaccination versus paediatric all-cause, Spn, and vaccine-type OM

Author, year	N (age, country)	Vaccine, schedule (comparator)	Endpoint (design, estimand)	Vaccine Type Outcomes VE (95%CI) p-value	All Cause Outcomes
Vaccine Effectiveness against Spn OM					
[illegible] Cohen, 2017	[illegible] children with Spn OM ([illegible], [illegible])	PCV13, [illegible] (Non-VT Spn OM)	PCV13-type AOM (indirect cohort case control, 1 – OR)	PCV13 type VE, doses [illegible] [illegible] p=[illegible]	
Pichichero, 2018	337 ([illegible], USA) 239 cases, 348 controls	PCV13, 3+1 (Children who received PCV7)	PCV13 non-PCV7 type AOM ([illegible], 1 – OR)	PCV13 non-PCV7 VE, 3+ vs 0 doses: [illegible] p=[illegible]	
[illegible], 2021	[illegible] ([illegible], Israel) 223 cases, [illegible] controls	PCV13, 2+1 (Children with [illegible] negative [illegible])	PCV13-type OM (case control, 1 – OR)	PCV13-type VE, ≥2 vs 0 doses: [illegible]% ([illegible]) PCV13 non-PCV7 VE, ≥2 vs 0 doses: [illegible]% ([illegible])	-
Fulton, 2020	346 patients with Spn OM ([illegible], USA)	PCV13, 3+1 (Non-VT Spn OM)	PCV13-type OM (test-negative design case control, 1 – OR)	PCV13 type VE, ≥3 vs [illegible] doses: [illegible]% ([illegible])	
Author, year	**Sample size (country)**	**Vaccine, schedule (post vs pre periods)**	**Endpoint (estimand)**	**Vaccine-Type Outcomes Vaccine Impact (95%CI)**	**All-Cause Outcomes Vaccine Impact (95%CI)**
Vaccine Impact against OM					
Ben-Shimol, 2014[a]	[illegible] OM episodes ([illegible], Israel)	PCV13, 2+1 (PCV13 vs PCV7 period and vs pre-PCV period) [illegible]	Decrease in incidence in VT-OM (PCV7 + 6A serotypes, ST1, 3, 5, 7F, 19A) Spn OM, All cause OM	PCV13 vs PCV7 period: PCV7+6A: [illegible]% ([illegible]) ST1, 3, 5, 7F, 19A: 58% ([illegible] to 84)	PCV13 vs PCV7 period: Spn OM: [illegible]% ([illegible]) All cause OM: [illegible]% (46 to 78)
Ben-Shimol, 2016[a]	[illegible] OM episodes ([illegible], Israel)	PCV13, 2+1 (PCV13 vs PCV7 period and vs pre-PCV period) [illegible]	Decrease in incidence of VT-OM (PCV7 + 6A serotypes, ST1, 3, 5, 7F, 19A) Spn OM, All cause OM	PCV13 vs PCV7 period: PCV7+6A: [illegible]% ([illegible] to 97) ST1, 3, 5, 7F, 19A: [illegible]% ([illegible])	PCV13 vs PCV7 period: Spn OM: [illegible]% ([illegible]) All cause OM: [illegible]% ([illegible] to 76)
Ben-Shimol, 2017[a]	[illegible] all-cause AOM cases with MEF sample ([illegible], Israel)	PCV13, 2+1 (PCV13 vs PCV7 period and vs pre-PCV period) [illegible]	Decrease in incidence of spontaneous [illegible] OM with tympanocentesis due to: PCV13-type OM, Spn OM, All-cause OM	PCV13 vs PCV7 period: PCV13-type [illegible]: [illegible]% ([illegible] to 95) PCV13-type OM with [illegible]: [illegible]% ([illegible])	PCV13 vs PCV7 period: Spn [illegible]: [illegible]% ([illegible]) All-cause [illegible]: [illegible]% ([illegible]) Spn OM with tymp: [illegible]% ([illegible]) All-cause OM with tymp: [illegible]% ([illegible])
Ben-Shimol, 2020[a]	[illegible] [illegible] cases of OM samples ([illegible], Israel)	PCV13, 2+1 (PCV13 vs pre-PCV period) [illegible] 2016	Decrease in incidence of VT-OM (PCV7 + 6A serotypes, ST1, 3, 5, 7F, 19A), PCV13 serotypes, Spn OM	PCV13 vs pre-PCV period: PCV7+6A: 98% ([illegible]) ST1, 3, 5, 7F, 19A: [illegible]% ([illegible] to 98) PCV13: 92% ([illegible])	PCV13 vs pre-PCV period: Spn OM [illegible]% ([illegible])
[illegible], 2015	[illegible] OM episodes ([illegible], UK)	PCV13, 2+1 (PCV13 vs PCV7 period and vs pre-PCV period) [illegible]	Decrease in incidence of all cause OM [illegible]	-	PCV13 vs PCV7 period: [illegible]% ([illegible] to 20.2)
Kawai, 2018	24,148 OM-associated ambulatory visits ([illegible], USA)	PCV13, 3+1 (PCV13 vs PCV7 and vs pre-PCV period) [illegible] – 2014	Decrease in rate of annual physician's office-based OM visits and emergency department (ED) visits	-	PCV13 vs PCV7 period, office visits: <2y: [illegible]% ([illegible]) 2-4y: [illegible]% (10 to 25) 5-17y: 13% (0 to 28)
Singleton, 2018	512,534 ([illegible], USA)	PCV13, 3+1 (2012-13 PCV13 vs 2003-06 PCV7 period)	Decrease in OM-associated outpatient visits		[illegible]% (37 to 57)
Zhou, 2019	NR ([illegible], USA)	PCV13, 3+1 (PCV13 vs PCV7 period and vs pre-PCV period) [illegible] – 2013	Decrease in all cause OM visits		<5y: 22% (12 to 32)
[illegible], 2020	[illegible] children with AOM ([illegible], Turkey)	PCV13, 3+1 ([illegible] PCV7 period vs 2011-12 PCV13 transition period) [illegible]	Decrease in AOM incidence	-	[illegible]% p[illegible]
Edmondson-Jones, 2021	[illegible] episodes of all-cause OM ([illegible], Sweden)	PCV13, 2+1 / 3+1 (PCV13 vs PCV7 period and vs pre-PCV period) 1999 – 2013	Decrease in OM incidence		PCV13 vs PCV7 period: [illegible]% ([illegible]) p=[illegible]
[illegible], 2021	[illegible] AOM episodes (all ages, Canada)	PCV13, 2+1 (PCV13 vs PCV7 (pre-PCV period) 2000 – 2019	Decrease in AOM incidence	-	0-2y: [illegible]% ([illegible]) 3-5 yrs: [illegible]% ([illegible]) 6-17 yrs: [illegible]% ([illegible])

Abbreviations: AOM, acute otitis media; NR, not reported; MEF, middle ear fluid; OM, otitis media; OR, odds ratio; PCV, pneumococcal conjugate vaccine; Spn, *Streptococcus pneumoniae*; tymp, tympanocentesis; VE, vaccine effectiveness; VT, vaccine type.

[a] Results from four Ben-Shimol papers are not mutually exclusive.

media.

PD0066 / #842

RESPIRATORY ILLNESS AND WEEKLY VIRAL INFECTIONS DURING A WINTER SEASON IN A PROSPECTIVE COHORT OF YOUNG CHILDREN; PRELIMINARY RESULTS OF 2021/2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 06: RESPIRATORY INFECTIONS (STATION 06)

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Backgrounds: To detect patterns of respiratory viral (co-)infections and illness in healthy young children and to explore viral interactions. We report results on the first of two study periods.
Methods: A random selection of children <5 years were invited from the Dutch population registry. Participants were prospectively followed for 16 consecutive weeks each between October 2021 and May 2022. Nasal swabs were collected weekly and tested by multiplex PCR for common respiratory viruses. Symptoms were logged daily by parents. Frequency of virus infections and co-infections as well as median duration of PCR positivity per infection were calculated. Virus-virus interactions were explored in an observed versus expected co-detection analysis including viruses detected ≥10 times in our cohort.
Results: Mean age of 79 participants was 20 months (range: 3-43) and 44.3% were female. Among 8618 diary days ≥1 respiratory symptom was reported in 53.0%. Participants experienced on average 3.8 respiratory illness episodes (range: 0–8) and 5 different virus infections (range: 2-8) during follow-up. Of 1199 nasal swabs, 63.9% contained ≥1 virus and 21.9% ≥2 viruses (Figure 1A and B). Most viruses were detected on average for 1 week, except for SARS-CoV-2 and rhinovirus (1-2 weeks). In co-detection analysis, rhinovirus associated negatively with coronavirus OC43 (OR: 0.6; 95% CI 0.4 – 0.9) and positively with adenovirus (OR: 2.1; 95% CI 1.5 –

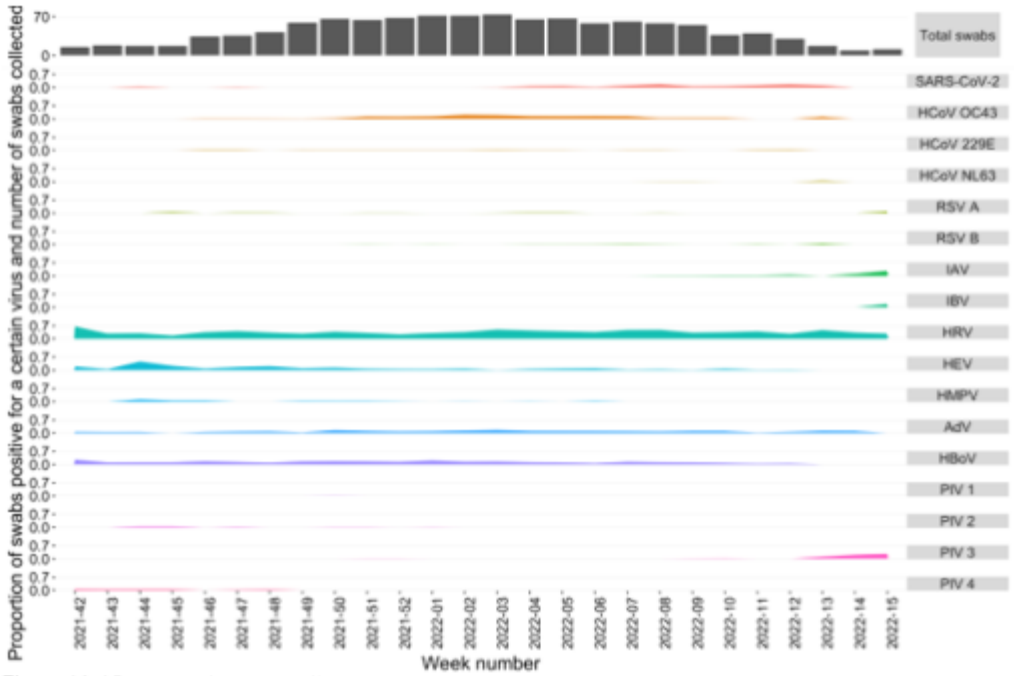

Figure 1A: Virus prevalence over time

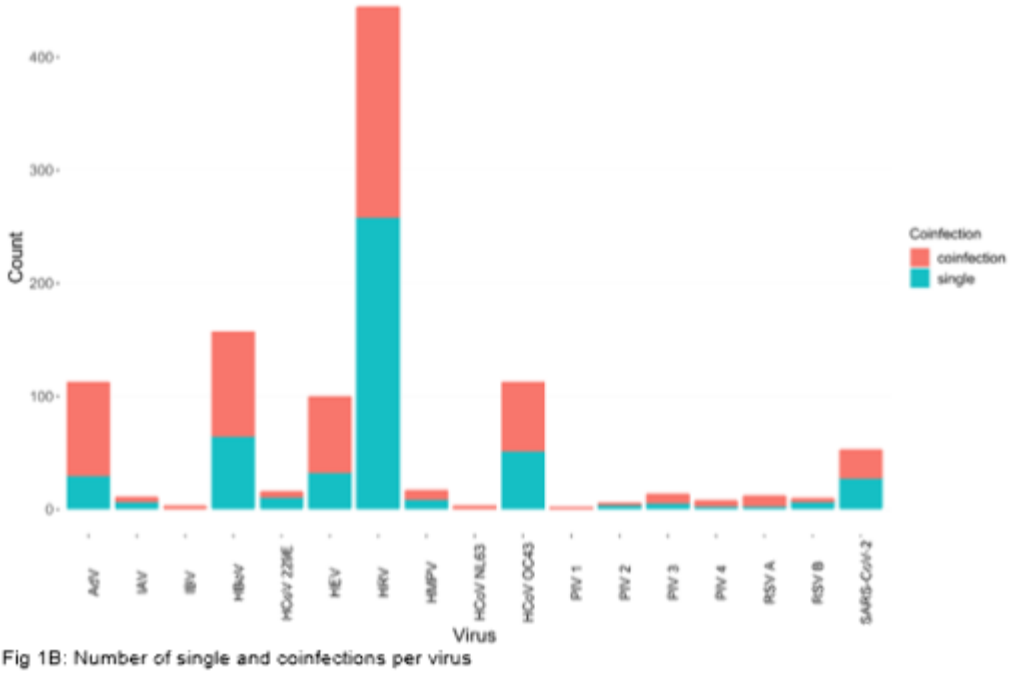

Fig 1B: Number of single and coinfections per virus

AdV = adenovirus. IAV = influenza A virus. IVB = influenza B virus. HBoV = human bocavirus. HCoV 229E = human coronavirus 229E. HEV = human enterovirus. HRV = human rhinovirus. HMPV = human metapneumovirus. HCoV NL63 = human coronavirus NL63. HCoV OC43 = human coronavirus. PIV 1= parainfluenza virus 1. PIV 2 = parainfluenza virus 2. PIV 3 = parainfluenza virus 3. PIV 4 = parainfluenza virus 4. RSV A = respiratory syncytial virus A. RSV B = respiratory syncytial virus B. SARS-CoV-2 = severe acute respiratory syndrome coronavirus 2.

3.2).

Conclusions/Learning Points: Our preliminary data confirm very high prevalence of viral infections in young children during the respiratory season and viral interactions with rhinovirus. As data accumulate, interactions between other respiratory viruses and associations with illness severity will be further quantified.

PD0067 / #1407

THE ESTIMATION OF LONG-COVID PREVALENCE AND LONG-TERM PERSISTENCE IN ITALIAN CHILDREN AFTER COVID-9 COMPARED TO UN-INFECTED SUBJECTS: AN ANALYSIS USING A PEDIATRIC PRIMARY CARE DATABASE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

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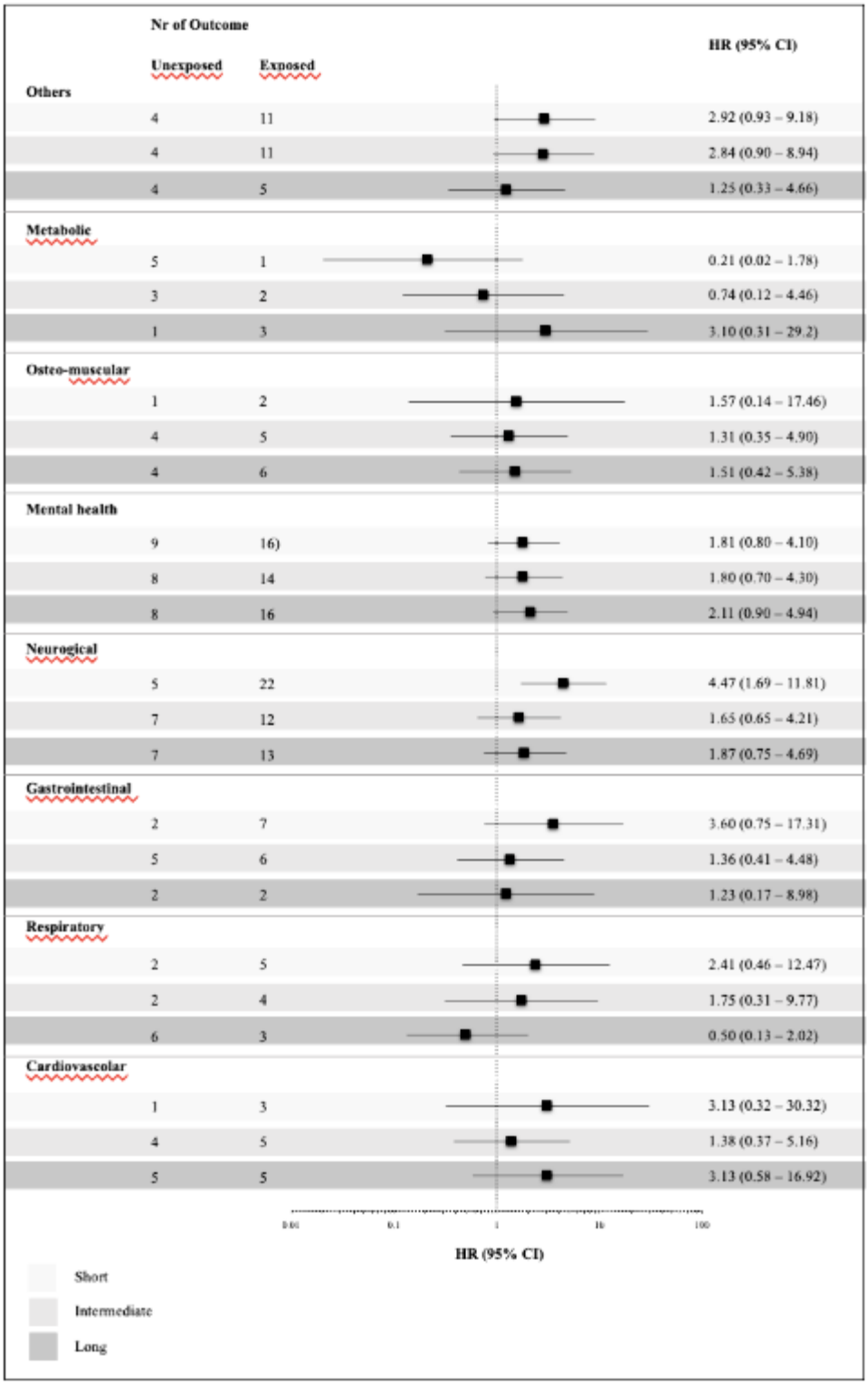
Backgrounds: Children may suffer from the long-COVID syndrome; however, evidence on disease prevalence and long-term persistence is still heterogeneous. This study aims to determine the prevalence of long-COVID and the short, medium-, and long-term symptoms' persistence in previously SARS-CoV-2 exposed and unexposed children.
Methods: A retrospective nested-cohort study was conducted on children aged 0-14 years. Data were retrieved from an Italian pediatric primary-care database linked to the Veneto region's hospitalization and COVID-19 registries. Children with a positive nasal pharyngeal swab (NPS) (exposed) were matched 1:1 with children with a negative NPS (unexposed). Starting the index date, which was defined as the first positive NPS, symptoms were recorded across three time periods (short [index date+28days - index date+28+90], medium [index date+28+91 - index date+28+180], and long-term [index date+28+181 - end of follow-up]. Cox proportional hazard regression was performed to identify the risk of new diseases.
Results: A total of 3,312 children (52% female), including 1,656 exposed and 1,656 unexposed, were evaluated from Feb-2020 to Nov-2021. Overall, we found a significantly higher risk of mental health (HR 1.81, 95%CI=1.10-2.99), neurology (2.38, 95%CI=1.39-4.07), and other conditions, including skin rashes (1.98, 95%CI=1.04-3.79) in exposed compared to unexposed. According to the 3 time periods, cardiovascular, respiratory, and gastro-enteric diseases decreased over time. Conversely, an increasing trend of metabolic sequelae was observed from the short- to the long-term period



(figure).

Conclusions/Learning Points: We found an overall increased risk of long-COVID in children exposed up to 21 after infection. However, cardiovascular, pulmonary, and gastroenteric sequelae showed a slight decrease across time, suggesting possible improvement of tissue injuries. Further studies, evaluating the long-term sequelae in children who experienced COVID-19 in the Omicron era are needed to confirm our findings.

PD0068 / #318

RISK OF SEVERE COVID-19 IN PEDIATRIC SOLID ORGAN TRANSPLANT RECIPIENTS – BIG DATA CONVERGENCE STUDY IN KOREA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

Jiman Kang[1], Minsun Kang[2], Minyoung Kim[3], Young-Eun Kim[4], Yoonkyung Choi[4], Jaehyun Seong[5], Min Jin Go[5], Kyungmin Huh[6], Jaehun Jung[2]
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Backgrounds: Solid organ transplant recipients (SOTRs) are a representative high-risk population for severe COVID-19, but the actual risk has not been well established in the pediatric SOT population. We evaluated the relative risk of severe COVID-19 in pediatric SOTRs.
Methods: A newly constructed K-COV-N (Korea Disease Control and Prevention Agency-COVID19-National Health Insurance Service) cohort was used. From January 2008 to January 2020, children who received SOT in Korea were selected. Thereafter, pediatric SOTR with COVID-19 (<18 years) until March 2022 were included. For comparison, propensity score matching using a greedy nearest neighbor algorithm was performed for age, gender, pediatric comorbidity index (PCI), and year of infection. Logistic regression was also performed. Severe COVID-19 was defined as a case requiring mechanical respiratory support or prolonged hospitalization (≥6 days).
Results: Of the 955 pediatric SOTRs in Korea, 206 were infected with SARS-CoV-2. The median age at the time of COVID-19 was 11 years (IQR, 8 to 14 years), and 48% were male. Liver transplantation was the most common (72%), followed by kidney transplantation (20%), heart transplantation (7%), and lung transplantation (0.5%). After matching, 205 were included in the pediatric SOT group and 803 were included in the non-SOT group. Fifteen cases of severe COVID-19 were identified. The SOT group had a 3.6-fold higher risk of severe COVID-19 than the non-SOT group (95%CI, 1.1 to 11.7, P=0.03). Among SOTRs infected with SARS-CoV-2, age under 5 years old, high PCI score, and pre-omicron period were identified as risk factors for severe COVID-19.
Conclusions/Learning Points: Pediatric SOTRs are at higher risk of severe COVID-19 compared to the non-SOT population. To prevent severe COVID-19 in these high-risk children, more aggressive prevention strategies, such as extending the vaccination age, are needed.

PD0069 / #441

DIFFERENTIAL NEUTRALIZATION OF SARS-COV-2 VARIANTS AFTER PFIZER/BIONTECH-BNT162B2 VACCINE IN 5 TO 11 YEARS OLD HEALTHY AND IMMUNOSUPPRESSED CHILDREN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

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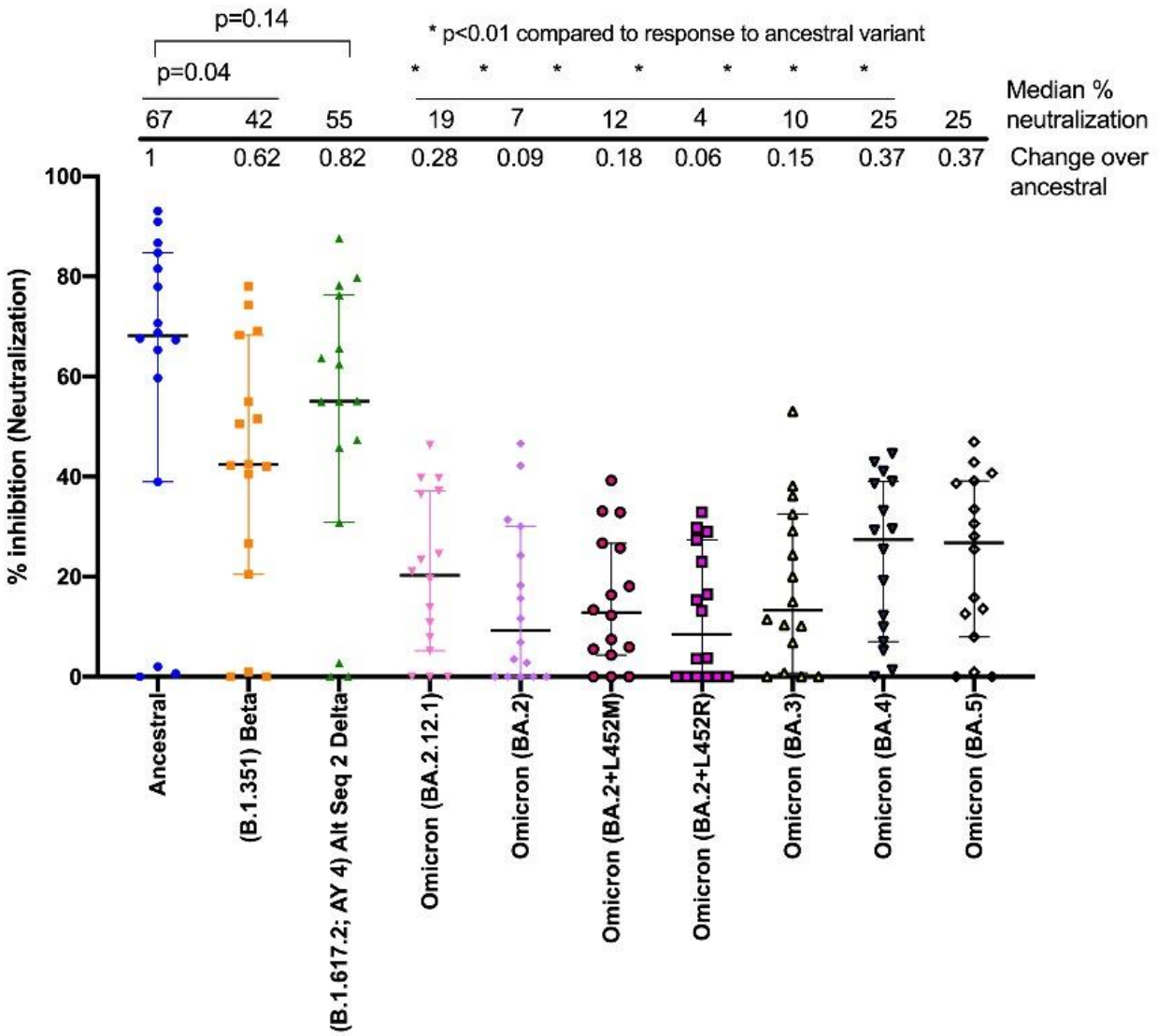
Backgrounds: The ability of SARS-CoV-2 variants of concern to escape from mRNA-vaccine in 5 to 11 years children, regardless of their immune status, is not clearly defined.
Methods: Children from 5 to 11 years vaccinated with Pfizer/BioNTech-BNT162B2 were recruited in December 2021. Sera were obtained at 1 (+1m) and 6 months (+6m) after full vaccination: 2 doses for healthy-participants (HP), 3 for immunosuppressed-participants (ISP). Neutralizing activity for ancestral, beta (B.1.351), delta (B.1.617.2) and omicron variants (BA2.12.1, BA.2, BA.2+L452M, BA.2+L452R, BA.3, BA.4, BA.5) was analyzed.
Results: 30 participants (23-HP, 7-ISP) were enrolled. Of them, 14 (4 ISP), had anti-N antibodies at +1m. All 30 sera were analyzed for neutralization +1m after full vaccination. Median neutralizing activity was: ancestral 67% (IQR, 59-81), beta 42% (16-51), delta 55% (45-65), BA2.12.1 19% (8-24), BA.2 7% (9-18), BA.2+L452M 12% (4-18), BA.2+L452R 4% (0-16), BA.3 10% (1-29), BA.4 25% (10-33), BA.5 25% (12-33). We found differences between ancestral vs. delta ($p=0.04$) and vs. all omicron variants ($p<0.01$). No differences in neutralizing capacities were observed between HP and ISP. (Figure 1). 13 HP were studied +6m after full vaccination; 1/13 (8%) had COVID-19 and further 6/13 (47%) increased anti-N during omicron wave. Neutralizing activity was: ancestral 21% (17-25) ($p=0.02$ vs. +1 month), beta 9% (7-17), delta 14% (10-19), BA2.12 6% (2-7), BA.2 0% (0-3), BA.2+L452M 0.5% (1-4), BA.2+L452R 3% (1-5), BA.3 7.1% (4-11), BA.4 7.7% (5-10), BA.5 6.5% (5-8). Response to omicron variants was also lower than to ancestral at +6m
($p=0.01$).



Conclusions/Learning Points: Neutralizing activity after BNT162B2 was high for ancestral, beta and delta at +1m but low at +6m. No differences between HP and a limited number of ISP children were observed. Response to omicron was low at all time points.

PD0070 / #1746

COVID-19 VACCINE CANADIAN WEBSITES FOR CAREGIVERS OF CHILDREN AGED 5-11 YEARS: A COMPREHENSIVE REVIEW OF QUALITIES AMONG DIFFERENT OFFICIAL ORGANIZATIONS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

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Backgrounds: High-quality health information is crucial to mitigate COVID-19 vaccine hesitancy. This study aims to evaluate the content, reliability, readability, and understandability/actionability of Canadian official organizations' websites.
Methods: From March 21 to April 22, 2022, a review of online Canadian public-facing academic pediatric hospitals, government, public health authorities, and selected professional organizations' websites on SARS-CoV-2 vaccines was conducted by two authors, and a third author resolved discrepancies. Inclusion criteria were: i) targeting caregivers of children aged 5–11 years; ii) written in English or French; iii) formatting as online webpages, FAQs, posters/infographics, and/or videos. Exclusion criteria and site mapping were used to screen and identify primary and secondary weblinks. A content checklist was used to assess key topics; reliability, readability, and understandability/actionability were appraised using JAMA Benchmark, Flesch-Kincaid Grade Level (FKGL), and Patient Education Material Assessment Tool (PEMAT) for printable (p)/audiovisual (av) materials, respectively. Descriptive statistics were performed using Fisher exact and Anova tests.
Results: Among 1046 websites, mapping identified 43 primary and 141 secondary webpages suitable for analysis. The comprehensive content means score was 12.7±3.6, without differences between organizations. Among 43 primary resources, the total average percentage score was 86.6±13.8 for JAMA and 8.9±1.6 for FKGL, respectively. Thirty-three sources scored as not difficult to read. According to organization types, no differences were founded in reliability and readability. Almost all resources achieved understandable scores. Conversely, only 16.3% of the printable and 84.2% of the audiovisual resources were recorded as actionable, with significant differences among organizations (Table).

Table 1. Quality of online resources for caregivers of information on SARS-COV-2 vaccinations for children aged 5-11 years between different types of organization

Assessment tool (N)	Resources	Organization Type				*P* value
		Academic hospital #9	Government #20	Professional organization #7	Public health authority #7	
Content checklist score (43)						
Core requirement* (scoring range 0-11) (M ± SD)	8.65 ± (2.17)	9 ± (1.41)	8.85 ± (2.21)	8.71 ± (2.43)	7.57 ± (2.7)	0.56
Supplementary information* (scoring range 0-9) (M ± SD)	4 ± (2.18)	2.33 ± (1.73)	5.05 ± (1.85)	3.14 ± (1.86)	4 ± (2.52)	0.008
Overall score (scoring range 0-20) (M ± SD)	12.65 ± (3.6)	11.33 ± (2.78)	13.9 ± (3.8)	11.86 ± (3.76)	11.57 ± (3.31)	0.208
JAMA Benchmark (43)						
Maximum score of 4, n/N (%)	21/43 (48.8)	6/21 (28.6)	11/21 (52.4)	2/21 (9.5)	2/21 (9.5)	0.34
Overall Score (scoring range 0-4) (M ± SD)	3.67 ± (0.5)	3.5 ± (0.61)	3.29 ± (0.49)	3.29 ± (0.49)	3.47 ± (0.55)	0.439
FKGL, n / N (%) (43)						0.235
Easy to read: ≤ 6th grade, n/N (%)	5/43 (11.6)	1/5 (20.0)	4/5 (80.0)	0/5 (0.0)	0/5 (0.0)	
Average difficulty: 6-9th grade, n/N (%)	28/43 (65.1)	6/28 (21.4)	13/28 (46.4)	3/28 (10.7)	6/28 (21.4)	
Difficult: ≥10th grade, n/N (%)	10/43 (23.3)	2/10 (20.0)	3/10 (30.0)	4/10 (40.0)	1/10 (10.0)	
Total average score (M ± SD)	8.87 ± (1.58)	8.93 ± (1.54)	8.43 ± (1.79)	9.96 ± (1.02)	8.97 ± (1.04)	0.178
PEMAT-P (43)						
Understandable >70%, n/N (%)	42/43 (97.7)	9/42 (21.4)	20/42 (47.6)	7/42 (16.7)	6/42 (14.3)	0.326
Total average score% (M ± SD)	83.19 ± (5.87)	82.56 ± (3.84)	84.55 ± (5.52)	82.86 ± (3.18)	80.43 ± (9.96)	0.445
PEMAT-P (43)						
Actionable >70%, n/N (%)	7/43 (16.3)	1/7 (14.3)	4/7 (57.1)	0/7 (0.0)	2/7 (28.6)	0.58
Total average score% (M ± SD)	57.91 ± (21.33)	46.67 ± (28.28)	64.5 ± (14.68)	42.86 ± (21.38)	68.57 ± (15.74)	0.016
PEMAT-AV (19)						
Understandable >70%, n/N (%)	19/19 (100.0)	4/19 (21.1)	10/19 (52.6)	2/19 (10.5)	3/19 (15.8)	
Total average score% (M ± SD)	91.89 ± (8.23)	94 ± (7.35)	92.6 ± (9.08)	91.5 ± (12.02)	87 ± (6.08)	0.74
PEMAT-AV (19)						
Actionable >70%, n/N (%)	16/19 (84.2)	4/16 (25.0)	9/16 (56.3)	0/16 (0.0)	3/16 (18.8)	0.029
Total average score% (M ± SD)	82.89 ± (37.32)	100 ± (0)	87.5 ± (31.73)	0 ± (0)	100 ± (0)	0.001

*Core requirement: Information directed at public/families, How do vaccines work, Vaccine approval by regulated health organization,Vaccine clinical trial studies,Vaccine clinical trials for 5-11 year olds, Evidence on vaccine effectiveness and/or benefits of vaccination, Addresses typical side effects, Addresses rare side effects (i.e., myocarditis/pericarditis), Addresses concern of getting COVID-19 from vaccine, Medical comorbidity/complexitiesIncludes,and valid links to at least one quality resource on COVID-19 pediatric vaccination

Conclusions/Learning Points: This study showed an overall low grade of quality of online information. A low number of resources provided reliable, readable, and acceptable content. Quality enhancement of online resources is necessary to improve child COVID-19 vaccine acceptance.

PD0071 / #776

BEYOND THE POSITIVE TEST: INVESTIGATING PAEDIATRIC POST COVID SYMPTOMS IN THE NETHERLANDS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

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Backgrounds: Paediatric post-COVID is much rarer than its adult counterpart yet can take a heavy toll. To understand the scope of the problem, we executed a longitudinal observational population study in COVID-19 positive and negative children.
Methods: We recruited children ≤ 18 years who were attending one of our national testing centres between April 2021 and September 2022. All children were asked to complete questionnaires on the day of inclusion and at 1, 3, 6, and 12 months after, irrespective of their test outcome. We compared prevalence of complaints and assessed what variables were related to persisting complaints at 3 months with a multivariate model.
Results: In total, data were obtained from 1175 children at baseline, 780 at 1 month, 574 at 3 months, 418 at 6 months, and 129 at 12 months (Table 1). A significantly higher proportion SARS-CoV-2 test-positive children reported complaints at 3 months compared to test-negative children (15% vs 2.3%; p:< 0.001). The prevalence at 3 months was lower in 0–6-year-olds (11%) compared to 13-18 year olds (25%). Prevalence dropped at 6 months to 5.9% vs 1.6% in the control group, and no difference between groups was observed at 12 months. At 3 months, fatigue was the most common complaint (9.6% vs 1.9% positive vs negative group; p < 0.001), dropping to 4.9% vs 0.5% at 6 months (positive vs negative group; p: 0.002). In a multivariate model, ageusia (p< 0.01, OR: 0.13), diarrhoea (p: 0.02, 0.24), and headache (p: 0.03, OR: 0.50) at onset were negatively associated with sequelae at 3 months.

Table 1: Post COVID complaints

	Negative	Positive	p*
Persistent Complaints (3 months)			
n	257	260	
Yes	6 (2.3%)	39 (15%)	< 0.001
Fatigue	5 (1.9%)	25 (9.6%)	< 0.001
Headache	1 (0.4%)	15 (5.8%)	< 0.001
Coughing	2 (0.8%)	11 (4.2%)	0.006
Stomach ache	0 (0%)	11 (4.2%)	< 0.001
Concentration difficulties	1 (0.4%)	9 (3.5%)	0.007
Persistent Complaints (6 months)			
n	192	185	
Yes	3 (1.6%)	11 (5.9%)	0.013
Fatigue	1 (0.5%)	9 (4.9%)	0.002
Concentration difficulties	0 (0%)	3 (1.6%)	0.084
Coughing	1 (0.5%)	3 (1.6%)	0.233
Shortness of breath	1 (0.5%)	2 (1.1%)	0.719
Headache	1 (0.5%)	2 (1.1%)	0.009
Persistent Complaints (12 months)			
n	94	21	
Yes	5 (5.3%)	0 (0%)	0.497
Risk factor analysis†	**OR**	**CI (95%)**	**p‡**
Ageusia	0.13	-3.46 - 0.48	0.0061
Diarrhoea	0.24	-2.59 - 0.19	0.0193
Headache	0.50	-1.33 - 0.03	0.0342

** Kruskal-Wallis rank sum test; Fisher's exact test; Pearson's Chi-squared test*
† Stepwise multivariate logistic regression with backwards elimination (McFadden Pseudo R^2: 0.132)
‡ Chi-squared test

Conclusions/Learning Points: Our study reveals that COVID-19 infections in children can lead to persistent complaints, but with a decrease over time, shedding light on the prevalence and burden of paediatric post-COVID complaints.

PD0072 / #1900

CLINICAL FEATURES OF SARS-COV-2 INFECTION IN CHILDREN AND ADOLESCENTS WHO EXPERIENCED COVID-19 ACROSS PARENTAL, DELTA, AND OMICRON WAVES IN ITALY: A PROSPECTIVE OBSERVATIONAL STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

Costanza Di Chiara[1], Riccardo Boracchini[2], Giulia Sturniolo[1], Alessia Barbieri[1], Marica De Pieri[1], Cecilia Liberati[1], Sandra Cozzani[1], Anna Cantarutti[2], Daniele Donà[1], Carlo Giaquinto[1]
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Backgrounds: COVID-19 features changed with the Omicron variant of concern (VOC) in adults. This study aims to describe COVID-19 symptoms in children and adolescents during the Parental, Delta, and Omicron waves.
Methods: A single-centre, prospective observational study was conducted on individuals aged 0-20 years attending the University Hospital of Padua (Italy) from March 2020 to November 2022. Confirmed COVID-19 cases were defined by positive SARS-CoV-2 molecular detection and/or serology; patient/family symptoms and virological positivity were considered to determine the infection onset. Variables were summarized using descriptive statistics and compared among VOCs and age classes using the appropriate test.
Results: A total of 509 cases (46% female, median age eight years [IQR:4-12]) were studied. Three-hundred-eighty-seven, 52, and 70 subjects experienced COVID-19 during the Parental, Delta, and Omicron waves, respectively. Only 26/509 underwent a breakthrough infection. Most subjects developed an asymptomatic (26%) or mild (71%) disease. Overall, the most frequent symptoms were fever (47%) and rhinitis (21%), which showed a significant increasing trend from the Parental to Omicron waves ($p<0.001$). Conversely, diarrhea was commonest during the Parental and Delta variants ($p=0.03$). Strytifing symptoms according to age classes, fever, rhinitis, and skin rashes were higher in infants/toddlers; conversely, asthenia and headache were more frequent in children older than five years (table). Symptoms' duration was similar across different VOCs; conversely, symptoms' numbers varied according to age classes
($p<0.0001$).

Table. Clinical manifestation of COVID-19 in the study population (N=509) overall, and statified according to age classes and SARS-CoV-2 variant of concern

Variables of interest	Overall (N = 509)	Parental (N = 387)	Delta (N = 52)	Omicron (N = 70)	P-value‡	Overall (N = 509)				P-value‡
Symptoms	0-20 years	0-20 years	0-20 years	0-20 years		0 - 2 yr. (N=85)	3 - 4 yr. (N=64)	5 - 11 yr. (N=231)	12 - 20 yr. (N=129)	
Rhinitis	105 (20.63)	62 (16.02)	17 (32.69)	26 (37.14)	< 0.0001	25 (29.41)	15 (23.44)	36 (15.58)	29 (22.48)	0.0426
Cought	75 (14.73)	37 (9.56)	14 (26.92)	24 (34.29)	< 0.0001	17 (20)	12 (18.75)	26 (11.26)	20 (15.5)	0.1730
Dyspnea	7 (1.38)	5 (1.29)	0 (0)	2 (2.86)	0.4687	2 (2.35)	0 (0)	2 (0.87)	3 (2.33)	0.0197
Fever	238 (46.76)	158 (40.83)	27 (51.92)	53 (75.71)	< 0.0001	54 (63.53)	31 (48.44)	91 (39.39)	62 (48.06)	0.0020
Otalgia	2 (0.39)	1 (0.26)	1 (1.92)	0 (0)	0.8075	1 (1.18)	1 (1.56)	0 (0)	0 (0)	0.0421
Myalgia	21 (4.13)	14 (3.62)	2 (3.85)	5 (7.14)	0.2031	0 (0)	1 (1.56)	10 (4.33)	10 (7.75)	0.0002
Arthralgia	15 (2.95)	13 (3.36)	0 (0)	2 (2.86)	0.5428	0 (0)	3 (4.69)	5 (2.16)	7 (5.43)	0.0009
Pharyngitis	28 (5.50)	17 (4.39)	1 (1.92)	10 (14.29)	0.0045	1 (1.18)	1 (1.56)	13 (5.63)	13 (10.08)	< 0.0001
Hyposmia and/or ageusia	46 (9.04)	38 (9.82)	5 (9.62)	3 (4.29)	0.1691	0 (0)	1 (1.56)	19 (8.23)	26 (20.16)	< 0.0001
Conjunctivitis	12 (2.36)	10 (2.58)	1 (1.92)	1 (1.43)	0.5323	2 (2.35)	2 (3.13)	5 (2.16)	3 (2.33)	0.0238
Asthenia	79 (15.52)	55 (14.21)	9 (17.31)	15(21.43)	0.1148	5 (5.88)	8 (12.5)	40 (17.32)	26 (20.16)	0.0274
Headache	80 (15.72)	56 (14.47)	8 (15.38)	16 (22.86)	0.0939	0 (0)	3 (4.69)	48 (20.78)	29 (22.48)	< 0.0001
Alteration of consciousness	0 (0)	0 (0)	0 (0)	0 (0)	-	0 (0)	0 (0)	0 (0)	0 (0)	-
Abdominal pain	15 (2.95)	13 (3.36)	1 (1.92)	1 (1.43)	0.3293	0 (0)	4 (6.25)	9 (3.9)	2 (1.55)	0.0009
Nausea/vomiting	23 (4.52)	16 (4.13)	2 (3.85)	5 (7.14)	0.3206	3 (3.53)	1 (1.56)	11 (4.76)	8 (6.2)	0.0045
Diarrhea	39 (7.66)	31 (8.01)	4 (7.69)	4 (5.71)	0.5270	12 (14.12)	5 (7.81)	13 (5.63)	9 (6.98)	0.0918
Poor feeding	20 (3.93)	15 (3.88)	1 (1.92)	4 (5.71)	0.6419	7 (8.24)	5 (7.81)	6 (2.6)	2 (1.55)	0.0002
Lymphadenopathy	1 (0.20)	1 (0.26)	0 (0)	0 (0)	0.5970	0 (0)	0 (0)	1 (0.43)	0 (0)	0.4538
Skin rash	12 (2.36)	11 (2.84)	1 (1.92)	0 (0)	0.1491	1 (1.18)	3 (4.69)	4 (1.73)	4 (3.1)	0.0081
Pneumonia	3 (0.59)	2 (0.52)	0 (0)	1 (1.43)	0.4814	0 (0)	0 (0)	2 (0.87)	1 (0.78)	0.1568
Altri Sintomi	35 (6.88)	28 (7.24)	2 (3.85)	5 (7.14)	0.7681	7 (8.24)	5 (7.81)	10 (4.33)	13 (10.08)	0.1920
Number of symptoms										
0	139 (27.31)	124 (32.04)	13 (25)	2 (2.86)	< 0.0001	15 (17.65)	20 (31.25)	76 (32.9)	28 (21.71)	0.1426
1	134 (26.33)	110 (28.42)	10 (19.23)	14 (20)		30 (35.29)	13 (20.31)	58 (25.11)	33 (25.58)	
2	104 (20.43)	69 (17.83)	14 (26.92)	21 (30)		19 (22.35)	14 (21.88)	42 (18.18)	29 (22.48)	
≥ 3	132 (25.93)	84 (21.71)	15 (28.85)	33 (47.14)		21 (24.71)	17 (26.56)	55 (23.81)	39 (30.23)	
Length of symptoms (days)	3 (1 - 6)	3 (1 - 6)	2.5 (2 - 7)	2.5 (1 - 4)	0.2499	3 (1 - 6)	3 (1 - 7)	2.5 (1 - 5)	3 (1 - 7)	0.4714

‡Cochran-Armitage Trend Test, Chi-Squared test, and Kruskal-Wallis test as appropriate

Conclusions/Learning Points: This study showed differences in COVID-19 clinical presentation among infants, children, and adolescents, and confirmed Omicron infection is more likely to be associated with upper respiratory symptoms. However, further population-based studies are needed to support these findings. In addition, active surveillance will play a crucial role in assessing the disease severity of future VOCs.

PD0073 / #1489

SARS-COV-2 VACCINE ACCEPTANCE AND UPTAKE AMONG CAREGIVERS OF CHILDREN OF DIFFERENT AGE GROUPS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

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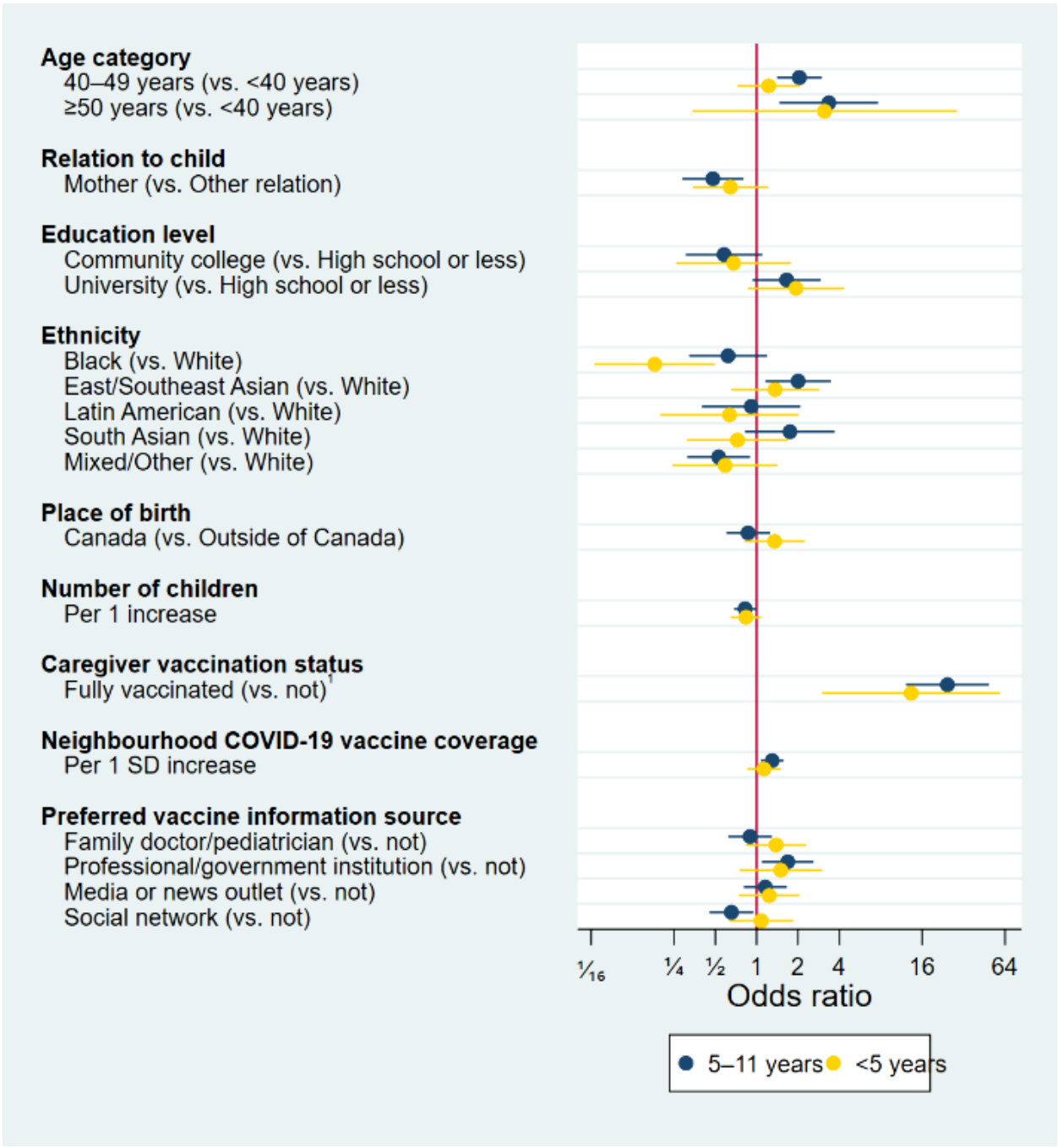
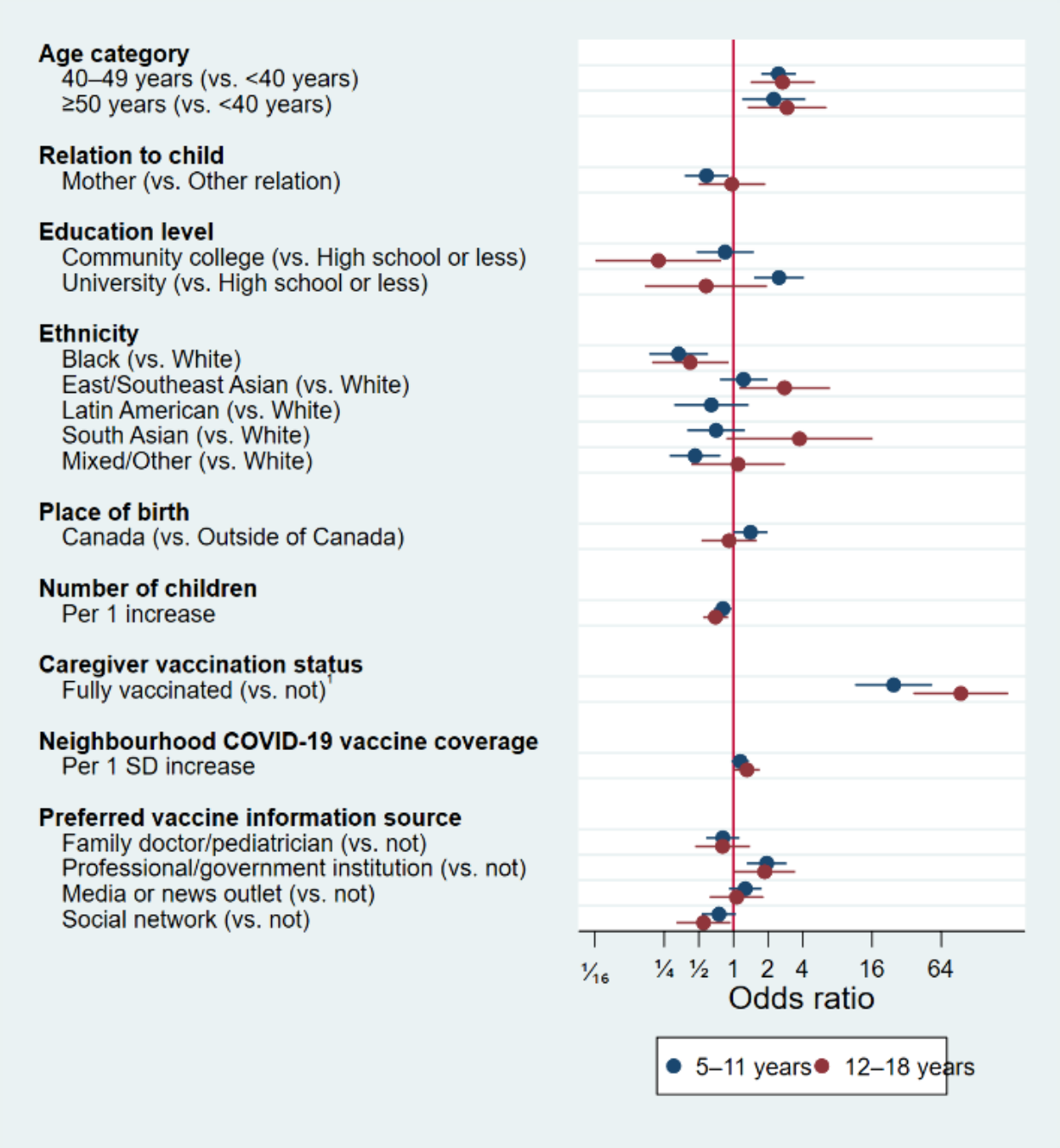
Backgrounds: Although vaccination against SARS-CoV-2 is recommended in Canada for all children aged more than 6 months old, uptake remains low in younger children. This study aimed to assess and compare vaccine uptake and acceptance among caregivers of children of all ages, and identify factors associated with SARS-CoV-2 vaccine uptake and acceptance.
Methods: A multi-language self-administered survey was sent to caregivers through more than 600 schools and two community health centers in the Greater Toronto Area from April 5th to July 4th, 2022. Caregivers of children ≥5 years old (yo) were asked to report on their child's vaccine status, and caregivers of children <5yo were asked about their intention to vaccinate. Univariate logistic regressions were employed to determine and compare odds ratios of vaccine uptake or acceptance by caregiver or children characteristics.
Results: In total, 1,223 caregivers answered the survey. 253 caregivers had at least one <5yo child, 807 had at least one 5-11yo child and 522 had at least one 12-17yo child. 618 caregivers (76.6%) reported that their children 5-11yo were vaccinated, and 461 caregivers (88.3%) reported that their children 12-17yo were vaccinated ($p<0.001$). 658 caregivers (81.7%) of children 5-11yo were vaccine acceptant or reported that their child was already vaccinated, versus 148 caregivers (58.5%) of children <5yo who were vaccine acceptant ($p<0.001$). Characteristics associated with vaccine uptake and acceptance are reported in the Figure. Odds ratios of vaccine uptake and acceptance were comparable across age groups for most
characteristics.


Age category
40–49 years (vs. <40 years)
≥50 years (vs. <40 years)
Relation to child
Mother (vs. Other relation)
Education level
Community college (vs. High school or less)
University (vs. High school or less)
Ethnicity
Black (vs. White)
East/Southeast Asian (vs. White)
Latin American (vs. White)
South Asian (vs. White)
Mixed/Other (vs. White)
Place of birth
Canada (vs. Outside of Canada)
Number of children
Per 1 increase
Caregiver vaccination status
Fully vaccinated (vs. not)[1]
Neighbourhood COVID-19 vaccine coverage
Per 1 SD increase
Preferred vaccine information source
Family doctor/pediatrician (vs. not)
Professional/government institution (vs. not)
Media or news outlet (vs. not)
Social network (vs. not)
1/16
¼
½
1
2
4
16
64
Odds ratio
5–11 years
<5 years



Conclusions/Learning Points: SARS-CoV-2 vaccine acceptance was found to be lower amongst caregivers of younger children. Characteristics associated with vaccine uptake and acceptance were identified, which can inform targeted interventions to support vaccine uptake, especially in younger age groups.

PD0074 / #1676

RISK OF INVASIVE BACTERIAL INFECTION (IBI) AND URINARY TRACT INFECTION (UTI) IN FEBRILE INFANTS 90 DAYS AND YOUNGER WITH CONCURRENT SARS-COV-2 (COVD19) INFECTION.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

Etimbuk Umana, Hannah Norman-Bruce, Clare Mills, Thomas Waterfield, Febrile Infants Diagnostic Assessment And Outcome Study Group
Queen's University Belfast, Wwiem, Belfast, United Kingdom

Backgrounds: There is variable literature on the rates of IBI and UTI in febrile infants (<90days) when viral panels are positive for SARS-CoV-2 (COVD19). We aimed to assess the rates of IBI and UTI in febrile infants presenting to emergency departments across the UK with concurrent COVD19 infection.
Methods: The FIDO study is large prospective multicentre observational study looking at the evaluation of febrile infant on behalf of the Paediatric Emergency UK and Ireland (PERUKI) network. It is currently collecting data from 27 sites across the UK. Infants up to 90 days of age attending between 01/08/2022 - 16/01/2023 were screened for inclusion. Infants with a recorded fever (≥38°C) prior to presentation were eligible for inclusion. There were no exclusion criteria. Disposition outcomes and rates of IBI and UTI were reported for infants with positive COVID19.
Results: Of the 240 patients undergoing viral panel testing, 40 (17%) were COVID19 positive. The median age for the COVID19 cohort was 48 days (IQR: 30 – 60) with females making up 55%. The median absolute neutrophil count was 3.7x109/L (IQR: 2.2 – 5.7) while the median C-reactive protein was 9mg/L (IQR: 2 – 23). About 90% underwent bloods, 68% urinalysis and culture, and 40% had a lumbar puncture performed in the COVID19 cohort. Of the 40 patients, 5 (12.5%) were discharged home directly from ED. In the entire cohort of patient undergoing viral testing (240) the UTI rate was 8.3% and IBI rate was 3.8%. However, no patient with positive COVID19 test had UTI or IBI.
Conclusions/Learning Points: In this study, the concurrent risk of IBI and UTI in patients with positive COVID19 status was negligible. We would advocate a tailored approach to the management of these patients.

PD0075 / #1787

HUMORAL AND CELL-MEDIATED IMMUNE RESPONSES IN HIV-VERTICALLY TRANSMITTED YOUNG PATIENTS AFTER A THIRD BOOSTER DOSE OF BNT162B2 MRNA SARS-COV-2 VACCINE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

Claudia Vanetti[1], Marta Stracuzzi[2], Elisa Crivellaro[2], Federica Cicilano[1], Micaela Garziano[1], Claudio Fenizia[3], Mario Clerici[4], Gianvincenzo Zuccotti[5], Vania Giacomet[2], Daria Trabattoni[1]
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Backgrounds: Data on the efficacy and the duration of protection of a third booster dose of mRNA SARS-CoV-2 vaccine, and the role of a previous natural SARS-CoV-2-infection in enhancing the efficacy of vaccination in people living with vertically-transmitted HIV (PLWH) are still scarce.
Methods: We analyzed the SARS-CoV-2-specific neutralizing antibody activity (NA) against the European (EU, lineage B.1), the Delta (D) and the Omicron (Omi) strains and the SARS-CoV-2-specific cell-mediated responses in 29 ART-treated HIV-vertically-transmitted individuals (PLWH) vaccinated with three doses of BNT162b2-mRNA vaccine. Patients were stratified based on a previous history of COVID-19 (SPIV or SV). Analyses were performed at T0-before vaccination, T2-before the third dose-and T3-3 months after the third dose. Results were compared with those obtained in 27 BNT162b2-mRNA-vaccinated healthy controls (HC).
Results: Significantly higher NA against EU and D were observed at T2 in SPIVs compared to the SV groups ($p=0.05$). At T3, this discrepancy was lost as NA against all variants was generally increased. Focusing on B-cell subsets, we observed increased switched-plasmablasts at T2 and T3 compared to T0 in SPIV PLWH. Differently from NA, T-cell response was maintained high at T2 and T3. SV and SPIV PLWH mounted a SARS-CoV-2-specific T-cell memory overtime. CD4+ and CD8+IFN-γ+ secreting T-cells frequencies were boosted further by the third dose, principally in the SV ($p<0.05$ T3 vs T0). Overall, in HCs the magnitude of response was higher compared to the PLWH groups. Particularly, SPIV HCs displayed significantly higher percentages of CD8+IFN-γ+secreting T-cells compared to the PLWH respective group at T3 ($p<0.01$).
Conclusions/Learning Points: BNT162b2-mRNA vaccine is effective even in ART-treated PLWH. The third dose is crucial in generating humoral and cellular-mediated responses against all variants considered, independently from a previous SARS-CoV-2 natural infection.

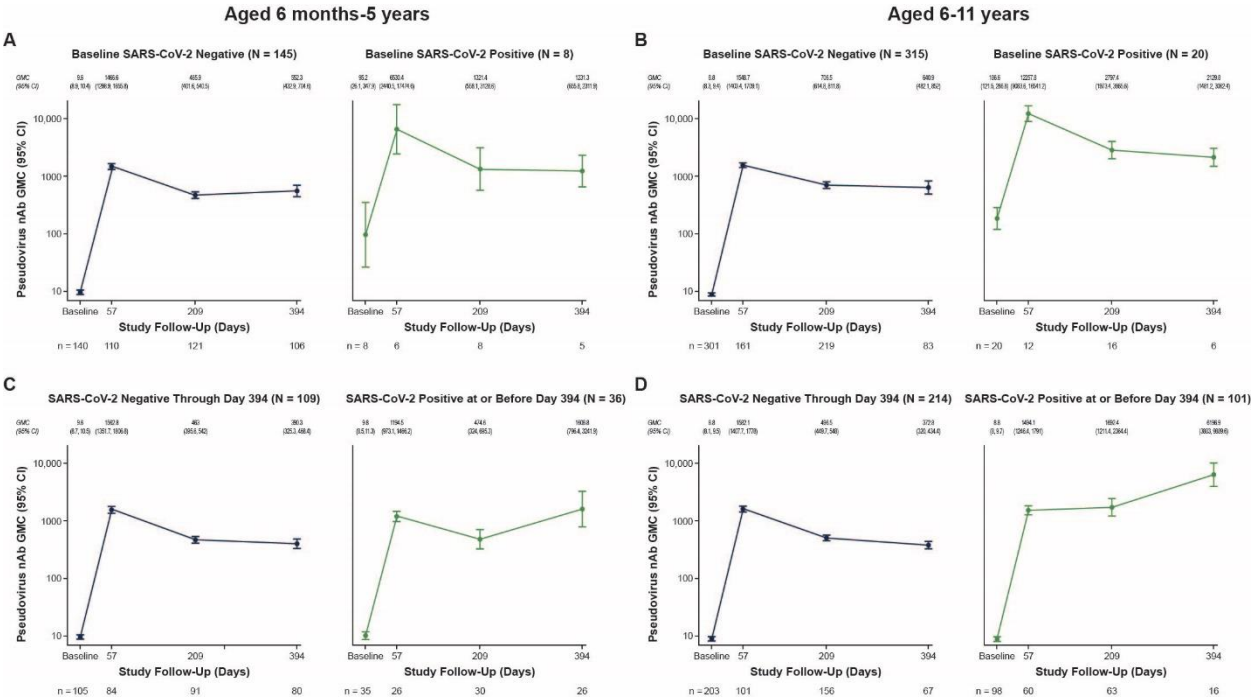
PD0076 / #2682

MRNA-1273 PRIMARY SERIES INDUCES DURABLE NEUTRALIZING ANTIBODY RESPONSES IN CHILDREN 6 MONTHS TO 11 YEARS OF AGE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

Sabine Schnyder Ghamloush[1], Christina Rostad[2], C. Buddy Creech[3], Vladimir Berthaud[4], Weiping Deng[1], Xiaoping Zhao[1], Jialin Qu[1], Honghong Zhou[1], Mollie Brown[1], Roxanne Kelly[1], Bethany Girard[5], Rituparna Das[1]
[1]Moderna, Inc., Clinical Development, Cambridge, United States of America, [2]Emory University School of Medicine and Children's Healthcare of Atlanta, Paediatrics, Atlanta, United States of America, [3]Vanderbilt University Medical Center, Paediatric Infectious Diseases, Nashville, United States of America, [4]Meharry Medical College – Clinical and Translational Research Center, Infectious Diseases, Nashville, United States of America, [5]Moderna, Inc., Infectious Diseases, Cambridge, United States of America

Background: KidCOVE is a phase 2/3 study conducted to evaluate the safety, reactogenicity, immunogenicity, and efficacy of mRNA-1273 in healthy children 6 months-11 years of age (NCT04796896). Here, we present the 1-year durability of immune responses after receipt of the mRNA-1273 primary series.
Methods: Participants received the 2-dose mRNA-1273 primary series (25 µg [6 months-5 years] or 50 µg [6-11 years]) administered 28 days apart. Immunogenicity was assessed by measuring neutralizing antibodies (nAb) against ancestral SARS-CoV-2 at 1 month (Day 57), 6 months (Day 209), and 12 months (Day 394) after dose 2. Geometric mean concentrations (GMCs) with 95% confidence intervals (CIs) at time points up to Day 394 were summarized by participant SARS-CoV-2 status (as determined by anti-nucleocapsid antibodies and/or RT-PCR) at baseline and up to Day 394.
Results: In baseline SARS-CoV-2–negative participants <6 years of age (n=145) and 6-11 years of age (n=315), durable nAb responses against ancestral SARS-CoV-2 were observed at Day 209 (6 months; Figure; GMC [95% CI], <6 years: 466 [402-541]; 6-11 years: 707 [615-812]) and Day 394 (12 months; GMC [95% CI], <6 years: 522 [433-705]; 6-11 years: 641 [482-852]). nAb responses persisted among participants without any evidence of SARS-CoV-2 infection through Day 394. Participants with evidence of post-baseline infection (positive SARS-COV-2 status at or before Day 394) had higher or similar nAb levels at Day 394 than at Day
57.



Conclusions/Learning Points: A 2-dose mRNA-1273 primary series induced durable nAb responses to ancestral SARS-CoV-2 through 12 months after vaccination in children 6 months-11 years of age. These data suggest durable protection afforded by mRNA-1273 in this age group and may inform the selection of appropriate booster intervals.

PD0077 / #363

RISK FACTORS FOR POST-COVID-19 CONDITION (LONG COVID) IN CHILDREN: A PROSPECTIVE COHORT STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 07: COVID-19 (STATION 01)

Danilo Buonsenso, Rosa Morello, Francesco Mariani, Piero Valentini
Fondazione Policlinico Universitario A. Gemelli IRCCS, Pediatrics, Roma, Italy

Backgrounds: Adults and children can develop post-Covid-19 condition (PCC) (also often referred as Long Covid) after SARS-CoV-2 infection. However, methodological limitations of available pediatric studies included small sample size, substantial heterogeneity in outcome definitions, short follow-up duration, and did not account for SARs-CoV-2 vaccination variant in the subsequent risk of developing Long Covid.
Methods: A prospective cohort study of children (from birth to 18 years of life) previously diagnosed with microbiologically confirmed SARS-CoV-2 infection. . Children were assessed in person at a referral pediatric post-covid clinic in Rome, Italy, 3-6-12-18 months following acute infection. PCC was defined as persistence of otherwise unexplained symptoms for at least three months after initial infection. [
Results: 1243 children were included (575 (46,3%) females, median age 7,25 years (4-10,3). 294 (23%)patients were diagnosed with PCC at three months, of them 268 (91%) had subsequent follow-up: 143/268 (53%) of patients remained symptomatic at six months, 38/268 (14%) at twelve months, and 15 (6%) at eighteen months. The following risk factors were associated with PCC: older age ((>10 years) (OR 3,79; 95%CI 2,87 - 5,01), comorbidities (OR 1,73; 95%CI 1,21 - 2,48), and hospitalization during the acute phase (OR 2,62; 95%CI 1,21 – 5,67). In multivariate logistic regression, compared to the Omicron variant, all other variants were significantly associated with PCC at 3 and 6 months. Vaccines were associated with a reduced but not statistically significant risk of developing persistent symptoms
Conclusions/Learning Points: Children with previous hospitalizations, comorbidities, and older age are at higher risk of PCC. However, most children tend to improve over time, particularly those infected during Omicron wave. We did not find strong protective effect of vaccination status on PCC development.

PD0078 / #447

PREDICTING EPIDEMICS WITH MATHEMATICAL MODELS - WHAT COVID-19 TAUGHT US ON RSV

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

Philipp Agyeman[1], Nina Schöbi[1], Ruth Steinberg[2], Maria Teresa Barbani[3], Andrea Duppenthaler[1], Stefanie Hayoz[4], Matthias Kopp[2], Christoph Aebi[1]
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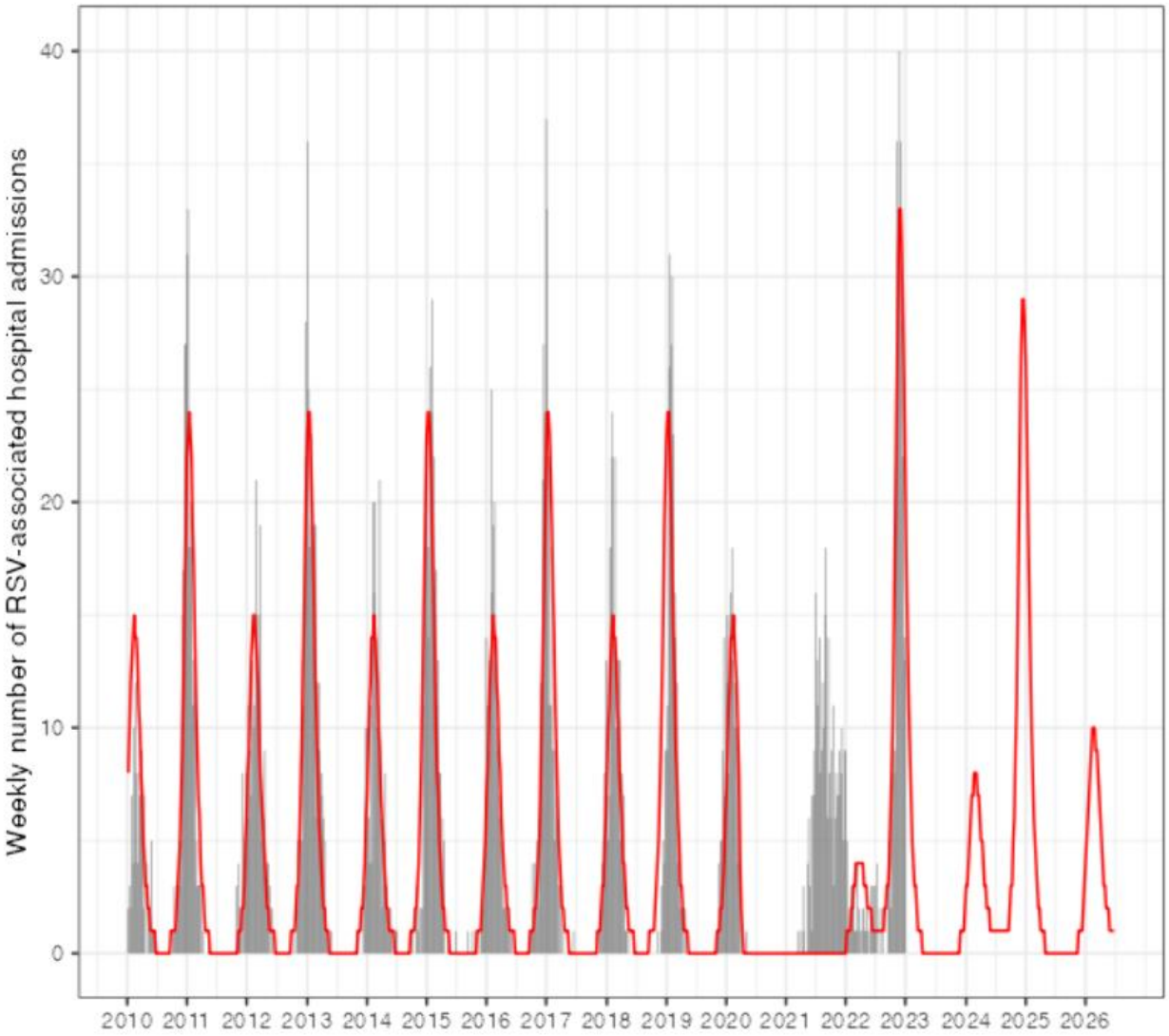
Backgrounds: Respiratory syncytial virus (RSV) is the most important cause of bronchiolitis and pneumonia in children younger than 5 years worldwide. In western countries, RSV is estimated to cause about 20% of lower respiratory tract infections in children, with most of the disease burden occurring in children younger than 1-year-old. A distinct alternating pattern of minor and major seasons of RSV infection has been reported in several North and central European countries, as well as in some parts of North America. Here we report on >20 years data of hospital admissions due to RSV at a tertiary paediatric centre in Switzerland and the impact of non-pharmaceutical interventions (NPI) during the SARS-CoV-2 pandemic.
Methods: We implemented a susceptible-infected-recovered-susceptible (SIRS) dynamic transmission model with waning immunity described by a series of ordinary differential equations to model RSV epidemiology.
Results: From December 1997 until December 2022, 5083 children with RSV infection were admitted to the University Children's Hospital Bern. Before the COVID-19 pandemic, we observed an alternating cycle of minor and major seasons (figure). While no child was hospitalised with RSV infection in winter 2020/2021, we observed an out-of-season increase in the number of hospital admissions in summer 2021. A SIRS model captured the previous local epidemiology well with a root-mean-square-error of 3.61, compared to weekly case numbers (figure). Modelling the impact of COVID-19 associated NPI on RSV epidemiology failed to capture the out-of season increase in summer, but correctly predicted a larger than usual season in 2022/2023. According to the model, it may take several years to return to the previous epidemiology.



Conclusions/Learning Points: A simple mathematical model captured RSV epidemiology, including features of the changed disease dynamics following COVID-19-associated NPI, at the University Children's Hospital Bern.

PD0079 / #492

CAREGIVER PRODUCTIVITY LOSS AND ECONOMIC BURDEN ASSOCIATED WITH PEDIATRIC PNEUMOCOCCAL DISEASE IN THIRTEEN COUNTRIES

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

Xiuyan Li[1], Sophie Warren[1], Mark Rozenbaum[2], Johnna Perdrizet[1]
[1]Pfizer Inc, Global Value & Evidence, New York, United States of America, [2]Pfizer, Health Economics And Outcomes Research, Capelle aan den IJssel, Netherlands

Backgrounds: Studies estimating the economic burden of pediatric pneumococcal disease often include direct medical costs and omit indirect non-medical costs. This study aims to quantify caregiver productivity losses due to pediatric pneumococcal disease and associated economic burden attributable to serotypes in licensed pneumococcal conjugate vaccines (PCVs), the 10-, 13-, and 15-valent (PCV10, PCV13, and PCV15), and in an investigational PCV, the 20-valent (PCV20).
Methods: Using a decision-analytic model, a human capital approach was adopted to estimate the indirect non-medical economic burden for caregivers of children <5 years with pneumococcal disease. The monetary value of caregiver productivity loss was measured by its opportunity cost of losing paid income. Thirteen countries were included, of which 5 have PCV10 national immunization programs (NIPs) (Austria, Finland, Netherlands, New Zealand, and Sweden) and 8 have PCV13 NIPs (Australia, Canada, France, Germany, Italy, South Korea, Spain, and United Kingdom). Input parameters were derived from published literature. Costs were inflated to 2021 values in United States dollars.
Results: PCV20 serotypes contributed to a substantial non-medical economic burden, amounting to over $173 million across 13 countries annually (Figure 1), of which $80.6 million was PCV20-unique serotypes. Country-specific productivity losses varied by the current PCV included in the NIP. For PCV10 NIPs, economic burden attributed to serotypes was mainly caused by PCV13-unique serotypes; and in PCV13 NIPs, largely caused by PCV20-unique serotypes.

Figure 1: Annual estimated lost of productivity due to clinical burden attributable to PCV serotypes in children < 5 years in 13 selected countries

Annual total indirect costs (million USD)*	PCV10 NIPs					PCV13 NIPs							
	AUT	FIN	NLD	NZL	SWE	AUS	CAN	FRA	DEU	ITA	KOR	ESP	GBR
PCV10-serotypes	$ 0.70	$ 0.05	$ 0.09	$ 0.07	$ 0.09	$ 1.47	$ 1.30	$ 3.56	$ 5.37	$ 2.68	$ 0.61	$ 3.39	$ 0.25
PCV13-serotypes	$ 3.72	$ 3.06	$ 1.17	$ 0.52	$ 0.38	$ 6.41	$ 6.14	$ 8.06	$ 17.34	$ 4.33	$ 4.56	$ 8.56	$ 1.83
PCV15-serotypes	$ 3.95	$ 3.21	$ 1.52	$ 0.74	$ 0.46	$ 7.58	$ 11.93	$ 12.45	$ 26.32	$ 5.96	$ 4.86	$ 10.61	$ 3.01
PCV20-serotypes	$ 4.88	$ 3.53	$ 2.95	$ 1.49	$ 0.70	$ 9.08	$ 17.56	$ 20.75	$ 55.23	$ 14.77	$ 15.80	$ 17.93	$ 8.51

Abbreviations: AUS = Australia; AUT = Austria; CAN = Canada; DEU = Germany; ESP = Spain; FIN = Finland; FRA = France; GBR = United Kingdom; ITA = Italy; KOR = South Korea; NIP = national immunization program; NLD = Netherlands; NZL = New Zealand; PCV = Pneumococcal conjugate vaccine; SWE = Sweden.
*The model inputs derived for caregivers in each country included: 1) Missed workdays: the number of workdays missed per event of childhood invasive pneumococcal disease (IPD), acute otitis media (AOM), inpatient pneumonia, and outpatient pneumonia; 2) Proportion of caregivers missing work: the proportion of caregivers reporting missed workdays from paid employment, assuming only one caregiver per infected child would miss work; 3) Serotype-specific incidence: the annual clinical burden of respective pneumococcal disease outcome attributable to PCV serotypes reported in Wasserman et al (2021); and 4) Indirect non-medical costs: the indirect cost per disease case, estimated by the mean workdays missed multiplying the unit costs of productivity loss (average daily wage). Annual cost estimates accross the countries are reported in Million United States Dollars (USD).

Conclusions/Learning Points: The non-medical economic burden is possibly greater, given only the monetary value associated with missed workdays from paid employment were accounted for in our estimates. Results demonstrate the importance of including indirect costs when estimating the total burden associated with PCV serotypes and the potential addressable economic burden associated with higher-valent PCVs.

PD0080 / #867

MODELLING THE PUBLIC HEALTH IMPACT OF ROUTINE PEDIATRIC VACCINATION FOR THE PREVENTION OF CYTOMEGALOVIRUS AND CONGENITAL CYTOMEGALOVIRUS AT THE POPULATION-LEVEL

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

Ashley Davis[1], Cameron Cook[1], Jonathan Graham[1], John Diaz-Decaro[2], Evan Myers[3], Philip Buck[4]
[1]RTI Health Solutions, Health Economics, Research Triangle Park, United States of America, [2]Moderna, Inc., Epidemiology, Cmv Vaccine, Cambridge, United States of America, [3]Duke University Medical Center, Department Of Obstetrics And Gynecology, Durham, United States of America, [4]Moderna, Inc., Health Economics And Outcomes Research, Cambridge, United States of America

Backgrounds: Cytomegalovirus (CMV) infection in healthy individuals is often mild or asymptomatic; however, a pregnant woman can pass CMV to her newborn, resulting in congenital cytomegalovirus (cCMV), the major infectious cause of sensorineural hearing loss in infants born in developed countries. There are no prophylactic vaccines currently available to prevent CMV.
Methods: A dynamic transmission model was developed to evaluate the incremental impact of routine pediatric CMV vaccination in the US population, compared to no vaccination. We modelled an initial 1-year catch-up vaccination of children aged 6 months to 3 years, then only newly eligible children aged 6 months were vaccinated in subsequent years. Two vaccine coverage scenarios were modelled: 100% and 50% coverage. Using conservative assumptions, efficacy against primary infection for the 2-dose vaccine regimen was 70% in the first 2 years then waned to zero over the next 5 years; no efficacy was assumed against non-primary infection. Health outcomes included CMV infections (primary and non-primary) and cCMV cases (symptomatic cCMV, neonatal death, and cCMV-related stillbirth) averted. Sensitivity analyses assessed the robustness of parameter estimates.
Results: Based on 100% pediatric vaccination coverage in the US population, we expected a mean annual reduction of 12,712 cCMV cases (including 1,213 symptomatic cCMV cases). In the 50% pediatric vaccination coverage scenario, a mean annual reduction of 12,375 cCMV cases (including 1,181 symptomatic cCMV cases) was expected (see Table 1).
Conclusions/Learning Points: There is substantial public health benefit associated with utilization of an effective CMV vaccine in US children due to the potential reduction in CMV transmission. Several model parameters were based on assumptions and robust evidence generation is needed. Furthermore, the efficacy and durability of a licensed vaccine are unknown and will be important

considerations.

Table 1. Mean Annual Results (Undiscounted) for Pediatric CMV Vaccination Versus No Vaccination in the US Population

	100% CMV Vaccination Coverage			50% CMV Vaccination Coverage		
	Vaccination	**No Vaccination**	**Difference**	**Vaccination**	**No Vaccination**	**Difference**
CMV infections	1,068,112	17,698,350	**-16,630,238**	1,296,640	17,698,350	**-16,401,710**
cCMV cases	507	13,219	**-12,712**	843	13,219	**-12,375**
Symptomatic cCMV cases	49	1,262	**-1,213**	81	1,262	**-1,181**
Neonatal deaths	9	230	**-221**	15	230	**-215**
cCMV-related stillbirths	0	6	**-6**	0	6	**-6**

cCMV: congenital cytomegalovirus; CMV: cytomegalovirus.

PD0081 / #1056

MENINGOCOCCAL PEDIATRIC COST OF ILLNESS IN ARGENTINA. IMPACT ON PATIENTS WITH SEQUELAE.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

Norberto Giglio[1], Paula Micone[2], Mariana Coelho[3], Hernan Sanguinetti[1], Angela Gentile[1]
[1]Hospital de ninos Ricardo Gutiérrez, Epidemiology, Ciudad Autonoma de Buenos Aires, Argentina, [2]Hospital de Agudos Carlos Durand, Obstetrician, Ciudad Autonoma de Buenos Aires, Argentina, [3]FIPEC, Chagas, CABL, Argentina

Backgrounds: Meningococcal disease continues to be a cause of morbidity and mortality in the pediatric population .Long term sequelae reach up to 20% to 50%.Health systems are forced to allocate significant budgets for the management of severe cases. The aim of this study was to estimate the total costs of meningococcal disease among pediatric population in Argentina.
Methods: Decision tree/ Markov model was adapted for Argentina including 5 squeals:Dermatological (skin sarring), Musculoskeletal or amputation, Neurological, Hearing loss and Visual. Resources identification and utilization rate were taken from literature validated from expert opinion. Unit costs were obtained from Buenos Aires Hospital de Niños Ricardo Gutierrez health care tariff charge September 2021. The perspective of public sector was adopted based on a time horizon of 15 years discounted at 5% annually.According to uncertainties related to sequelae cost, we have added scenarios of maximum and minimum severity in order to be able to estimate the wide range of costs.
Results: Infants newborns cohort 2019 in Argentina was 625,4419 with a meningococcal incidence 13.2/100,000 in under one year old.Clinical Acute manifestations of meningococcemia showed, meningococcemia with meningitis 37%, meningitis 29,8%, meningococcemia 16%, others 17%. Sequelae Distribution: Dermatological (skin scarring) 22% (13% major, 87% minor); Musculoskeletal or Amputations 8 %(50% major,50% minor) Neurological 42% (50% major, 50%minor) , Hearing Loss 25 % (50% major,50% minor) and Visual 3%(2% major 98% minor).Meningococcal cost was estimated in Acute Cost, Cohort 83 cases; 396,517 USD (376,589-416,400), Sequelae 38 cases 986,374 USD total per 15 year and 10 deaths.
Conclusions/Learning Points: Meningococcal cost of illnes (acute and cronic) per cohort was estimated in 1,382,891 USD where the chronic sequelaes represent 71% of the total cost of meningococcal diseaes in Argentina

PD0082 / #1242

COST-EFFECTIVENESS OF A 20-VALENT PEDIATRIC PNEUMOCOCCAL CONJUGATE VACCINE COMPARED WITH A 15-VALENT PNEUMOCOCCAL CONJUGATE VACCINE IN ITALY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

Roberto Di Virgilio[1], Alessandra Pagliaro[2], Raffaella Iantomasi[2], Michele Wilson[3], Cheryl Mcdade[3], Giorgio Lorenzo Colombo[4], Emanuele Amodio[5], Vania Giacomet[6], Eva Agostina Montuori[2], Sophie Warren[7], Johnna Perdrizet[7]
[1]Pfizer Italia, Health Economics And Outcomes Research, Rome, Italy, [2]Pfizer Italia, Medical Affairs Vaccines, Rome, Italy, [3]RTI Health Solutions, Health Economics, Research Triangle Park, United States of America, [4]University of Pavia, Department Of Drug Sciences, Pavia, Italy, [5]University of Milan, Department Of Biomedical And Clinical Sciences “l. Sacco”, Unit Of Paediatric Infectious Disease, Milan, Italy, [6]University of Palermo, Promotion Of Health, Maternal-child, Internal Medicine And Specialist Of Excellence “g. D'alessandro", Palermo, Italy, [7]Pfizer Inc, Global Value & Evidence, New York, United States of America

Backgrounds: Pneumococcal disease represents a substantial heath and economic burden in Italy. The 13-valent pneumococcal conjugate vaccine (PCV13) has been part of the pediatric national immunization program (NIP) since 2010. The 15-valent (PCV15) and the 20-valent (PCV20) conjugate vaccines, may become available in Italy in 2023 and 2024, respectively. The objective of this study is to determine the cost-effectiveness of switching from PCV13 to PCV15 compared with switching to PCV20 in Italy’s paediatric NIP.
Methods: A decision-analytic model was developed to estimate the cost-effectiveness of switching from PCV13 to PCV20 in 2024 compared with switching to PCV15 in 2023 over a 5-year time horizon from a payer perspective. Published Italian age and serotype-specific invasive pneumococcal disease (IPD) incidence data for 2008-2019 were used to project future incidence. Projections of non-invasive disease incidence were assumed to vary proportionally with IPD. Vaccine prices were obtained from local sources and direct medical costs were collected from published literature. The model estimated disease cases, direct medical costs, quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratio (ICER) for each vaccination strategy.
Results: Switching from PCV13 to PCV20 in 2024 was estimated to avert an additional 626 IPD cases, 49,375 otitis media (OM) cases, 7,951 inpatient, non-bacteremic (NB) pneumonia cases, and 1,074 deaths over 5 years compared with switching to PCV15 in 2023. PCV20 also gained an additional 1,251 QALYs and saved the health system €1,692,829 in total direct medical costs despite higher vaccine acquisition costs (Table 1). As such, PCV20 was dominant (more effective and cost-saving) compared to PCV15.

Table 1. Cost-effectiveness Results Over 5 Year Time Horizon

Outcomes	PCV15	PCV20	Incremental
Disease cases			
Bacteremia	2,635	2,227	-408
Meningitis	1,409	1,191	-218
Inpatient NB pneumonia	53,298	45,346	-7,952
OM	596,971	547,597	-49,374
Total	654,313	596,361	-57,952
Deaths			
IPD	880	745	-135
Inpatient NB pneumonia	6,410	5,470	-940
Total	7,290	6,215	-1,075
Costs (€)			
Vaccine	€ 279,148,313	€ 321,965,462	€ 42,817,149
IPD	€ 24,339,938	€ 20,629,102	-€ 3,710,835
Inpatient NB Pneumonia	€ 202,145,317	€ 172,530,516	-€ 29,614,801
OM	€ 123,462,219	€ 112,277,878	-€ 11,184,341
Total	€ 629,095,787	€ 627,402,958	-€ 1,692,829
Outcomes			
Life years	159,542,739	159,544,255	1,516
QALYs	118,334,929	118,336,180	1,251
ICER			PCV20 dominant (cost-saving)

Abbreviations: IPD = invasive pneumococcal disease, defined as bacteremia and meningitis; NB = non-bacteremic; OM = otitis media; PCV = pneumococcal conjugate vaccines; QALY = quality-adjusted life year; ICER = incremental cost-effectiveness ratio.

Note: The cost-effectiveness analysis was run for two scenarios over a 5-year time horizon from a payer perspective, (1) switching from PCV13 to PCV15 in 2023 and (2) switching from PCV13 to PCV20 in 2024.

Conclusions/Learning Points: Despite a one-year delay in implementation, switching to PCV20 instead of PCV15 is expected to result in substantially greater public health and economic benefit in Italy.

PD0083 / #1263

A COST-EFFECTIVENESS ANALYSIS COMPARING THE 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE VERSUS THE 15-VALENT PNEUMOCOCCAL CONJUGATE VACCINE FOR CHILDREN IN GREECE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

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Backgrounds: Since June 2010, the 13-valent pneumococcal conjugate vaccine (PCV13) has been included in Greece's pediatric national immunization program (NIP). The 15-valent (PCV15) and the 20-valent (PCV20), may become available in Greece in 2023 and 2024, respectively. The objective of this study is to determine the cost-effectiveness of switching from PCV13 to PCV15 compared with switching to PCV20 in Greece's paediatric NIP.
Methods: A decision-analytic model was used to compare the cost-effectiveness of switching from PCV13 to PCV15 in 2023 or to PCV20 in 2024, over a 10-year time horizon from a payer perspective. The model used recently published age and serotype-specific invasive pneumococcal disease (IPD) epidemiological data from Greece and historical IPD incidence trends from the United States (US) to project future incidence. US data were used for non-invasive disease incidence given similar epidemiology and no local data. Future projections of non-invasive disease incidence were assumed to vary proportionally with IPD. Vaccine costs were obtained from the Greek Drug Positive List in which the published price of PCV20 is lower than that of PCV15. Direct medical costs were compiled from published literature and official sources such as Diagnosis Related Group tariffs. Projected outcomes included disease cases, direct costs, quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratio (ICER) for each vaccination strategy.
Results: Switching from PCV13 to PCV20 in 2024 could avert an additional 175 IPD cases, 46,897 otitis media cases, 8,114 pneumonia cases, and 285 deaths over 10 years across all ages. PCV20 is cost-saving compared to PCV15 and could reduce healthcare spending by over €53 million (Table 1).

Table 1. Results on cost-effectiveness of switching from PCV13 to PCV15 or PCV20 in Greece's paediatric NIP

Outcomes	PCV15	PCV20	Incremental
Disease cases			
Bacteremia	3,050	2,893	-157
Meningitis	346	329	-18
Inpatient pneumonia	97,325	91,969	-5,356
Outpatient pneumonia	246,633	243,875	-2,758
Simple OM	531,839	488,480	-43,359
Complex OM	43,394	39,857	-3,537
Total	922,587	867,403	-55,184
Deaths			
IPD	320	308	-13
Inpatient pneumonia	5,794	5,522	-272
Total	6,114	5,830	-285
Costs (EUR)			
Vaccine	154,517,434	152,383,563	-2,133,871
IPD	10,716,699	10,197,435	-519,264
Pneumonia	637,780,626	605,631,585	-32,149,041
OM	248,230,693	229,363,818	-18,866,875
Total	1,051,245,452	997,576,402	-53,669,050
Outcomes			
Life years	90,773,552	90,774,291	739
QALYs	72,495,355	72,496,112	757
ICER			**PCV20 dominant (cost-saving)**

Abbreviations: IPD = invasive pneumococcal disease; OM = otitis media; NIP = national immunization program; PCV = pneumococcal conjugate vaccines; QALY = quality-adjusted life year.
Note: The cost-effectiveness analysis was run for two scenarios over a 10-year time horizon from a payer perspective, (1) switching from PCV13 to PCV15 in 2023 and (2) switching from PCV13 to PCV20 in 2024.

Conclusions/Learning Points: Even if implemented one year later than PCV15, PCV20 could have greater public health and economic impact compared to PCV15.

PD0084 / #2703

RESULTS FROM THE IMPLEMENTATION OF A NATIONWIDE SURVEILLANCE NETWORK OF RESPIRATORY SYNCYTIAL VIRUS IN CHILDREN < 2 YEARS OLD IN PORTUGAL

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

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Background: Human respiratory syncytial virus (RSV) is associated with substantial morbidity and mortality in infants, young children and the elderly. Monoclonal antibodies (MAb) therapy is available to prevent severe disease in infants, nevertheless, there is a global effort in the development of vaccines and a new generation of MAb. RSV surveillance is essential to estimate the burden of RSV infection, evaluate the impact of preventive measures and support public health decisions. Following European recommendations, a nationwide hospital-based RSV sentinel network denominated VIGIRSV was set up in Portugal. This work aims to describe the implementation of VIGIRSV and report preliminary results.
Methods: VIGIRSV was implemented in 2021 with the initiative of the National Institute of Health Doutor Ricardo Jorge (INSA) and the Portuguese Paediatrics Society (SPP), during 2023, a network of 20 hospitals collaborate in the surveillance. The surveillance is based on the recruitment of children <2 year-old hospitalized ≥24 hours, due to an Acute Respiratory Infection (ARI). At recruitment, the paediatrician fills out a clinical questionnaire, and biological samples are collected for laboratory diagnosis. RSV positive samples are forwarded to INSA for virological analyses such as genetic characterization of the virus.
Results: Preliminary results from the first 2 years of surveillance are presented in table 1 and show an early RSV activity with high intensity in the 2022/23 season. VIGIRSV´s results integrate the weekly "Epidemiological surveillance bulletin of Influenza and other respiratory viruses" available at https://www.insa.min-saude.pt/category/informacao-e-cultura-cientifica/publicacoes/atividade-gripal/, as well as the surveillance at European
level.

Table 1. Results obtained from the first 2 years of the nationwide hospital-based RSV sentinel network (VIGIRSV), in Portugal.

Season	*2021/2022*	*2022/2023**
Number of RSV cases	270	497
Number ARI admissions	733	692
Proportion of admissions of ARI by RSV (%)	36.8	71.8
Maximum Incidence rate (week)	91,7 (W43/21)	136.4 (W45/2022)
*Proportion of RSV positive children with co-morbidities (%)***	7.4	3.2
Proportion of RSV positive children with low weight at birth (%)	14.8	13.8
*Proportion of RSV severe cases (%)****	10.7	10.7
Proportion of RSV positive preterm	15.7	12.7
Number of genetic characterized samples	225	211

* up to week 9/2023; ** children with trisomy 21, cardiac disease, pulmonary disease, neuromuscular disease, immunodeficiency, velocardiofacial syndrome or dermatitis; *** severe cases: children admitted in Intensive Care Units or needing ventilation.

Conclusions/Learning Points: The maintenance of such important surveillance is possible due to the effort of distinct organizations and professionals. Data from the VIGIRSV are being used to implement prevention/therapeutic measures for severe disease risk groups, by health decision makers.

PD0085 / #2467

AN INTERCOUNTRY COMPARISON OF THE IMPACT OF THE PAEDIATRIC LIVE ATTENUATED INFLUENZA VACCINE (LAIV) PROGRAMME ACROSS THE UK AND THE REPUBLIC OF IRELAND (ROI), 2010-2017

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

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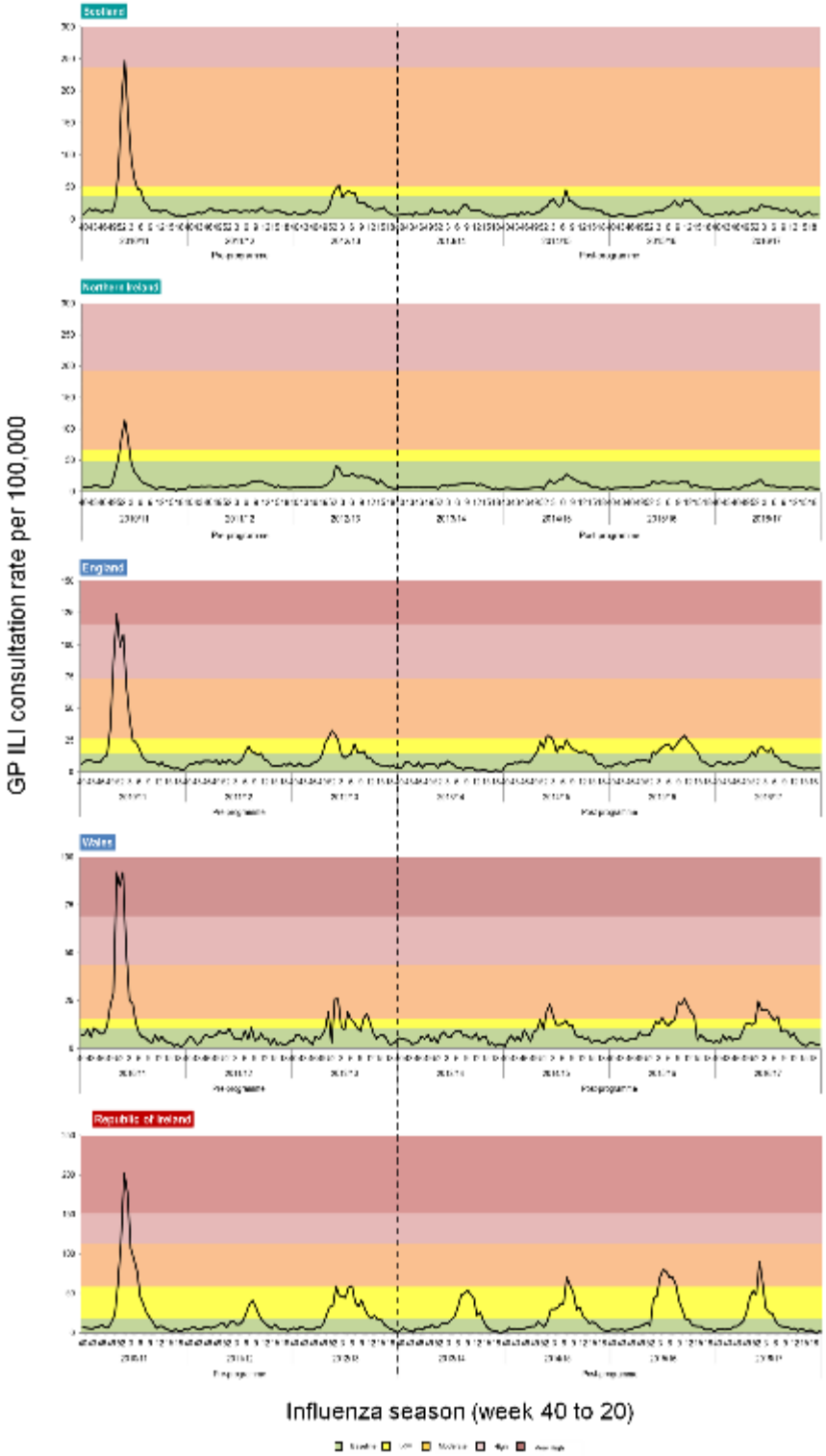
Background: The United Kingdom commenced the roll-out of a universal paediatric live attenuated influenza vaccine (LAIV) in 2013/14 programme following evidence of projected population benefits on children themselves and the wider population. In 2013/14, the LAIV vaccine was offered to all 2–3-year-olds in the UK. Since 2014/15, all pre-school and primary school children in Scotland and Northern Ireland have been offered the vaccine. England and Wales incrementally introduced the programme with additional school age cohorts being vaccinated each season. The Republic of Ireland (ROI) had no universal paediatric programme before 2017.
Methods: The potential epidemiological population impact of vaccinating primary school aged children across the five countries up to the 2016/17 influenza season was assessed by comparing rates of primary care influenza-like illness consultations, confirmed influenza intensive care unit (ICU) admissions, and all-cause excess mortality using standardised methods. To further quantify the impact, a scoring system was developed where each weekly rate/z-score was scored and summed across each influenza season according to the weekly respective threshold experienced in each country.
Results: Results highlight ILI consultations rates in the four seasons post-programme breached baseline thresholds once or not at all in Scotland and Northern Ireland; in three out of the four seasons in England and Wales and in all four seasons in ROI. No differences were observed in the seasons post-programme introduction between countries in rates of ICU and excess mortality, although reductions in influenza-related mortality were seen. The scoring system also reflected similar results



overall.

Conclusions/Learning Points: Findings of this study suggest that LAIV vaccination of primary school age children is associated with population-level benefits, particularly in reducing infection incidence in primary care.

PD0086 / #2610

ARTIFICIAL INTELLIGENCE-BASED SYSTEM FOR AUTOMATED CELL COUNTING IN NEONATAL CEREBROSPINAL FLUID ANALYSIS: A REMOTE QUALITY CONTROL AND DIGITAL DIAGNOSTIC TOOL

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

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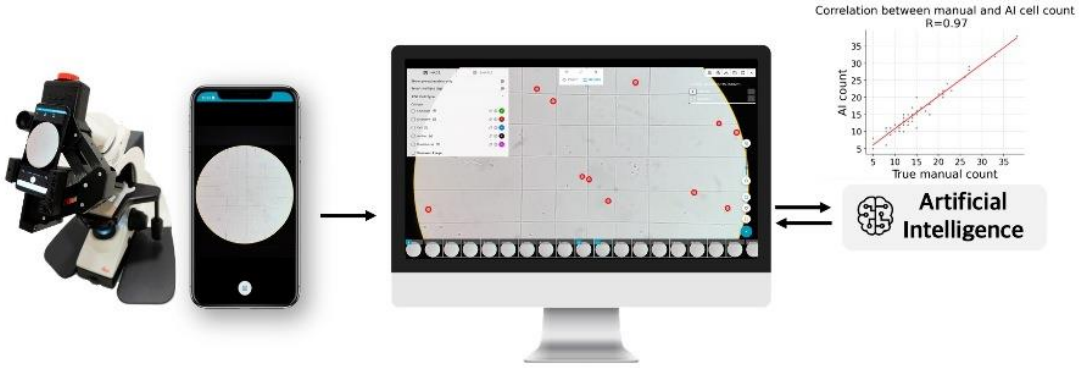
Background: Meningitis significantly contributes to neonatal morbidity and mortality. Patients with suspected meningitis require lumbar puncture and cell counting in cerebrospinal fluid (CSF). Manual cell counting in hemocytometer chambers is a laborious, time-consuming, error-prone task, which often requires high expertise. We present a pilot study using digital and AI tools to improve reliability and automatize this task.
Methods: We present a simple and accessible digital system to digitize CFS samples using a 3D-printed adapter coupled to a conventional microscope, store and analyze samples remotely in a web telemedicine platform supported by artificial intelligence (AI) algorithms to automatically perform cell counting. The developed AI model uses a convolutional encoder–decoder network to segment cells in images and postprocesses the output for final cell count using computer vision techniques.
Results: 18 CSF samples (neonates <28 days old) were acquired at the Rabat Children's Hospital (Morocco) and digitized resulting in a total of 1,800 microscopy field-of-view images which were made available for remote analysis via the web platform. A preliminary AI model for cell counting was validated based on 54 Malassez chamber field-of-view images from 4 CSF samples that were manually analyzed by experienced technicians. The AI algorithm correlated with manual cell count with a Pearson coefficient of 0.97.
Conclusions/Learning Points: The proposed system allows digitalization and remote CSF analysis and quality control, enabling expert personnel to analyze samples from areas with less expertise. AI algorithms can provide objective, reliable analysis while eliminating potential errors of manual counting. Future work involves multi-centric field validation of the system, the analysis of a higher number of samples, and finer cell type differentiation. The system is versatile, improving diagnostic accuracy for cell count-reliant

diseases.



1. Sample digitization **2.** Expert can analyze the sample remotely **3.** AI automatically detects cells

PD0087 / #2578

MYCOPLASMA PNEUMONIAE BEYOND THE COVID-19 PANDEMIC: OUT OF OFFICE!

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

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Background: Mycoplasma pneumoniae (Mp) is a major bacterial cause of respiratory tract infection. We established a collaborative global network on behalf of the ESCMID Study Group for Mycoplasma and Chlamydia Infections (ESGMAC) to assess the effect of nonpharmaceutical interventions (NPIs) against COVID-19 on the transmission of Mp. Data collected through this network showed a significantly reduced incidence of Mp in the first year (1.69%) and second year (0.70%) after the implementation of NPIs in March 2020, compared with previous years (8.61%; 2017–2020). We used this network to prospectively track Mp as of the third year to alert to the resurgence of Mp.
Methods: The ESGMAC Mycoplasma pneumoniae Surveillance (MAPS) study aims to prospectively collect Mp detections on a monthly basis from April 1, 2022. Demographic characteristics and laboratory information of participating sites are detailed in previous publications (Eurosurveillance: PMID 35551702 and Lancet Microbe: PMID 35964636).
Results: Data from 45 sites from 23 countries in Europe, Asia, America, and Oceania were received from April 1, 2022 to February 28, 2023. The mean incidence by PCR during this 11-month-period was 0.83% (SD 2.68). Overall, Mp was detected in 130 (0.09%) of 136,999 tests. The global distribution of Mp detections was as follows: detections were reported from Europe (n=87/130 total detections, 66.92%) and Asia (n=41/130, 31.54%), but not Oceania and America (except for Cuba, n=2/130, 1.54%).
Conclusions/Learning Points: These data show an ongoing absence of Mp globally. We do not know when Mp will reappear; however, when it does, an exceptionally large wave of infections could occur as a result of reduced exposure. Continuous surveillance by the ESGMAC MAPS study will help to alert to the resurgence of Mp.

PD0088 / #2722

FACTORS ASSOCIATED WITH DEATH FROM SEVERE ACUTE RESPIRATORY SYNDROME CAUSED BY INFLUENZA IN CHILDREN AND ADOLESCENTS IN BRAZIL: POPULATION STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 08: PUBLIC HEALTH II (STATION 02)

Richarlisson Morais[1,2], Patrícia Shimabukuro[3], Isis Arruda[2], Thayna Gonçalves[4], Rodrigo Zerbinati[5], Simone Giannecchini[6], Kelvin To[7], Paulo Henrique Braz-Silva[5], Monica Taminato[2]
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Background: Severe Acute Respiratory Syndrome (SARS) is an infectious respiratory syndrome that can be caused by various etiological agents that infect the respiratory tract, including the influenza virus. SARS can progress to complications, leading to an increased risk of admission to the Intensive Care Unit (ICU) with the use of mechanical ventilation and even death, especially in more vulnerable populations such as the pediatric population.
Methods: A cross-sectional population study using secondary data from the Brazilian Ministry of Health. Children and adolescents under the age of 18 diagnosed with Influenza by RT-PCR and those with case progression (death/discharge) recorded from all regions of Brazil from 02/16/20 to 01/29/22 were included. To identify the factors associated with the death of cases of SARS caused by Influenza in children and adolescents in Brazil.
Results: 1,139 children and adolescents with SARS caused by Influenza were included. Of these, 49 had death as the outcome. There was a predominance of male sex (56.1%) and brown ethnicity (47.2%). Hospitalization was required in 97.2%, with 22.5% in intensive care. There was a significant association between the variable investigating Influenza vaccination and the outcome, as all participants with unfavorable outcomes were not vaccinated (<0.009). According to logistic regression, those of brown ethnicity have a 2.6 (p=0.003) higher risk of death, and for each unit increase in age, there is an 11.5% (p=0.001) increase in the chance of death.
Conclusions/Learning Points: The results evidenced the factors associated with death. All participants who had the outcome of death were not vaccinated, and among those vaccinated, all survived the SARS. This reinforces the need to encourage adherence to vaccination and propose changes in public policies to make Influenza vaccines available to the entire population.

PD0089 / #1011

COMPARISON OF IMMUNE RESPONSES THROUGH MULTIPARAMETRIC T-CELL CYTOKINE EXPRESSION PROFILE BETWEEN CHILDREN WITH CONVALESCENT COVID-19 OR MULTISYSTEM INFLAMMATORY SYNDROME

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

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Backgrounds: The activated T-cell-mediated immunological pathways that cause Multisystem Inflammatory Syndrome (MIS-C) after SARS-CoV-2 infection in children remain under investigation. The aim of this study is to prospectively compare T-cell cytokine expression profile between children with convalescent COVID-19 or MIS-C.
Methods: Peripheral blood mononuclear cells (PBMCs) from fresh, non-defrost, whole peripheral blood were isolated from unvaccinated children with acute MIS-C (MIS-C_A) before immunosuppression, unvaccinated convalescent MIS-C (one month after syndrome onset, MIS-C_C), unvaccinated convalescent COVID-19 (one month after hospitalization) and unvaccinated healthy controls. Cells were stimulated using SARS-CoV-2-Spike antigenic peptides mix. Cells were stained with fluorochrome monoclonal antibodies against 8 surface markers (CD3, CD4, CD8, CD14, CD19, CD137, CD197, CD45RA) and 6 intracellular markers (IL-4, IL-2, IL-17, IFN-γ, TNF-α, Granzyme B). Stained cell preparations were analyzed using 13-colour Flow Cytometry (DX Flex, Beckman Coulter). Flow cytometric analysis was performed using Kaluza 2.1 Software and statistical analysis using SAS Software.
Results: Twenty children (4 MIS-C_A, 4 MIS-C_C, 8 post-COVID-19 and 4 controls) with median age (IQR) 11.5 (7.25-14) years were included in the study. From the comparison of the flow cytometry analysis of the 14 markers of MIS-C_A with the other 3 groups (MIS-C_C, post-COVID-19 and controls), statistically significant differences were identified for: 1. $CD4^+$IL-17 [293.0 (256.4-870.9) vs 50.7 (8.4-140.5); P:0.034, vs 96.7 (89.2-135.4); P:0.029 and vs 8.7 (0.0-82.4); P:0.033, respectively], 2. $CD8^+$IL-17 [335.2 (225.8-429.9) vs 78.0 (31.9-128.9 vs 84.1(0.0-204.6) vs 33.2 (0.0-114.6); P:0.05, respectively] 3. $CD8^+$IFN-γ [162.2 (91.6-273.4) vs 30.3 (0.0-92.8); P:0.077, vs 41.5 (0.0-77.4); P:0.028 vs 36.6 (11.2-97.3); P:0.078, respectively].
Conclusions/Learning Points: Children with acute MIS-C were identified to highly activate T-cells for IL-17 and IFN-γ production compared to COVID-19 and controls and could be possible immunological biomarkers for MIS-C_A detection.

PD0090 / #2243

FUNCTIONAL IMMUNE RESPONSES AFTER IMMUNE-MODULATORY THERAPY FOR PIMS-TS.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Helen Payne[1], Sarah Johnson[2], Katherine Longbottom[3], Harsita Patel[1], Arnold Awuah[4], Alison Kent[2], Karlie Grant[2], Kimberly Gilmour[4], Alaisdair Bamford[2], Elizabeth Whittaker[1]
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Backgrounds: Although the immunophenotype of children with paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV2 (PIMS-TS) is relatively well-characterised, less is known about the medium-term impact of PIMS-TS, and the immunomodulatory therapy used to manage it, on functional immune responses.
Methods: Blood samples were taken from follow-up visits at 6-12 weeks (V1) and 6 months (V2) in children post-admission with PIMS-TS. Lymphocyte subsets, immunoglobulins G, A and M, vaccine antibody assays and T-cell stimulation with phytohemagglutinin and COVID peptides were performed. These findings were analysed alongside clinical data from admission and follow-up.
Results: 26 children, median age 10.9 (IQR 8.5-11.6) years, were recruited from June 2021 to March 2022 (Table 1). Cardiac recovery was 100%, however 89% of children at V1 and 54% at V2 had at least 1 medical concern. Immunological blood tests done in 100% at V1 and 54% at V2 demonstrated 65% and 40% of results, respectively, were outside the expected range. High levels of gamma-delta T-cells (median 13, range 8-19%, normal <5%) were seen in 30% at V1, persisting at V2. Both T-cell stimulation assays were suppressed or absent in 40% at V1 compared to controls, but resolved at V2. There was no significant difference in presenting features, investigation findings or management in those with or without an immunological abnormality, however 75% of children with infections or rashes during follow-up had raised gamma-delta T-
cells.

Presentation	Med [IQR], n (%)	Investigations	Med [IQR], n (%)	Management	Med [IQR], n (%)
Admission age (yrs)	10.9 [8.5-11.6]	Plts, min	175 [96-335]	Antibiotic	26 (100%)
Fever (days)	6 [5-6]	Lymph, min	1.0 [0.7-1.3]	Total antibiotic days	5 [5-7]
COVID contact	20 (77%)	CRP, max	205 [97-298]	LMWH	23 (88%)
Rash	16 (61.5%)	Fibrinogen, min	3.8 [2.3-5.7]	Aspirin	23 (88%)
Red eyes	14 (54%)	Ferritin, max	.062 [602-1744	PPI	26 (100%)
Mucosal inflammation	3 (11.5%)	ALT, max	52 [37-104]	Fluid.resus	18 (69%)
Gastro symptoms	21 (81%)	Albumin, min	26 [22-29]	Inotropes	16 (62%)
Neurological symptoms	8 (31%)	Troponin, max	147 [54-548]	Inotropes (days)	1 (0.5-7)
Respiratory symptoms	12 (46%)	COVID PCR positive	1 (4.5%)	Ventilation	5 (19%)
Oxygen requirement	8/11 (73%)	COVID serology positive	20/20 (100%)	Ventilation (days)	1 [1-4]
CVS symptoms	17 (65%)	Bacteria co-infection	3 (12%)	IVIG	12 (46%)
No significant PMH	22 (85%)	Viral co-infection	2 (8%)	IVIG dose 2g/kg	11 (92%)
		ECHO LVEF%	49 [44-59]	IV MTP	20 (77%)
		ECHO abnormal	16 (62%)	MTP 10mg/kg	18 (90%)
		CXR abnormal	7 (26%)	MTP (days)	85% (3 days)
		EEG abnormal	3 (11%)	Steroid weaning	18 (90%)
		Abdo scan abnormal	9 (35%)	Both IVIG & MTP	8 (31%)

Conclusions/Learning Points: Immunological abnormalities, such as raised gamma-delta T-cells and suppressed proliferative responses, are common in children recovering from PIMS-TS, and it is important to consider this when advising families regarding infection risk exposure and when to reinitiate vaccinations. The long-term impact of raised gamma-delta T-cells is uncertain and further observation is required.

PD0091 / #1516

IMPACT OF COVID-19 PANDEMIC ON MEASLES IMMUNIZATION RATES IN SERBIA

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Colleen Burgess[1], Bogdan Lisul[2], Manjiri Pawaskar[1], Tanaz Petigara[1], Janice Murtagh[3], Milena Kanazir[4], Goranka Loncarevic[4], Cristina Carias[1]
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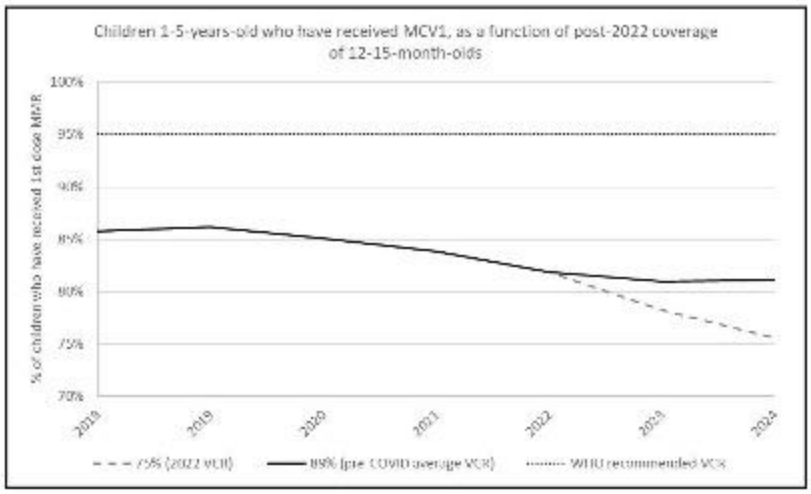
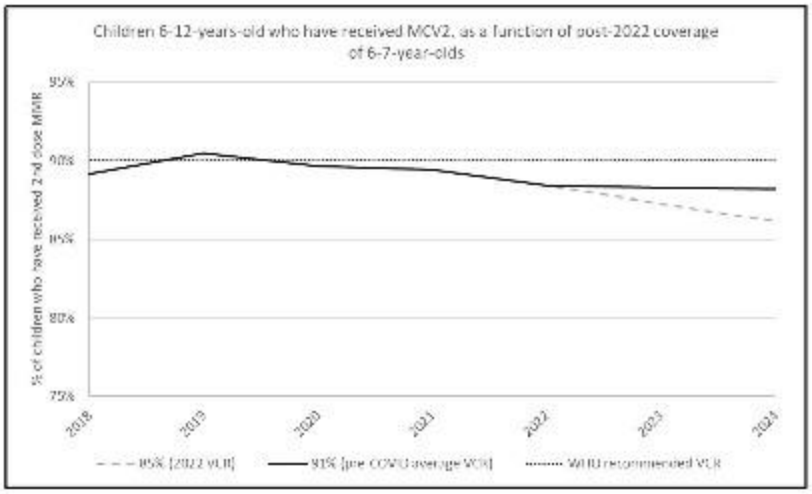
Backgrounds: Measles vaccination coverage of > 95% is required to ensure herd immunity. The COVID-19 pandemic negatively impacted pediatric immunization programs globally, including in Serbia. We calculated pre- and post-pandemic 1st and 2nd dose measles, mumps and rubella (MMR) vaccine coverage rates (VCRs) and estimated catch-up rates to return to pre-pandemic levels of coverage.
Methods: Annual planned and administered doses among children 12-15 months and 6-7 years old were used to calculate average annual 1st and 2nd dose MMR VCRs for all children aged 1-5 years (12 – 71 months) and 6-12 years (72 – 143 months), respectively, in the pre-pandemic (2011-2019) and pandemic (2020-2022) periods, and to project the VCR for the post-pandemic (2023-2024) period. Doses administered in 2020-2022 were compared to the pre-pandemic average to calculate missed doses during the pandemic. The number of months required to administer missed doses were estimated using monthly catch-up rates of 5-30%.
Results: Annual 1st (2nd) dose VCRs during the pandemic years declined from 88% (92%) to 75% (86%) from 2019 to 2021. If annual 1st (2nd) dose VCR remains at 2022 levels, the percent of all children aged 1-5 (6-12) years having received the 1st (2nd) MMR dose drops from 85% (90%) in 2020 to 76% (86%) in 2024 (figure 1). During pandemic years, ~25,000 1st doses and ~12,000 2nd MMR doses were missed. Catching up missed 1st (2nd) doses is estimated to take 131 (52) months at 75% (85%) VCR with 5% catch-up

Figure 1: (A) Annual 1st dose MMR vaccine coverage rate (VCR) among 1-5-year-olds, and (B) Annual 2nd dose MMR VCR among 6-12-year-olds.





VCR (Vaccine Coverage Rate).
The different lines correspond to VCR per year under two scenarios for the birth cohort's VCR in 2023 and 2024: 2022 VCR and pre-COVID average VCR. The WHO recommended VCR is also presented as a reference. VCR was retrieved from the Institute of Public Health of Serbia and calculated as the ratio between administered and planned vaccines. VCR data for 2023 and 2024 was assumed to be equal to projected 2022 or the pre-COVID average.
The VCR for the second dose is higher since there is a higher number of planned and administered vaccines to include catch-up campaigns.

rates.

Conclusions/Learning Points: Estimated 1st and 2nd dose MMR VCRs for children 1-5 and 6-12 years old respectively will continue to decline without catch-up. Catching up missed doses requires sustained efforts and is important to prevent future outbreaks.

PD0092 / #1494

COVID-19 AND MIS-C TREATMENT IN CHILDREN – RESULTS FROM AN INTERNATIONAL SURVEY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

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Backgrounds: Although COVID-19 infection is generally mild in children, comorbidities can lead to increased disease severity and higher hospitalization rates. Most COVID-19-specific and MIS-C treatment products have no pediatric indication, and children have been mostly excluded from clinical trials. In addition, access to specific drugs is not always universal. Treating physicians' experiences are important to understand which drugs should be promoted for development and availability to children.
Methods: A standardized questionnaire was designed to understand the drugs used to treat COVID-19 and MIS-C in children globally.
Results: Seventy-three physicians from 29 countries participated. Steroids were used by 75.6% of responders; among antivirals, remdesivir was prescribed by 48.6% of responders, nirmatrelvir + ritonavir and molnupinavir by 7.2%, monoclonal antibodies by 27.1%. For MIS-C, steroids were prescribed by 79.1% of responders, intravenous immunoglobulins by 69.6%, acetylsalicylic acid by 50%, and anakinra by 28.2 %. The use of these products depended on their pediatric approval and availability in the country or hospital, notably with limited access to some antivirals and most monoclonal antibodies in Africa, South America, South-East Asia, and eastern Europe. Other aspects guiding drug use were the clinical presentation and age of the child, the product labeling, and perceived benefits or side effects.
Conclusions/Learning Points: This international survey offers insight into the established practice for treating pediatric COVID-19 worldwide. Off-label use is widespread due to the paucity of clinical evaluation under 12 years and 40 kg, though generally determining clinical benefits and being relatively safe, even in young children. However, access to care, including medicine availability, differs widely globally. Antivirals and monoclonal antibodies might benefit from the acceleration of clinical development and informed pediatric indication to increase the worldwide availability of safe and effective pediatric formulations.

PD0093 / #1959

THE SOLUBLE UROKINASE PLASMINOGEN ACTIVATOR RECEPTOR (SUPAR) AS A SEVERITY BIOMARKER IN CHILDREN WITH ACUTE COVID-19 OR MULTISYSTEM INFLAMMATORY SYNDROME (MIS-C)

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Magdalini Louka[1], Elizabeth-Barbara Tatsi[2], Sofia Vassiliu[1], George Theoharis[3], Kalliopi Straka[4], Filippos Filippatos[2], Vasiliki Syriopoulou[2], Athanasios Michos[1]
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Backgrounds: Elevated soluble urokinase plasminogen activator receptor (suPAR) has been associated with a poor prognosis in serious infections. The aim of this study was to evaluate the clinical value of suPAR in children with acute COVID-19 or multisystem inflammatory syndrome (MIS-C).
Methods: Serum suPAR was measured using the suPARnostic® AUTO Flex enzyme-linked immunosorbent assay in hospitalized children with COVID-19, MIS-C in acute and convalescent phase, bacterial or viral pneumonia in acute phase and healthy controls.
Results: Overall, 211 children with mean (±SD) age 6.9±4.96 years were tested; Children with COVID-19 59(28%), MIS-C 36(17%), pneumonia 78(37%) and healthy controls 38(18%). In acute phase levels of suPAR (mean±SD) were; MIS-C: 8.11±2.80 ng/ml, COVID-19: 4.91±1.90ng/ml, pneumonia: 4.25±1.44ng/ml and controls: 2.09±0.47 ng/ml (P<0.001). Children with acute COVID-19 and severe or moderate clinical presentation had higher values than those with mild symptoms: 5.79±1.58 vs 5.40±1.94 vs 3.19±0.73 ng/ml respectively (P< 0.001). In the MIS-C group, children hospitalized in the intensive care unit (ICU) and in need of mechanical ventilation had higher suPAR than those with who were not admitted to an ICU: 9.32±3.06 vs 7.13±2.19 ng/ml respectively (P=0.023). In children with COVID-19 or MIS-C there was correlation between suPAR values and length of hospitalization (r_s=0.418, P<0.001). No difference in suPAR levels was observed between COVID-19 and MIS-C children in convalescent phase.
Conclusions/Learning Points: The findings suggest that suPAR may be a valuable biomarker of disease severity in children with COVID-19 or MIS-C. This could facilitate the identification of children in need of intensive anti-inflammatory treatment as it has been shown in adults. More studies on suPAR levels in pediatric patients and the effect of immunomodulatory therapies may further clarify the clinical significance of this biomarker.

PD0094 / #2164

EXPLORING PARENTAL HESITANCY TO COVID-19 VACCINATION FOR CHILDREN 5-11 YEARS OLD

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Giovanni Autore[1], Cristiano Rosafio[2], Simonetta Partesotti[3], Michele Fiore[4], Francesco Antodaro[2], Andrea Bergomi[3], Cosimo Neglia[1], Alberto Argentiero[1], Nicola Principi[5], Stefano Zona[6], Susanna Esposito[1]
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Backgrounds: Vaccines are safe and effective measures to prevent pediatric infectious diseases. However, hesitancy still limits vaccination coverage for several diseases including COVID-19. The aim of the study was to investigate the characteristics and reasons for parental hesitancy to COVID-19 vaccination for children 5-11 years old.
Methods: This study analyzed questionnaires compiled anonymously by parents of children aged 5-11 years from 12/15/2021 to 01/15/2022 in Italy. Data collection used the Crowd Signal online platform. The socio-economic and demographic characteristics of responders were investigated. Perceptions of risk associated with COVID-19, degree of pediatric vaccination awareness and vaccine-related fear were assessed as scores based on answers to specific questions. Factors associated with vaccine hesitancy were investigated by univariate and multivariate logistic analysis.
Results: In a total of 3433 questionnaires, a favorable judgment was expressed in 1459 (42.5%) cases, uncertainty in 1223 (35.6%) cases and hesitancy/reluctance in 751 (21.9%) cases. Age < 40 years, female gender, annual income < €28,000 and more than one child aged 5-11 years were associated with doubtful or contrary opinions ($p<0.01$). Higher school education and residence in southern regions were significantly associated with lower hesitancy ($p<0.001$). The multivariate analysis confirmed these findings and added that uncertainty was significantly associated with lower awareness of vaccines and COVID-19 and greater fear of vaccinations. Hesitancy was associated with less knowledge and greater fear about pediatric vaccines ($p<0.05$ for all associations).
Conclusions/Learning Points: COVID-19 vaccination for children is associated with significant parental uncertainty and hesitancy. The perception of the infection and the awareness of vaccination safety seem to be the main factors on which it is possible to intervene to increase vaccination coverage.

PD0095 / #2054

NASAL MICROBIOTA IN CHILDREN AFFECTED BY COVID-19

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Lorenza Romani[1], Federica Del Chierico[2], Gabriele Macari[3], Stefania Pane[4], Maria Vittoria Ristori[2], Carlo Federico Perno[5], Paolo Rossi[6], Alberto Villani[7], Stefania Bernardi[1], Andrea Campana[8], Paolo Palma[9], Lorenza Putignani[10], Cactus Study Team[6]
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Backgrounds: The relationship between COVID-19 and URT microbiota have been investigated mainly in the adult population. We explored the URT microbiota profile of children affected by COVID-19, compared to healthy controls.
Methods: Nasopharyngeal swabs (NPS) of COVID-19 patient between March-September 2020 were collected at the admission (T0), at 72 h to 7 days (T1) and at the discharge (T2). URT microbiota profile was investigated by 16S rRNA targeted-metagenomics. The Kruskal–Wallis test was applied to compare taxonomic differences between ASVs of COVID-19 patients and healthy subjects (CTRLs). Multiple machine learning (ML) models were exploited.
Results: The URT microbiota in COVID-19 patients (N=71) was characterized by reduction of alfa-diversity compared to CTRLs (p-value <0.001). In the URT microbiota of COVID-19 children an increase of Streptococcus, Veillonella, Burkholderia, Gemella, Haemophilus, Enterococcus and a decrease of Faecalibacterium, Akkermansia, Ruminococcaceae, Blautia, Bacteroides were reported compared to CTRLs (FDR < 0.001). Exploiting ML models for URT microbiota biomarker associated to COVID-19 patients identified: Enterococcus, Pseudomonas, Streptococcus, Capnocytopagha, Tepidiphilus, Porphyromonas, Staphylococcus, Veillonella. No significant differences were found comparing the URT microbiota profile of COVID-19 patients at three times point. We compared URT microbiota of COVID-19 children based on SARS-CoV-2 viral load in NPS: we did not observe any significance differences among patients with high (CT < 25), medium (CT 25-30) and low (CT > 30) viral load suggesting an effect of SARS-CoV-2 on the URT microbiota regardless the viral load.
Conclusions/Learning Points: This evidence provide a specific characterization of the URT microbiota of pediatric COVID-19 resulting independent from the SARS-CoV-2 viral load. Our data suggest that the URT microbiota of COVID-19 patients may have a signature since the first days of infection with no changes during the course of the disease.

PD0096 / #2288

DELIVERY OF A COVID-19 VACCINE TO THE SKIN USING A HIGH DENSITY-MICROARRAY PATCH (HD-MAP)

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

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Backgrounds: SARS-CoV-2 has infected hundreds of millions globally and resulted in perhaps 20 million deaths to date, with ongoing waves of infection in communities despite relatively high vaccination rates. We still face many challenges in the rollout of vaccines and subsequent boosting of initial protective immune responses. A high-density microarray patch (HD-MAP) has been developed by the University of Queensland and Vaxxas that can deliver vaccines to the skin, with possible dose sparing and high thermostability
Methods: This presentation will cover the background HD-MAP technology and its application to COVID-19 vaccine development. We have used the HD-MAP to deliver a SARS-CoV-2 spike subunit vaccine directly to the skin of mice to examine protective efficacy. Human trials are underway
Results: We have shown that the vaccine, dry-coated on the patch is thermostable, and delivery of spike via HD-MAP induces higher cellular and antibody immune responses than traditional needle delivery, with serum able to potently neutralize clinically relevant isolates including alpha, beta, delta and omicron lineages. Finally, a single dose of HD-MAP-delivered spike provided complete protection from a lethal virus challenge,
Conclusions/Learning Points: ,We have demonstrated that HD-MAP delivery of a SARS-CoV-2 vaccine has the potential to significantly impact the ongoing COVID-19 pandemic.

PD0097 / #1294

PARENT ATTITUDES TOWARDS COVID-19 VACCINATION AND VACCINATION RATE AMONG PRE-SCHOOL CHILDREN BEFORE GENERAL VACCINE RECOMMENDATION FOR CHILDREN 5 YEARS OF AGE OR OLDER

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Elena Hick[1], Géraldine Engels[1], Katharina Hecker[1], Johannes Forster[2], Christoph Härtel[1], Oliver Kurzai[2], Nicole Töpfner[3], Johannes Liese[1], Andrea Streng[1]
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Backgrounds: On November 26th, 2021, COVID-19 vaccine was EU-licensed for administration in children aged ≥ 5 years. On May 24th, 2022, the German Advisory Board on Vaccinations (STIKO) recommended general vaccination for children aged ≥ 5 years. We evaluated parent attitudes on COVID-19 vaccination and vaccination rate in pre-school children before general recommendation.
Methods: Parent attitudes towards COVID-19 child vaccination, child vaccination status and previous PCR-confirmed SARS-CoV-2 infection were collected questionnaire-based for children aged 2-6 years attending day care centers in Würzburg (Germany) in July 2022.
Results: Of 356 participating children, 53 (14.9%) were vaccinated against COVID-19; 50/53 (94.3%) between Nov 2021 and May 2022. Median age was 6 years (IQR 5-6) in vaccinated and 4 years (IQR 3-5) in unvaccinated children. Vaccination rates were 2.6% (6/223) in 2-4-year-old and 35.9% (47/131) in 5-6-year-old children; 9.4% of vaccinated and 10.0% of unvaccinated children had a chronic disease; 7/53 (13.2%) were vaccinated off-label. Among 299 parents of unvaccinated children, 35.1% were willing to vaccinate their child, 18.4% were unwilling, and 46.5% were undecided. Parents with a migration background were more often unwilling (34.5%) compared to parents without (13.1%; p=0.001). Previous SARS-CoV-2 infection of the unvaccinated child (131/298; 44.0%) had no impact on the parents' willingness for future vaccination (p=0.424). Parents of unvaccinated children declared the availability of an age-adjusted vaccine (51.2%), STIKO recommendation (46.2%) and pediatrician recommendation (42.5%) as the most important factors for COVID-19 child vaccination.
Conclusions/Learning Points: Even before general recommendation, 36% of 5-6-year-old children were vaccinated against COVID-19, indicating high parental acceptance of the age-adjusted vaccine. Additional efforts are necessary to increase vaccination acceptance in parents with a migration background.

PD0098 / #1208

REDUCED SEASONAL CORONAVIRUS ANTIBODY RESPONSES IN CHILDREN FOLLOWING COVID-19 MITIGATION MEASURES, THE NETHERLANDS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

Reina Sikkema[1], Erwin De Bruin[2], Christian Ramakers[3], Robbert Bentvelsen[4], Wentoa Li[5], Berend-Jan Bosch[5], Brenda Westerhuis[6], Bart Haagmans[7], Marion Koopmans[1], Pieter Fraaij[8]
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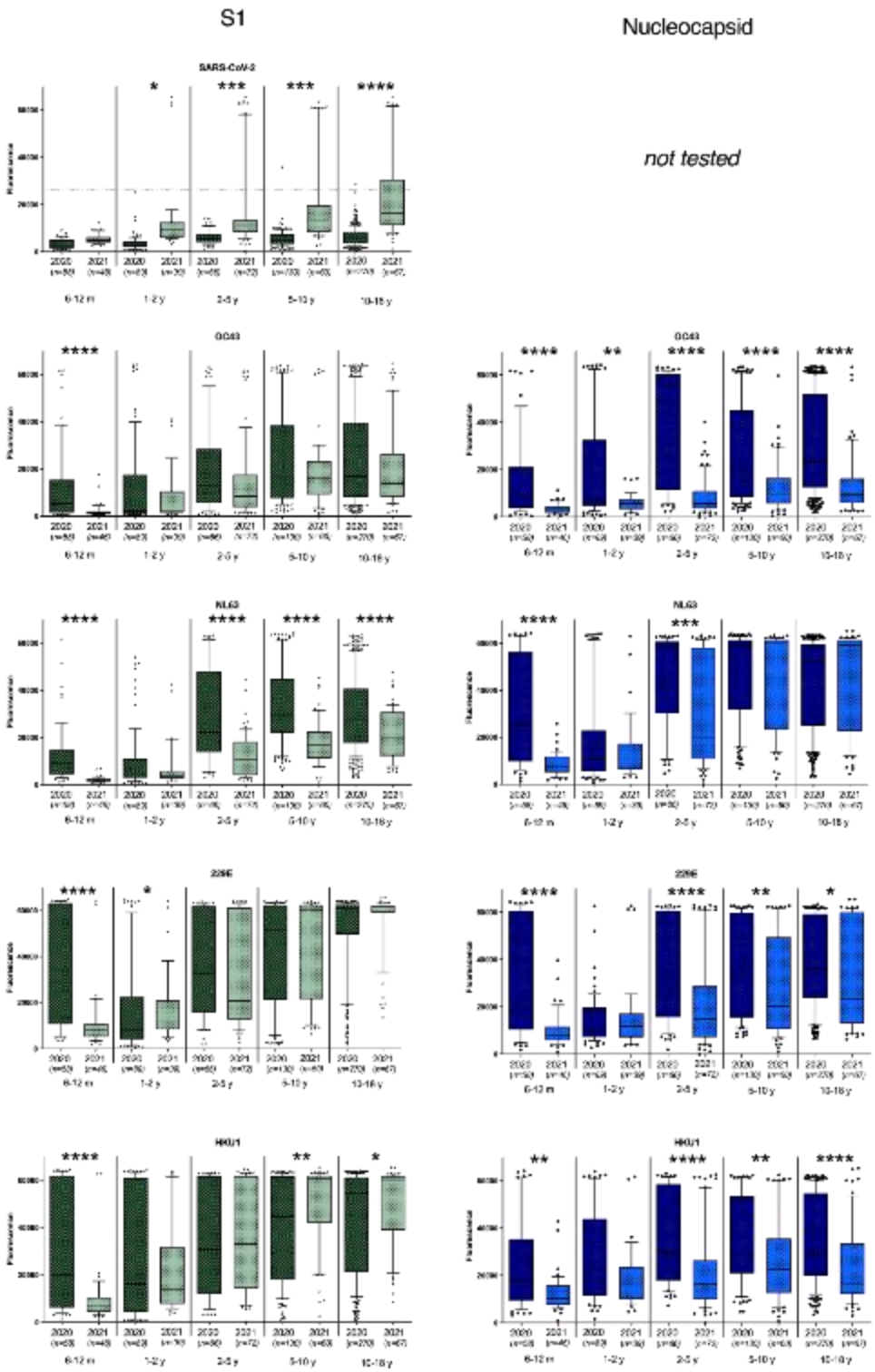
Backgrounds: SARS-CoV-2 prevention and control measures did not only impact SARS-CoV-2 circulation, but also the timing and prevalence of other seasonal respiratory viruses. Especially in children, information on exposure and infections to seasonal coronaviruses as well as SARS-CoV-2 in the first year of the pandemic is largely lacking. Therefore, we set up a one-year serological survey in a large tertiary hospital in the Netherlands.
Methods: Sample Collection: Leftover lithium-heparin plasma samples were collected at the Erasmus medical center. Samples from (suspect) COVID-19 patients were automatically excluded regardless of the result. Only age category information was collected. Protein Microarray: All sera were tested against 13 different antigens from the 4 seasonal coronaviruses and pandemic coronavirus (OC43, 229E, NL63, HKU1, and SARS-CoV-2). Single-spot median fluorescent signals using per-spot background correction were measured using a Powerscanner (Tecan Group Ltd., Mannedorf, Switzerland). Data Analysis: Fluorescence values were determined using Imagene 8.0 software (Biodiscovery, El Segundo (CA), USA). Statistical differences between groups were calculated using the Mann–Whitney test (seasonal coronaviruses-sCoVs) and Fisher's exact test (SARS-CoV-2).
Results: We show that seasonal coronavirus seroprevalence significantly decreased in 2021 in children less than one year, most likely due to COVID-19 control measures (see figure below). The SARS-CoV-2 seroprevalence in children and adolescents increased from 0.4% to 11.3%, the highest in



adolescents. Figure 1. Antibody binding to S1 and nucleocapsid antigens of SARS-CoV-2, OC43, HKU1, 229E, and NL63. For SARS-CoV-2 antigens, the calculated cutoff for positivity is indicated. * represents $p < 0.05$; ** represents $p < 0.01$, *** represents $p < 0.001$, **** represents $p < 0.0001$. .

Conclusions/Learning Points: It is clear that there have been significant changes in the circulation and subsequent immunity against most respiratory pathogens as a result of the mitigation measures.

PD0099 / #2509

CELLULAR AND HUMORAL IMMUNE RESPONSE AFTER VACCINATION AGAINST SARS-COV-2 IN CHILDREN AGED 5 TO 11 YEARS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 09: COVID-19 & MIS-C (STATION 03)

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Background: We aimed to investigate the relationship between humoral and cellular immunity in healthy children from 5 to 11 years vaccinated with Pfizer/BioNTech BNT162B2.
Methods: Healthy children from 5 to 11 years immunized with 2 doses of Pfizer/BioNTech-BNT162B2 were enrolled in December 2021 and followed up for 1 year. Six months later, we evaluated IFN γ-based Th-cellular immunity (QuantiFERON^{TM}). Humoral immunity was tested at 1 and 6 months after 2nd dose, measuring IgG against nuclecapside (anti-N), spike (anti-S), RBD, and anti-S of B.1.1.7, B.1.351, P.1, B.1.617.2; AY 4Alt Seq 2, BA.2.12.1, BA.2+L452M, BA.2+L452R, BA.3, BA.4, BA.5, % inhibition (neutralization) against all mentioned variants, and neutralizing antibody concentration against all variants except BA.4 and BA.5. We assessed the correlation between CD4 response and antibodies with univariate linear regression.
Results: 18 children were followed for 12 months after vaccination. 5/18 children (27%) had either PCR-confirmed COVID-19 or increased anti-N titers between vaccination and 6-months follow-up. Median IFN-γ after CD4 stimulation was 0.72 (0.24-2.04) IU/mL. CD4 response positively correlated with simultaneous serological IgG responses against various SARS-CoV-2 antigens including anti-RBD (R =0.6, p=0.0071), anti-S (R =0.6, P=0.0059), anti-S D615G (R =0.6, P=0.0064), anti-S B.1.1.7 (R =0.7, P=0.0023), anti-S P.1 (R =0.6, P=0.0047), anti-S BA.3 (R =0.8, P=0.0003), anti-S BA.4 (R =0.6, P=0.0088), as well as % inhibition (neutralization) of BA.4 (R =0.4, P=0.047). 2/12 (16.67%) children reported COVID (PCR+) up to 6 months after testing immunity. In both cases, CD4 response was < 0.2 IU/mL. No children with >0.2 IU/mL reported COVID-19 in the 6 months after testing.
Conclusions/Learning Points: We propose anti-S antibodies as a proxy of cellular immunity. A CD4 response >0.2 IU/mL may confer protection for at least 6 months.

PD0100 / #2611

CMV HYPERIMMUNE GLOBULIN AS SALVAGE THERAPY FOR RECURRENT OR REFRACTORY CMV INFECTION IN CHILDREN UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Background: CMV infection remains a major cause of mortality and morbidity in patients undergoing SCT, due to suboptimal prophylaxis strategies and treatment toxicity. Anti-CMV hyperimmune globulins (CMVIG) have high titers of specific antibodies, and have been used as rescue therapy in adults with good efficacy and safety results. We aimed to evaluate the outcome of SCT children suffering from CMV and treated with CMVIG.
Methods: Retrospective description of patients <18 years who received an allo-TPH and CMVIG due to recurrent/refractory CMV infection (2018-2021). All patients received CMVIGs in combination with antiviral drugs. Dosage was 400 U/kg (d1, d4 and d8) and 200 U/kg (d12 and d16). Response was defined as negative CMV DNAemia since the initiation of CMVIG without changing or adding anti-CMV therapy.
Results: Fifteen patients (8 woman, median age 14years [IQR 9-17y]) were included. 10/15 were receiving corticosteroids (≥0.5 mg/kg/day), 8/15 presented moderate-severe acut GVHD, 2 had received a second allo-STC. CMV resistance was negative in 5 tested patients. Indication for CMVIG was recurrent infection (8) and refractory infection (7). 10/15 (66%) patients presented a satisfactory response (mainly in CMV-recurrent patients -7/10-). Median time to response was 27 days (IQR 19-33d). Subsequently, 4 patients reactivated CMV and 3 patients received CMV-specific cytotoxic T lymphocytes. One patient died due to CMV (pneumonitis). Administration of CMVIG was well tolerated, without any adverse events.
Conclusions/Learning Points: In our cohort, CMVIG administration was safe and provide promising efficacy results as an adjuvant treatement, as 10/15 patients achieved CMV clearance after CMVIG infusion. Although CMV recurred in some cases and response was worse in children with refractory viremia, our study provides safety data to encourage larger prospective studies to better characterize the role of CMVIG in those difficult-to-treat patients.

PD0101 / #1890

QUANTIFERON®-CMV ASSAY AS A PROGNOSTIC TOOL IN CHILDREN WITH CONGENITAL CYTOMEGALOVIRUS INFECTION

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: The assessment of Cytomegalovirus (CMV)-specific T-cell responses has shown great promise in the evaluation of transplant patients at high risk of CMV infection. However, their value as a potential predictive factor in children with congenital CMV (cCMV) infection is yet to be determined.
Methods: In this prospective ongoing study, we used the QuantiFERON®-CMV assay (Qiagen, Hilden, Germany) in blood samples drawn within the first month of life and at the age of six months, in order to assess the anti-CMV cell-mediated immunity in children with cCMV infection. The association with symptomatic disease at birth, and trimester of maternal CMV infection (PMI) was examined using chi-square test.
Results: QuantiFERON-CMV® assay (QFT-CMV) was performed in blood samples from 22 neonates and eighteen 6-month-old infants with cCMV infection. Children with symptomatic neonatal cCMV disease were less likely to have a reactive QFT-CMV when compared to asymptomatic newborns both at birth (1/13 versus 7/9) and at the age of 6 months (3/8 versus 9/10) (p=0.00078 and p=0.019 respectively). Timing of maternal CMV infection had no effect on the QFT-CMV reactivity at birth. Infants born post maternal primary CMV infection during the first trimester of pregnancy were less likely to present with a reactive QFT-CMV at the age of 6 months (2/7) when compared to those born post maternal infection later in pregnancy (9/10, p=0.009).
Conclusions/Learning Points: Based on these preliminary results, it appears that children with asymptomatic neonatal disease and infants born post PMI later in pregnancy are more likely to develop anti-CMV specific cell-mediated immunity. However, further research is required to assess whether the QFT-CMV assay could be used as an additional prognostic biomarker in infants with mild cCMV symptomatic disease.

PD0102 / #2006

INFANT BOTULISM IN SOUTHERN SPAIN: EPIDEMIOLOGY AND OUTCOMES, 1997-2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: Infant Botulism (IB) is caused by the intestinal colonization by Clostridium botulinum in the first year of life and its production of neurotoxins. In Europe, IB is a rare disorder. The aim of our study was to analyze epidemiology and management of IB.
Methods: Retrospective multicenter study of IB cases detected in Andalusia (Southern Spain) since 1997. Epidemiological, clinical, diagnostic and outcomes variables were analyzed.
Results: Twenty-one confirmed cases of IB from 6 third-level hospitals in Andalusia, were included. Sixty-six percent of cases were presented during the second period of study (2010-2022). Median age 3 months (IQR 1.5-6), 3 cases were exposed to honey. More than 90% presented with hypotonia, weak cry, constipation, and ptosis. Two thirds experienced somnolence, myotactic reflexes were diminished in 71 %, and 33% needed ventilation support. At diagnosis 76 % presented alterations in neurophysiological studies. Diagnosis was confirmed in all cases by the analysis of stool samples with the mouse-neutralization bioassay and in 5 cases toxin B was detected. Only two patients received specific immunoglobulin, and 43% received empirically intravenous immunoglobulin (IVIG). One patient with myopathy died. Median time to improvement in patients who received IVIG was slightly shorter (16 days) than in patients who did not (21 days), but statistical significance was not achieved. In the second period of study antimicrobial therapy and time to hospitalization was analysed: those cases who received empirically antibiotic treatment, required prolonged hospitalizations: 22 days vs 12 days (p 0.02).
Conclusions/Learning Points: An increase of IB has been detected in our region since 2010. Inespecific immunoglobulin could be an effective treatment, but further longer studies are required. Broad spectrum antibiotics, may cause progression of the patients´s paralysis, increasing the amount of neurotoxin available for absorption.

PD0103 / #544

A PARALLEL THREAT OF EXTENSIVELY DRUG-RESISTANT TYPHOID FEVER IN PEDIATRIC COHORT DURING COVID-19 PANDEMIC

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: The extensively drug-resistant (XDR) Salmonella typhi isolates are on the rise in north western part of Pakistan, with fragile health care systems especially during the challenging period of Coronavirus disease (CoVID-19) pandemic when systems are already over strained. At this point, we report the first large-scale emergence of an XDR S. Typhi outbreak in Khyber Pakhtunkhwa, Pakistan during CoVID-19 pandemic. This strain of S. Typhi is resistant to all i.e. first line and second line recommended antibiotics; including the third generation cephalosporin
Methods: From November till December 2020, significant level of resistance was observed to different groups of antibiotics tested in Salmonella species isolated from blood samples of pediatric age group. Demographic data including age, gender, address and clinical manifestations were documented. A total of 562 blood cultures from symptomatic patients were submitted to Pathology Laboratory at a tertiary care hospital of Rehman Medical Institute, Peshawar. All samples were incubated in BacT/ALERT 3D and processed according to standard recommendations.
Results: Salmonella Typhi was isolated among 71 of 562 blood samples, out of which 66 (92.9%) and 5 (7%) were XDR and multidrug resistant (MDR), respectively. All isolates were completely resistant to chloramphenicol (100%), ampicillin (100%), ciprofloxacin (100%), ceftriaxone (100%) and co-trimaxazole (93%). All MDR and XDR Salmonella Typhi isolates were sensitive to carbapenems and azithromycin. The children under 15 years' age (88%) has a significantly high prevalence as compared to adults (p=0.0016) and males (76%) were affected more than females (24%).
Conclusions/Learning Points: The emergence of XDR S. Typhi with high level of resistance is quite alarming. With inadequate treatments options, the present situation calls for immediate effective preventive measures including food and water safety, improved sanitation, public awareness sessions and typhoid vaccination campaigns.

PD0104 / #353

LONG-TERM CARDIOLOGY OUTCOMES IN CHILDREN AFTER EARLY TREATMENT FOR CHAGAS DISEASE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: Parasite persistence after acute infection with Trypanosoma cruzi is an important factor in the development of Chagas disease (CD) cardiomyopathy. Few studies have investigated the clinical effectiveness of treatment through the evaluation of cardiological events by long-term follow-up of treated children. Features that would be diagnosed as abnormal in an adult's ECG may be normal in a pediatric ECG trace. The objective was to evaluate cardiac involvement in patients with CD with a minimum follow-up of 6 years post-treatment.
Methods: A descriptive study of a cohort of CD's pediatric patients (N=234) treated with benznidazole or nifurtimox with at least 6 years post-treatment follow-up at the Parasitology and Chagas Service, Buenos Aires Children's Hospital (Argentina) were enrolled. By convenience sampling, children who attended a clinical visit between August 2015 and November 2019 were also invited to participate for additional cardiovascular studies (24-hour Holter monitoring and speckle-tracking 2D echocardiogram).
Results: Benznidazole was prescribed in 171 patients and nifurtimox in 63 patients. Baseline parasitemia data was available for 168/234 patients. During the follow-up period, alterations in routine ECG were observed in 11/234 (4.7%, 95% CI [2–7.4%]) patients. In only four patients, with complete right bundle branch block (cRBBB) and left anterior fascicular block (LAFB), ECG alterations were considered probably related to CD. During follow-up, 129/130 (99%) treated patients achieved persistent negative parasitemia by qPCR. Also decrease in T.cruzi antibodies titers was observed in all patients and negative seroconversion occurred in 123/234 (52%) patients.
Conclusions/Learning Points: A low incidence of cardiological lesions related to CD was observed in patients treated early for pediatric CD. This suggests a protective effect of parasiticidal treatment on the development of cardiological lesions and highlights the importance of early treatment of infected children.

PD0105 / #1109

TRANSMISSION OF EXTENDED-SPECTRUM BETA-LACTAMASE-PRODUCING ESCHERICHIA COLI TO NEONATES: A CROSS-SECTIONAL STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: The increase in extended-spectrum beta-lactamase (ESBL)-producing Escherichia coli (ESBL-E) has become a global issue. The route of transmission of ESBL-E to infants remain unknown. This study aims to identify whether the transmission of ESBL-E can occur from mother to neonate.
Methods: In this cross-sectional prospective study, we collected rectal samples from neonates who were born with normal gestational age in our hospital from September 2019 to December 2020. Two samples were obtained from each neonate, day 5 and one month after the birth. In Japan, vaginal-rectal samples are routinely obtained from pregnant women at around 34 gestational weeks for screening of Group B streptococcus. We compared the results from the neonatal and maternal cultures. Logistic analyses were performed to identify potential risk factors for the transmission of ESBL-E.
Results: The study included 631 neonates and their 629 mothers. ESBL-E was isolated from 31 (4.9%) neonates. The majority (n=21) of ESBL-E-positive neonates were identified at day 5. ESBL-E was isolated from 25 (4.0%) pregnant women. Of the 25 neonates whose mothers had ESBL-E, 10 (40%) neonates had ESBL-E. Among the 21 neonates who had ESBL-E but whose mothers did not, ESBL-E was isolated from 14 on day 5 and 7 at one month. Vaginal delivery [OR 1.96, 95% CI (0.8–5.4)], breast feeding [OR 1.34, 95% CI (0.3–24.6)], siblings [OR 2.19, 95% CI (0.2–85.4)], and grandparents [OR 2.02, 95% CI (1.0–4.6)] were risk factors for the transmission of ESBL-E.
Conclusions/Learning Points: This study suggests that ESBL-E can be transmitted from mother to neonate. Vaginal delivery, breast feeding, siblings, and grandparents were associated with an increased risk of ESBL-E transmission. Nosocomial or domestic transmission is another potential transmission route of ESBL-E among neonates.

PD0106 / #1834

PEDIATRIC HEPATITIS OF UNKNOWN AETIOLOGY: AN INVESTIGATION INTO SEVENTEEN CONSECUTIVE CASES ADMITTED TO THE BAMBINO GESÙ CHILDREN'S HOSPITAL IN ROME BETWEEN APRIL AND NOVEMBER 2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: Since April 2022, an increase in pediatric acute hepatitis of unknown aetiology was reported by different countries. We describe seventeen cases of children admitted to the Bambino Gesù Children's Hospital in Rome, for acute hepatitis of unknown cause between mid-April and November 2022.
Methods: According to the World Health Organization working case definition, 17 children (N=10, male; N=7, female) with a median age of 2.1 years (interquartile range:1.0-7.1) presenting with acute hepatitis non-A-E with serum transaminase >500 IU/L, were considered as probable cases. A pre-specified set of microbiological tests was performed for all of them in different specimen types.
Results: All patients were born in Italy. At hospital admission, presenting features were fever (52.9%), vomiting (35.3%) and diarrhoea (29.4%). All 17 patients resulted negative for the common hepatotropic viruses (A/B/C/D/E). By performing molecular tests, HHV-7 was the most common pathogen detected in blood specimens 9/17 (52.9%). Adenovirus was mostly detected in stool specimens (10/16, 62.5%) than in respiratory (3/15, 20.0%) or blood samples (3/17, 17.6%). Rhinovirus was the most frequently detected pathogen in respiratory samples (6/15, 40.0%). Regarding SARS-CoV-2 infection, only one child had a positive test two days upon hospital admission while antibodies against SARS-CoV-2 spike and nucleoprotein were detected in 14/17 (82.3%) patients. Considering adenovirus-positive patients (N=12), all of them showed at least one co-pathogen detection and 9/12 (75.0%) had a prior SARS-CoV-2 exposure. Overall, 16 children have recovered without clinical complications while one patient required liver transplantation.
Conclusions/Learning Points: In these cases of acute hepatitis of unknown origin, adenovirus was detected mainly in stool samples and a co-pathogen detection was also frequently observed, suggesting that the aetiology of this acute hepatitis is most probably multifactorial.

PD0107 / #395

SEXUALLY TRANSMITTED INFECTIONS IN PAEDIATRIC PATIENTS: A RETROSPECTIVE OBSERVATIONAL STUDY OF A REFERENCE OUTPATIENT CLINIC IN BARCELONA CITY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: The detection of sexually transmitted infections (STIs) in adolescents is increasing, probably due to a change in relationships and behaviours, as well as to an increase in their screening, since they can be asymptomatic.
Methods: Retrospective observational study including patients less than 18 years attended at a reference STIs clinic in Barcelona city between May 2019 and October 2022. Clinical and sociodemographic variables and risk behaviours were collected in the clinical interview and microbiological results were analysed.
Results: A total of 167 first consultations were registered among 143 patients. Seventy-three (51%) were male, with a median age of 16 years (IQR 15-17). The main reasons for consultation were: symptoms (37%), screening (30%), contact tracing study (19%) and study in the context of sexual violence (14%). Nearly a quarter of them (23%) had previous STIs. Nearly a half (45%) tested positive in microbiological exams, presenting co-infections 38% of them. The most frequent isolated pathogens were Neisseria gonorrhoeae and Chlamydia trachomatis (table). The median age at first sexual relation was 14 years (IQR 13,25-15). Three quarters (72%) were drug users (table). Regarding the number of sexual partners, 65% reported less than 5 in the last 12 months but 17% reported having 10 or more. The regular use of barrier methods varied according to the type of sexual practice decreasing from 35% to 20% and 5% in anal, vaginal and oral sex,
respectively.

Microbiological results	**% (N)**
Neisseria gonorrhoea	19.7% (33/167)
Chlamydia trachomatis	16.7% (28/167)
Ureaplasma urealyticum	14.4% (24/167)
Mycoplasma genitalium	4.2% (7/167)
Scabies	3.6% (6/167)
Molluscum contagiosum	2.4% (4/167)
HSV-1	1.8% (3/167)
HSV-2	1.2% (2/167)
HPV	1.2% (2/167)
Treponema pallidum	0.6% (1/167)
HBV	0.6% (1/167)
Trichomonas vaginalis	0.6% (1/167)
HIV	0% (0/167)
HCV	0% (0/167)

Use of drugs	**% (N)**
Alcohol	56.4% (53/94)
Tobacco	50% (47/94)
Cannabis	26.6% (25/94)
Other drugs	8.5% (8/94)

Conclusions/Learning Points: This study focused exclusively on paediatric patients presents similar results to previous studies in adolescents up to 19 years old, which shows that STIs are also a public health problem in minors. In addition to prevention programs, targeted and accessible screening strategies are required to address STIs at an earlier age.

PD0108 / #1569

HEPATITIS A-INDUCED ACUTE LIVER FAILURE: ARE THERE NEW RISK FACTORS OF OUTCOME?

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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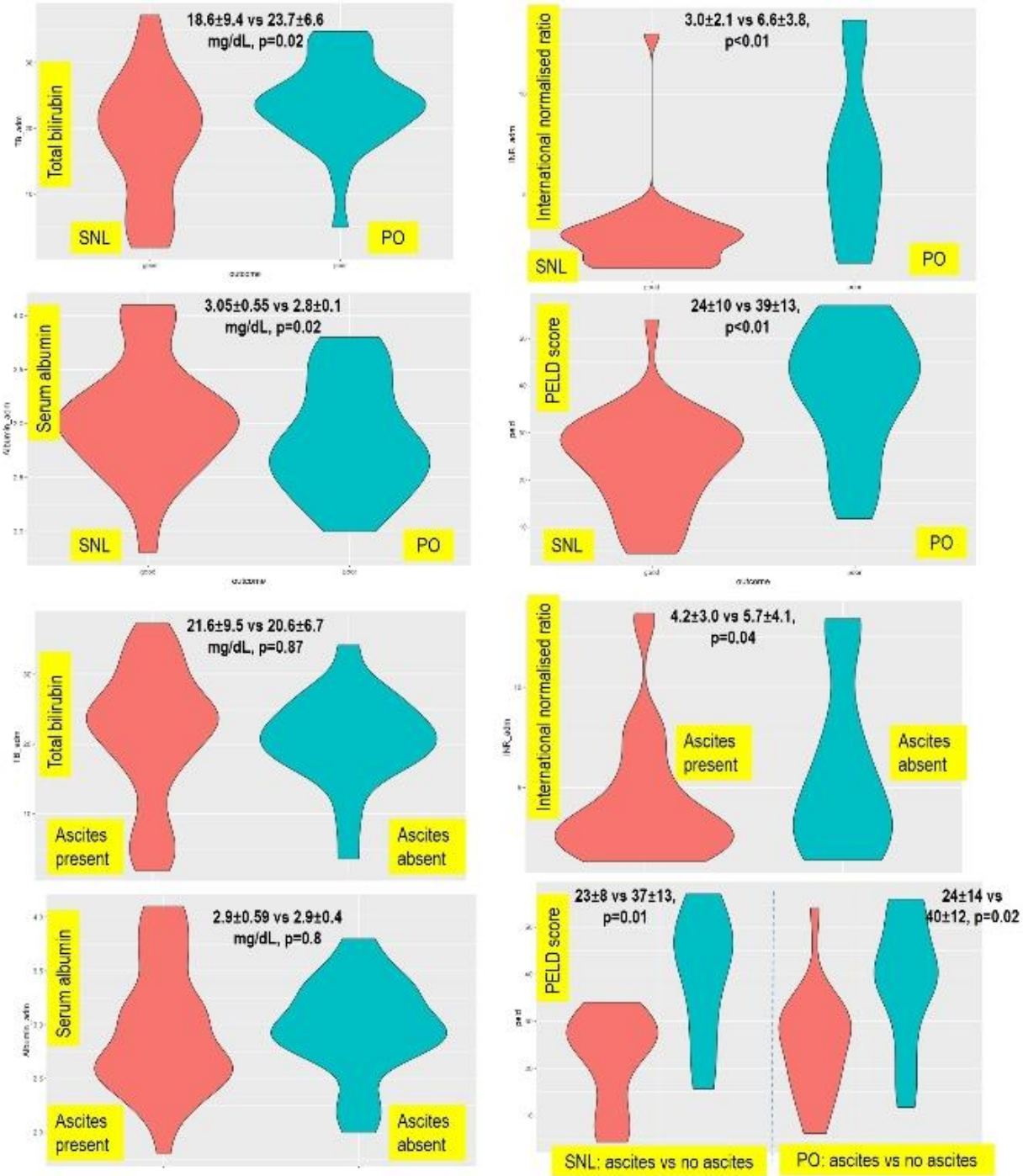
Backgrounds: Hepatitis A virus (HAV) in developing nations is one of the leading causes of acute liver failure (ALF) in children. Survival with native liver (SNL) is guarded. We aimed to study the factors that are associated with outcomes in this condition.
Methods: We analysed the clinical-laboratory data of patients admitted with ALF (IgM-anti-HAV and other causes) between 2017-2022. Poor outcome(PO) was defined as death or requirement of liver transplantation. Underlying chronic liver disease was excluded.
Results: Comparison of HAV-ALF (n=55) vs non-HAV-ALF (n=44) [hepatitis B (n=12), hepatitis E (n=2), Epstein-Barr (n=7), parvovirus (n=6) and indeterminate (n=19)] showed age (7.1±4.0y vs.9.9 ±4.6y, p=0.002), duration of illness (33.9±23.8 vs 21±6.8 days, p=0.04), PELD (pediatric-end-stage-liver-disease) score (31.4±14.1 vs 27.4±20.1, p=0.07) and SNL (51% vs 38%, p=0.1). Among HAV-ALF, 61% had ascites (35% at presentation, 26% during admission; jaundice to ascites duration 17±22 days) and 65% had encephalopathy (55% at presentation, 10% during admission; jaundice to encephalopathy duration 15.5±19 days). PO was seen in 90% of those who developed ascites prior to encephalopathy (41%) and required large-volume paracentesis (33%). Violin plots (Figure 1) show comparison of liver function with final outcome.



Complications of HAV-ALF were infections (66%), cerebral edema (54%), acute kidney injury (34%), bleeding (30%), and hepatic hydrothorax (10%). On multiple step-wise logistic regression, ascites preceding encephalopathy [OR 2.1(1.6-3.3), p=0.002], spontaneous bacterial peritonitis [OR 1.8(1.2-2.3), p=0.02] and PELD score [OR 4.3(2.3-4.8),p=0.001] were independent predictors of PO. At presentation, PELD score cutoff <23.5 (AUROC 0.86, sensitivity:83%, specificity:50%) and serum albumin >3.1 g/dL (AUROC 0.77, sensitivity:85%, specificity:56%) were associated with SNL.

Conclusions/Learning Points: Ascites preceding encephalopathy and spontaneous bacterial peritonitis is associated with poor outcomes in acute liver failure. Universal vaccination policies need to be reinforced in developing nations.

PD0109 / #1603

INTERVERTEBRAL DISCITIS TREATMENT IN CHILDREN - CHANGING PRACTICE

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Backgrounds: Discitis is an inflammatory process of the intervertebral disc. To date, no guidelines are available for treatment and there seems to be a practical shift towards shorter intravenous (IV) antibiotic regimen. We aimed to describe the clinical characteristics, treatment approach throughout the years, and the clinical implications of the change in treatment approach.
Methods: The study included all patients diagnosed with imaging confirmed discitis from 2000 - 2022. Data extracted from patient's files included patient demographics, clinical presentation and findings during hospitalization, treatment regimens, and follow-up.
Results: Included were 131 cases. Median patient age was 14.7 months (IQR 6.9). Irritability, refusal to stand / walk, and pain while changing diaper were common symptoms (52.7%, 68.7%, and 48.1%, respectively). Elevated CRP was the most common laboratory finding (76.3%, median value of 1.9 (IQR 2.5) mg/dl). Mean duration of antibiotic treatment was 15.4 (SD±10) days IV and 30 (±9.7) days in total. Over the years there was a trend towards shorter IV treatment; Only 3 cases were treated intravenously for ≤ 7 days before 2010 (5%) compared with 31 (44.3%) from 2010 forward. Only one child in the short duration group needed re-hospitalization due to treatment failure (2.9%) and none suffered long-term complications. On the other hand, nine children suffered from IV treatment related complications, all treated IV for longer than 7 days (9.4%).
Conclusions/Learning Points: Early switching to oral treatment in pediatric discitis patients is clinically appropriate, possibly preventing treatment related complications and saving costs with no major negative clinical impact.

PD0110 / #2666

ANALYSIS OF GENOMIC DIVERSITY, BACTERIAL POPULATION STRUCTURE, VIRULENCE, AND ANTIMICROBIAL RESISTANCE IN ENTEROBACTERALES FROM NEONATES AND INFANTS AGED 0-90 DAYS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Background: Babies are particularly at risk for invasive infections caused by Enterobacterales with high rate of mortality. Little is known about the population structure of Enterobacterales, so it is difficult to recognise the emergence of clinically important clones within this highly genetically diverse species. We compared the gene profile in terms of virulence (VG) and resistance genes (RG) among invasive and non-invasive isolates.
Methods: Enterobacterales from blood (invasive) and gut (non-invasive) were collected from European infants <90-day and characterised by Whole-Genome-Sequencing (WGS, Illumina MiSeq platform). The Wilcoxon test was used to compare the median number of VG and RG per class. The Spearman's rank correlation was used to evaluate the relationship between the number of RG and VG carried by each isolate.
Results: Overall, 81 invasive and 33 non-invasive isolates were characterised. Invasive isolates harboured a significantly higher median number of VG (p=0.003) and RG (p=0.02) compared to colonizing ones. Genes involved in adherence (p=0.001), bacterial metabolism (p=0.005), cell invasion (p=0.001), iron metabolism (p=0.02), motility/chemotaxis (p=0.04), and toxins (p=0.001) were disproportionately represented among invasive isolates as well as those involved in antibiotic efflux, antibiotic target alteration, and reduction of permeability to antibiotics (p<0.01). Among invasive isolates, there was a strong positive correlation between the number of carried RG and VG (Rho=0.79; p=0.001) whereas this was not significant among non-invasive ones (Rho=0.16; p=0.35).
Conclusions/Learning Points: Invasive pathogens carried significantly more RG and VG than faecal ones. The convergence of virulence and resistance potentially could lead to the emergence of untreatable infections. Our data provide an example of a whole-genome framework against which to track the emergence of such threats. WGS on RG and VG needs to be repeated in global larger prospective cohort studies and trials.

PD0111 / #2473

RISK FACTORS FOR OSTEOARTICULAR INFECTIONS IN CHILDREN IN A EUROPEAN COHORT

E-Poster Discussion
E-POSTER DISCUSSION SESSION 10: NON-RESPIRATORY INFECTIONS (STATION 04)

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Background: Osteoarticular infections (OAI) are associated with long term morbidity in children. Timeless diagnosis and prediction of complications and sequelae is of utmost importance to improve outcomes. We aimed to build risk prediction models to early recognize complications and sequelae in OAI in children.
Methods: Longitudinal observational study of children (>3months-17 years-old) with acute OAI admitted to a tertiary care pediatric hospital, from 2008 to 2018. Clinical, treatment, complications and sequelae were obtained. We developed a multivariable logistic predictive model for acute complicated course (ACC) and another for sequelae
Results: A total of 240 children were identified, 17,5% with an ACC, 5.8% and 3,3% with sequelae at 6 and at 12 months follow-up, respectively. In the multivariable logistic predictive model for ACC, fever at admission (adjusted odds ratio [aOR] 2.98; 95% CI 1.10 to 8.12), CRP ≥100mg/L (aOR 2.37; 95% CI 1.05 to 5.35), osteomyelitis (aOR 4.39; 95% CI 2.04 to 9.46) and S. aureus infection (aOR 3.50; 95% CI 1.39 to 8.77) predicted ACC, with an area under the ROC curve (AUC) of 0.831 (95% CI 0.767-0.895). For sequelae at 6 month predictors were age ≥ 4 years (aOR 4.08; 95%CI 1.00 to 16.53), CRP ≥110mg/L (aOR 4.59; 95%CI 1.25 to 16.90), disseminated disease (aOR 9.21; 95% CI 1.82 to 46.73) and bone abscess (OR 5.46; 95% CI 1.23-24.21), with an AUC of 0.887 (95% CI 0.815-0.959)
Conclusions/Learning Points: OAI in younger children with low inflammatory patterns, after exclusion of S. aureus infection, bone involvement or disseminated disease, have a better prognosis and should be treated less aggressively.

PD0112 / #1423

METABOLOMIC STUDY OF THE INTESTINAL MICROBIOTA FOR ALLERGIC INFANTS' DIAGNOSIS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: The intestinal microbiota establishes a relationship of mutual benefit in the human intestine, playing several roles since it's conception, increasing it in its first months of life. The symbiotic bacteria's action, which is responsible for the homeostatic regulation, contributes to the organism's physiological stability, and they also expel metabolites associated with normal processes, and in response to dysfunctions. Food allergy is an important cause of variation in the intestinal microbiota, resulting in difficult diagnoses.
Methods: In this study, the fecal samples' intestinal metabolite profiles from infants symptomatic and suggestive of Cow's Milk Protein Allergy (CMPA), assessed by oral provocation test (OPT), were treated in a metabolomic study approach to propose a diagnostic model in children with cow's milk intolerance with or without CMPA. 24 samples were obtained from the Alimentary Food Allergy of Sergipe (Brazil) were submitted to an extraction protocol, with the extracts being analyzed by ultra-high resolution mass spectrometry (HESI-FT-Orbitrap MS).
Results: The principal component analysis (PCA) was applied separately to both positive and negative mode data and there were no different substances between groups. Spectral data was processed using partial least squares discriminant analysis (PLS-DA) to separate TPO+ and TPO− groups. The values for the assessment of the model obtained from the negative mode data, using three latent variables, could differentiate the two groups, with R^2=0.844 (model fit), 88.3% accuracy and Q^2=0.507 (predictive capacity). The metabolomic profiles obtained in the positive mode of analysis were not statistically significant.
Conclusions/Learning Points: As a preliminary study, the predictive model using the metabolic profile, obtained in the negative mode, showed significant values in the validation, and may become a possible tool for the diagnosis of patients with CMPA.

PD0113 / #1528

GUT, ORAL AND NASOPHARYNGEAL MICROBIOTA TRAJECTORY IN HOSPITALIZED INFANTS WITH RSV-BRONCHIOLITIS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: Respiratory syncytial virus (RSV) is the leading cause of lower respiratory tract infections and hospitalizations in infants worldwide. Some studies have evaluated the gut and respiratory microbiota in these patients, but mainly focusing on a single timepoint. Here, we reconstructed the gut, oral and nasopharyngeal microbiota trajectory in infants with RSV-bronchiolitis in relation to disease severity.
Methods: Twenty infants under one year of age hospitalized in the last epidemic season for RSV-bronchiolitis were enrolled. For all patients, fecal samples, oral swabs and nasopharyngeal aspirates were collected at three timepoints: emergency room admission, discharge and 6-months follow up. The microbiota of the three ecosystems was profiled by 16S rRNA amplicon sequencing. Patients were stratified by length of hospitalization (more or less than 5 days).
Results: A general increase in alpha diversity was observed over time for all ecosystems in less severe patients (i.e., hospitalized less than 5 days). Furthermore, the gut microbiota of less severe patients was enriched over time in typically health-associated taxa (e.g., Blautia, Faecalibacterium), while patients hospitalized for longer were featured by increased proportions of potential pathobionts belonging to Enterobacteriaceae. As for oral microbiota, increasing trends of commensal bacteria (such as Haemophilus and Fusobacterium) characterized the less severe patients. Finally, overabundances of Neisseria and Prevotella (commonly residing in the nasopharynx) characterized the dynamics of the nasopharyngeal microbiota in less severe patients, while Janthinobacterium appeared to be associated with higher disease severity (Figure
1).

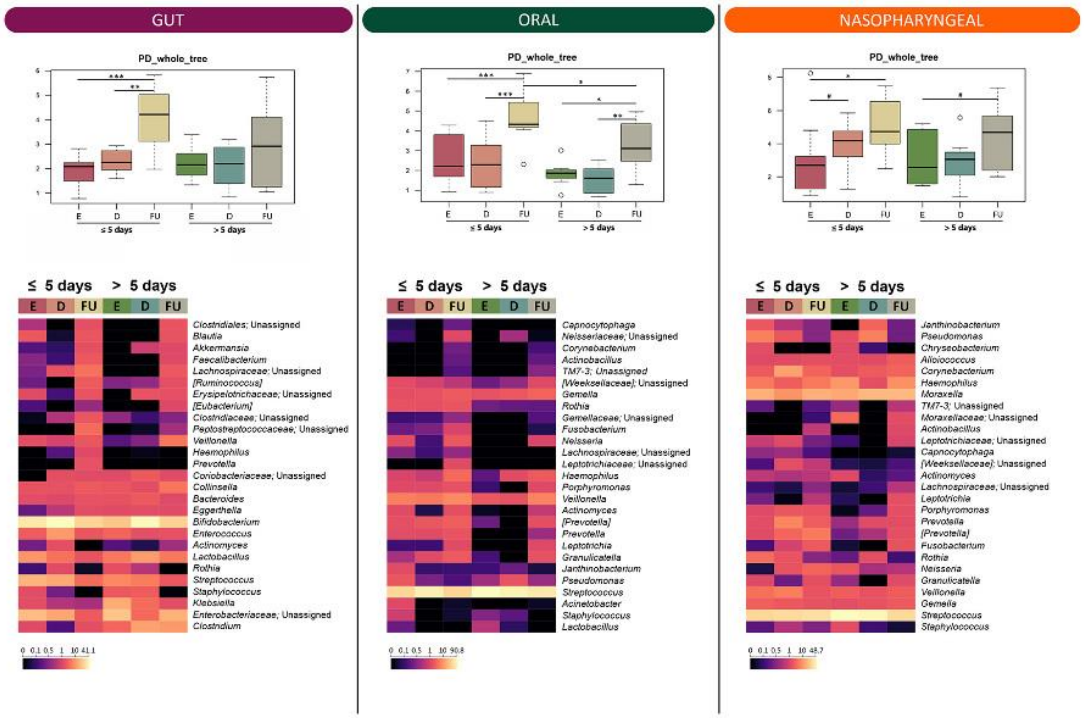

Figure 1: Gut, oral and nasopharyngeal microbiota trajectory in infants under 1 year of age with RSV-bronchiolitis with different length of hospitalization. Top, boxplots showing the distribution of alpha diversity, computed with Faith's Phylogenetic Diversity (PD_whole_tree), for samples collected at emergency room admission (E), discharge (D) and 6-months follow up (FU), in patients hospitalized for more or less than 5 days. Wilcoxon test, * for $p < 0.05$; ** for $p < 0.01$; *** for $p < 0.001$; # for $p > 0.05$. Bottom, heatmaps showing mean relative abundance of the top 27 most abundant genera for each ecosystem in relation to sampling timepoint and length of hospitalization.

Conclusions/Learning Points: Infant microbiomes (fecal, nasopharyngeal and oral) were affected by RSV-bronchiolitis. Notably, the most severe patients exhibited potentially harmful microbial signatures up to 6 months post discharge. Monitoring the microbiome during RSV-bronchiolitis could be important for infants' prognosis and future health.

PD0114 / #2114

STAYING ALIVE: SURVIVAL CHARACTERISTICS OF GROUP A STREPTOCOCCUS IN AEROSOL

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: Future vaccines against Group A Streptococcus (GAS) need to reduce transmission. Although transmission occurs via the respiratory droplet route, there are no published data characterising GAS survival in droplets to inform candidate vaccine antigen selection.
Methods: The airborne survival of GAS serotypes M1 and M89, and Escherichia coli, was compared using an Electrodynamic Trap. This unique methodology allows levitation of droplets and precise control of environmental conditions such as relative humidity (RH) before deposition on agar plates for colony counting.
Results: GAS serotypes M1 and M89 exhibited a similar median survival of 75-80% after 20min levitation in typical indoor conditions (18^{o}C, 50% RH), but significantly higher than 45% survival of E.coli. Although there was no significant difference in survival when GAS was levitated in Todd-Hewitt broth, Luria-Bertani broth or Minimum Essential Media, survival was significantly lower in artificial saliva. Higher RH supported GAS survival, with M1 GAS exhibiting 50% survival at 30% RH and >80% survival at 75% RH. This RH-related difference in GAS survival was further accentuated by the addition of sodium chloride 10g/L, suggesting that airborne loss of GAS is dependent on efflorescence (dried salt crystals). Low RH-driven loss of survival could be reversed by the addition of 2% foetal calf serum, suggesting an ability of the bacteria to survive in the droplet's organic fraction.
Conclusions/Learning Points: GAS is strikingly aerostable compared with E. coli. The organic fraction of the droplet may protect GAS from efflorescence-driven loss. Collectively, our observations suggest that GAS has evolved specific mechanisms to survive in aerosol, and thus future studies of bacterial gene expression in aerosol compared with liquid phase may identify novel and clinically-relevant vaccine antigens.

PD0115 / #1143

CENTRAL-LINE ASSOCIATED BLOODSTREAM INFECTIONS IN PEDIATRIC ONCOLOGY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: Central venous lines (CVLs) are the most common vascular access used for children with cancer. Central line-associated bloodstream infections (CLABSIs) are still an important cause of morbimortality in these patients. The aims of this study were to describe the epidemiology, microbiology, and risk factors for CLABSIs and determine the incidence rate of CLABSIs among pediatric oncology patients.
Methods: We conducted a retrospective study of CLABSI in pediatric oncology patients from January 2018 to December 2022. A p value of <0.05 was considered statistically significant.
Results: Over a five-year period, 126 CLABSIs (80 patients: 66% males) were included, with a median age at diagnosis of 3 years. Acute lymphoblastic leukemia was the most common underlying disease (28.7%). Long-term CVLs were the most commonly placed device (64.3%) and jugular internal vein was the most common insertion site (43.7%). Overall CLABSI rate was 2.52 infections per 1000 line-days (126 episodes in 499935 line-days). The median time from insertion to first CLABSI episode was 54 days. S. epidermidis was the most common pathogen (33.8%). The lethality rate was 3.2%. The use of short-term CVL was a significant risk factor for CLABSI (table 1).

	Incidence rate	95% Confidence interval	p value
Age at insertion (years)			
≤2	2.4	1.8-3.1	0.7
>2	2.6	2-3.3	
Diagnosis			
Hematologic malignancy	2.7	2.1-3.4	0.41
Solid tumor	2.3	1.8-3	
Neutropenia at insertion			
ANC ≤0.5 × 10^9/L	3.7	2-6.1	0.135
ANC >0.5 × 10^9/L	2.3	1.9-2.8	
Neutropenia duration			
>7 days	2.6	1.9-3.6	0.13
≤7 days	1.7	0.8-2.8	
Type of CVL			
Short-term	5.2	3.8-6.9	p<0.0001
Mild and long-term	1.9	1.5-2.4	

Conclusions/Learning Points: A low CLABSI rate was reported compared to others publish reports. It is very important to follow CLABSI rates closely and take precautions to prevent infections.

PD0116 / #1636

THE EFFICACY OF ANTIBIOTIC PROPHYLAXIS PRIOR TO VOIDING CYSTOURETHROGRAM IN PREVENTING URINARY TRACT AND BLOOD STREAM INFECTIONS IN CHILDREN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

Ranaa Damouni Shalabi[1], Gharam Salameh[2], Akram Assadi[3], Omri Nativ[3], Ehud Berger[2], Imad Kassis[1], Anat Ilivitzki[4], Haleema Dabaja-Younis[1]
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Backgrounds: Voiding cystourethrogram (VCUG) is an invasive procedure with potential complications such as urinary tract infections (UTI) and subsequent bloodstream infections (BSI). Therefore, physicians tend to administer antibiotic treatment before the procedure, although the efficacy of such treatment has not been proven. Our aim is to evaluate the role of prophylactic antibiotic treatment in preventing such complications and to identify higher-risk patients who might benefit most from antibiotic prophylaxis.
Methods: A retrospective cohort study conducted at a tertiary center in northern Israel. Data were collected from electronic records of children < 18 years of age admitted to VCUG between 2016 and 2020. Rates of UTI or BSI as well as demographic and clinical variables were compared between children with and without antibiotic treatment prior the procedure.
Results: A total of 463 procedures were included in the final analysis, of which 375 (~81%) received antibiotic prophylaxis. Overall, 34/460 (~7%) patients were hospitalized in the first 30 days after the procedure, and 17/460 (3.6%) developed UTI. One patient developed urosepsis. No difference in the incidence of UTI was observed between patients without antibiotic treatment (5.9%), patients treated with prophylactic dosage (5.3%) and patients with therapeutic dosage (3.3%) (p=0.576). However, increased risk of UTI was noted in females (5.3% vs. 1.8%, p=0.022, OR =3.84, 95%CI: 1.21-12.19) and in patients with known urinary tract anomaly at the time of the procedure (6.6% vs. 0.5%, p=0.042, OR =4.77, 95%CI: 1.06-21.51).
Conclusions/Learning Points: Prophylactic antibiotics used in VCUG procedures do not significantly affect the incidence of UTI and BSI, which have a low incidence with or without prior antibiotic administration. Future prospective studies are needed to support the findings of the current study.

PD0117 / #111

EARLY LIFE MICROBIOME OF GHANAIAN INFANTS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: Early development of the microbiome has long been associated with general health and physical development of the infant. The use of antibiotic for pre-term infants, coupled with their underdeveloped immune systems, promotes intestinal bacterial communities that are less diverse and enriched with potential pathogens
Methods: We examined fecal samples from pre-term infants (cases) and full-term infants (controls) for presence of bacteria. Samples were cultured and isolates confirmed by the matrix- assisted laser desorption ionization–time of flight mass spectrometry (MALDI-TOF MS). Antimicrobial susceptibility testing of isolates was done using disk diffusion and interpreted according to a standard guideline (CLSI or EUCAST)
Results: Six hundred and seventy samples (262 meconium and 414 fecal samples) have been analyzed so far. Findings revealed that the most abundant genera in all the tested samples were Escherichia coli, Staphylococcus and Klebsiella pneumoniae. E coli predominated in meconium and 1st week's fecal samples. Whilst the second week samples were dominated by other Gram-positive (belonging to the genera Corynebacterium and Rothia), and Gram-negative bacteria belonging to the genera Enterobacter, Pseudomonas, as well as some yeasts. Distinct differences were observed among the two groups, whilst preterm babies dominated by Gram positive bacteria , full term babies were dominated with Gram negative bacteria.
Conclusions/Learning Points: Our study revealed diverse bacteria communities with the potential to impact physical and neurocognitive development and life course disease risk. Understanding these influences on life development will inform newborn care and parental education with the aim of identifying microbial intervention strategies to promote the health of infants.

PD0118 / #1512

PERTUSSIS-SPECIFIC IGG SUBCLASS DETECTION AT DELIVERY AFTER TDAP VACCINATION IN SUCCESSIVE PREGNANCIES

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: Tetanus, diphtheria, acellular pertussis (Tdap) vaccination is recommended during every pregnancy in many countries. Although the safety of this strategy has been confirmed, the immunogenicity of Tdap vaccination in two successive pregnancies has not yet been described. Here we report our IgG subclass analysis at delivery in mothers and newborns.
Methods: Women enrolled in prior studies of Tdap vaccination during pregnancy were invited to participate in a follow-up study if they became pregnant again. Women who received a Tdap vaccine in both pregnancies were considered for analysis. Maternal and cord serum samples were collected at each delivery and the Tdap-specific IgG antibody subclass levels were measured with an in-house bead-based multiplex immunoassay. The mean fluorescence intensity of the first versus second delivery was plotted for all IgG subclasses in maternal and cord blood.
Results: Maternal and cord blood samples from both deliveries were available from 27 participants. For these participants, the mean interval between the deliveries was 2.4 (1.4-3.9) years. In maternal blood, the levels of IgG subclasses against all tested antigens were comparable in the first and second pregnancies, except for anti-PRN IgG1 antibodies that were lower in the second pregnancy. In cord blood, the levels of FHA, DT and TT-specific IgG1 were lower in the second compared to the first pregnancy. In contrast, serum levels of PRN, DT and TT-specific IgG4 were higher in the second pregnancy. The levels of IgG2 and IgG3 against all tested antigens remained stable across pregnancies.
Conclusions/Learning Points: Tdap-specific IgG subclasses appear to remain stable in maternal blood following vaccination in successive pregnancies whereas in cord blood IgG subclass distribution seems to be modified, pointing towards a possible impact on the transplacental transport to the newborn.

PD0119 / #1853

DECIPHERING IMMUNE RESPONSES TO IMMUNIZATION VIA TRANSCRIPTOMIC ANALYSIS: A NARRATIVE REVIEW OF THE CURRENT EVIDENCE TOWARDS PERSONALIZED VACCINATION STRATEGIES

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Backgrounds: The immunological mechanisms dictating the development of vaccine-induced protective immunity remain unclear. Conventional immunological methods provide significant, yet limited insights into vaccine-induced immune responses. Integrating multiple layers of information from 'Omics' analyses may facilitate a better understanding of vaccine-induced immunity. We review data on transcriptional profiling of immune responses to vaccination.
Methods: A search via PUBMED using the terms "systems vaccinology","transcriptomics","vaccines","molecular signatures" was conducted.
Results: We identified 47 studies on the transcriptional profiling of the immune response to currently licensed vaccines: 37 studies focused on vaccines against viruses and 10 studies on vaccines against bacterial/parasitic infections; 11 and 13 out of 47 studies involved pediatric and elderly populations,respectively. Vaccines against viral infections,including yellow fever,influenza,hepatitis B,SARS-CoV-2 and Ebola stimulated interferon-,complement pathway- and antiviral-related gene signatures. Polysaccharide pneumococcal and meningococcal immunization induced enrichment of inflammation- and plasmablast-related modules and downregulation of switched memory B cell-associated genes,respectively. In children,innate and plasma cell transcriptional signatures were detected on days 1 and 7 after influenza vaccination,respectively; a gene signature predicting febrile response to infantile meningococcal 4CMenB vaccination was identified,while malaria vaccination induced enrichment of T-cell-related modules and downregulation of B-cell- and monocyte-related modules. Age-related transcriptional analysis of hepatitis B vaccination revealed enriched B-cell and T-cell signalling,antiviral and metabolic pathways expression in younger individuals compared to predominance of pro-inflammatory pathways in elderly individuals,which was also reported for elderly individuals vaccinated against influenza and SARS-CoV-2. Baseline vaccine-specific transcriptional signatures and a time-adjusted,plasma cell-related gene signature predicted subsequent humoral response to several vaccines.
Conclusions/Learning Points: This review provides an evaluation of transcriptional profiling as a tool for the characterization of immune responses to immunization and the identification of predictive biomarkers for the vaccine-induced immunity, thus contributing to the optimization of tailored vaccination schedules.

PD0120 / #2616

INFANTS NOT EXPOSED TO BRONCHIOLITIS DURING THE 2020 LOCKDOWN PRESENT A REDUCTION OF SUBSEQUENT WHEEZING ILLNESSES: A POPULATION DATABASE ANALYSIS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Background: Up to 40% of children experiencing bronchiolitis subsequently develop wheezing illnesses, but the causality is yet to be determined. We aimed to assess if there was a change in the rate of wheezing episodes in children born during the 2020 lockdown, a period in which bronchiolitis almost disappeared, compared to a historical cohort born in a previous typical winter season.
Methods: This retrospective analysis uses data from Pedianet, a comprehensive paediatric primary-care database of 154 family paediatricians in Italy caring for around 1400 children <15 years of age each from birth. We retrieved all bronchiolitis episodes during the first year of life, the exposure of interest, and all wheezing episodes, the outcome of interest, in children born between February and April 2020 (lockdown cohort) and in children born between November 2016 and January 2017 (historical cohort). Children were followed up until 30 months of age, or lost to follow-up, or the first visit for wheezing, whichever came first. Characteristics were described and compared using $\chi 2$ and the Wilcoxon rank-sum test, and a Cox regression model was applied.
Results: During the 30 months of follow-up 210 of the 2225 children of the lockdown cohort experienced wheezing (9.4%), compared to 414 (16.9%) of the 2446 children of the historical cohort (p-value<0.0001) (Table 1); the risk of experiencing wheezing was reduced by 42% (HR 0.58[95%CI:0.49-0.69]). Still, children with bronchiolitis had a three times higher risk of experiencing wheezing compared to children without bronchiolitis (HR 3.24[95%CI: 2.54-
4.15]).

		Lockdown cohort N = 2225	Historical cohort N = 2446	P - value
Sex				0.5685
	Male	1162 (52.2)	1257 (51.4)	
	Female	1063 (47.8)	1189 (48.6)	
Bronchiolitis in the first year of life		18 (0.8)	189 (7.7)	**< 0.0001**
Wheezing*		210 (9.4)	414 (16.9)	**< 0.0001**
	Age in months at first episode - median (IQR)	19 (14.7-21.0)	12.4 (5.3-19.6)	**<0.0001**
At least one parent with atopic disease				**0.0053**
	None	2122 (95.4)	2371 (96.9)	
	Yes	103 (4.6)	75 (3.1)	

*Children with at least one episode of wheezing from one month to 30 months of life

Conclusions/Learning Points: Our results demonstrate that children born during 2020 lockdown present a significant reduction in subsequent wheezing episodes supporting the role of RSV in wheezing illnesses inception and laying the rationale for RSV prophylaxis extended to the whole paediatric population.

PD0121 / #2597

NATURAL SUBSTRATES OF MULTIDRUG EFFLUX PUMPS IN PSEUDOMONAS AERUGINOSA AS A POSSIBLE SOURCE FOR EFFLUX PUMP INHIBITORS : THE EXEMPLE OF ALKYL-QUINOLINES

E-Poster Discussion
E-POSTER DISCUSSION SESSION 11: MISCELLANEOUS (STATION 05)

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Background: Multidrug resistant (MDR) bacteria are a major threat to human health. Amongst the proposed new strategies to tackle this problem is drug potentiation such as efflux pump inhibition. Efflux pumps (EPs) are major determinants of the multidrug resistance phenotype of clinically relevant gram-negative bacteria such as Resistance Nodulation-Division (RND) pumps. These form a tripartite transmembrane spanning complex composed of three proteins. Besides defence against antimicrobials, we hypothesize that these pumps have several functions, namely secretion of signalling molecules, disposal of self-produced toxic waste and secretion of secondary metabolites. My project focuses on P. aeruginosa, an opportunistic Gram-negative pathogen responsible for acute nosocomial infections, as well as chronic infections in cystic fibrosis patients. P. aeruginosa encodes up to 12 different RND efflux systems on its chromosome. Four of these have been shown to confer multidrug resistance to clinical isolates. EP inhibition is a promising strategy to increase the efficacy of classical antibiotics.
Methods: My project aims at identifying natural substrates of these efflux pumps in P. aeruginosa through genetic screening as well as metabolomics and evaluate their potential use as efflux pump inhibitors via competitive inhibition.
Results: Using both strategies we were able to identify a wide range of metabolites as potential specific efflux pumps substrates that could be used as antibiotic potentiator. Amongst these metabolites were numerous signalling molecules such as Pseudomonas Quinolone Signal (PQS), pyocyanin, and many fatty acid signal molecules. The metabolites of the quinolins family, to which PQS belongs, showed a promising efficacy increase of several antibiotics, as the indeed increased the minimal inhibitory concentration (MIC) of sulfamthexazole on P. aeruginosa by four folds.
Conclusions/Learning Points: Efflux pumps natural substrates use as competitive inhibitors is promising for antimicrobial development against multidrug resistant bacteria.

PD0122 / #2651

COMPREHENSIVE SUMMARY OF ALL SAFETY DATA OF NIRSEVIMAB IN HEALTHY INFANTS: EXPERIENCE TO DATE FROM PIVOTAL TRIALS

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

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Background: Nirsevimab, a monoclonal antibody with extended half-life, is authorised in the European Union and Great Britain for the prevention of respiratory syncytial virus (RSV) lower respiratory tract disease in neonates and infants during their first RSV season, with intent for broad implementation. We present a pooled analysis of safety in healthy term and preterm infants ≥29 weeks gestational age (wGA) who received the authorised dose of nirsevimab.
Methods: Data were pooled from two double-blind, randomised trials: Phase 2b (infants ≥29 to <35 wGA; NCT02878330) and Phase 3 MELODY (infants ≥35 wGA; NCT03979313) and analysed for all participants who received the authorised dose of nirsevimab (infants <5 kg, 50 mg; ≥5 kg, 100 mg) or placebo before their first RSV season. All treatment-emergent adverse events (AEs) were captured through 360 days post-dose (5 nirsevimab half-lives). Specific theoretical risks of monoclonal antibody treatment, (immediate hypersensitivity, immune complex disease, and thrombocytopenia [previously associated with palivizumab]) were defined as AEs of special interest.
Results: Overall, 3854 participants received the authorised dose of nirsevimab (n=2570) or placebo (n=1284). Incidence of AEs was similar between treatments (Table); most were mild or moderate in severity, with few considered to be treatment related. There was a low incidence of AEs of special interest, reported in 6 nirsevimab recipients (0.2%); all were characterised as hypersensitivity events limited to cutaneous findings. Incidence of AEs with outcome death was the same for each treatment (0.2%; 3 placebo, 6 nirsevimab recipients); none were considered treatment related.
Conclusions/Learning Points: In a large, pooled analysis of healthy infants ≥29 wGA who received the authorised dose of nirsevimab prior to their first RSV season, the safety profile of nirsevimab was acceptable through 360 days post-

dose.

Table 1. Summary of treatment-emergent adverse events through 360 days post- dose from two pivotal clinical trials

	Placebo (N=1284)	Nirsevimab[a] (N=2570)	Total (N=3854)
Any adverse event	1088 (84.7)	2207 (85.9)	3295 (85.5)
Treatment-related adverse event	18 (1.4)	33 (1.3)	51 (1.3)
Adverse event ≥Grade 3 severity[b]	84 (6.5)	120 (4.7)	204 (5.3)
Treatment-related ≥Grade 3 severity[b]	1 (<0.1)	1 (<0.1)	2 (<0.1)
Serious adverse event[c]	144 (11.2)	219 (8.5)	363 (9.4)
Treatment-related serious adverse event[c]	1 (<0.1)	0	1 (<0.1)
Serious adverse event[d] and/or ≥Grade 3 severity[b]	152 (11.8)	237 (9.2)	389 (10.1)
Adverse event of special interest[d]	0	6 (0.2)[e]	6 (0.2)
Any adverse event with outcome death[f]	3 (0.2)[g]	6 (0.2)[h]	9 (0.2)

All data reported as n (%). Participants with multiple events in the same category were counted once in that category; participants with events in >1 category were counted once in each category.

[a]Authorised dose: infants <5 kg received 50 mg (n=1377, 53.6%); infants ≥5 kg received 100 mg (n=1193 (46.4%) received 100 mg.

[b]Grade 1: mild, Grade 2: moderate, Grade 3: severe, Grade 4: life-threatening, Grade 5: fatal

[c]Death, life-threatening, required inpatient hospitalisation, prolongation of existing hospitalisation, persistent or significant disability/incapacity, important medical event, congenital anomaly/birth defect.

[d]Comprised immediate hypersensitivity (including anaphylaxis), immune complex disease, or thrombocytopenia.

[e]Observed events were reported as hypersensitivity: rash (2 participants), maculo-papular rash (2 participants), petechiac (1 participant), and papular rash (1 participant); post-baseline anti-drug antibody levels to nirsevimab were undetectable through 360 days post-dose in these participants. No anaphylaxis or serious thrombocytopenia was attributed to study drug and no immune complex disease was reported in any participant.

[f]None of the deaths in either treatment group were considered treatment related by the investigator.

[g]One death (342 days post-dose) was caused by pericardial effusion, and two deaths (25 and 108 days post-dose) were caused by pneumonia.

[h]One death (96 days post-dose) was caused by previously undiagnosed pulmonary vein stenosis; two deaths of unknown cause occurred 122 days post-dose (infant was well when put to bed) and 139 days post-dose (based on reported adverse events of failure to thrive, recurrent vomiting, hypoglycaemia, and anaemia, investigator suspected an underlying chronic illness that was undiagnosed before death); two deaths (142 and 337 days post-dose) were caused by gastroenteritis; and one death (285 days post-dose) was caused by a skull base fracture resulting from an automobile accident.

PD0123 / #2639

4CMENB VACCINE EFFECTIVENESS, IMMUNOGENICITY AND SAFETY IN ADOLESCENTS AND YOUNG ADULTS WHEN GIVEN IN 3-DOSE OR 2-DOSE SCHEDULE: RESULTS FROM PHASE 3 RANDOMIZED CONTROLLED STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Terry Nolan[1,2], Peter Silas[3], Arnold Willemsen[4], Chiranjiwi Bhusal[4], Daniella Toneatto[5], . The Quintet Study Group[6]
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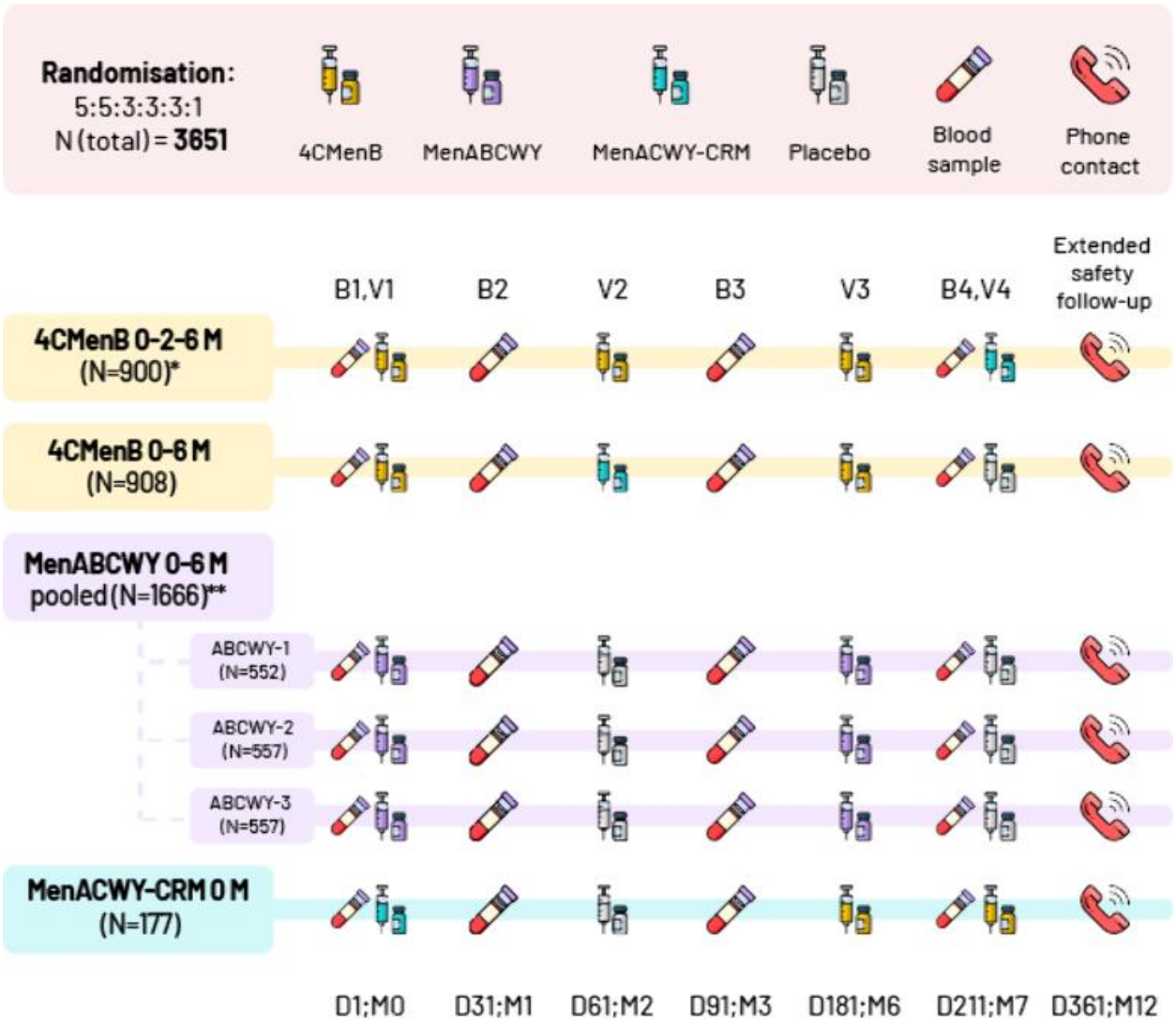
Background: A phase 3 study assessed the safety and vaccine effectiveness (VE) of 4CMenB 3-dose (0-2-6 months) or 2-dose (0-6; 0-2 months) schedules against a genetically-diverse meningococcal serogroup B (MenB) strain panel.
Methods: In this observer-blind trial (NCT04502693), 3651 healthy individuals aged 10–25 years were randomized 5:5:9:1 to receive 4CMenB (0-2-6 months), 4CMenB (0-6 months), investigational MenABCWY vaccine, or MenACWY-CRM (control). The 4CMenB primary objectives were to evaluate safety and demonstrate VE using enc-hSBA, a human serum bactericidal antibody assay (hSBA) using endogenous complement in each vaccinee’s serum, against a 110-strain MenB panel. VE was demonstrated via 2 approaches: test-based (percentages of samples without bactericidal activity against 110-strain panel post-second/third 4CMenB dose versus post-MenACWY dose) and responder-based (percentage of participants whose sera kill ≥70% strains at 1 month post-second/third dose). Success was demonstrated with a lower limit (LL) of two-sided 97.5% confidence interval >65%. Immune responses against MenB indicator strains were also assessed.
Results:



* 4CMenB 0-2-6 M and 0-2 M schedules evaluated

** Each MenABCWY group received 1 of 3 lots of MenACWY component of MenABCWY vaccine; results pooled

B blood sample, **D** day, **M** study month, **N** number of participants, **V** visit

Test-based VE was 83.2% (LL 81.9%, upper limit [UL] 84.4%), 81.8% (80.4%, 83.1%), 78.7% (77.2%, 80.1%) for the 0-2-6, 0-6, 0-2 schedules, respectively. Responder-based VE was 93.4% (LL 91.2%, UL 95.2%), 89.8% (87.2%, 92.0%), 84.8% (81.8%, 87.5%), respectively. No clinically-meaningful differences in VE or hSBA immunogenicity were observed across schedules. Safety results were in line with the established 4CMenB safety profile.

Conclusions/Learning Points: The 2-dose (0-6, 0-2 months) and 3-dose (0-2-6 months) 4CMenB schedules met the pre-defined criteria for success for both VE endpoints, demonstrating VE against a panel of 110 epidemiologically-relevant MenB strains at a population and individual level in adolescents and young adults. No clinically-meaningful differences in VE or immunogenicity were observed between the 3-dose and 2-dose schedules. Safety results were consistent across schedules.

PD0124 / #2474

IDENTIFICATION OF BACTERIAL INFECTION IN A LARGE PAEDIATRIC FEBRILE COHORT (PERFORM) BY BLOOD GENE EXPRESSION QUANTIFICATION ON THE FILMARRAY® PLATFORM

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Rebecca Womersley[1], Marine Mommert[2], Audrey Guichard[2], Dominic Habgood-Coote[1], Giselle D'Souza[1], Samuel Nichols[3], Tisham De[4], Aubrey Cunnington[5], Victoria Wright[3], Jethro Herberg[1], François Mallet[6], Myrsini Kaforou[1], Karen Brengel-Pesce[2], Michael Levin[1], Perform Consortium[7]
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Background: Distinguishing between bacterial and non-bacterial disease aetiologies of febrile illness is a critical challenge in the field of paediatric infectious disease. Recent research developments have shown that sparse gene expression signatures measured in patients' blood can identify bacterial infection. Translation of biomarker signatures to platforms enabling rapid, affordable and accurate quantification of gene expression is the first vital step for introducing gene expression markers to patient management.
Methods: Paediatric cases with confirmed bacterial and viral infection, alongside indeterminate groups were recruited in the multi-centre EU funded PERFORM study. PAXgene™ blood samples were run on the BIOFIRE® FILMARRAY® TORCH (BioFire Diagnostics®, USA) using the prototype 12 biomarker PERFORM gene set(1). Results were delivered in less than an hour and normalized expression of markers computed for analyses. A linear classifier model was built and assessed on patients with definite and intermediate diagnosis.
Results: Patients were divided into training (n=238) and testing sets (n=340) based on recruitment date. A 12-transcript model was defined by the training set, distinguishing bacterial from viral infections with an AUC of 92.8% (90.1 – 95.6%) in the test set. The model was able to classify previously unclassified patients in the indeterminate groups to those with a bacterial-like and those with viral-like profile.
Conclusions/Learning Points: The 12-gene signature distinguishes confirmed bacterial and viral infection in febrile children, encouraging both the use of this host-transcriptomic signature for diagnostics and the FILMARRAY® device as a platform to translate gene biomarker signatures. The translation of this model has wide-reaching potential to improve diagnosis of children with febrile illness, helping to reduce unnecessary antibiotic prescriptions in this difficult-to-diagnose group. (1)This prototype has not been validated nor submitted to any regulatory agency for review at time of writing

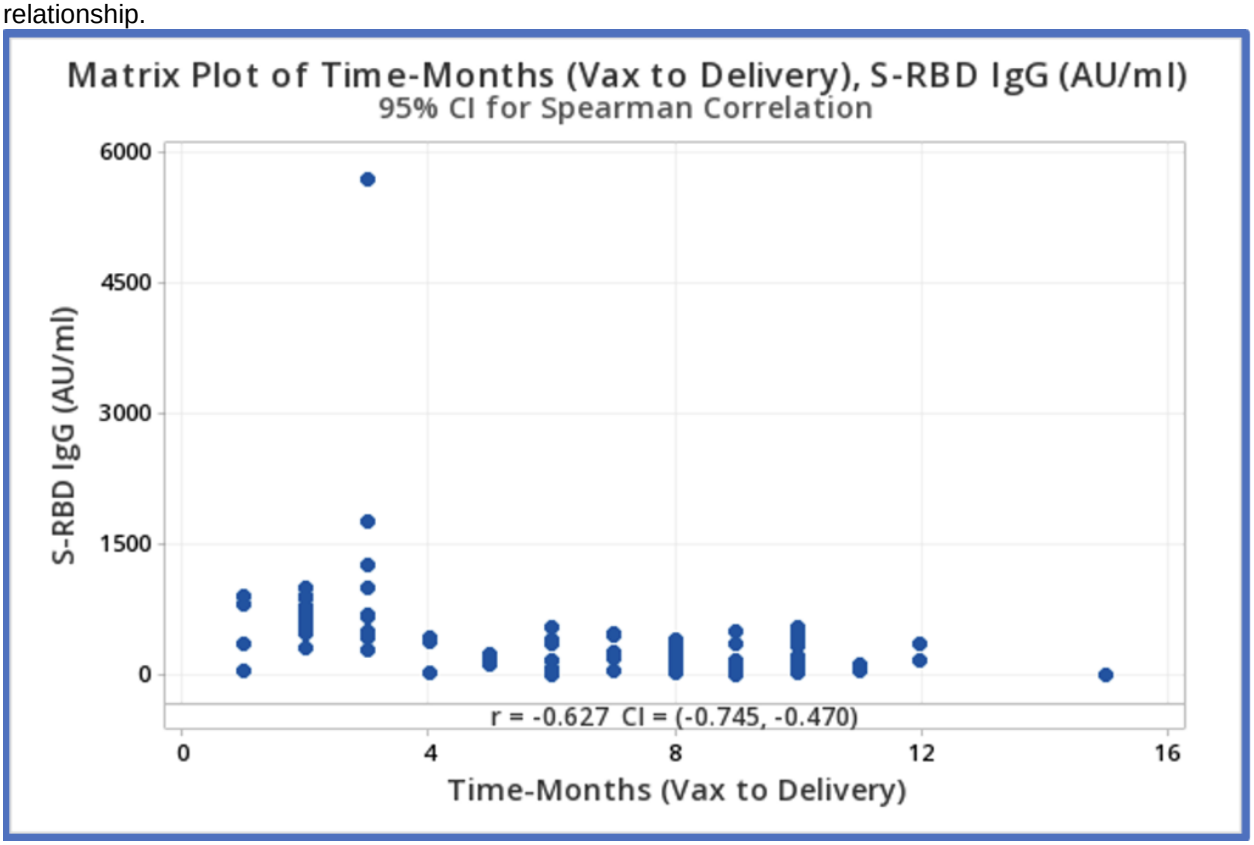
PD0125 / #2498

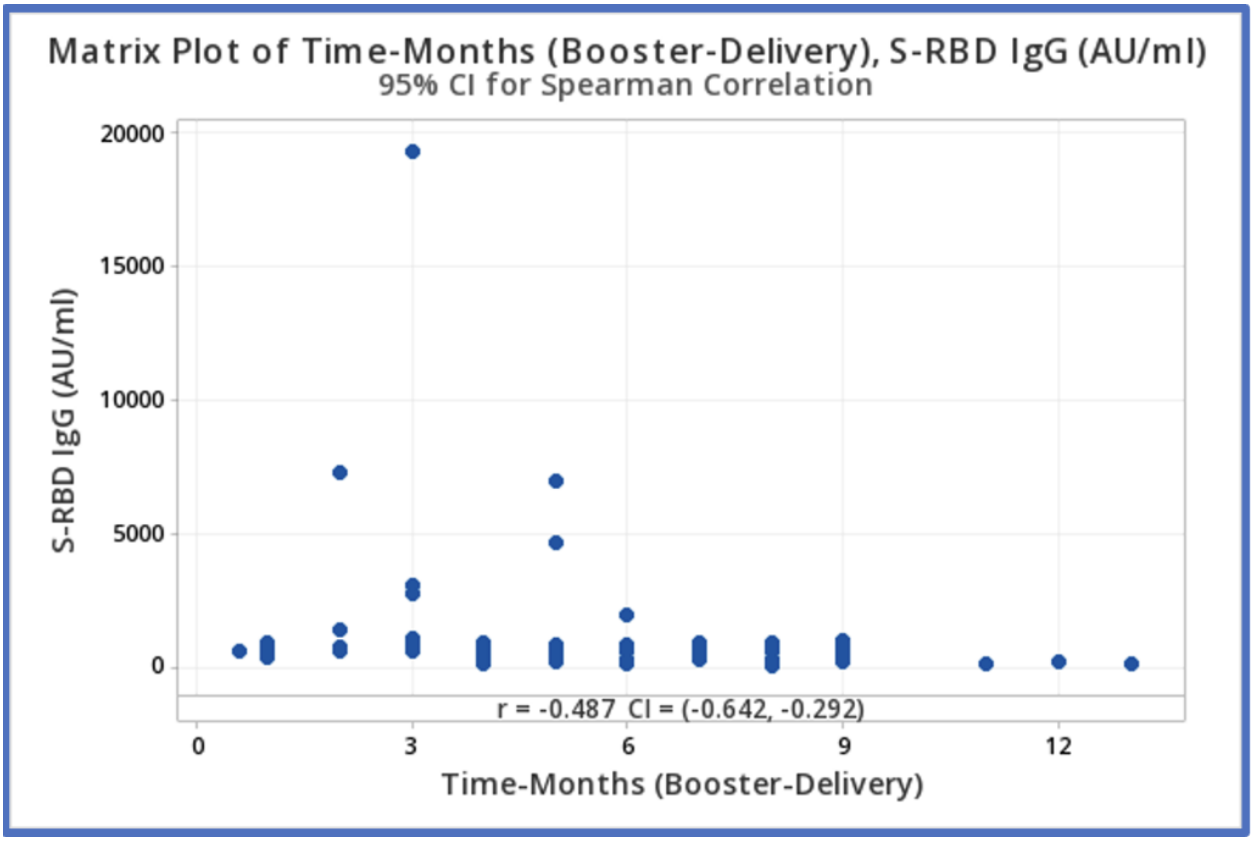
COVID-19 IGG LEVELS USING CLIA ANTI-S-RBD IN TERM NEWBORNS OF VACCINATED MOTHERS WHO DELIVERED IN A TERTIARY HOSPITAL IN CEBU FROM JULY TO SEPTEMBER 2022

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Ray Mendoza
Cebu Doctors' University Hospital, Pediatrics, Mandaue City, Cebu, Philippines

Background: Transplacental transfer of antibodies to SARS-CoV2 after maternal vaccination was evidenced after cord blood samples showed reactive titers via immunoassay. Titer levels also varied from time of dose completion to delivery, vaccine type, and those with booster shots. This study aims to correlate IgG titers of term (>37 weeks AOG) newborns delivered to fully vaccinated/boosted mothers with the time of dose completion and type of vaccine given.
Methods: This was a single center prospective cohort study and utilized CLIA Anti-Spike Receptor Binding Domain (RBD) IgG in sampling cord blood samples. Kruskal-Wallis and Mann-Whitney U Test were used to determine the significant differences of the IgG titers between each type of vaccine and groups, respectively. Spearman's rank correlation was used to determine the correlation between IgG levels and time of dose completion.
Results: A total of 177 newborns were enrolled in the study. All samples were reactive (> 1 AU/ml) irrespective of vaccine type and regardless of which trimester it was given. The highest titer recorded was 19,340 from the booster group and the lowest at 5.4 from a mother without booster. Higher titers were recorded in more recent dose completion from delivery for both groups (p-value <0.001) indicating a significant
relationship.





Conclusions/Learning Points: There was a significant difference between IgG levels with higher titers in the booster group regardless of which trimester the dose was completed. The mRNA type of vaccine also exhibited higher titers compared to the other types. Lastly, there was a significant correlation between titer levels and time of vaccine/booster completion to delivery with higher titers associated in more recent dose completion.

PD0126 / #2463

ANTIBIOTIC RESISTANCE IN BLOODSTREAM ISOLATES FROM HIGH-COMPLEXITY PAEDIATRIC UNITS IN MADRID, SPAIN: 2013-2021

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Blanca Bravo Queipo De Llano[1], Filip Camil Olteanu Olteanu[2], Luis Escosa[1], Jesus Saavedra-Lozano[3], Cristina Epalza[4], Emilio Cendejas Bueno[5], Emilia Cercenado[6], María Ángeles Orellana[7], David Aguilera-Alonso[8]
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Background: Antimicrobial resistance (AMR) to common first-line antimicrobials has significantly increased in recent decades and has become particularly important in high-complexity healthcare settings. We aimed to describe AMR prevalence in bloodstream isolates from high-complexity Paediatric Units in Madrid (Spain) over a 9-year period.
Methods: Retrospective observational multicenter study performed in three tertiary hospitals. Bloodstream isolates (Enterobacterales, Pseudomonas aeruginosa, Staphylococcus aureus and Enterococcus spp.) from patients <18 years admitted to PICU, Neonatology and Oncology-Haematology Units between 2013-2021 were reviewed. Demographics, antimicrobial susceptibility and resistance mechanisms were determined. Microorganisms were classified as multidrug-resistant (MDR) and difficult-to-treat-resistant (DTR) based on standardized criteria.
Results: 1,255 isolates, corresponding to 988 patients, were included. The most frequent organism was Klebsiella spp. (33.4%), followed by E. coli (30.7%). Figure 1 displays the prevalence of AMR and its change over the study period. Extended-spectrum β-lactamases were identified in 9.3% of Enterobacterales, and carbapenemase production in 3.5% of gram-negative bacilli (GNB). The most common carbapenemase was VIM (67.9%), followed by OXA-48 (20.7%). 9.9% of GNB were classified as MDR and 2.3% as DTR. Methicillin resistance was observed in 11.0% of S. aureus isolates and vancomycin resistance among 1.4% Enterococcus spp. isolates. Oncology-Haematology patients had the highest prevalence of AMR among Enterobacterales isolates. Among Pseudomonas, there was a trend towards higher resistance in those isolated in PICU. Older children had higher odds of resistant isolates. Throughout the study period, the prevalence of Enterobacterales resistant to extended-spectrum cephalosporins, carbapenems or fluoroquinolones increased, while MRSA and vancomycin-resistant Enterococcus spp. remained
stable.

	Total	2013-2017	2017-2021	p-value	OR (95% CI)
Enterobacterales	N=736 (58.7%*)	N=369	N=367		
ESC	112/726 (15.4%)	46/368 (12.5%)	66/358 (18.4%)	**0.027**	1.58 (1.03-2.44)
ESBL	68/732 (9.3%)	30/366 (8.2%)	38/366 (10.4%)	0.308	1.30 (0.76-2.22)
Carbapenem	39/731 (5.3%)	13/368 (3.5%)	26/363 (7.2%)	**0.029**	2.11 (1.02-4.54)
Carbapenemase	24/732 (3.3%)	11/366 (3.0%)	13/366 (3.6%)	0.678	1.19 (0.48-2.97)
Fluoroquinolones	99/732 (13.5%)	40/368 (10.9%)	59/364 (16.2%)	**0.035**	1.59 (1.01-2.51)
Aminoglycosides	115/734 (15.7%)	57/368 (15.5%)	58/366 (15.8%)	0.894	1.03 (0.68-1.56)
MDR	63/730 (8.6%)	23/368 (6.2%)	40/362 (11.0%)	**0.021**	1.86 (1.06-3.33)
DTR	12/730 (1.6%)	3/368 (0.8%)	9/362 (2.5%)	0.076	3.10 (0.76-17.93)
P. aeruginosa	N=96 (7.6%*)	N=53	N=43		
ESC	25/96 (26.0%)	13/53 (24.5%)	12/43 (27.9%)	0.708	1.19 (0.43-3.28)
Carbapenem	28/96 (29.2%)	16/53 (30.2%)	12/43 (27.9%)	0.807	0.90 (0.33-2.37)
Carbapenemase	5/96 (5.2%)	5/53 (9.4%)	0/43 (0.0%)	**0.039**	-
Fluoroquinolones	26/95 (27.4%)	18/53 (34.0%)	8/42 (19.0%)	0.105	0.46 (0.15-1.30)
Aminoglycosides	19/96 (19.8%)	15/53 (28.3%)	4/43 (9.3%)	**0.020**	0.26 (0.06-0.93)
MDR	19/95 (20.0%)	12/53 (22.6%)	7/42 (16.7%)	0.470	0.68 (0.20-2.14)
DTR	7/95 (7.4%)	4/53 (7.5%)	3/42 (7.1%)	0.940	0.94 (0.13-5.93)
S. aureus	N=136 (10.8%*)	N=60	N=76		
Methicillin	15/136 (11.0%)	5/60 (8.3%)	10/76 (13.2%)	0.372	1.67 (0.48-6.57)
***Enterococcus* spp.**	N=287 (22.9%*)	N=177	N=110		
Vancomycin	4/282 (1.4%)	4/172 (2.3%)	0/110 (0.0%)	0.107	-

Conclusions/Learning Points: The prevalence of AMR from high-complexity Paediatric Units was high. We observed a concerning increasing trend in resistant Enterobacterales, with a higher prevalence of AMR among older patients and those admitted to Oncology-Haematology Units.

PD0127 / #2652

COVID-19 VACCINE EFFECTIVENESS IN PEDIATRIC POPULATION. A POPULATION-BASED STUDY IN GALICIA, NORTHWEST SPAIN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Narmeen Mallah[1], Maria Sonia Ares Gómez[2], Jacobo Pardo-Seco[2], Luis-Ricardo López-Pérez[3], Juan-Manuel González-Pérez[3], Benigno Rosón[3], María-Teresa Otero-Barros[4], Carmen Durán Parrondo[5], Victoria Nartallo Penas[5], Susana Mirás-Carballal[4], Carmen Rodríguez-Tenreiro[1], Irene Rivero Calle[6], Alberto Gómez-Carballa[7], Antonio Salas[8], Federico Martinon-Torres[6]
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Background: Research on vaccine effectiveness (VE) against COVID-19 using real-world data is ongoing. We aimed to estimate VE against COVID-19-related hospitalization in the pediatric population in Galicia, Northwest Spain.
Methods: We undertook a retrospective longitudinal study encompassing all individuals <18 years who were eligible for vaccination in Galicia between July 13th, 2021, and October 1st, 2022. The hazard ratio (HR) of hospitalization for COVID-19 and its 95% CI adjusted for sex and age were estimated using Cox regression models. Unvaccinated hospitalized children for COVID-19 were used as a reference category. Individuals who received the two doses of the COVID-19 vaccine were considered fully vaccinated one week after the second dose. VE was estimated as 1-HR.

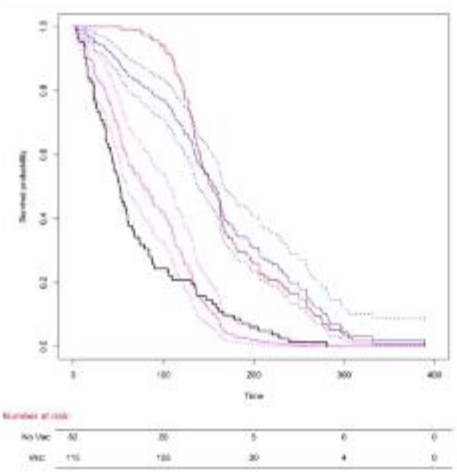

Figure 1. Survival analysis of hospitalization for COVID-19. Red line: survival probability in the vaccinated group. Black line: survival probability in the non-vaccinated group. Blue line: cox regression results including 95% CI in the vaccinated group. Magenta: cox regression results including 95% CI in the non-vaccinated group.

Results:

762,823 individuals were eligible for the study. COVID-19 vaccine coverage was 28.6% for subjects aged 5-17.9 years, 22.7% for 5-12 years, and 33.5% for 12.1-17.9 years. 197 children were hospitalized for COVID-19 and entered into the analysis. Hospitalized individuals aged between 5 and 17.9 years with a mean age of 12.3 years (SD=3.94). Of the hospitalized individuals, 115 (58%) were vaccinated. More females (N=106; 53.8%) were hospitalized than males (N=91; 46.2%). Comorbidities were not frequent in our study population. The survival curve is shown in Figure 1. Vaccinated children are at 73% (95%CI:

61% - 80%) lower risk of getting hospitalized for COVID-19 than non-vaccinated children [HR=0.27 (95%CI: 0.2 – 0.39)]. VE was maintained upon stratifying the analysis by age group (5-12 years) versus (12.1-17.9 years).
Conclusions/Learning Points: Vaccines against COVID-19 are highly effective in the Galician pediatric population and substantially reduce the risk of hospitalization for this disease.

PD0128 / #2490

ISAVUCONAZOLE, AN ATTRACTIVE ALTERNATIVE FOR THE TREATMENT OF INVASIVE FUNGAL INFECTIONS IN CHILDREN.

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Berta Fernandez Ledesma[1], Natalia Mendoza-Palomar[2], Susana Melendo-Perez[3], Fernández-Polo Aurora[4], Berta Renedo Miró[4], Jaume Vima Bofarull[4], Maria Teresa Martín-Gomez[5], Montserrat Pujol Jover[6], Maria Isabel Benitez Carbante[2], Cristina Diaz De Heredia[7], Pere Soler-Palacín[8]
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Background: Isavuconazole (ISA) is approved for the treatment of invasive aspergillosis and mucormycosis in adults. Its use in children remains off-label. The aim of the study was to describe the efficacy and safety of ISA and the usefulness of therapeutic drug monitoring (TDM) in pediatric patients in a tertiary care pediatric hospital.
Methods: single-centre, retrospective study, including patients <18 years receiving ISA treatment between 2018-2021. TDM was performed with targeted ISA plasma trough levels (C_{trough}) 2.5-5 mcg/ml, based on adults' data. Treatment response was evaluated at 6, 12 weeks and end of treatment. Adverse events related to ISA were monitored by treating physician.
Results: Sixteen patients received ISA for invasive fungal infections (IFI) median age 12 years (IQR 8-14y). Eight patients underwent stem cell trasplantation; three patients were under ECMO support at some point during ISA treatment. Median ISA plasma trough levels (C_{trough}) were 3.1mcg/mL (IQR 2.4-4.5 mcg/mL), being 51/111 (45.9%) out of range. ECMO patients had lower C_{trough} (median C_{trough} ECMO 2.8mcg/mL vs. 3.3 mcg/mL non-ECMO) and required higher ISA doses to maintain C_{trough} in range. ISA response to treatment was favourable in 4/8 patients with proven or probable IFI at the end of treatment. Only one patient presented a mild adverse event attributed to ISA.
Conclusions/Learning Points: Our data supports the use of ISA as a safe therapeutic alternative for IFI in children. Pediatric patients, especially those under ECMO support, may benefit from systematic TDM as initial dosage is not well defined and high proportion of patients did not achieve plasma levels within range.

PD0129 / #2573

THE CLINICAL PHENOTYPE OF THE SARS-COV-2 OMICRON VARIANT IS DISTINCT FROM OTHER SARS-COV-2 VARIANTS IN CHILDREN

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Will De Vivo, Nazima Pathan, Iain Kean, John Clark, Zhenguang Zhang, Esther Daubney, Deborah White
University of Cambridge, Picu, Addenbrooke's Hospital, Cambridge, United Kingdom

Background: Throughout the SARS-CoV-2 (COVID-19) pandemic, different variants of the virus have circulated on a national scale. However, the clinical presentation of these variants in children is not clearly established. Here, we established how the symptomatic presentation of COVID-19 infection in children changed throughout the pandemic.
Methods: We conducted a retrospective case note review of paediatric COVID-19 infections in a large tertiary paediatric centre, focussing on presenting symptoms. We screened the records of hospitalised children with PCR-positive COVID-19 from March 2020 to May 2022 (n=202). Within this dataset, we identified those whose primary indication for admission was COVID-19 infection (n=121).
Results: The prevalence of symptoms resulting in hospitalisation changed over the pandemic with the emergence of different variants. Interestingly, the omicron variant resulted in a greater proportion of patients presenting with upper respiratory symptoms, whilst previous variants more commonly produced lower respiratory tract symptoms. The prevalence of multi-system inflammatory syndrome in children (MIS-C) was also lower with the omicron variant compared to previous variants that circulated during the pandemic.

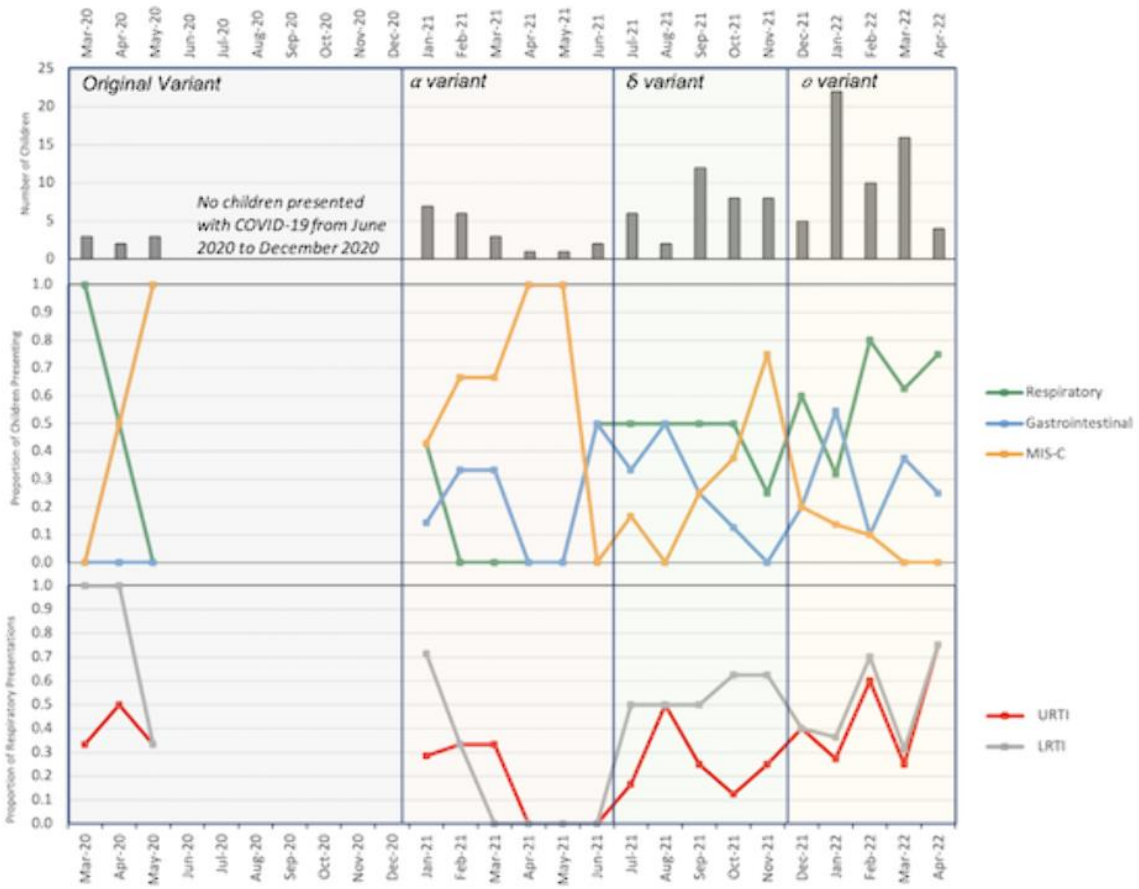

Figure 1: Clinical presentations of SARS-CoV-2 in children in a tertiary paediatric centre

Top panel: total number of children admitted to hospital with an active COVID-19 infection (incidental infections have been excluded). Middle panel: proportion of children by presenting phenotype of COVID-19 infection when admitted to hospital. Bottom panel: proportion of respiratory presentations of COVID-19 infections in children admitted to hospital. LRTI: lower respiratory tract infection; MIS-C: multi-system inflammatory syndrome in children; URTI: upper respiratory tract infection

Conclusions/Learning Points: Changes in the viral genotype can affect clinical presentation, even during an active pandemic. This illustrates the need to keep clinician knowledge up to date, to facilitate adequate diagnoses.

PD0130 / #2649

EXPERIENCE OF ESTABLISHING AND COORDINATING SENTINEL VACCINE SAFETY SURVEILLANCE NETWORK IN INDIA: LESSONS FROM TWO MULTISITE RESEARCH STUDIES

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Manoja Das[1], Apoorva Sharan[2], Ramesh Poluru[2], Neeraj Kashyap[2], Narendra Arora[2]
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Background: Introduction: Multisite sentinel surveillance has high relevance in vaccine safety research. The multisite studies experience challenges involving recruitment, protocol adherence, data quality and coordination. Lessons from developing countries are important to inform the organization and conduct of multisite sentinel surveillance. This paper presents the process and experience of the establishment and conduct of two sentinel surveillance studies in India.
Methods: The studies included intussusception surveillance linked to rotavirus vaccine introduction (Study-1, 2015-2017) and surveillance for multiple AEFIs related to routine immunization (Study-2, 2017-2020) in children aged 1-24 months. The study sites were selected through a systematic and objective four-step selection process. The multilayer quality assurance measures were adopted to document protocol adherence and data collection quality.
Results: The study site selection involved four steps: shortlisting of potential institutions, invitation for expression of interest and interactions, site visits and site selection using objective criteria. The process and data collected from the two surveillance studies are presented in Table-1.

Table 1: The site selection processes and performance of two sentinel surveillance in India

Parameter	Study-1 (Intussusception surveillance)	Study-2 (Multiple AEFI surveillance)
Selection process		
Institutions screened	438	484
Expression of interest invited	40	68
Institutions visited for assessment	25	31
Institutions included in network	19	24
Surveillance performance		
Screened participants	42866	90147
Eligible participants	2092	8756
Recruited participants	1588	8458

The key challenges included time taken for regulatory/ethical approvals, variation in clinical practices, data quality (completeness, timelines), medical record-keeping, vaccine information retrieval and investigator commitment and transition.

Conclusions/Learning Points: The experience of multisite sentinel vaccine safety surveillance with systematic multi-step site selection and data quality assurance methods are feasible, and practical and can inform similar studies in developing countries.

PD0131 / #2518

CLINICAL FEATURES AND SEVERITY OF COVID-19 WITH RESPIRATORY VIRAL COINFECTIONS VERSUS SARS-COV-2 MONOINFECTION IN HOSPITALIZED CHILDREN: A CANADIAN NATIONAL SURVEILLANCE STUDY

E-Poster Discussion
E-POSTER DISCUSSION SESSION 12: LATE BREAKING (STATION 06)

Costanza Di Chiara[1,2], Daniel Farrar[2], Julie Bettinger[3,4], Aaron Campigotto[5], Shelley Deeks[6,7], Olivier Drouin[8,9], Joanne Embree[10], Scott Halperin[11], Taj Jadavji[12], Kescha Kazmi[13,14], Charlotte Moore Hepburn[15], Jesse Papenburg[16], Rupeena Purewal[17], Manish Sadarangani[18,19], Laura Sauvé[20], Sarah Wilson[21], Karina Top[11,22,23], Fatima Kakkar[24], Shaun Morris[25,26,27,28]
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Background: The circulation of SARS-CoV-2 with other respiratory viruses led to an increased risk of coinfections, and potentially increased severity, especially in children. This study aims to examine the epidemiology, clinical features, and outcomes of SARS-CoV-2 respiratory viral coinfections compared to SARS-CoV-2 monoinfections in hospitalized children.
Methods: We conducted a national surveillance study evaluating pediatric COVID-19-related hospitalizations across Canada from April/2020-May/2022. Data were captured through two datasets covering ~90% of all Canadian tertiary-care pediatric beds: The Canadian Pediatric Surveillance Program and the Canadian Immunization Monitoring Program, ACTive. Coinfections were defined as the simultaneous detection of SARS-CoV-2 and >=1 other respiratory virus. Severe infection was defined as intensive care, ventilatory, or hemodynamic support requirements, organ system complications, or death. Variables/outcomes were summarized/compared using the appropriate statistical tests.
Results: Overall, 1357 COVID-19-related hospitalizations were included in this study, of which, 104 (7.7%) had documented coinfections (11/104 [10.6%] with SARS-COV-2 plus ≥2 other respiratory

viruses). Enterovirus/rhinovirus (N=48/104, 46%) and RSV (N=36/104, 35%) coinfections were the most common. Children with coinfections were significantly younger than SARS-COV-2 monoinfections cases (median age 1.1 [IQR:0.3-2.6] vs 1.6 [IQR:0.2-8.3] years, p=0.009). Overall, severe outcomes (p=0.008), as well as the need for any respiratory support (p<0.001) were more frequent among coinfection cases. In particular, we observed that severe outcomes were significantly higher in SARS-CoV-2 coinfections compared to mono-infection cases during the Omicron period (table). Severe infection was most common in children with both enterovirus/rhinovirus (19/48, 39.6%) and RSV (14/36, 38.9%) coinfections.

Table. Characteristics of hospitalized children with SARS-CoV-2 mono-infection vs. with respiratory virus coinfections from April 2020–May 2022.

Characteristic	SARS-CoV-2 mono-infection	SARS-CoV-2 viral coinfection	*P* value
	N = 1253	N = 104	
Age (years), median (IQR)	1.6 (0.2–8.3)	1.1 (0.3–2.6)	0.009
Age, n (%)			<0.001
<1 year	522 (41.7)	48 (46.2)	
1–4 years	318 (25.4)	42 (40.4)	
5–<17 years	413 (33.0)	14 (13.5)	
Sex, n (%)			0.03
Female	525 (41.9)	32 (30.8)	
Male	728 (58.1)	72 (69.2)	
Comorbid conditions, n (%)			0.18
None/Unknown	652 (52.0)	64 (61.5)	
One	328 (26.2)	22 (21.2)	
≥Two	273 (21.8)	18 (17.3)	
Any immunodeficiency, n (%)	106 (8.5)	<5 (<4.8)	0.10
Received any COVID-19 vaccine, n (%)	103 (8.2)	<5 (<4.8)	0.05
Outcomes, n (%)			
Any respiratory support	272 (21.7)	46 (44.2)	<0.001
Any ventilation	101 (8.1)	26 (25.0)	<0.001
Any vasopressors	43 (3.4)	7 (6.7)	0.10
Admitted to ICU	191 (15.2)	30 (28.9)	<0.001
Severe infection[2]	310 (24.7)	38 (36.5)	0.008
Child died	14 (1.1)	<5 (<4.8)	0.35
Outcomes according to pandemic waves[1]			<0.001
Delta period, N	150	25	
Any respiratory support, n/N (%)	46/150 (30.7)	10/25 (40.0)	0.35
Ventilation, n/N (%)	15/150 (10.0)	10/25 (40.0)	<0.001
ICU admission, n/N (%)	35/150 (23.3)	9/25 (36.0)	0.18
Severe infection, n/N (%)	46/150 (30.7)	12/25 (48.0)	0.09
Omicron period, N	755	68	
Any respiratory support, n/N (%)	136/755 (18.0)	32/68 (47.1)	<0.001
Ventilation, n/N (%)	52/755 (6.9)	15/68 (22.1)	<0.001
ICU admission, n/N (%)	98/755 (13.0)	19/68 (27.9)	0.001
Severe infection, n/N (%)	182/755 (24.1)	24/68 (35.3)	0.04

[1]The ancestral period is defined as March 1, 2020–April 17, 2021, the pre-Delta period is defined as April 18–June 28, 2021, the Delta period is defined as June 29–December 15, 2021, and the Omicron period is defined as December 16, 2021–current. Time periods were defined as the week when a SARS-CoV-2 lineage first comprised >50% of all Canadian cases until the week another lineage comprised >50% of all Canadian cases.
[2]Severe infection was defined as intensive care, ventilatory, or hemodynamic support requirements, organ system complications, or death.

Conclusions/Learning Points: Children with documented viral coinfections had more severe respiratory disease compared to SARS-COV-2 monoinfections. Further work needs are needed to assess how different virus coinfections may together affect children and which, if any, may be a predominant driver of disease severity.

ME0001 / #1471

A FATAL CASE OF PEDIATRIC TUBERCULOSIS MENINGITIS AND CEREBRAL INFARCTION

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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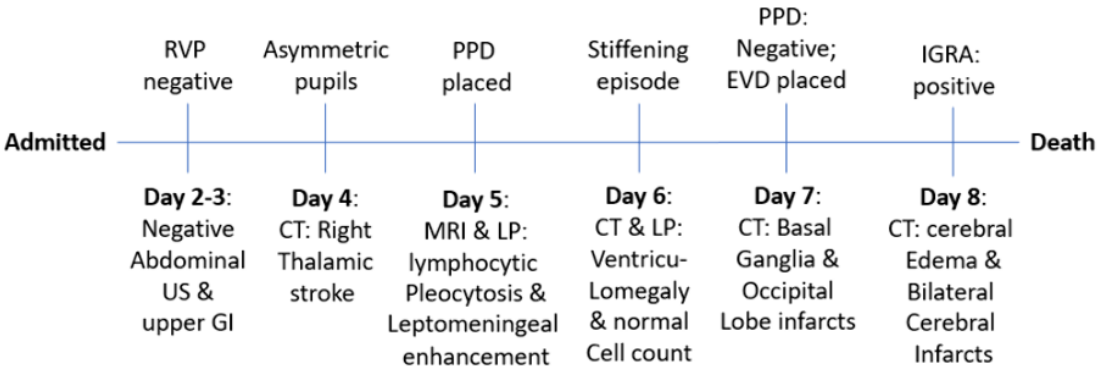
Title of Case: A Fatal Case of Pediatric Tuberculosis Meningitis and Cerebral Infarction
Background: Tuberculosis (TB) meningitis is a rare disease with a high mortality rate. Children often present in the later stages, making it critical to quickly identify and start anti-tuberculosis treatment when tuberculosis meningitis is suspected.
Case Presentation Summary: This is a case report of tuberculosis meningitis in a previously healthy 11-month-old female who presented with ten days of fever and six days of non-bloody, non-bilious emesis. She had no night sweats, weight loss, or nuchal rigidity. Initial studies showed chest radiograph demonstrating central bronchial wall thickening with mild hazy airspace disease in the right base. On the fourth day of admission, patient was noted to have asymmetric pupils and a CT scan demonstrated right thalamic lacunar stroke of unknown age. A lumbar puncture (LP) was performed which demonstrated mild lymphocytic pleocytosis, hypoglycorrhachia, and elevated protein. She was started on broad-spectrum antimicrobials; however, the following day, magnetic resonance imaging of the brain demonstrated multiple scattered foci of restricted diffusion involving multiple arterial territory distributions and diffuse leptomeningeal enhancement of the skull base, bilateral sylvian fissure regions, and meninges surrounding the brainstem and cerebellum. Patient's tuberculin skin test (TST) was negative. She developed hydrocephalus, requiring an external ventricular drain (EVD) placement on day 7 of admission. Her Interferon-Gamma Release Assay (IGRA) eventually returned positive. Cerebral infarction rapidly progressed and following compassionate extubation, she passed away.

Figure 1: Hospital Course of Patient with Tuberculosis Meningitis



Learning Points/Discussion: TB meningitis should be considered in a patient with prolonged fever and cerebral infarctions. A negative TST does not preclude TB meningitis. Due to the high mortality and morbidity of tuberculosis meningitis, it is crucial to initiate anti-tuberculosis therapy early.

ME0002 / #588

RECURRENT PNEUMOTHORAX IN A 4-YEAR-OLD IMMUNOCOMPETENT GIRL WITH CAVITATING PULMONARY TUBERCULOSIS

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: RECURRENT PNEUMOTHORAX IN A 4-YEAR-OLD IMMUNOCOMPETENT GIRL WITH CAVITATING PULMONARY TUBERCULOSIS
Background: Pulmonary tuberculosis (TB) can be complicated by spontaneous pneumothorax, especially when cavities are present. In children, however, cavity formation is uncommon.
Case Presentation Summary: We present a rare case of pulmonary (non-MDR) TB in an immunocompetent 4-year-old Roma girl with extensive parenchymal damage, multiple cavities and emphysematous lesions which presented with recurrent pneumothorax. The girl had been diagnosed with latent TB 2 years earlier, after her father was diagnosed with active pulmonary TB. Both had poor compliance to treatment. The recurrence of pneumothorax, possibly indicating the presence of a bronchopleural fistula, eventually required surgical management 6months after the onset of the pneumothorax. Right lower lobectomy and sub-lobar resection of the right middle lobe were performed. The patient had an uneventful postoperative course with satisfactory re-expansion of the residual lung, and received anti-TB treatment (rifampicin, isoniazide, pyrazinamide) for 12 months after surgery (17 months in total). She is regularly assessed at our infectious disease clinic and has had no sign of pneumothorax or respiratory deterioration 15 months after lobectomy, even though she had an uneventful SARS-CoV-2 infection.
Learning Points/Discussion: Chemotherapy successfully replaced surgical treatment of TB several decades ago. However, it may be still indicated in drug-resistant TB cases with poor response to anti-TB agents and/or in cases with complications such as recurrent pneumothorax. This case highlights the importance of contact tracing for TB, especially when children are involved, and BCG vaccination at birth for children from high-risk populations. Moreover, it emphasizes the need to ensure that both patients and their infected contacts receive appropriate treatment through Directly Observed Therapy (DOT) when necessary, as poor treatment compliance can lead to life-threatening complications even in immunocompetent individuals.

ME0003 / #1733

HERPES SIMPLEX MENINGITIS PRESENTING WITH STROKE-LIKE ONSET IN AN INFANT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Herpes Simplex Meningitis presenting with stroke-like onset in an infant
Background: Herpes simplex virus meningoencephalitis (HSVM) is an acute or subacute illness caused by herpes simplex viruses belonging to either type 1 (HSV-1) or type 2 (HSV-2), with high risk of mortality and comorbidities. Ischemic stroke is a rare complication of herpes simplex type-1 (HSV-1) encephalitis in childhood.
Case Presentation Summary: A 11-months-old male presented to the Emergency Room with subfebrile temperature, hypomobility and clonuses of the upper left limb. Cranial CT scan and CT angiography pointed out a right frontal hypodense area. EEG showed slow abnormalities and the appearance of PLEDs. Admitted to the Neurology Unit, he received a brain MRI that showed a right middle cerebral artery stroke. Considering the persistence of fever and the altered neurological status characterized by sopor and irritability, LP, blood chemistry and blood cultures were performed and empirical antibiotic intravenous treatment with Acyclovir and Ceftriaxone initiated. The CFS analysis and blood cultures revealed a positivity for HSV-1; therefore, antibiotic treatment was interrupted. Despite treatment neurological status worsened with increasing of clonuses and hypomobility of the upper right limb and lower left limb, respectively, and enlargement of ischemic areas was revealed by neuroimaging, thus methylprednisolone was started and received IVIG infusion (2g/kg). On day 9 of antiviral therapy HSV DNA in the blood was not found. Afterwards clinical improvement was seen and patient was discharged on day 20 with close follow-up and continuation of treatment at the pediatric neurorehabilitation.
Learning Points/Discussion: Ischemic stroke, although infrequent, can be either complication and presentation of HSV-1 central nervous system infection. HSV-1 research on CFS should be included in children with ischemic stroke in order to start the antiviral treatment promptly.

ME0004 / #2042

THE NIGHTMARE OF RECURRENT PNEUMOCOCCAL MENINGITIS

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: The nightmare of recurrent pneumococcal meningitis
Background: Pneumococcal meningitis (PM) is a medical emergency, associated with high mortality (10.4%-11.4%) and morbidity (30%-50. In rare cases, PM can be recurrent (PMR). In the child, the recurrences are linked to immunodeficiency or CSF leak.
Case Presentation Summary: 11-year-old boy with fever (TC 40°C) started 6 hours ago, headache and onset of aimless movements during sleep, with difficulty waking up are admitted in pediatric emergency departement. The child was vaccinated with pneumococcal conjugate vaccine 13 valent. He had a trauma from a fall from a height of 2 meters 6 months before. Upon arrival in ED: GCS 5, meningitis is diagnosed. Brain CT showed initial signs of cerebral edema, lumbar puncture: turbid CSF, with increased pressure, with chemical-physical characteristics of bacterial meningitis. CSF PCR was positive for Str. pneumoniae, but blood and CSF cultures were negative. He developed severe right sensorineural hearing loss. After 3 months the child had a second episode of meningitis. CSF PCR was positive for Str. pneumoniae. Serotype 11A Str. pneumoniae was identified from blood culture Intermittent rhinorrhoea from the right nostril was found, for which the liquid was collected and tested positive for beta-trace protein assay. Subsequent brain CT and MRI investigations failed to identify CSF leak, therefore intrathecal fluorescein tests and closure of the left ethmoid fistula will be performed. Nevertheless six months after surgery, the patient presented a third episode of pneumococcal meningitis serotype 33C.
Learning Points/Discussion: In the case of PM, immunodeficiency must be excluded and favorable anatomical conditions such as CSF fistulas must be sought, and in the case of PMR, all the diagnostic procedures necessary to search for a CSF fistula must be used.

ME0005 / #1931

PEDIATRIC TUBULAR LYMPHANGITIS CAUSED BY RICKETTSIA SIBIRICA MONGOLITIMONAE

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: PEDIATRIC TUBULAR LYMPHANGITIS CAUSED BY RICKETTSIA SIBIRICA MONGOLITIMONAE
Background: Rickettsioses are challenging infections in children that should be suspected in the presence of typical guide symptoms, such as the history or suspicion of tick bite, and associated lymphangitis. Rickettsia sibirica mongolotimonae was first isolated in 1991 in Mongolia. Just 5 cases of the infection in children have been reported worldwide. Different clinical manifestations of the infection have been described, such as tick-borne lymphadenopathy (TIBOLA) and mainly, lymphangitis-associated rickettsiosis (LAR). Its main vector is considered to be species of the genus Hyalomma.
Case Presentation Summary: We report the case of a 4-year-old boy with fever of up to 39.7 ◦C for 5 days. He presented a bite lesion on the inner side of the right thigh. Physical examination revealed a circular lesion (5 mm) with a necrotic eschar. He associated rope-like lymphangitis running from the eschar up to the inguinal region, where a painful adenopathy was found. A shave biopsy was performed to determine a PCR for Rickettsia. Laboratory tests were normal. He began treatment with oral azithromycin and intravenous amoxicillin-clavulanate, with a favorable evolution. The diagnosis was confirmed with the results of PCR in the eschar sample: positive for Rickettsia sibirica mongolotimonae.
Learning Points/Discussion: When LAR is suspected, empirical treatment with doxycycline should be started. In Spain, a progressive increase in the population of Hyalomma species has been reported. The change in climatic conditions seems to play an important role in this increasement. In Spain, the human transmission of other life-threatening zoonotic agents by Hyalomma ticks, such as Crimean-Congo virus has already been reported. These potential risks emphasize the importance of the development of new prevention strategies and the evaluation of this threat to public health.

ME0006 / #1422

SENLAT (SCALP ESCHAR AND NECK LYMPHADENOPATHY AFTER TICK BITE) CAUSED BY RICKETTSIA SLOVACA AND RICKETTSIA RAOULTII AFTER A TICK BITE: PAEDIATRIC CASE SERIES, PORTUGAL

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: SENLAT (SCALP ESCHAR AND NECK LYMPHADENOPATHY AFTER TICK BITE) CAUSED BY RICKETTSIA SLOVACA AND RICKETTSIA RAOULTII AFTER A TICK BITE: PAEDIATRIC CASE REPORTS, PORTUGAL
Background: Tick-Borne Lymphadenopathy (TIBOLA) or Scalp Eschar and Neck Lymphadenopathy After Tick Bite (SENLAT) are designations for rickettsioses characterized by enlarged neck lymph nodes and scalp eschar after a tick bite.TIBOLA/SENLAT is the second most common tick-borne rickettsiosis in Portugal,after Mediterranean Spotted Fever.Dermacentor ticks species are the most frequently associated with Rickettsia slovaca and R. raoultii transmission. Methods:Paediatric patients (0-17 years old) who presented to a tertiary-level children's hospital in Portugal,to remove a tick after its bite,with or without symptoms over 2020-2021.Ticks removed were identified and screened by PCR for Rickettsia.
Case Presentation Summary: We identified 6 children,aged 4-10 years old,admitted through the emergency department mostly during spring (4) and coming from an urban area (5).1 patient reported outdoor activities and another contact with a dog.No children had travelled recently.On admission,3 patients had history of removed tick from the scalp,latter developing symptoms compatible with TIBOLA/SENLAT.Analysed ticks from these patients showed that all were Dermacentor marginatus,1 infected with R. slovaca and 2 with R. raoultii.R. slovaca patient had eschar,fever,rash and adenopathies,while R. raoultii patients had fewer symptoms,1 only presenting scalp eschar with erythema.2/3 symptomatic patients underwent laboratory evaluation,unremarkable, and were treated with doxycycline with resolution of symptoms and without sequelae.In the 3 asymptomatic patients,2 ticks were infected with R. massiliae and 1 with R. monacensis.
Learning Points/Discussion: Early recognition and diagnosis of rickettsioses based on clinical presentation remains a big challenge as it can present from asymptomatic to severe disease. Molecular characterization of Rickettsia spp. and associated ticks removed from asymptomatic or symptomatic patients can contribute to a better understanding of rickettsial diseases.

ME0007 / #1681

SAFETY OF MOLNUPINAVIR IN SARS COV 2 INFECTED CHILDREN

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Safety of Molnupinavir in SARS COV 2 infected children
Background: After 3 years of pandemia of Sars Cov 2 we have understood that an higher risk for progression to sever clinical manifestations is related to infants and children with underlying medical conditions like immunodeficiency or heart and lung disorders. Early antiviral treatment allows to change not only the course of the infection but also to avoid the serious effects due to the delay of necessary other treatments. Even today, the antivirals used in adults with SARS COV 2 infection are not licensed for children.
Case Presentation Summary: We describe 4 cases of children followed up at the Bambino Gesù Children's hospital with SARS COV 2 infection (Omicron B variant) median age 8 years affected by oncological pathology under treatment and complex heart disease. None of them had been able to carry out the anti SARS COV 2 vaccination, one of them had previously contracted SARS COV 2 infection and had been treated with oral antivirals. All were on severe immunosuppressive or cardiological therapy. Only one had fever. In one patient Remdesivir treatment was stopped after the first dose due to side effects. After collection of Informed consent, therapy with Molnupinavir was prescribed for five days. No patient showed any adverse events to taking the drug and the mean time to virus negative was 5.5 days. When the virus was negative, everyone resumed the necessary therapies for the underlying disease
Learning Points/Discussion: After three years of Pandemic it is increasingly priority and urgent to integrate the pharmacokinetic studies of the new antiviral drugs also for the paediatric age. The feasibility of early treatments should be an integral part of the processes of preparedness in the future of infectious diseases

ME0008 / #2077

ROLE OF BOOSTER DOSE IN A X-LINKED AGAMMAGLOBULINEMIA ADOLESCENT SARS-COV-2 INFECTED

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: ROLE OF BOOSTER DOSE IN A X-LINKED AGAMMAGLOBULINEMIA ADOLESCENT SARS-COV-2 INFECTED
Background: A very limited amount of data is present in literature on SARS-CoV-2 infection in X-Linked Agammaglobulinemia (XLA) patients. Moreover, it remains unclear the role of vaccination against SARS-CoV-2 in these subjects. We investigated immune response of a mild symptomatic SARS-CoV-2 strain BA.2 (B.1.1.529.2) infected XLA 12 years old male, vaccinated with booster dose during acute infection (AI) and after one month post COVID-19 diagnosis (PI).
Case Presentation Summary: B cell compartment was compromised (CD19+ 0,004*103/mL, 0,2%). No NTA was found against Omicron. No significant differences in CD4+ and CD8+ T effector memory (CD4+/CCR7-/CD45RA-, CD8+/CCR7-/CD45RA-) and central memory (CD4+/CCR7+/CD45RA-, CD8+/CCR7+/CD45RA-) lymphocytes were observed in unstimulated compared to SARS-CoV-2-specific cells at AI. In contrast with these data, SARS-CoV-2-specific IFNg-producing CD8+ T lymphocyte were increased compared to the unstimulated condition. We treated our patient with Xevudy (Sotrovimab) monoclonal antibodies. According to the monoclonal antibodies infusion, at PI high level of NTA was found against Omicron (1:60) variants. A moderate increment of SARS-CoV-2-specific IFNg-producing CD8+ T lymphocyte and degranulating CTL were detected when compared to the unstimulated condition. Notably, a robust increment in CD4+ and CD8+ central memory T lymphocytes was detected at PI compared to AI.
Learning Points/Discussion: Due to the lack of the NTA in AI and the observation that virus-specific memory T cell was only seen at PI, we conclude that the booster dose of COVID-19 vaccine was unable to trigger a relevant immunological protection in this patient. The absence of BTK have a role in mitigate symptoms by impairing IL-6 production.

ME0009 / #785

STREPTOCOCCUS PYOGENES: AN EMERGING CAUSE OF INVASIVE DISEASE AND SEVERE PNEUMONIA

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Streptococcus pyogenes: an emerging cause of invasive disease and severe pneumonia
Background: Streptococcus pyogenes (group A streptococcus - GAS) is generally an uncommon cause of community-acquired pleuropneumonia/empyema in children but has been described as a leading pathogen after pneumococcal conjugate vaccine implementation. The relative incidence of this potentially severe disease has been rising in the last decade and peaked in late 2022 worldwide. We describe a rare case of severe and complicated GAS pneumonia in a fully vaccinated infant in mid-2022.
Case Presentation Summary: A previously healthy 14-month-old boy presented to the ER with cough, runny nose, and high recurrent fever (up to 38.8°C) for 7 days, but with significant worsening of the general condition and respiratory pattern during the last 12h. In the initial evaluation, the infant was groaning, tachydyspneic, and with subcostal and intercostal retractions on room air. Pulmonary auscultation was reduced at the right base, and chest X-ray revealed consolidation in the same topography. A high-flow nasal cannula and empiric treatment with high-dose ceftriaxone plus oxacillin were initiated. Still, the latter was changed to vancomycin after 24h due to clinical instability and the need for mechanical ventilation. Complicated pneumonia with pleural effusion was identified at the control X-ray – diagnostic thoracentesis was promptly performed. Streptococcus pyogenes was identified in the pleural fluid in less than 48h by multiplex RT-PCR and clindamycin was then added due to clinical severity and risk of STSS. S. pyogenes was also recovered from blood at admission. He recovered completely after 21 days of hospitalization (13 were at the PICU).
Learning Points/Discussion: Children with GAS pneumonia are more likely to have more extensive pleural effusion requiring drainage, longer hospitalization, and prolonged antibiotic use.

ME0010 / #1580

GROUP A STREPTOCOCCAL MENINGITIS : A CASE REPORT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Group A Sreptococcal meningitis
Background: On December 12, 2022, WHO has released a statement alerting about an increase of Invasive Group A streptococcal (iGAS) infections in Europe. We report the case of a 9-years-old boy presenting with GAS meningitis and Toxic Shock syndrome (TSS).
Case Presentation Summary: A previously healthy patient presented at the Emergency Room with fever (39°C), diarrhea and vomiting for 2 days. He presented an episode of generalized tonic clonic seizures which stopped after 2 doses of lorazepam (0.1 mg/kg). The patient remained comatose (GCS 2/15). Blood cultures and lumbar punction were taken, chest tube placed, and IV ceftriaxone (100 mg/kg q24h) treatment was started. The patient was transferred to PICU 5 hours after admission for hypotension (70/52 mmHg) and developed a generalized skin rash with a renal impairment (creatinine 1.3 mg/dL). The patient therefore met the CDC criteria for TSS. Adjunctive therapy with IV clindamycine (20 mg/kg/day q8h) and IVIG (2g/kg) was immediately started. Blood and CSF were GAS positive at day 2. Close relatives living under the same roof were prescribed Cefadroxyl as secondary iGAS prophylaxis.
Learning Points/Discussion: The microbiological characterization (emm-typing and virulence typing) of our strain in under progress using nanopore genome sequencing. No specific virulence factor has yet been associated with GAS meningitis which is associated with a 43% case fatality rate. GAS meningitis remains however uncommon among iGAS (2% in Europe) and represents a rare aetiologia of all-age bacterial meningitis. GAS meningitis usually occurs in association with an extra-meningeal primary focus of infection, most commonly otitis media. This case reminds us of the possibility of GAS meningitis without other foci of infection. This might be especially relevant in a context of raising concerns about iGAS in Europe.

ME0011 / #1301

TREATMENT OF INTRAVENTRICULAR LIPOSOMAL AMPHOTERICIN B IN A CHILD WITH CENTRAL NERVOUS SYSTEM ASPERGILLOSIS

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Treatment of Intraventricular Liposomal Amphotericin B in a Child with Central Nervous System Aspergillosis
Background: Central nervous system (CNS) aspergillosis is a rare and fatal opportunistic infection. Here, we present a child with CNS aspergillosis who was treated with intraventricular liposomal amphotericin B (L-AmB), voriconazole, and intravenous (IV) L-AmB.
Case Presentation Summary: A 10-year-old male with nephrotic syndrome presented with limping and weakness. He was on steroid therapy for a month. The cranial magnetic resonance imaging (MRI) showed multiple intraparenchymal scattered abscesses (Figure 1-A). The largest one located to the right parasagittal region was drained. Vancomycin, ceftriaxone, and metronidazole treatments were started. Abscess culture revealed Aspergillus fumigatus and IV voriconazole was added. The histopathological examination revealed septate hyphae compatible with Aspergillus
spp.

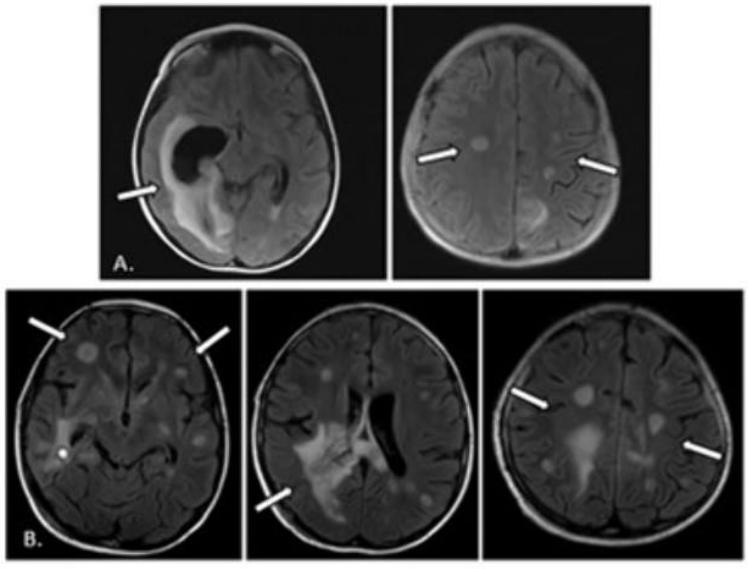

Figure 1. A. Scattered abscesses in initial cranial MRI B. An increase in the number and size of the lesions in his control cranial MRI On the 7th day of voriconazole therapy, his consciousness deteriorated and an increase in the size and number of lesions was detected by cranial MRI (Figure 1-B.). Hence, IV L-AmB was added. The size of lesions and perilesional edema continued to increase under IV L-AmB and voriconazole therapy. Then intraventricular L-AmB (1 mg/day, dissolved in 3 mL of 5% dextrose) was added to combined antifungal therapy. On the 10th day of the intraventricular treatment, regression of the lesions was observed. His follow-up continues with steroid dose reduction and combined systemic and intraventricular antifungal therapy.
Learning Points/Discussion: Management of CNS aspergillosis is challenging. Combined systemic and

intraventricular antifungal therapy may increase the success rate. More experience is needed for the efficacy and safety of intraventricular therapy.

ME0012 / #1506

DISSEMINATED ADENOVIRUS INFECTION TREATED WITH CIDOFOVIR IN A CHILD WITH A SOLID TUMOR

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: DISSEMINATED ADENOVIRUS INFECTION TREATED WITH CIDOFOVIR IN A CHILD WITH A SOLID TUMOR
Background: Human Adenovirus infection may be severe in immunocompromised patients, with multiorgan involvement and mortality around 50%. Disseminated adenovirus infection with acute hepatitis is uncommon in children undergoing standard chemotherapy. Most studies demonstrated that cidofovir is effective and safe in children. Here, we report a disseminated adenovirus infection associated with acute hepatitis, treated with cidofovir in a one-year-old immunocompromised child with relapsed neuroblastoma.
Case Presentation Summary: The patient has been admitted with diarrhea, coryza, and febrile neutropenia. Adenovirus PCR was positive in the nasopharyngeal aspirate. Nevertheless, supportive treatments and standard febrile neutropenia treatments were applied to the patient per the guidelines. After ten days of supportive, antibacterial, and antifungal therapy, the patient had pancytopenia, acute hepatitis, bloody diarrhea, macroscopic hematuria, and conjunctivitis and continued to have a recurring fever. There was no adequate response to oral intravenous immunoglobulin treatment. Her medical condition worsened. Then, cidofovir plus probenecid treatment was initiated. The fever subsided dramatically after the first dose of cidofovir. The transaminase levels decreased, the urine color cleared, diarrhea continued without blood, and the macroscopic hematuria did not recur after the second dose. After the third dose, all clinical findings regressed, the complete blood count returned to normal. The cidofovir treatment was continued on outpatient basis until the nasopharyngeal aspirate and stool Adenovirus PCR became negative. Nephrotoxicity was not observed during the treatment. Her clinical condition improved, hepatitis recovered, and chemotherapy for neuroblastoma was resumed.
Learning Points/Discussion: This case reveals the successful use of cidofovir to manage severe disseminated adenovirus infection in an immunocompromised child with a solid tumor.

ME0013 / #1880

DIAGNOSIS OF A CLUSTER OF CUTANEOUS DIPHTHERIA IN A FAMILY FROM SRI LANKA AT A TERTIARY CENTRE IN LONDON, UK

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Cutaneous Diphtheria in a family from Sri Lanka
Background: Cutaneous Diphtheria has been recently recognised as an emerging disease in Europe. The typical clinical features are well circumscribed round ulcers predominantly on the lower limbs. The diagnosis is made through swab culture and toxin gene testing of C.diphtheriae.
Case Presentation Summary: Two male siblings, aged 10- and 13-years, who had recently returned from Sri Lanka, attended an Accident and Emergency Department complaining of multiple ulcerated skin lesions of two weeks duration and no systemic symptoms reported. Well appearing children with multiple ulcerated lesions over all four limbs were found on examination. Wound swabs were sent for culture as well as routine laboratory investigations. They were both admitted to the Paediatric Infectious Disease ward with intravenous flucloxacillin and clindamycin. Results of both cutaneous cultures were positive for Corynebacterium diphtheriae, toxin positive, and therefore they were both diagnosed with Cutaneous Diphtheria. All close contacts were screened for the presence of C. diphteriae with a nasopharyngeal and throat swabs with no positive results. After receiving 72 hours of intravenous antibiotics both siblings were switched to oral with amoxicillin-clavulanate and clindamycin for a total of 10 days. Two follow up swab cultures were performed after finishing the treatment and remained negative. They received a booster dose of a diphtheria-toxoid containing vaccine.
Learning Points/Discussion: Cutaneous Diphtheri should be included in the differential diagnosis of skin lesions of returning travellers' as the disease remains endemic in many countries. When the diagnosis is suspected, a swab culture should be performed and start treatment with an oral macrolide for 14 days. All patients should be isolated until two cultures remain negative. Close contact tracing should be performed and they should receive both vaccination and chemoprophylaxis.

ME0014 / #1199

AMOEBIC LIVER ABSCESS IN A 6-YEARS-OLD GIRL: A CASE REPORT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: AMOEBIC LIVER ABSCESS IN A 6-YEARS-OLD GIRL: A CASE REPORT
Background: Amebiasis is a parasitic disease caused by Entamoeba histolytica, which mainly affects people from developing countries. The majority of individuals have intestinal tract infections. Occasionally, they can present with extraintestinal infection, most commonly liver abscess.
Case Presentation Summary: We describe a 6-years-old girl, born and resident in São Tomé and Principe evacuated to Portugal due to a hepatic abscess. She presented recurrent episodes of abdominal pain and fever for 4 years. No other significant medical or surgical history was present. On physical examination she presented deep abdominal left flank tenderness, without hepatomegaly. Abdominal computed tomography revealed a heterogeneous liver hypoechoic mass, 40 x 33 x 24 mm, with peripheral calcifications and two central necrotic regions, in segment 7 of the liver, suggestive of abscesses. Blood tests showed white cell count 9.8 × 10^9/L, C-reactive protein 9 mg/L, alkaline phosphatase 277 U/L, AST 25 U/L, ALT 14 U/L, bilirubin 0,14 mg/dl. Tumor markers, blood cultures, IGRA, HIV, Bartonella, Brucella and Echinococcus serology and stool parasitological examination were negative. Serology for Entamoeba histolytica (IgG) was positive and stool PCR was negative. Management included oral metronidazole. Abdominal ultrasound scan taken 1 year later showed calcification of the abscess and decreased size.
Learning Points/Discussion: Amoebic liver abscess can cause significant morbidity and mortality. Although there is a broad differential diagnosis, epidemiologic history and serology are important clues to the diagnosis. In this case, there was no need of surgical approach because of a good medical therapy response.

ME0015 / #779

NEONATAL COLLAPSE: FORGET NOT THE VIRUS

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Neonatal collapse: Forget not THE virus
Background: The presentation of a neonate with poor feeding and respiratory distress is a common paediatric scenario. Whilst acute myocarditis is an uncommon cause of this presentation, rapid recognition and intensive care support gives these infants the best possible chance of survival. Therefore, it is important to consider cardiac causes, especially in the presence of inappropriate persistent tachycardia.
Case Presentation Summary: During September to December 2022, nine infants were admitted to PICUs in the Southwest of England and South Wales with neonatal enterovirus myocarditis (NEM) (incidence rate 65/100,000 person-years). All cases presented in extremis with reduced feeding, tachypnoea and cardiogenic shock with severe left ventricular dysfunction on echocardiography and NT-ProBNP over 35000pg/ml. They had laboratory features overlapping with haemophagocytic lymphohistiocytosis. Coxsackievirus B3 were documented in three patients and Coxsackievirus B4 in another three. SARS-CoV-2 antibody was positive in six infants but they were most likely maternally derived. Due to the severity of their condition, clinical trajectory and hyperinflammation, immunomodulation and antiviral therapy (where possible) were commenced. ECMO was considered in all patients but not initiated. No mortality was recorded up until 31-Dec-

Table 1: Demographics, laboratory and cardiac investigations, treatment and outcomes of the nine patients with neonatal myocarditis

	Frequency	Percentage	Median	Minimum	Maximum
Demographics					
Male	5	56	-	-	-
Term gestation	8	89	-	-	-
Weight (kg)	9	100	3.5	2.8	4.3
Age (days)	9	100	10	9	16
Southwest of England	4	44	-	-	-
South Wales	5	56	-	-	-
Investigations					
Positive enterovirus PCR sites					
Respiratory secretions	6	67	-	-	-
Stool	4	44	-	-	-
Blood	5	56	-	-	-
Cerebrospinal fluid	4	44	-	-	-
Skin	1	11	-	-	-
Pericardial fluid	1	11	-	-	-
Haemoglobin (g/dL)	9	100	88	64	146
Lymphocyte (10^9/L)	9	100	1.8	0.3	3.35
Neutrophil (10^9/L)	9	100	18.3	2.79	21.7
Platelet (10^9/L)	9	100	141	50	482
Fibrinogen (g/L)	9	100	0.9	0.4	2.0
Ferritin (μg/L)	9	100	15000	465	100000
Serum triglyceride (mmol/L)	8	89	2.2	1.0	3.4
C-reactive protein (mg/L)	9	100	11	4	65
Creatinine (μmol/L)	9	100	60	16	132
Alanine transaminase (U/L)	9	100	140	80	2295
Troponin T (ng/L)	9	100	2687	378	9811
Treatment					
Invasive mechanical ventilation (days)*	8	89	32	13	50
Number of inotropes	9	100	3	2	4
Duration (days)*	9	100	34	15	55
Intravenous immunoglobulin (g/kg)	9	100	1.7	1.2	2.0
Methylprednisolone (10mg/kg/day)	6	67	-	-	-
Duration (days)	7	78	3	2	5
Anakinra	6	67	-	-	-
Duration (days)	6	67	17.5	6	30
Pocapavir†	5	56	-	-	-
Duration (days)	5	56	14	3	14
Outcome					
Arrythmia*	7	78	-	-	-
Length of PICU stay*	9	100	40	5	51
Length of hospital stay*	9	100	45	23	59

* Data updated until 31 December 2022.
† Enteral pocapavir 40mg/kg/day; obtained via the compassionate use scheme from Virodefense Ltd.

2022.

Learning Points/Discussion: Enterovirus is a common cause of neonatal infection but rarely leads to myocarditis. In NEM, the most frequently identified serotypes are coxsackievirus B, with a mortality rate of 40%. These infants are at high risk of arrhythmias. Our observation is significantly higher than the estimated background NEM incidence rate (3.1/100,000 person-years) with an incidence rate ratio of 20.8 (95% confidence interval 7.59-58.91). Whilst there is no agreed treatment, evidence from cardiac biopsies

suggests direct damage to myocytes with enterovirus replication and inflammatory infiltration. Intravenous immunoglobulin is frequently given although reports of benefit are anecdotal.

ME0016 / #1207

ENTEROVIRUS A71 AND NEUROLOGIC DISEASE: CASE SERIES OF A SINGLE PAEDIATRIC HOSPITAL

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: ENTEROVIRUS A71 AND NEUROLOGIC DISEASE: CASE SERIES OF A SINGLE PAEDIATRIC HOSPITAL
Background: Enterovirus A71 (EV-71) is a common cause of hand-foot-mouth disease but has emerged as a neurotropic agent. Our aim was to characterize clinical features and evolution of children with EV-71 neurologic disease. Retrospective observational study of paediatric patients (<18 years) with neurologic disease and detection of EV-71 from any biologic specimen in a tertiary-level paediatric hospital in Portugal, over a 5-year period (2018-2022).
Case Presentation Summary: Five children were identified, with a median age of 26 months (min 16 days, max 4 years old), 3 males and 4 became ill during September-October.The diagnosis were rhombencephalitis (2/5),rhombencephalomyelitis (n=1) and aseptic meningitis (n=1). Other diagnosis was viral sepsis with positive CSF EV71 PCR. Neurological symptoms identified were drowsiness (4/5), ataxia (2/5), non epileptic myoclonic jerks (1/5), hypotonia (1/5), diplopia (1/5) and dysautonomia (1/5). Other non-neurological symptoms were fever (4/5), vomiting (4/5), exanthema (2/5) and herpangina (2/5). CSF showed pleocytosis in 4/5 patients, 2/4 polymorphonuclear. MRI (n=3) showed increased T2-weighted signal in the dorsal part of the hindbrain, 2/3 involving the cerebellum and 1/3 including cervical and dorsal myelitis. PCR detected enterovirus in nasopharyngeal (5/5), stool (5/5), CSF (2/5) and blood (1/1).Three patients were treated: intravenous immunoglobulin (incipient bulbar symptoms-diplopia) (1/3), methylprednisolone (severe lethargy) (1/3) and both (flaccid paresis with autonomic dysregulation) (1/3). One patient required PICU admission. Median length of stay was 7 days [4;15]. At one month follow-up, no neurologic sequelae were found.
Learning Points/Discussion: EV-71 can cause serious neurologic disease. Early recognition and timely intervention are the key to reducing morbidity and mortality in moderate to severe neurologic disease. Randomized controlled trials are crucial to define best therapeutic management of these patients.

ME0017 / #546

AN UNEXPECTED CAUSE OF RIGHT UPPER QUADRANT ABDOMINAL PAIN IN A TEENAGER

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: AN UNEXPECTED CAUSE OF RIGHT UPPER QUADRANT ABDOMINAL PAIN IN A TEENAGER
Background: Fitz-Hugh-Curtis syndrome is an association between pelvic inflammatory disease and perihepatitis, primarily attributable to Neisseria Gonorrhoeae and Chlamydia Trachomatis. Classically it manifests as pain in the right hypochondrium.
Case Presentation Summary: A previously healthy and sexually active 17-year-old female, was admitted with a 4-day history of right upper quadrant abdominal pain, associated with high fever and vaginal bleeding. On examination she had tenderness on palpation of the right hypochondrium. Gynecological observation showed sparse vaginal bleeding and pain on deep palpation and mobilization of the cervix and adnexa. Blood analysis revealed 16900/uL leukocytes and C-reative protein level of 259 mg/L. Abdominal ultrasound was inconclusive and abdominal CT showed signs of inflammation of the pelvic fat. The urine sample was PCR positive for Neisseria Gonorrhoeae, so pelvic inflammatory disease was assumed. She was started on oral doxycycline, intravenous ceftriaxone and metronidazole. During hospitalization, abdominal ultrasound revealed mild hepatomegaly and perihepatic free fluid. Fitz-Hugh-Curtis syndrome was diagnosed. The patient had clinical improvement and was discharged after 5 days, completing a 14-days course of treatment with oral doxycycline and metronidazole. On follow-up she had no abdominal signs or symptoms and had a negative vaginal swab PCR for Neisseria Gonorrhoeae and Chlamydia Trachomatis.
Learning Points/Discussion: Early detection and treatment of pelvic inflammatory disease is essential to prevent complications such as infertility. The nonspecific presentation of Fitz-Hugh-Curtis syndrome as a complication of pelvic inflammatory disease makes it a challenging diagnosis, however it should be considered in the differential diagnosis of right upper quadrant pain in the sexually active adolescent.

ME0018 / #1917

CASE REPORT: SEXUALLY TRANSMITTED INFECTIONS IN PEDIATRICS – ACQUIRED OR CONGENITAL?

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: CASE REPORT: SEXUALLY TRANSMITTED INFECTIONS IN PEDIATRICS – ACQUIRED OR CONGENITAL?
Background: A resurgence of syphilis is seen worldwide that results in increased number of infected children. Although most of the cases in young children are congenital, the possibility of acquired infection should not be forgotten. This case illustratesthe difficulties differentiating congenital and acquired syphilis in a young child.
Case Presentation Summary: A 5-year-old firstborn boy was referred for investigation for syphilis due to positive maternal tests during mother's second pregnancy who was found to have latent infection (RPR 1:4, TPHA 4+, anti-T.pallidum IgM/G 270 U/l). Detailed examination of the boy revealed active syphilis (RPR 1:16, TPHA 4+, anti-T.pallidum IgM/G 296 U/l) but no clinical signs of the disease. At first congenital infection was suspected as the results of syphilis screening tests of the first pregnancy were missing and the mother was treated with penicillin postpartum due to sepsis. However, the boy was found to have perianal dermatitis with suspected previous anal lacerations. The mother denied sexual abuse but the father who was also found to be positive was incarcerated, the boy spent most of his time with untested grandparents. As proofs of sexual abuse were lacking and congenital syphilis could not be ruled out, the patient received a 10-day course of penicillinG IV and was discharged home under the care of child protection services.
Learning Points/Discussion: 1. Sexual abuse should be ruled out in a young child with syphilis but may be difficult to prove. 2. Differentiation of congenital and acquired sexually transmitted infections in children might be challenging.

ME0019 / #1351

CHRONIC LYMPHOMONOCYTIC MENINGITIS IN A HEALTHY ADOLESCENT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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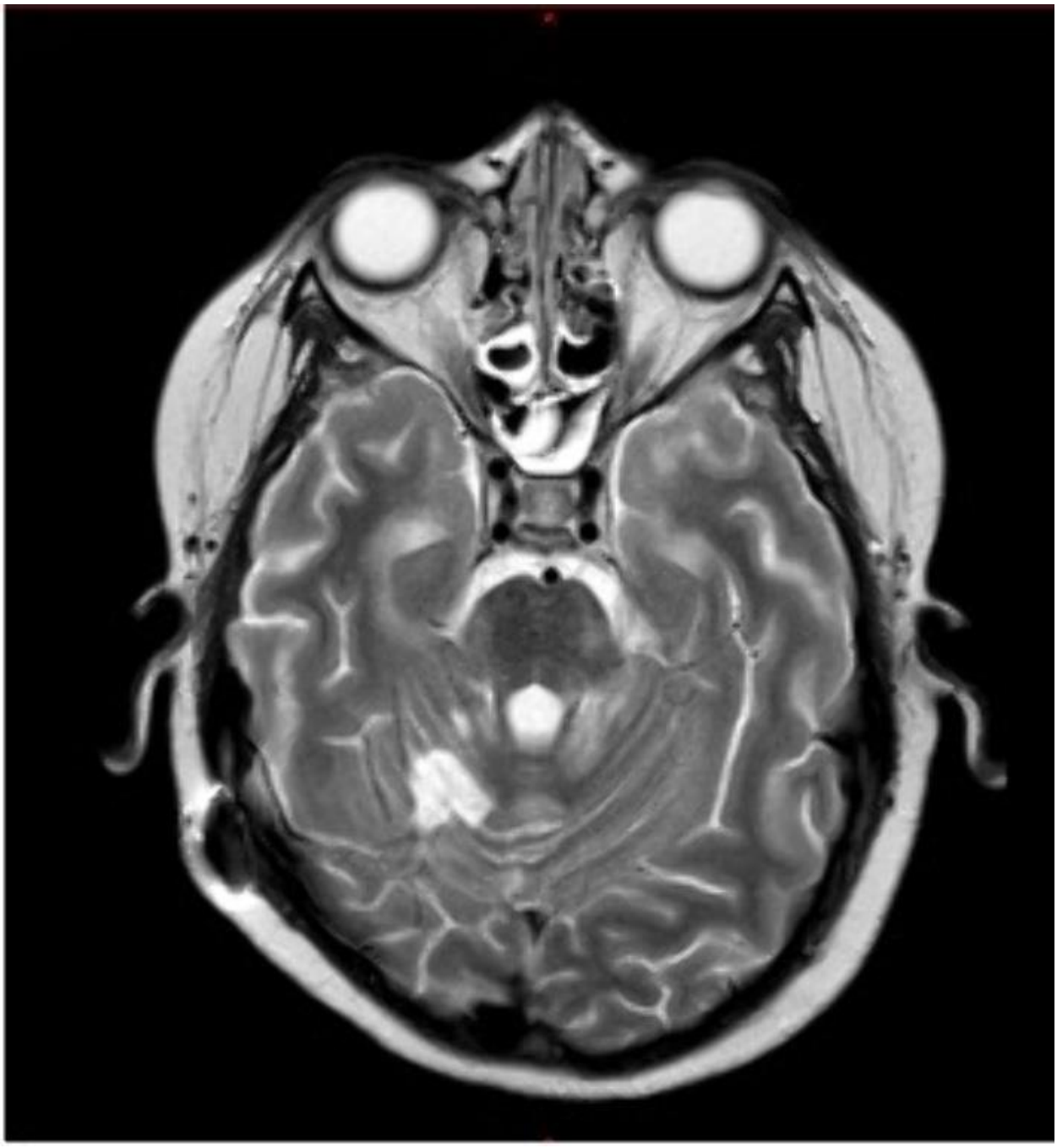
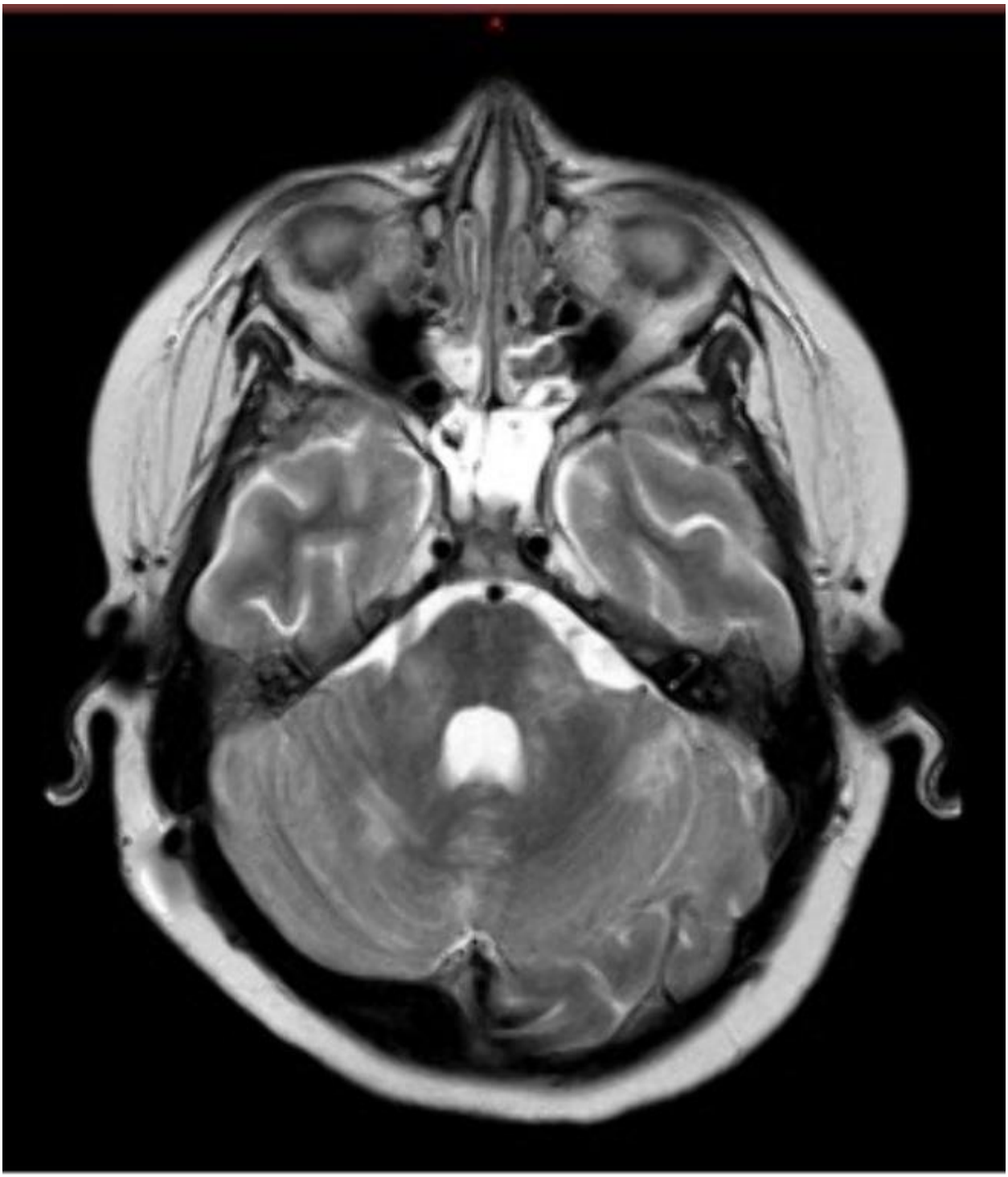
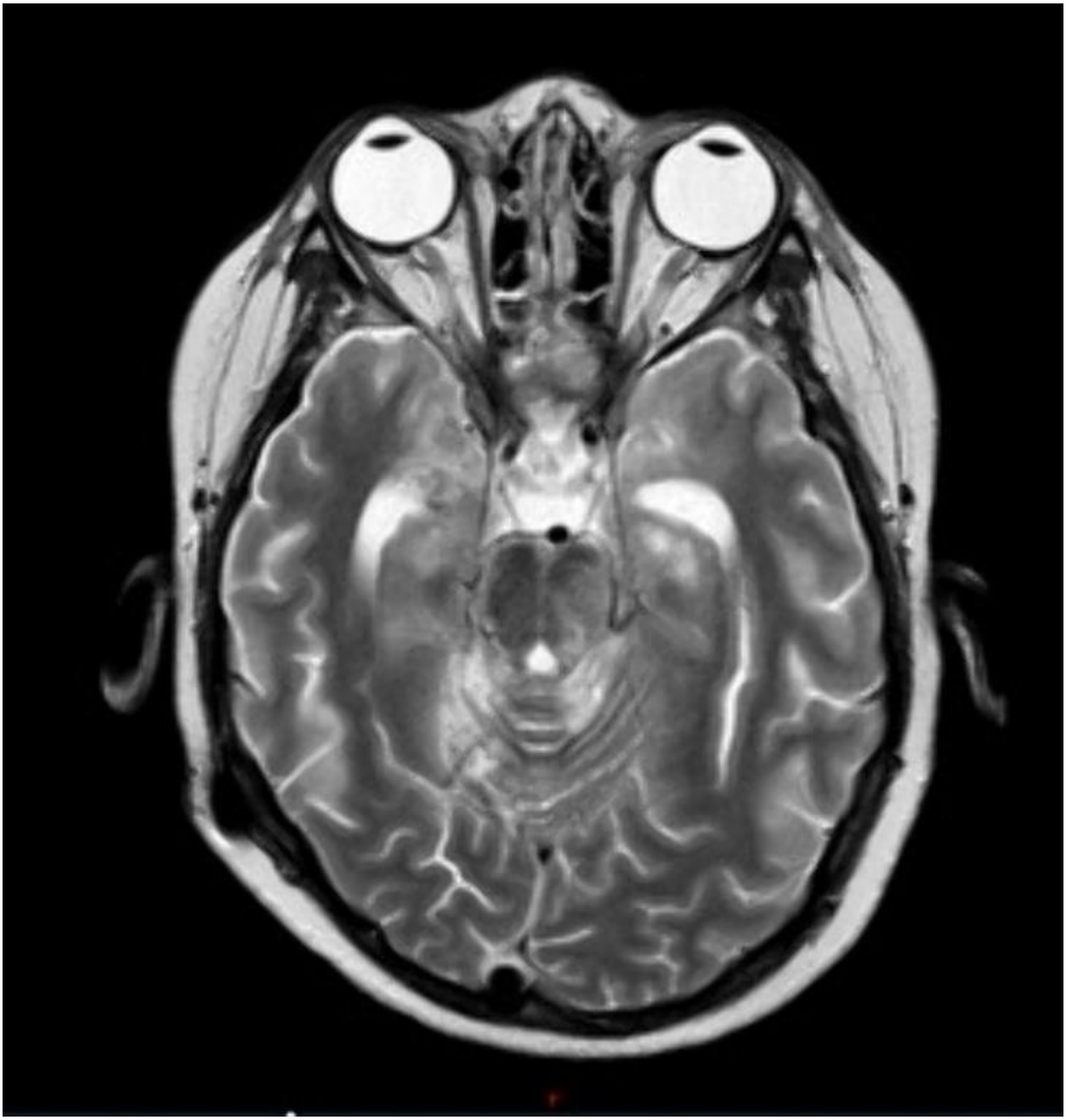
Title of Case: CHRONIC LYMPHOMONOCYTIC MENINGITIS IN A HEALTHY ADOLESCENT
Background: Histoplamosis is one of the most endemic mycoses in the Americas,although it is often underdiagnosed.Clinical presentation can be variable and some forms can progress to life-threatening illnesses.
Case Presentation Summary:







A 13 year old male,previously healthy,developed an insidious headache which progressed over the last 2 years.Investigation was started and included a number of analysis of Cerebrospinal Fluid(CSF)which showed low cell count(5-119 cels,mostly lymphocytes),low glucose(5 –27) and elevated protein(171-1500).Film array was negative in all samples.Brain MRI showed multiple heterogeneous lesions in the midbrain region and posterior fossa structures, with a predominance of hyperintensity on T2.Spine MRI showed multiple lesions with hyperintensity on T2 that affect the spinal cord at the cervical and thoracic levels, in addition to exuberant thickening and diffuse leptomeningeal enhancement in the vertebral canal.Due to the involvement of the brain, meninges and spinal cord, meningo-tuberculosis was hypothesized and treatment was initiated. However,there was no epidemiology,the PPD was non-reactive and the CSF PCR for M.tuberculosis was negative.The patient evolved with neurological worsening, lowered level of consciousness, recurrent seizures and left hemiparesis,requiring tracheal intubation.The investigation was expanded for Histoplamosis and the patient had a positive serology, positive antibody and positive antigen research in the CSF.Immunodeficiency and HIV were excluded.Amphotericin

B(5mg/kg/day)was started on 08/19/22,however there was no neurological improvement.Patient remains on MV(already with tracheostomy),with little contact with the environment.MRI already shows sequelae lesions.After 4 months of treatment,the patient maintains neurological lowering with the need for MV.The CSF antigen test remains positive,but decreasing titles.Amphotericin was suspended and oral posaconazole was started with a schedule of completing one year of treatment
Learning Points/Discussion: This case report brings an important alert for the suspicion of CNS histoplasmosis in chronic lymphomonocytic meningitis.

ME0020 / #2276

SEVERE PULMONARY ASPERGILLOSIS POST LIVER AND HAEMATOPOIETIC TRANSPLANT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Challenges in treating Severe Pulmonary Aspergillosis Post Hepatic and Haematopoietic transplant
Background: Invasive pulmonary aspergillosis can pose high mortality risk in immunocompromised patients. There is need for innovative approach for treating such opportunistic infections.
Case Presentation Summary: 10 year old boy underwent Auxillary Liver tranplant for Non Hep A-E Hepatitis induced liver failure in September2020. Soon developed fever, his CT showed bilateral conslidations and pleural effusion. Soon grew Candida Guilliermodi from blood and Candida Fermentati from pleural fluid, treated with Ambisom+Caspofungin and later Isovucoazole was added due to worsening radiological findings. Had HSCT in November 2020 while on tripe antifungals, since lesions continued to progress and cavitate leading to haemoptysis, he underwent wedge excision of right upper lobe on 2/3/21 and then of Right lower lobe on October 2021. Aspergillus Falvus pcr were positive on both biopsy samples, but sensitivity failed. Hence were treated with multipe antifungals Ambisome+Caspofungin+Isavuconazole. Haemoptyis persisted with worsening cavitatory lesions, cardiothoracic team felt there was major risk of bleading as cavitations were very close to major arteries. Hence after expert advice from senior Mycologist and Interventional Radiologit he received Interventional Radiology guided percutaneous intralesional i.v Voriconazole in November 2021. Serial CT scans since then show stable bilateral multifocal areas of bronchiectatic change with cavitation and endoluminal soft tissue nodularity and no new areas of nodularity. No further Haemoptysis episodes sinece April 2022 and contiues to be on IV Caspofungin + oral isavuconazole with aim to complete minium 2 years of antifungal treatment. He is 14 months post HSCT with good immune reconstitution.
Learning Points/Discussion: High index of suspicion/early treatment remains mainstay for treating invasive fungal infections. Intralesional Antifungal therapy should be considered Availability of expert Mycologist is essential in transplant units.

ME0021 / #1774

A RARE CASE OF EMPYEMA NECESSITANS CAUSED BY STREPTOCOCCUS PNEUMONIAE IN A 6-YEAR-OLD GIRL

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: A RARE CASE OF EMPYEMA NECESSITANS CAUSED BY STREPTOCOCCUS PNEUMONIAE IN A 6-YEAR-OLD GIRL
Background: Empyema necessitans is a complication of empyema, characterized by the spontaneous extension of purulent material outside the pleural space, into the soft tissues of the chest wall. Herein we report a rare case of a 6-year-old girl with Pneumococcal empyema necessitans.
Case Presentation Summary: A 6-year-old girl, with no significant past medical history and a full immunization schedule, including the 13-valent conjugate pneumococcal vaccine, presented with respiratory distress, following a 1-week history of cough and fever. Upon physical examination, the patient was found ill-appearing, febrile, tachycardic, tachypneic with abolished breath sounds in the lower left lung. Imaging findings indicated a large left-sided pleural effusion. The patient was started on empiric broad-spectrum antibiotics and underwent a left pleurotomy. Gram stain of the fluid demonstrated many leukocytes and Gram-positive cocci in diplo, while cultures were positive for Streptococcus Pneumoniae. However, the fever did not resolve and 4 days after admission, an enlarging, painful, erythematous mass on the left abdominal flank was noticed. A contrast CT scan was ordered, which revealed that the purulent material had spread to the left anterior abdominal wall and to the left lumbar region (Figure 1). The patient was diagnosed with empyema necessitans. The invasive nature of the empyema led to 2 more surgical interventions and 4 drain tubes inserted. 33 days after admission, the drain tubes were removed, as both the clinical and radiological picture
improved.

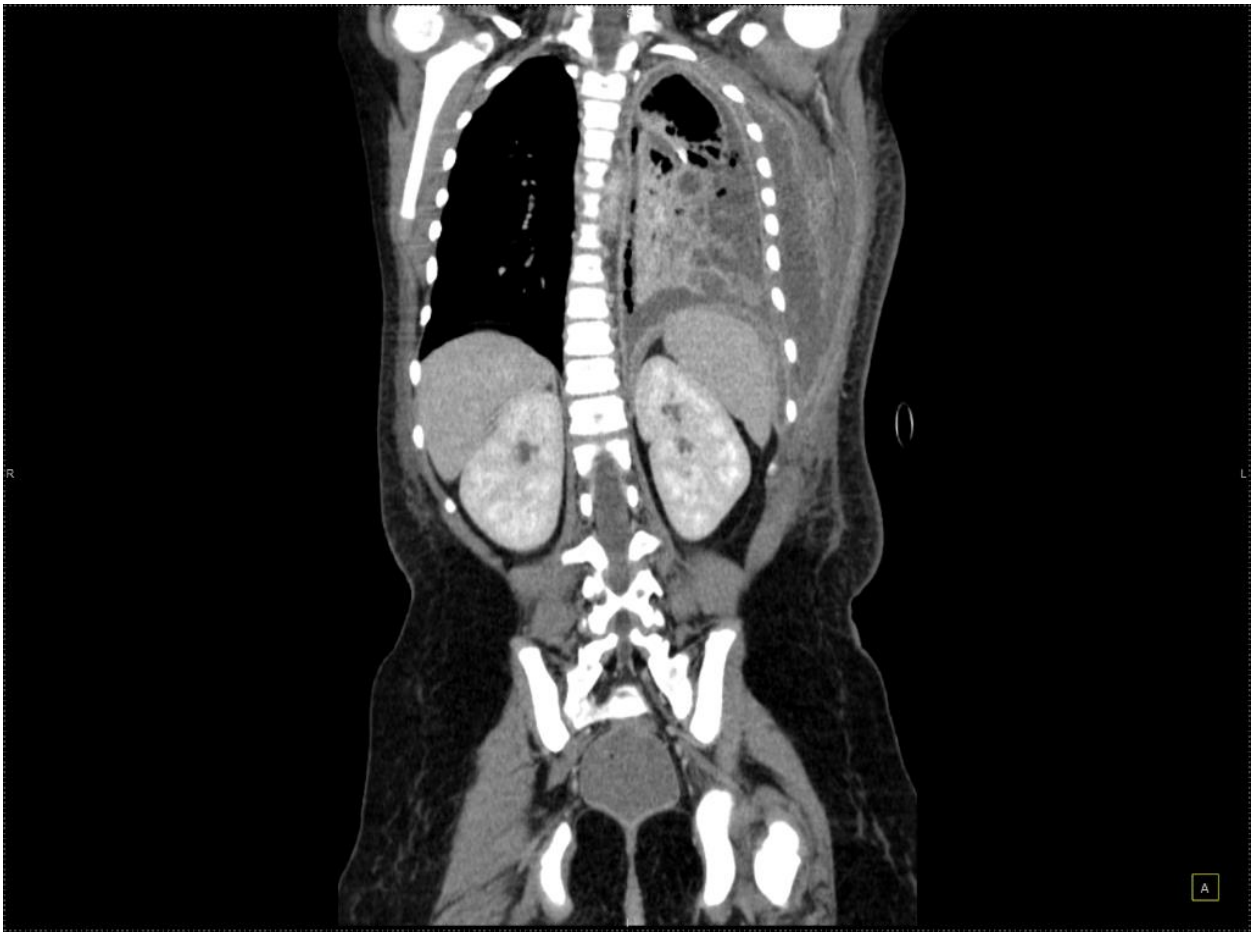

Figure 1. Coronal contrast CT scan demonstrating the extension of the empyema

Learning Points/Discussion: Pneumococcal empyema necessitans is a rare finding in the present-day, especially in the pediatric population. The most common etiology is tuberculosis, followed by actinomycosis, pneumococcal and staphylococcal infection.

ME0022 / #1329

STAPHYLOCOCCUS NECROTIZING PNEUMONIA IN A CHILD WITH COVID-19

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: STAPHYLOCOCCUS NECROTIZING PNEUMONIA IN A CHILD WITH COVID-19
Background: Clinical manifestations of COVID-19 is usually milder in children, but some children do require hospitalization and intensive care. Twenty-five percent of older children with SARS-CoV-2 may had secondary bacterial infections. Staphylococcus aureus is a major human pathogen causing a wide range of clinical infection, including bacteremia, skin and soft tissue infection and pleuropneumonia. This report aim to present a case with Staphylococcus necrotizing pneumonias as COVID-19 co-infection in a child.
Case Presentation Summary: An eleven-year-old boy was referred from previous hospital due to pneumonia and fever which not improved after 10 days of intravenous Levofloxacin and Gentamycin. Blood culture taken on first admission revealed MRSA sensitive to both antibiotics given, positive COVID-19 PCR. Chest x-ray evaluation showed worsen pneumonia, bilateral pleural empyema, and necrotizing pneumonia was shown from the Chest CT-scan. WBC was 38,510/mm3, neutrophil 90%, thrombocytosis, increased CRP, anemia, hypoalbuminemia and D-dimer 3060. Chest tube drainage was inserted and pleural fluid culture revealed MRSA, and repeated COVID-19 PCR already negative. Treatment given were Vancomycin for 20 days, enoxaparine, anemia and hypoalbuminemia correction. Fever was resolved on days-4 of Vancomycin, and the patient was discharged in good condition.
Learning Points/Discussion: COVID-19 in children may present with severe manifestation in patients with co-morbid diseases or bacterial co-infection. Staphylococcus aureus was one common cause of bacterial co-infection especially with necrotizing pneumonia characteristics. Other common causes was Streptococcus pneumonia. Vancomycin should be considered as the treatment of choice in MRSA infections, especially if clinical improvements were not observed after adequate treatment with sensitive antibiotics.

ME0023 / #906

PANTON-VALENTINE LEUKOCIDIN STAPHYLOCOCCUS AUREUS SEVERE INFECTION IN AN INFANT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Severe infection in an infant
Background: Staphylococcus aureus is a major human pathogen.Panton-Valentine leukocidin (PVL) is a virulence factor produced by some strains that causes leukocyte lysis and tissue necrosis.PVL-associated S.aureus (PVL-SA) predominantly causes skin and soft-tissue infections (SSTIs)but can also cause invasive infections such as necrotizing pneumonia.
Case Presentation Summary: A 35-week gestation preterm male on day 24 of life previously healthy was referred to our hospital for poor feeding and fever.He deteriorated within hours,intubated due to respiratory distress,and referred to the Neonatal Intensive Care Unit (NICU).He was initially managed with ampicillin and amikacin and then changed to meropenem and vancomycin.He was extubated the next day and commenced on humidified high-flow nasal cannula oxygen.Blood culture taken upon admission was positive for Methicillin-Resistant SA (MRSA).A day later, he exhibited reduced mobility of the right leg with oedema along with a respiratory deterioration requiring intubation.Chest contrast-enhanced CT scan revealed necrotizing pneumonia and MR imaging demonstrated osteomyelitis of the right sciatic bone. Blood culture and bronchoalveolar lavage grew MRSA.Second blood and bronchoalveolar lavage sample cultures also grew MRSA. Suspected PVL-SA-related infection was confirmed by endpoint PCR amplification of MRSA-PVL and MecA genes and validated with SangerdideoxyDNA sequencing.Treatment was changed to gentamicin, ceftarolin and linezolid.A gradual improvement of symptoms and general condition occurred.Ceftarolin was discontinued after 3wks and linezolid after 5wks.He was discharged with oral co-trimoxazole for a total treatment of 8wks.Due to nasal carriage of his mother for PVL- MRSA, both parents received intranasal mupirocin.There was no respiratory compromise or other residual SA complication noticed in follow-up.
Learning Points/Discussion: Our report highlights the importance of improving awareness of this severe infection.High suspicion and vigilance for a life-threatening PLV-SA infection is essential for a prompt diagnosis and adequate treatment.

ME0024 / #949

OFF-LABEL USE OF CEFTAZIDIME AVIBACTAM IN INFANT WITH HOSPITAL-ACQUIRED PNEUMONIA CAUSED BY PANDRUG-RESISTANT KLEBSIELLA PNEUMONIA INFECTION: A CASE REPORT

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: OFF-LABEL USE OF CEFTAZIDIME AVIBACTAM IN INFANT WITH HOSPITAL ACQUIRED PNEUMONIA CAUSED BY PANDRUG-RESISTANT KLEBSIELLA PNEUMONIA INFECTION: A CASE REPORT
Background: The prevalence of pan drug-resistant (PDR) Klebsiella pneumonia infection has increased immensely in pediatric unit. This has been a crucial health issue because of the limited choices of antimicrobial agents in pediatric population.
Case Presentation Summary: We reported a case of a full term small for gestational age infant with gastroschisis who was referred to our hospital since 2 days old. Multiple surgical interventions were conducted to repair gastroschisis. Following the surgeries, her condition was improved gradually. However, within one week, she displayed signs of pneumonia and sepsis with significant increase of C-reactive protein and procalcitonin. She required high frequency oscillatory (HFO) ventilation, inotropic agents, and empiric antibiotics. Subsequent endotracheal tube (ETT) aspirate culture and two-site blood cultures results were PDR K. pneumonia infection. Intravenous antibiotic regimens were given, including cefepime, fosfomycin, cefoperazon sulbactam, amikacin, tigecyline, polymyxin B, imipenem, and ceftazidime. The blood culture result was sterile after administration of polymyxin B for the second times. Hemodynamic was stable, yet the patient could not wean HFO ventilation for 4 weeks and the ETT aspirate cultures were persistent for PDR K. pneumonia. Therefore, intravenous ceftazidim avibactam was administered for 10 days with dose of 50 mg/kgBB/dose q8h. Pneumonia was resolved, HFO was changed to conventional ventilator on day 8^{th} of ceftazidime avibactam treatment, and extubation was performed on day 10^{th}. After completion of ceftazidime avibactam treatment, low dose dexamethasone therapy was given for bronchopulmonary dysplasia. The patient recovered fully and was discharged after 100 days of hospitalization.
Learning Points/Discussion: Administration of ceftazidime avibactam appears to be well tolerated and effective in pediatric with PDR K. pneumonia infection.

ME0025 / #1978

ACINETOBACTER BAUMANNII EARLY ONSET SEPSIS - NOSOCOMIAL OR COMMUNITY ACQUIRED?

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: Acinetobacter baumannii Early Onset Sepsis - Nosocomial or Community Acquired?
Background: Early onset sepsis (EOS) is most frequently caused by organisms acquired intrapartum. It affects term neonates lessfrequently than preterms, but is an important cause of morbidity and mortality
Case Presentation Summary: We present the case of a term neonate with an unsupervised pregnancy born by eutocic home delivery in the toilet. At hospital admission he presented with polycythemia due to late cord clamping, hypothermia, and hypoglycemia. Forty-eight hours after birth he became pale and presented with prolonged capillary refill time, temperature instability, thrombocytopenia, and an elevated C reactive protein (110.7 mg/L). Following the suspicion of EOS, antibiotic therapy with ampicillin and cefotaxime was started and then switched to meropenem after Acinetobacter baumannii complex was isolated from blood culture, with no documented drug resistances. Cerebrospinal fluid culture was negative. Meropenem was continued for 21 days. Despite the overall improvement, severe thrombocytopenia persisted (minimum 4000/uL), requiring seven platelet transfusions and one dose of intravenous immunoglobulin, and resolving on the 14th day of life, along with the polycythemia. There was no maternal thrombocytopenia and maternal platelet antibodies were negative. Because the father's identity was not confirmed, further studies were non-viable. On the 17th day of life, the patient developed neutropenia (minimum 500/uL), which resolved by the 27th day of life.
Learning Points/Discussion: Neonatal sepsis by Acinetobacter baumannii incidence is increasingh worldwide, but it is usually associated with late onset sepsis. This is the first case in our unit. Despite being more frequently associated with nosocomial infection, the birth circumstances may have been the origin in this case. Severe and prolonged thrombocytopenia could be sepsis-related or immune in etiology. Neutropenia was most likely caused by treatment with meropenem.

ME0026 / #936

NEONATE WITH COVID-19 RELATED ENCEPHALOPATHY

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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Title of Case: NEONATE WITH COVID-19 RELATED ENCEPHALOPATHY
Background: Neurological manifestations of COVID-19, although rare, have been described in children. Non specific neurological symptoms, such as headache are common in older children yet specific neurological deficits such as seizures or encephalopathy are less prevalent
Case Presentation Summary: We present a a twin girl born at 35 weeks through c-section, who tested positive for COVID-19 on day 10 of life, and hospitalization was required due to a suspected episode of apnea. On day two she had further episodes of apneas as well as clonic, myoclonic and migratory seizures. She subsequently developed signs of encephalopathy with thermoregulation disturbance, hypotension, and lethargy. She was hypotonic with weak primitive reflexes. Blood tests demonstrated hypoglycaemia and elevated D-dimers with normal fibrinogen. Empirical antibiotics, remdesivir, acyclovir and anticonvulsants were started. Cerebrospinal fluid (CSF) analysis was normal for her age and all virological PCR samples (including SARS-CoV2, HSV type 1, 2) and cultures were negative. Screening for inborn errors of metabolism, neurotransmitters, congenital infections, ECG and chest radiogram did not reveal any abnormalities. Brain MRI showed multiple bilateral white matter signal abnormalities and restricted diffusion, particularly in the frontal lobes and corpus callosum. Given the severe clinical presentation and neuroimaging findings, previously described as being associated with COVID-19, the most likely diagnosis was COVID-19 related encephalopathy. Hence, she was given steroids (prednisolone 1mg/kg for 5 days and intravenous IVG (400mg/kg). The neonate had an uneventful further course on the ward and and discharged on day 24 of life. Of note, four months later her follow up MRI was normal and neurodevelopmental assessment age appropriate.
Learning Points/Discussion: Although extremely rare, clinicians should be aware of the possibility of COVID-19 associated severe central nervous system involvement in neonates.

ME0027 / #2156

WHEN VARICELLA-ZOSTER VIRUS “OPENS THE DOOR” – A CASE REPORT OF STREPTOCOCCUS PYOGENES SOFT TISSUE INFECTION TREATED WITHOUT SURGICAL INTERVENTION

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

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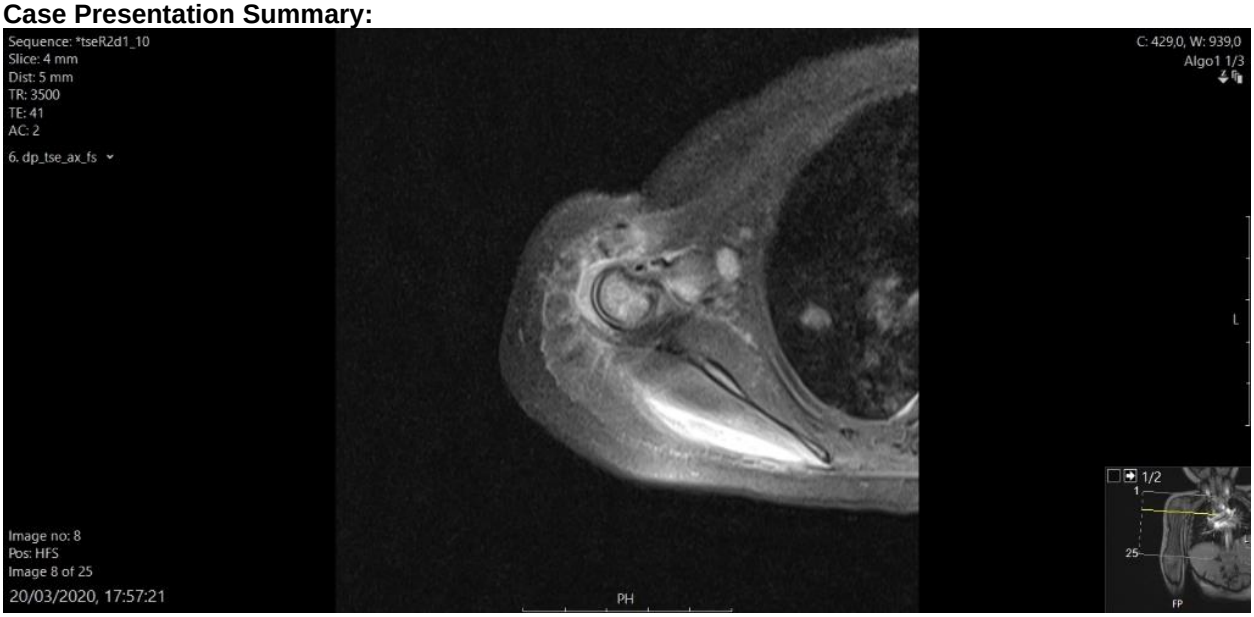
Title of Case: WHEN VARICELLA-ZOSTER VIRUS “OPENS THE DOOR” – A CASE REPORT OF STREPTOCOCCUS PYOGENES SOFT TISSUE INFECTION TREATED WITHOUT SURGICAL INTERVENTION
Background: Primary varicella infection in children has been associated with an increased incidence of invasive group A streptococcal soft tissue infection including cellulitis, myositis, necrotizing fasciitis, and toxic shock syndrome.
Case Presentation Summary:



A 12 months-old male, all vaccines up-to-date, was taken to the Paediatric Emergency Department for presenting fever every 6h, Tmáx:40.5ºC, with 2 days of evolution and pain in the right shoulder region with limitation to mobilisation, a discrete irritative cough and partial refusal to eat since the day before. Chickenpox was established the day before the onset of fever. At admission, reasonable general condition with vesiculo-papular exanthema with scattered crusts. Noteworthy, a redness, heat and swelling right shoulder. Remaining examination was unremarkable. Patient underwent blood tests, blood culture and shoulder radiography and ultrasound, of which highlight: Erythrocytes:9.4g/dL, Leukocytes:23.4x10^9/uL (Neutrophils:67%, Lymphocytes:21%), C-Reactive Protein:303mg/L, Lactate Dehydrogenase:475U/L, Alanine aminotransferase:39U/L. Shoulder radiography was normal. Ultrasound revealed thickening and densification of subcutaneous cellular tissue, without joint effusion or collections. Patient started on IV acyclovir, clindamycin and flucloxacillin. Blood culture was positive for Streptococcus pyogenes which prompt change to penicillin G. Magnetic resonance imaging revealed an elongated liquid collection in muscles of posterior face of shoulder and diffuse oedema of the muscular planes. During hospitalisation there was an improvement in clinical and laboratory tests. Last shoulder ultrasound revealed resolution of the previous soft tissue alterations. He was discharged home with shoulder mobility

restored and completed 4 weeks of antibiotic.
Learning Points/Discussion: The early start of antibiotics shaped the outcome of this case and allowed the excellent evolution with only medical treatment and close monitoring.

ME0028 / #1361

PURPURA FULMINANS SECONDARY TO VARICELLA- ZOSTER INFECTION

E-Poster Meet the Expert
MEET THE EXPERT POSTERS

Aylin Dizi Işık[1], Ahmet Hamdi Sakarya[2], Zeynep Ergenç[1], Seyhan Yılmaz[1], Sevgi Aslan Tuncay[1], Burcu Parlak[1], Pınar Canizci Erdemli[1], Eda Kepenekli[1]
[1]Marmara University School of Medicine, Pediatric Infectious Diseases, İstanbul, Turkey, [2]Marmara University School of Medicine, Plastic, Reconstructive And Aesthetic Surgery, İstanbul, Turkey

Title of Case: Purpura fulminans Secondary to Varicella-zoster Infection
Background: Purpura fulminans is a rare, life-threatening syndrome with disseminated intravascular coagulation and intravascular thrombosis, causing purpura and necrosis in the skin and soft tissue. The most common type is acute infectious purpura fulminans, and the most common viral agent is varicella zoster. Here we present 4 years old Tajiki girl with purpura fulminans secondary to varicella-zoster infection.
Case Presentation Summary: A 4-year-old Tajiki girl presented with red-purple, diffuse, painful lesions localized to the whole right leg. Her vaccination status was unknown in her history, and there was not a concomitant chronic illness. 10 days before admission, she was admitted to another hospital in Tajikistan with a diagnosis of chickenpox and purpura fulminans. Then she was transferred to our hospital due to enlargement of her lesions to the gluteal region, a change in color of her lesions from red to black, and detection of arterial thrombosis in the Doppler ultrasound.

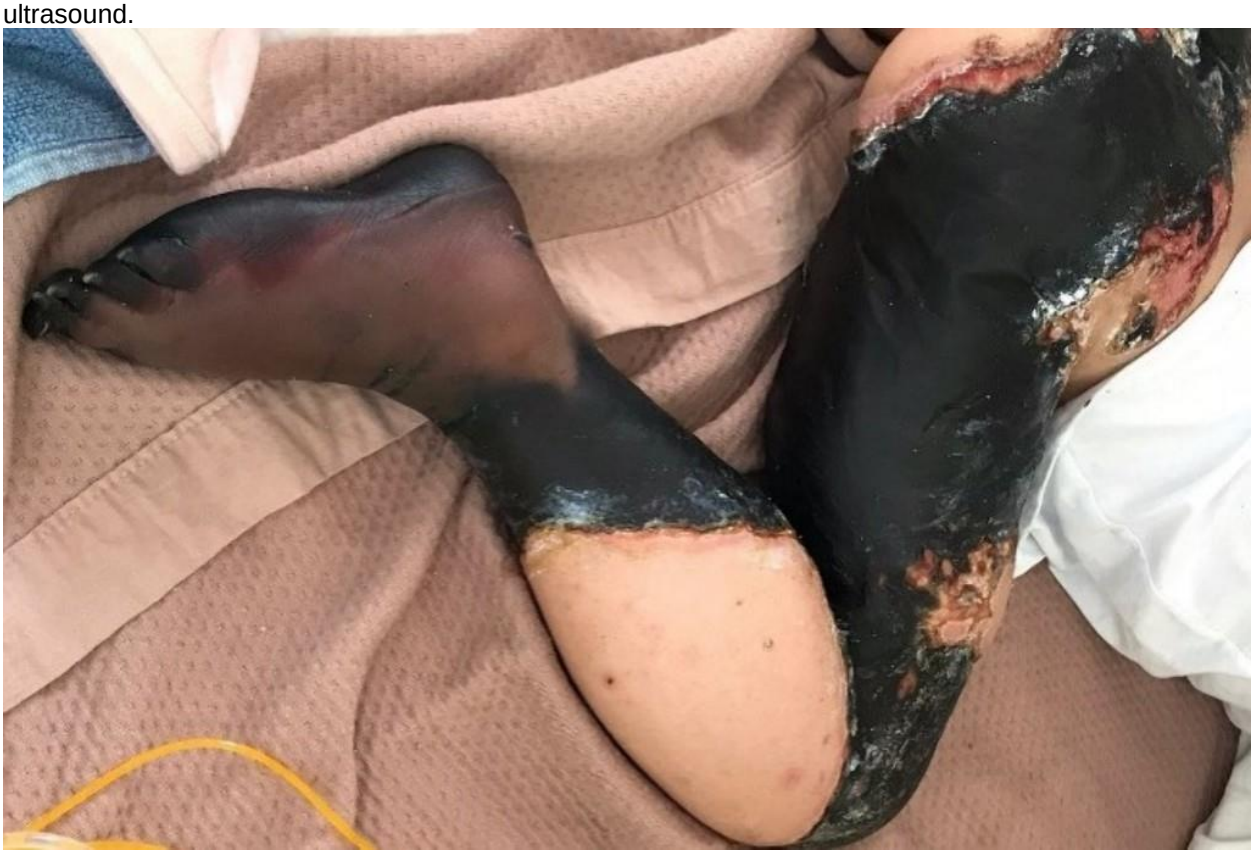


Figure 1. Her necrotic right leg In our hospital, fresh frozen plasma, thrombolytic, and anticoagulant treatments were started. Multiple surgical debridements were performed for necrotic tissues. In surgical debridement specimens, Candida spp., Acinetobacter baumannii, Enterococcus faecium, Escherichia

Coli, Stenotrophomonas maltophilia, and Bacteroides fragilis were yielded. Her right leg amputation is planned.

Learning Points/Discussion: Vaccination can prevent Varicella zoster and its life-threatening complications such as purpura fulminans. As pediatricians, we need to support every child getting their vaccines.

PV0001 / #590

CEFTZIDIME-AVIBACTAM USE IN CHILDREN ADMITTED IN PEDIATRIC INTENSIVE CARE UNITS

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Backgrounds: Ceftazidime-Avibactam (CAZ-AVI) is one of the new antibiotics available to treat infections due to carbapenem-resistant Gram-negative bacteria. The aim of the manuscript is to describe CAZ-AVI treatments in chidren admitted in pediatric intensive care units (PICUs).
Methods: We conducted a retrospective desciptive study in two PICUS of Rio de Janeiro city, Brazil, between January 2020 and December 2022. We included children between 0 and 18 years that used CAZ-AVI por more than 24 hours. Duration of CAZ-AVI use, previous healthcare-associated infections and carbapenem use, length of stay and outcome in 30 days. All treatments were previouly discussed with a infectious disease specialist.
Results: CAZ-AVI was used in 29 patients. Median of age was 23 months, 13 (44.8%) were male. Median time of admission until the initial day of CAZ-AVI prescription was 36.6 days (variation between 1-138 days). Twenty-five (86.2%) children had at least one comorbity, 27/29 (93.1%) used at least one invasive device previously CAZ-AVI presciption, 26/29 (89.7%) used carbapenem before and 9 (31%) had a HAI before CAZ-AVI use. The mean time of use was 10.9 days (variation 1 to 22 days). Eleven (37.9%) patients presented positive cultures to Gram-negative bacteria in the 24h before presciption or in the day of presciption. Mortality in 30 days was 11/29 (37.9%).
Conclusions/Learning Points: Almost all patients that used CAZ-AVI were critical children, with multiple comorbidities, previouly use of carbapenem and high rate of mortality.

PV0002 / #1176

IN VITRO ACTIVITY OF CEFTAROLINE AND CEFTRIAXONE AGAINST CLINICAL ISOLATES OF STREPTOCOCCUS PNEUMONIAE WITH DIFFERENT SUSCEPTIBILITY TO PENICILLIN FROM CHILDREN WITH INVASIVE AND NON-INVASIVE DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

Charilaos Dellis, Elizabeth-Barbara Tatsi, Dimitra-Maria Koukou, Athanasios Michos, Vasiliki Syriopoulou
National and Kapodistrian University of Athens, First Department Of Pediatrics, Infectious Diseases And Chemotherapy Research Laboratory, Medical School, Athens, Greece

Backgrounds: This study assessed the susceptibility to ceftaroline and ceftriaxone of Streptococcus pneumoniae isolates with different susceptibility to penicillin from children with invasive pneumococcal disease (IPD) and non-IPD.
Methods: Pneumococcal isolates equally divided according to their susceptibility to penicillin (one-third penicillin-sensitive, one-third with intermediate susceptibility and one-third penicillin-resistant) were randomly selected among isolates collected over the years 2010-2020 at our laboratory from children with IPD and non-IPD. Antimicrobial susceptibility testing to penicillin, ceftriaxone and ceftaroline was performed by E-test. The CLSI susceptibility breakpoints were used. Pneumococci were serotyped by latex agglutination and the Neufeld-Quellung reaction using anti-sera (Statens Serum Institute, Copenhagen, Denmark). Alterations in the structure of penicillin-binding protein (PBP) genes were identified by PCR.
Results: A total of 360 pneumococcal isolates from children (median age: 24 months) were included. Regarding ceftriaxone, 69.4% of the isolates were sensitive, 18.1% had intermediate susceptibility and 12.5% were resistant. Although all 360 isolates were sensitive to ceftaroline, the MICs ranged, with the majority (93.9%) having MIC ≤0.125 μg/ml. Non-IPD isolates exhibited higher MICs than IPD isolates (p-value < 0.001). The majority of penicillin-resistant (88/120, 73.3%) and ceftriaxone-resistant isolates (32/45, 71.1%) had MIC to ceftaroline >0.06 and ≤0.125 μg/ml. There were 22 isolates with MIC to ceftaroline >0.125 μg/ml, mainly identified as serotype 19A (77.3%). 99.2% of the penicillin-intermediate isolates had at least 1 PBP-gene mutation, the most frequent profiles being pbp1a only, pbp2x only. All penicillin-resistant and all ceftriaxone-intermediate and resistant isolates had at least 1 PBP-gene mutation, the most frequent profiles being pbp2x + pbp1a, pbp2b + pbp2x + pbp1a.
Conclusions/Learning Points: Ceftaroline exhibited potent in vitro activity against a collection of pneumococcal isolates from Greece, highlighting its value as a treatment option.

PV0003 / #2602

ANTI-BIOFILM ACTIVITY OF ENDOLYSIN AGAINST UROPATHOGENIC ESCHERICHIA COLI

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Background: Atrocious antibiotic usage has led to the development of multi-drug resistance (MDR) in uropathogenic Escherichia coli (UPEC) leading to mortality in urinary tract infections (UTIs). Hence, we are exploring phage encoded-lysins as alternatives to treat UTIs. Our study involved an in silico strategy for the discovery and characterization of lysin sequences (seq) targeting E. coli cell wall and evaluating the bactericidal activity of these recombinant lysins using in vitro assays.
Methods: Novel lysin sequences were searched by BLAST homology and by screening E. coli prophages in the database (using PHASTER). Lysozyme-like domain was observed in 9/16 lysins. Their characterization depicted modular or globular structure. Based on physicochemical properties, 7/16 were selected for cloning, expression, and purification as recombinant proteins for evaluating bactericidal activity.
Results: Among the several endolysins identified, lysin seq 5 demonstrated highest activity using in vitro assays. Using static biofilm assay, seq 5 showed efficient reduction (>50%) in the biofilm formation by resistant ATCC UPEC 700928 strain. Using spot on lawn assay, seq 5 also showed inherent bactericidal activity on ATCC UPEC 700928 strain at higher concentration. At lower concentration, seq 5 exhibited lytic activity using outer membrane permeabilizers such as EDTA on ATCC 25922 as well as ATCC 700928 strain. Furthermore, turbidity reduction method showed a drop of 74.94% in OD_{600nm} on BL21 DE3 cells treated with seq 5 after 3 hrs of incubation at 37°C. Log killing assay displayed 4 $\log_{10}$ reduction on BL21 DE3 lysin treated cells. Lysozyme assay also corroborated in silico analysis and showed comparable lysozyme activity with the positive control.
Conclusions/Learning Points: Seq 5 exhibited highest activity against E. coli strains especially the UPEC strain. Screening E. coli clinical isolates from UTI patients is underway.

PV0004 / #941

ISAVUCONAZOLE USE IN CHILDREN WITH INVASIVE FUNGAL DISEASE: TERTIARY PAEDIATRIC CENTRE EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Backgrounds: Isavuconazole (ISA) is a promising antifungal agent for the treatment of invasive fungal diseases (IFD) due to its broad spectrum of action, favorable interaction and safety profile. However, there is still limited experience of its use in children. Objective: To describe ISA use in our current clinical practice in terms of indication, dosage, therapeutic drug monitoring (TDM), clinical outcomes and toxicity.
Methods: Retrospective observational study, describing all pediatric patients who received ISA as treatment for IFD in our center from January 2016 until December 2022.
Results: Eleven patients were included, 7 males and 4 females, with a median age of 14 years (5-17) and weight of 48 kg (17-63) (Table 1). Most of them had relapsed or refractory malignant diseases and/or have received an alloSCT. ISA was administered at 10 mg/kg/8h for the first 48h, followed by 10 mg/kg/24h (200 mg/dose max), for a median duration of 31 days (2-214). Therapeutic levels were reached at 5th day of treatment in most cases, but dose had to be increased in 4 of them. Adverse events (increased transaminase and/or creatinine levels) were observed in 8 patients, all of them non clearly associated with ISA or with multifactorial cause. The overall response rate was 45% and nearly half of the patients (5/11) died, either because of IFD (60%) or disease progression (40%).

Case no.	Sex	Age (y)	Weight (kg)	Disease	Type of IFD	Site of IFD	Pathogen	Previous treatment	Reason to use ISA	Co-antifungal	ISA dose	Duration (days)	Time to first levels (days)	Time to reach levels (days)	IFD outcome	Mortality (Cause of death)	Adverse events (grade)
1	M	15	60	L	Possible	Lung		L-AMB + VCZ	Toxicity		Standard (iv)	2			P	D (Disease)	↑AST/ALT (g3), ↑Cr (g1)
2	M	5	17	PID	Proven	CNS	*Rasamsonia MR*	L-AMB + VCZ	Antifungal spectrum	L-AMB + AFG	Standard (iv)	8	2	2	P	D (IFD)	↑AST/ALT (g1)
3	M	7	24	AML	Proven	Lung	*Aspergillus flavus*	L-AMB + VCZ	Toxicity		Increased (iv)	31	7	20	P	D (IFD)	None
4	F	16	52	AUL	Probable	Lung		L-AMB + VCZ	Toxicity		Standard (iv → po)	214	4	4	SD	A	↑AST/ALT (g4), ↑Cr (g1)
5	M	7	24	MDS	Possible	Lung		L-AMB	Toxicity		Standard (iv)	18	3	3	CR	A	None
6	F	13	50	SID	Proven	Rinosinusal	*Rhizopus arizus*	L-AMB	Antifungal spectrum	L-AMB	Standard (iv)	28	5	5	CR	A	↑AST/ALT (g2), ↑Cr (g2)
7	F	17	37	PID	Probable	Lung		L-AMB	Toxicity/IFD progression	L-AMB	Increased (iv → po)	122	10	19	CR	A	↑AST/ALT (g2), ↑Cr (g1)
8	F	16	48	PID	Possible	Oral mucosa			Toxicity	L-AMB	Increased (iv)	38	12	33	CR	A	↑AST/ALT (g1), ↑Cr (g1)
9	M	5	21	BMF	Possible	Lung			Toxicity		Standard (iv)	14	4	4	P	D (Disease)	↑Cr (g2)
10	M	16	63	ALL	Possible	Lung		L-AMB + PCZ	Toxicity		Increased (iv)	35	4	16	CR	A	None
11	M	14	48	BMF	Possible	Lung		L-AMB + VCZ	Toxicity		Standard (iv)	35	5	5	P	D (IFD)	↑AST/ALT (g3), ↑Cr (g3)

Table 1. Overview of patient characteristics.

Abbreviations: M: male, F: female. L: lymphoma, AML: acute myeloid leukemia, AUL: acute undifferentiated leukemia, ALL: acute lymphoblastic leukemia, MDS: myelodysplastic syndrome, BMF: bone marrow failure, PID: primary immunodeficiency, SID: secondary immunodeficiency. CNS: central nervous system. L-AMB: liposomal amphotericin B, VCZ: voriconazole, PCZ: posaconazole, AFG: anidulafungin. iv: intravenous, po: oral. CR: complete response, SD: stable disease, P: progression. D: death, A: alive. AST: aspartate aminotransferase, ALT: alanine aminotransferase, Cr: creatinine.

Conclusions/Learning Points: ISA seems to have a favorable interaction and safety profile in children. However, as there is variability in the time to reach therapeutic levels, we recommend TDM in this population. We need further studies with a larger sample size to better evaluate ISA efficacy, as it was used as a salvage drug in the majority of cases.

PV0005 / #2607

SUSCEPTIBILITY OF BACTERIOPHAGE-PRODUCING PSEUDOMONAS AERUGINOSA ISOLATED FROM CYSTIC FIBROSIS SPUTUM TO CERAGENINS

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Background: Production of filamentous bacteriophages such as Pf1 or Pf4 by Pseudomonas aeruginosa has been shown to be associated with increased bacterial resistance to phagocytosis and decreased inflammatory response of the host, which accounts for chronic lung infections in CF subjects. Moreover, the inactivation of endogenous antimicrobial molecules and positively-charged antibiotics as a result of their electrostatic interaction with bacteriophage was previously described. Additional studies are necessary to understand the role of Pf-like bacteriophages in infections caused by P. aeruginosa from the perspective of their pathophysiology and treatment.
Methods: This study aimed to evaluate the antibacterial activity of ceragenins against clinical isolates of P. aeruginosa using strains that differ based on their ability to express Pf-like bacteriophages. Minimal inhibitory concentrations (MICs) of ceragenins CSA-13, CSA-44, and CSA-131 were estimated using the broth dilution method, while the P. aeruginosa biofilm mass developed in the presence of ceragenins [administrated alone or combined with DNase I or poly-aspartic acid (pASP)], was assessed using crystal violet staining.
Results: The results obtained indicate that ceragenins retain strong antimicrobial activity, both against strains with bacteriophage expression and isolates that do not produce bacteriophages. Moreover, ceragenins are able to significantly prevent the formation of biofilm by P. aeruginosa. When administrated together, ceragenin CSA-13 displays an increasing effect in combined therapy with pASP and DNase, although higher sensitivity characterized strains lacking production of bacteriophages.
Conclusions/Learning Points: Our data strongly suggest the potential of ceragenins to develop a new treatment against P. aeruginosa-caused chronic lung infections in CF subjects. Funding: This work was financially supported by grants from the National Science Centre, Poland: UMO-2018/30/M/NZ6/00502 (RB)

PV0006 / #2693

PERIORBITAL AND ORBITAL CELLULITIS IN CHILDREN IN ARMENIAN HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Background: Periorbital cellulitis is a skin and soft tissue infection anterior to the orbital septum, and orbital cellulitis is an infection posterior to the orbital septum. Our aim is to describe the importance of prompt initiation of antibiotic therapy in both conditions.
Methods: We included patients hospitalized at “Wigmore hospital for children” in Armenia, from May 1, 2021, to February 1, 2023, with PC and OC diagnoses based on clinical characteristics and CT scans. Data were extracted from patients’ medical records retrospectively.
Results: The study included 27 patients (females 17 (63%), males 10 (37%), mean age of 4.7 years). 21 cases were with PC (77.8%) and 6(22.2%) with OC, and complications (periosteal or orbital abscess) were seen in 5 cases (18.5%). CT scan was done in 11 cases (40.7%) and 17.8% of patients with PC and OC had evidence of sinusitis on CT scan. Haemophilus spp ., Corynebacterium spp., Peptostreptococcus spp., Staphylococcus aureus, and Moraxella catarrhalis were identified with eye swab culture. Blood culture was taken only in severe cases and was negative. All patients were treated initially with intravenous antibiotics, 66.7% of patients were treated with amoxicillin/clavulanic acid, 25.9% only with Ceftriaxone, and 7.4% with combination of Ceftriaxone, Metronidazole and Vancomycin. The duration of antibacterial treatment was 7-42 days. Surgical drainage was performed in 2 (7.4%) cases and both cases were diagnosed late with inappropriate antibiotic therapy for about two weeks. All patients were discharged with improvement. Follow-up was unremarkable for more than one month.
Conclusions/Learning Points: Prompt initiation of intravenous antibiotics is mandatory and can prevent surgical procedures even in cases with incipient abscesses. Severe complications and surgical interventions are more common for late-diagnosed cases with inappropriate antibiotic therapy.

PV0007 / #2636

EFFECTIVE TREATMENT OF XDR PSEUDOMONAS AERUGINOSA ENDOCARDITIS IN A CHILD WITH CEFTOLOZANE-TAZOBACTAM: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Title of Case: Effective treatment of XDR Pseudomonas aeruginosa endocarditis in a child with Ceftolozane-tazobactam: a case report
Background: Extensive drug-resistant P. aeruginosa (XDR-PA) infections represent a therapeutic challenge in pediatrics, for the limited antimicrobial possibilities. Furthermore, PA is a rare cause of infective endocarditis. Ceftolozane-tazobactam is a novel beta-lactam/beta-lactamase inhibitor combination with a potent anti-pseudomonal activity, currently approved by the European Medicines Agency for the treatment of complicated intra-abdominal infections and complicated urinary tract infections in children.
Case Presentation Summary: A 7 year-old boy with a history of surgically repaired complete atrioventricular canal was admitted for high fever in the previous week. Physical examination revealed a new systolic heart murmur, and echocardiography showed a macrovegetation on the left atrio-ventricular valve, suggestive of infective endocarditis. He was known to be colonized with MDR P.aeruginosa from previous hospitalizations. The work-up for disseminated foci was negative, and antibiotic treatment was initiated with ampicillin, cefazolin and gentamicin. After 48 hours the patient had persisting high fever with increased inflammatory markers, and therapy was shifted to meropenem and gentamicin. After multidisciplinary discussion, a surgical approach was excluded. On day 4 of antibiotic treatment, XDR P. aeruginosa was isolated in blood and antibiotic therapy was shifted to off-label ceftolozane-tazobactam plus amikacin in accordance with antimicrobial susceptibility testing. After 48 hours the patient showed clinical improvement and became afebrile. Weekly monitoring with echocardiography showed reduction of the vegetation and disappearance by week 6. Therapy was continued for 6 weeks, without recurrences or complications in the following 6 months.
Learning Points/Discussion: Albeit very rare, PA can cause endocarditis in colonized patients with predisposing conditions. Ceftolozane-tazobactam, although not approved to treat bloodstream infections, proved to be safe and showed an effective bactericidal activity against XDR-PA infective endocarditis.

PV0008 / #1364

NOVEL CEPHALOSPORINS COMPARED TO COLISTIN-BASED REGIMENS FOR THE TREATMENT OF SEVERE INFECTIONS CAUSED BY CARBAPENEM RESISTANT ORGANISMS IN A PEDIATRIC CARDIAC ICU

E-Posters Viewing
E-POSTER VIEWING: AS01.A. NOVEL ANTIMICROBIAL TREATMENTS

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Backgrounds: The global spread of carbapenem resistant organisms (CROs) is an important threat to vulnerable populations worldwide. Currently, the antibiotic options for CROs are very limited. Recently, potentially promising new antibiotics have become available such as novel cephalosporins. However, strong comparative data towards older drugs are lacking, especially in the pediatric setting. Here we describe a cohort of pediatric patients affected by CROs infections admitted in a cardiac ICU treated with novel cephalosporins (N-CEF) compared to Colistin-based regimens (COLI).
Methods: All patients admitted to the Cardiac-ICU of the Bambino Gesù Children's Hospital in Rome during the 2016-2022 period and treated with novel cephalosporins or Colistin for an infection caused by a CRO were enrolled.
Results: Data were collected from 29 patients, 12 treated with N-CEF (ceftazidime/avibactam, ceftolozane/tazobactam, cefiderocol) and 17 treated with COLI. Age, baseline comorbidities and the reason of CICU admission were similar between the two groups. The most common type of CRE infections in both sets was hospital acquired pneumonia. P.aeruginosa was the predominant pathogen in both groups. A carbapenemase production was detected in 38% of cases and the VIM gene was the predominant gene in both groups. Eight of twelve patients (67%) in the N-CEF group and five (29%) of seventeen in the comparative group achieved clinical remission ($p = 0.04$). Moreover, after thirty days, all-cause mortality was observed in 1 patients in the N-CEF group and in 3 patients in the comparative group. One patient died for CRO infections in the COLI group, while no deaths were recorded in the other group.
Conclusions/Learning Points: In pediatric patients with severe CRO infection, N-CEF is a reasonable alternative to standard therapy. These findings need to be confirmed in larger prospective studies.

PV0009 / #1014

ESCHERICHIA COLI ANTIMICROBIAL RESISTANCE IN THE LAST 6 YEARS IN A PEDIATRIC POPULATION FROM NORTHERN SPAIN. A RETROSPECTIVE ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: The aim of this analysis is to evaluate the antimicrobial resistance pattern of Escherichia coli in urinary tract infections (UTI) in a pediatric population from a single center in Asturias (northern Spain).
Methods: Retrospective study included patients up to 14 years old with isolation of E. coli in urine samples from January 2016 to December 2021. The minimum inhibitory concentrations and their interpretation according to the EUCAST criteria (version from 2022) for different antibiotics were analyzed (Table). A comparative analysis between two periods (2016-2018 vs 2019-2021) was done.
Results: A total of 923 samples (clean catch: 735; urinary catheterization: 178; urine bag: 10) from 751 patients were included [79.0% females; median age: 4.67 years (0.00-13.97 years)]. Twenty of the 923 samples (2.16%) were extended-spectrum beta-lactamase (ESBL) producers. In the analysis by periods (table) a decrease in the rate of resistance to ampicillin and gentamicin was detected. No significant differences in the rate of ESBL between the two periods were observed.

Table: Comparison between two periods in the rate of antibiotic resistance and ESBL in E. coli from urine samples.

	2016-2018	2019-2021	p
Ampicillin	54.5	47.3	0.029
Amoxicillin-clavulanic acid	18.4	15.0	0.164
Cefuroxime	4.3	3.2	0.354
Cefotaxime	2.5	2.7	0.817
Cefixime	No data	3.3	-
Imipenem	0.2	0	0.340
Gentamicin	9.7	5.9	0.032
Amikacin	2.0	1.6	0.614
Fosfomycin	1.4	0.5	0.125
Trimethoprim-sulfamethoxazole	20.9	20.0	0.548
Nitrofurantoin	0.6	0.5	0.565
ESBL	1.7	2.7	0.264

Conclusions/Learning Points: The rate of resistance to ampicillin, amoxicillin-clavulanic acid, and trimethoprim-sulfamethoxazole render them unsuitable for the empiric treatment of E. coli UTI in our area. An increase in E. coli susceptibility to ampicillin and gentamicin was observed along the study period. No rise in the prevalence of ESBL-producing E. coli was observed.

PV0010 / #1957

AMIKACIN, AN ALTERNATIVE TO MAJOR ANTIMICROBIAL CLASSES AS EMPIRIC TREATMENT FOR URINARY TRACT INFECTIONS IN INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Urinary tract infection (UTI) represents a significant cause of morbidity in children and one of the main reasons for antibiotic treatment. The purpose of this study was to evaluate the distribution of uropathogens, antimicrobial resistance rates and the outcome of Amikacin as an empiric treatment.
Methods: Monocentric retrospective study performed at Children's Emergency Clinical Hospital, during 2016-2022 among children under 12 months of age with UTI treated with Amikacin. The enrolled infants were divided into 2 groups: one who received empiric treatment with Amikacin and another who received other antibiotics as empiric treatment, followed by Amikacin after the DST.
Results: The most common pathogen was E. coli (53,5% of which 43,3% ESBL), followed by Klebsiella pneumoniae (31,3% of which 50% ESBL and 6,25% CRE), Klebsiella oxytoca, Citrobacter spp, Enterococcus spp, MRSA (3,92% each) and Pseudomonas aeruginosa (1,96%). The antimicrobial resistance rates of E. coli were 80%, 76,6%, 50%, 53,3% and 6,6% for Ampicilin, Amoxicilin, Ceftriaxone, Gentamicin and Amikacin. Regarding Klebsiella pneumoniae, the antimicrobial resistance rates were 100%, 100%, 81,2%, 75% and 12,5% for the formentioned antibiotics. Klebsiella oxytoca, Citrobacter spp, Enterococcus spp, Pseudomonas aeruginosa and MRSA hadn't proved any resistance to Amikacin. 43% of infants were included in the Amikacin empiric treatment group and 47% in the group with other antibiotics empiric treatment. The two groups had similar results, although the first group tended to have a lower fever resolution time after beginning Amikacin therapy (1,20 versus 1,51 days on average) and decreased treatment duration (5,6 versus 6,1 days on average).
Conclusions/Learning Points: Amikacin remains an alternative to empiric treatment, due to increasing resistance rates for major antimicrobial classes, saving carbapenems for more severe infections.

PV0011 / #437

CHANGES IN ANTIBACTERIAL RESISTANCE AFTER CORRECTION OF FEBRILE NEUTROPENIA GUIDELINES IN PEDIATRIC PATIENTS TREATED FOR ONCOLOGICAL AND HEMATOLOGICAL DISEASES

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Bloodstream infections are the major cause of morbidity and mortality in children with cancer and non-malignant hematological diseases. Local epidemiological data are necessary to tailor empirical treatment. The aim of the study was to evaluate microbiological profile and antimicrobial resistance data and compare with the data from previous period when antimicrobial treatment was changed due to high resistance: ciprofloxacin was stopped as prophylactic agent; meropenem was introduced instead of piperacillin/tazobactam for empirical febrile neutropenia treatment.
Methods: An audit of positive blood cultures was performed at a tertiary care hematology center from 2018-2022. Etiology and antibiotic resistance data of BSI were compared with the results from 2010-2016 period.
Results: A total of 205 positive bacterial culture episodes were identified in 84 consecutive patients. Boys and patients <5 years predominated (N=140/205 (68.3%) and N=110/205 (53.7%), respectively). The majority of BSI were documented in patients with hematological malignancies (N=161/205, 78.5%). Most episodes (N=159) developed in patients with neutropenia <0.5x10*9/L (77.6%), including 115/159 cases with neutrophils <0.1x10*9/L. E. coli and coagulase-negative Staphylococcus (CoNS) predominated among gram-negative (GNB) and gram-positive (GPB) bacteria (N=21/64 (31.2%) and N=70/139 (50.4 %), respectively). GNBs were resistant to ciprofloxacin (11/43 GNB tested (25.5%)) and piperacillin/tazobactam (7/40 (17.5%)), particularly Klebsiella spp. In GNB, the lowest resistance rate of N=1/41 (2.4%) and N=3/43 (6.9%) revealed for amikacin and meropenem. No resistance to vancomycin or linezolid in GP was documented. As compared to 2010-2016, resistance to meropenem increased from 2.2% to 6.9% and decreased to piperacillin/tazobactam from 34.5% to 17.5%.
Conclusions/Learning Points: GNB sensivity to piperacillin/tazobactam improved over time after discontinuation of this drug as a first-line agent for febrile neutropenia. Regular evaluation of antibacterial resistance and subsequent corrections of the empiric antimicrobial treatment guidelines is necessary.

PV0012 / #1587

DETERMINATION OF ANTIBIOTIC RESISTANCE PATTERN OF BACTERIA ISOLATED FROM INVASIVE SAMPLES IN NEONATAL INTENSIVE CARE UNIT OF UNIVERSITY CLINICAL CENTRE OF KOSOVO

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Background: Bacterial infections account for a huge proportion of neonatal deaths wordwide, especially in developing countries. Inappropriate use and administration of antibiotics can contribute to the resistance and spread of infection. In this study, we determined the antibiotic resistance pattern of the bacteria isolated from invasive clinical samples in the neonatal intensive care unit (NICU) of University Clinical Centre of Kosovo during 2019.
Methods: For the purposes of the study, clinical samples of blood and CSF were collected from the NICU of University Clinical Centre during 2019. The type of bacterial strain and antibiotic susceptibility pattern was determined by routine microbiological tests. The collected data were analysed in SPSS software (version 19), using $\chi 2$, Student's t-test, and ANOVA test for comparison.
Results: In total,188 positive culture samples were collected for this research. Resistance levels for E.coli and K.pneumoniae among blood and CSF isolates to third-generation cephalosporins (cefotaxime/ ceftriaxone) in E.coli 17 isolates (41%) and K.pneumoniae 55 isolates (85 %), resistance level to aminoglycosides (gentamicin/tobramycin) were high in E.coli 17 isolates (although based on a small number of isolates) (29%) and very high in K. pneumoniae isolates 55(82%). Resistance levels for P.aeruginosa and Acinetobacter spp. among blood and CSF isolates to Imipenem /Meropenem it's high , P.aeruginosa isolates 13(77%) and Acinetobacter spp isolates 70(89%) also resistance level to aminoglycosides (gentamicin/tobramycin) were high in P.aeruginosa isolates 13(69%) and Acinetobacter spp isolates 70(90%).
Conclusions/Learning Points: Conclusion: Continuous surveillance for antibiotic susceptibility, rational use of antibiotics, and the strategy of antibiotic cycling can provide some answers to the emerging problem of antibiotic resistance.

PV0013 / #834

IN VITRO ACTIVITY OF LEVONADIFLOXACIN AGAINST GRAM POSITIVE PATHOGENS ISOLATED IN PEDIATRIC CANCER PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: The growing incidence and severity of infections due to Gram-positive pathogens throughout the world have presented clinicians with therapeutic dilemmas. Infections caused by Staphylococcus aureus account for a significant percentage of nosocomial infections, such as bacteremia, pneumonia, and skin and skin structure infection. Vancomycin, teicoplanin, linezolid and daptomycin are the common antibiotics used for Staphylococcus aureus infections. Levonadifloxacin is a novel broad-spectrum agents against Staphylococcus aureus including methicillin resistant S. aureus (MRSA).
Methods: A total of 35130 samples were received in the Dept of Microbiology, Tata Memorial Hospital, Mumbai, from January - December 2022. All samples were processed as per routine microbiological methods and identification and antimicrobial susceptibility testing was performed on VITEK-2. Antimicrobial susceptibility testing for levonadifloxacin was performed by disc diffusion method.
Results: Of the 35130 samples received in the laboratory, urine was the most common specimen followed by wound swabs, blood, bile, drain fluids, sputum, BAL and pus. Of the 35130 samples, 9380 showed growth of pathogens. 73 % of the pathogens were Gram Negative Bacilli and 27% were Gram Positive Cocci growth. Staphylococcus aureus (was the predominant organism amongst Gram Positive Cocci growth followed by Enterococcus spp , Group A Streptococcus and Group D Streptococcus and other Streptococcus spp. Of the 475 isolates of Staphylococcus aureus, 51.6% were MRSA. Vancomycin, teicoplanin, linezolid, daptomycin and levonadifloxacin showed susceptibility of 100% whereas gentamicin showed 76% and clindamycin showed 60% susceptibility.
Conclusions/Learning Points: Levonadifloxacin and its ester oral prodrug, alalevonadifloxacin, are the broad-spectrum benzoquinolizine subclass of quinolones having activity against multi-drug-resistant Gram-positive pathogens including MRSA. The 100% susceptibility of isolates to levonadifloxacin observed in this study supports its potential clinical use in the treatment of infections caused by MRSA and other Gram-positive organisms.

PV0014 / #1490

STAPHYLOCOCCUS AUREUS RESISTANCE TO EMPIRICALLY USED ANTIBIOTICS IN PEDIATRIC EMERGENCIES: IS CLINDAMYCIN STILL A GOOD ALTERNATIVE?

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

Natalia Mateos Sanchez, Lluis Galmés Rosselló, Jaime Carrasco-Colom, Lidia Ciudad Aguilar, Isabel Viñuela Díaz-Moro, Xavier Mulet Aguiló, Nuria Gilabert Iriondo, Maria José Pérez García, Joaquín Dueñas Morales
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Backgrounds: Staphylococcus aureus infections are frequent in Pediatric Emergency Departments (PED). Attention is usually paid to methicillin-resistant strains (MRSA). The objective is to determine the evolution of resistance of S.aureus against antibiotics used empirically and to analyze its clinical implications.
Methods: Retrospective observational study. S.aureus positive cultures from patients attended in the PED of a tertiary hospital (01/01/2018-12/31/2021) were included. Those considered contaminants were excluded. Past history (devices, surgery or admission in the previous 6 months, antibiotics in the previous 2 months, previous infections by S.aureus), clinical and microbiological data were collected. Community origin was considered if they didn't present any of the first 3 items. Data were compared regarding susceptibility status to the analyzed antibiotics.
Results: There were 335 positive cultures (328 patients, 59.7% women, mean age 5.4 years (SD 4.7). The most frequent diagnoses were cellulitis/abscesses (34.4%), scalded skin syndrome (12.9%) and osteomyelitis (8.6%). The most frequent empirical treatments were amoxicillin-clavulanate (67%) and cefadroxil (8%). 22.4% required change of antibiotic, half of them presented resistance to empirical treatment. 27.8% were admitted [average stay 4.7 days (1.2-9.6)]. MRSA rate was 14.6%, with a stable evolution in recent years. 85.7% were community-acquired. Compared with sensitive ones, patients with MRSA had more frequently previous S. aureus infections [OR 2.6 (1.12-6),$p<0.05$]. Clindamycin-resistant S. aureus (CRSA) rate was 16.4%, with an upward trend (2018: 9%, 2021: 22.9%). 60% were community-acquired. Compared with sensitive ones, patients with CRSA had more frequently previous admissions [OR 2.85 (1.54-53), $p<0.05$]. 98% of cultures were cotrimoxazole-sensitive.
Conclusions/Learning Points: MRSA rate remains stable, while CRSA rate reaches worrying levels. It is necessary to consider empirical treatment alternatives such as cotrimoxazole in cases with a higher risk of resistance.

PV0015 / #1650

SURVEILLANCE OF ANTIMICROBIAL RESISTANCE IN CHINESE CHILDREN FROM 2017 TO 2021

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: The epidemic of antimicrobial resistance have become a serous challenge worldwide. This study aimed to analyze the antimicrobial resistance in Chinese children from 2017 to 2021, in order to provide a basis for rational use of antibiotics in clinical practice.
Methods: The data of antimicrobial resistance were collected from children aged less than 14 years in 13 tertiary children hospitals in China from 2014 to 2021. Antimicrobial susceptibility was tested using Kirby-Bauer method, penicillin susceptibility of streptococcus pneumonia was detected by E-test. The annual percentage change (APC) was used to analyze the time trend of antimicrobial resistance.
Results: A total of 312567 isolates were collected from 2017 to 2021, of which 40.9% (127778) was gram-positive organisms and 59.1% (184789) was gram-negative organisms. The strains isolated from newborns (≤28d), children aged less than 1 year, 1-3 years, 3-5 years and 5-14 years accounted for 12.0%, 37.3%, 18.3%, 12.2% and 20.2%, respectively. The top five isolates were Escherichia coli (13.2%), Streptococcus pneumonia (11.9%), Straphylococcus aureus (11.1%), Haemophilus influenza (10.3%), Klebsiella pneumonia (6.6%). The prevalence of cefuroxime-resistant E. coli and K. pneumonia gradually decreased from 58.1% to 47.5% (APC= -5.14%, P<0.001), and 68.8% to 49.0% (APC= -9.25%, P=0.021), respectively. The prevalence of ciprofloxacin-resistant E. coli and levofloxacin-resistant S. aureus gradually increased from 32.3% to 40.3% (APC= 7.65%, P=0.044), and from 4.4% to 5.8% (APC= 9.30%, P=0.041), respectively. The resistance rates of carbapenem-resistant E. coli (CRE) to class I-IV cephalosporins ranged from 71.8% to 99.5%.
Conclusions/Learning Points: The prevalence of ciprofloxacin-resistant E. coli, levofloxacin-resistant S. aureus, gentamycin-resistant CR-ABA and levofloxacin-resistant CR-PAE gradually increased in Chinese children from 2017 to 2021. The detection rates of CRE in Chinese children kept at high levels.

PV0016 / #1453

CARBAPENEM RESISTANCE ENTEROBACTERIACEAE IN LATE-ONSET NEONATAL SEPSIS AS EMERGING THREAT: SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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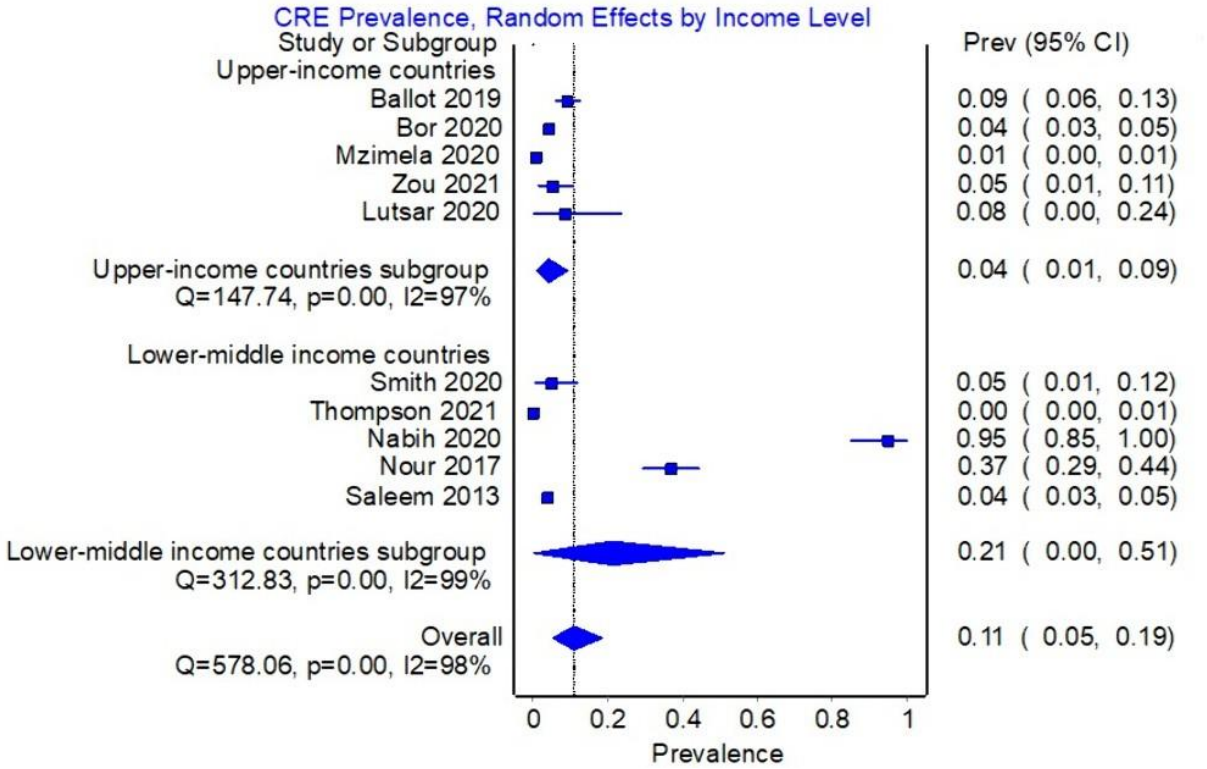
Backgrounds: Carbapenem-resistant enterobacteriaceae (CRE) is a great concern in neonatal sepsis. With an increasing incidence and very limited therapeutic options in neonatal sepsis, these organisms worsen clinical outcomes, increase morbidity, and mortality. Therefore, this systematic review and meta-analysis aims to quantitatively estimate the prevalence, mortality rate, and risk factors of CRE in neonatal late-onset sepsis (LOS).
Methods: We conduct systematic search and screening process through several databases (PubMed, ScienceDirect, EMBASE, and Global Health EBSCO) based on predetermined PICO criteria on studies regarding CRE in neonatal LOS. Included studies were assessed for quality assessment with Newcastle-Ottawa Scale. Data extraction on prevalence, mortality rate, risk factors, and bacteria species were retrieved. Random-effect meta analysis was conducted using MetaXL software.
Results: 1395 studies were obtained at first hit. 133 duplicates were removed and 10 studies (4 cross-sectional, 2 case control, and 3 cohorts) were included. The meta-analysis showed a cumulative effect on a prevalence of CRE in neonatal LOS of 0.11 (95%CI: 0.05; 0.19); 0.04 (95%CI: 0.01; 0.09) from upper-middle income countries and 0.21 (95%CI: 0.00; 0.51) from lower-middle income countries. The prevalence of CRE mortality was 0.21 (95%CI: 0.09; 0.36). Risk factor include mechanical ventilation (OR 8.57 (95%CI:2.55; 27.73)), total parenteral nutrition (OR 1.15 (95%CI: 1.09; 1.29)), central vein device (OR 1.89 (95%CI: 0.22; 16.09)), carbapenem exposure (OR 0.27 (95%CI: 0.10; 0.72)), thrombocytopenia (OR 7.90 (95%CI: 4.69; 13.29)) from three studies, high CRP value (OR 0.27 (95%CI: 0.06;0.92)), and congenital anomalies (OR 4.25 (95%CI: 0.74;
24.37)).



Conclusions/Learning Points: Enterobacteriaceae found in neonates late-onset sepsis were more likely to be carbapenem-resistant. Strict infection prevention and control during first weeks of life is important to decrease mortality and morbidity caused by CRE.

PV0017 / #2256

REGIMENS IN PEDIATRIC INTENSIVE CARE UNIT PATIENTS WITH ENTEROBACTERIACEAE MULTIDRUG-RESISTANT INFECTIONS: A TEN-YEAR RETROSPECTIVE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Susceptibility to infection with gram negative microrganisms in PICU is increased, mainly due to the frequent use of invasive devices, , implying a growing number of manipulations, bacterial contamination, and colonization. This study aimed to identify the risk factors for 30-day mortality in PICU patients with Enterobacteriaceae multidrug-resistant (MDR) infections and compare the clinical outcomes and various antimicrobial regimens.
Methods: A retrospective, observational study was performed on patients admitted to the PICU with MDR Enterobacteriaceae infection, in accordance with the Magiorakos definition between January 2013 and December 2022. Data were obtained from patient records and analyzed using SPSS 22®.
Results: Forty-five patients were admitted to the PICU with MDR enterobacterial infections, 53% female, median age was 45 months (min 1, max 216 mo) and 91% (n=41) had history of underlying pathology. Sixty-four percent required mechanical ventilation and 28% had septic shock. The majority (96%) had at least one invasive device, central lines present in all cases. The correct choice of antibiotics was confirmed in 32 patients (71%), but adjustment to recent guidelines was 46%. The most frequently used antibiotic was meropenem (n=17). The most isolated Enterobacteriaceae was Klebsiella pneumonia on 23% (24 of the series). Thirty-day adjusted mortality risk factors were septic shock (OR 5,062;95% CI:1,140-22,485), neutropenia (OR 5,176; 95% CI:1,004-26,597) and immunodeficiencies (OR 7,111;95% CI:1,258-40,207). Overall mortality was 24% (n=11), but if adjusted to 30 days, 22% (n=10).
Conclusions/Learning Points: Our study suggests that MDR Enterobacteriaceae infections primarily affected children with immunosuppression and presentation is severe, with higher overall mortality despite antibiotic sensitivity testing oriented therapy.

PV0018 / #1822

EPIDEMIOLOGY AND ANTIBIOTIC SUSCEPTIBILITY PATTERNS OF PATHOGENS IN COMPLICATED APPENDICITIS IN CHILDREN. A 10-YEAR-STUDY IN A TERTIARY CARE HOSPITAL OF NORTHERN GREECE.

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: The aim of this study was to identify the most common bacteria responsible for complicated appendicitis in children and their antimicrobial susceptibility in order to customize empirical antimicrobial treatment.
Methods: We reviewed all medical files of children 0-16 years-old with complicated appendicitis that were treated between 2012 and 2021 in a Pediatric Surgical Department. Inclusion criteria consisted of a) histopathological confirmation of complicated appendicitis and b) intraoperative culture sampling. Bacterial identification and antimicrobial susceptibility testing was performed using the VITEK 2 (Biomereux ®) automated system.
Results: A total of 107 children (57 males, 52.9%) with a mean age of 8.32±3.64 years were included. Mean preoperative abdominal pain duration was 60.50 ± 28.45h, mean WBC and neutrophil count was 17.02±6.23x10^3/mm^3 and 14.31±5.67x10^3/mm^3, respectively, and mean CRP value was 16.8±13.59 mg/dl. There were 21(19.6%) complications including 9 cases (8.4%) of surgical wound dehiscence. Among patients with a positive peritoneal fluid culture, Gram-negative bacteria were isolated in 75% cases and Gram-positive in 25%. Escherichia coli was the most commonly detected bacterium (51%) followed by Streptococcus species (19.4%) and Pseudomonas aeruginosa (17.6%). Gram-negative bacteria were highly susceptible to piperacillin/tazobactam (>99%), carbapenems (meropenem 100%), aminoglycosides (amikacin 100%), fluoroquinolones (ciprofloxacin 100%) and cephalosporins (>94% for cefepime and ceftazidime). Amoxicillin/clavulonate was active against 88.3% of Enterobacteriales and 90.4% of E. coli. Gram-positive bacteria were fully susceptible to vancomycin, linezolid and >78% of Streptococcus spp were susceptible to penicillin and ampicillin. None of the complications were correlated to any particular bacteria.
Conclusions/Learning Points: Low prevalence of antimicrobial resistance was found in this study. Piperacillin/tazobactam was highly active against most of the anticipating bacterial pathogens. Continuous evaluation of bacterial epidemiology and susceptibility testing of intraabdominal infections in children is needed for customizing empirical treatment.

PV0019 / #2133

EPIDEMIOLOGICAL DATA, CAUSATIVE AGENTS AND ANTIMICROBIAL RESISTANCE AMONG CHILDREN WITH URINARY TRACT INFECTIONS (UTIS) IN A GREEK TERTIARY HOSPITAL, ATHENS, GREECE

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

Chrysi Aikaterini Georgokosta, Theano Lagousi, Ioanna Papadatou, Maria Noni, Niki Petropoulou, Athanasios Michos, Vana Spoulou, Christina Kanaka Gantenbein, Evanthia Botsa
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Backgrounds: UTIs remain a major bacterial infection among children. Herein, we describe epidemiological data on the pathogenesis and antimicrobial resistance, focusing on pathogens resistant to common antimicrobials, associated with UTIS in children.
Methods: A retrospective study was performed among children aged 0-16 years. Epidemiological data, pathogenesis and antimicrobial resistance profile for children with UTIS were captured, covering a 3-month period (Oct 2022-Dec 2022). Antimicrobial susceptibility was determined by Kirby-Bauer disk diffusion method and VITEK.
Results: Overall, 160 microbiologically confirmed UTIS were collected; 73 (45,6%) were infants, 53,4% male. The commonest pathogen was E.coli (55%), incidence in infants was 72,6%, followed by Klebsiella spp (13,8%), Proteus mirabillis 10,6%, Pseudomonas aeruginosa (8,1%), Enterococcus spp 5%. A total of 33/160 samples were MDR (20,6%). No significant difference was recorded between genders. Among E. coli isolates, 11,4% were ESBL (Extended spectrum b-Lactamase); 27,3% of Klebsiella spp isolates were Klebsiella pneumoniae ESBL; 61,5 % of Pseudomonas aeruginosa isolates were MDR (multidrug resistance was defined as resistance to at least three drugs from a variety of antibiotic classes, mainly aminoglycosides, antipseudomonal penicillins, cephalosporins, carbapenems and fluoroquinolones).None of Proteus mirabillis species was MDR (Multidrug resistance was defined as nonsusceptibility to at least 1 agent in 3 or more of the following antimicrobial classes: oxyimino-cephalosporins, β-lactam–β-lactam inhibitor combinations, fluoroquinolones, trimethoprim-sulfamethoxazole, or aminoglycosides).Rare isolates resistant to common antimicrobials included Morganella morganii ESBL, Enterobacter cloacae AMP-C, Pseudomonas Putida (~3% each of MDR pathogens).
Conclusions/Learning Points: E. coli remains the main pathogen associated with UTIS in children, albeit high resistance rates have been recorded. Pathogens resistant to common antimicrobials comprised a significant percentage of all isolates associated with UTIS. To limit the emergence of resistance, every effort to minimize inappropriate antibiotic consumption is of paramount importance.

PV0020 / #693

PAEDIATRIC CYSTIC FIBROSIS WITH PNEUMONIA DUE TO RESISTANT BACTERIAL ORGANISMS REQUIRING DESENSITISATION TO ANTIMICROBIAL THERAPIES

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Title of Case: PAEDIATRIC CYSTIC FIBROSIS WITH PNEUMONIA DUE TO RESISTANT BACTERIAL ORGANISMS REQUIRING DESENSITISATION TO ANTIMICROBIAL THERAPIES
Background: Multidrug resistant Pseudomonas Aeruginosa represents a frequently challenging nosocomial pathogen with resistance ranging from 11.5-24.7%. Among children with cystic fibrosis, it is a common of respiratory infections and leading cause of mortality. To further complicate the situation, antibiotic allergies are more frequent in this group of patients given the repeated exposure during their lifetime to numerous classes of antibiotics. Therefore, the combination of the above mentioned factors creates a therapeutic challenge for clinicians.
Case Presentation Summary: A 8 year old girl born to non-consanguineous Palestinian parents with cystic fibrosis complicated by worsening bronchiectasis. She has Piperacillin/tazobactam allergy with drug challenge proven anaphylaxis. She had a pulmonary exacerbation in which sputum culture grew Pseudomonas resistant to Ceftazidime, Imipenem, Piperacillin/tazobactam, Ciprofloxacin, Cefoperazone/sulbactam and moderate resistance to Ceftozolone/tazobactam. In view of the need for combination of intravenous antibiotics, she underwent drug desensitization to Ceftozolone/tazobactam in intensive care and completed 14 days combination regimen together with intravenous tobramycin to which her respiratory condition gradually improved. A 15 year old Chinese boy with cystic fibrosis with known Meropenem and Piperacillin/tazobactam allergy admitted for pulmonary exacerbation with gradual deterioration eventually requiring venovenous extracorporeal membrane oxygenation. His sputum grew Pseudomonas aeruginosa which was resistant to Piperacillin/tazobactam, Ceftazidime, Cefoperazone/sulbactam, Imipenem, Levofloxacin. He was given a combination of Ceftazidime/avibactam and tobramycin for which he had clinical response.
Learning Points/Discussion: Multidrug resistant Pseudomonas is a growing challenge for patients with cystic fibrosis prone to recurrent pulmonary exacerbations. Antibiotic allergies among this group of patients are also greater than the general population. Drug desensitization in the setting of intensive care may provide a promising option given the challenging circumstances.

PV0021 / #2659

LABORATORY SURVEILLANCE OF PAEDIATRIC BLOODSTREAM INFECTIONS AND ANTIMICROBIAL RESISTANCE IN ENGLAND: 2017 TO 2021

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Background: To highlight trends in bacterial bloodstream infections (BSI) and antimicrobial resistance (AMR) in the paediatric population (0-17 years) in England between 2017 and 2021. This analysis complements the total population focus of the English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) report (2020-2021).
Methods: Reports of BSI and associated AMR from National Health Service laboratories in England between 01/01/2017- 31/12/2021 were extracted from UK Health Security Agency's (UKHSA) voluntary national laboratory database (SGSS). Statistical analysis was performed in STATAv17.
Results: A total of 15,928 BSI reports were identified from 2017-2021. Between 2020-21, Streptococcus pneumoniae and Enterococcus spp. BSI increased in children whilst Staphylococcus aureus BSI decreased. Gram-negative BSI increased in all key organisms (Escherichia coli, Klebsiella pneumoniae, Pseudomonas spp. and Acinetobacter spp.). Between 2020-21, K. pneumoniae resistance to all antibiotics tested increased (except carbapenems), although only significantly for third-generation cephalosporins (22.1% to 33.1%;$p<0.05$). Since 2017, increasing trends of K. pneumoniae resistance to ciprofloxacin were observed in all age-groups, particularly in <4 years (neonates: 2.4% to 26.1%;$p<0.05$, 1-11 months: 6.6% to 22.4%;$p<0.05$, 1-4 years: 12.8% to 38.6%;$p<0.05$). E. coli resistance to all antibiotics tested increased (except carbapenems and co-amoxiclav) in children between 2020-21. Between 2017-2021, this increase was significant for ciprofloxacin and third-generation cephalosporins (10.6% to 15.4%;$p<0.05$ and 9.9% to 14.9%;$p<0.05$). S. aureus resistance to meticillin decreased slightly between 2020-21 (6.1% to 4.5%;$p=0.208$).
Conclusions/Learning Points: With the exception of S. aureus, rates of BSI and associated AMR to a number of agents in children increased between 2020-21, especially in K. pneumoniae. Caution is required when interpreting resistance rates due to smaller sample sizes but can help to inform national guidance on paediatric treatment choices by age group.

PV0022 / #2180

URINARY TRACT INFECTION CAUSED BY MULTI-DRUG RESISTANT BACTERIA IN PEDIATRIC AGE: A TWO-YEARS ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Urinary Tract Infections (UTI) are a common cause of admission in the pediatric emergency department (PED) and antibiotic prescription. As multidrug-resistant (MDR) bacteria are rising, it is necessary to analyze their profile within our population
Methods: Our aim is to identify most common agents of UTI and their resistance profile in a secondary hospital pediatric population.

Retrospective observational study analyzing the positive urine cultures in a PED between July-2020 and June-2022. Sex, age, personal history of UTI and anomalies of urinary tract were assessed. Urine collection method, cultural exam, isolated bacteria and antibiotic sensitivity test were analyzed. In cases where information was not available, sphincter continence was assumed from 48 months of age.
Results: 3206 urine cultures were performed, with 803 positive results (median age 4.8 years-old), mostly in girls (68%). 41% of samples were collected by clean-catch, 18% by urethral catheterization and 20% by urine collection bag. Only one suprapubic aspiration was performed, and in 158 of cases there was no information available on the collecting method. The most identified agents were Escherichia coli, (68%), Proteus mirabillis (14%) and Klebsiella pneumoniae (4%). In 22.6% there was a history of UTI and 9% of UT anomalies. In 50 cultures (6%), a MDR bacteria was isolated, with E. coli present in 34 and K. pneumoniae in 10. History of UTI and UT anomalies were more common in this group. (36 and 16%, respectively).
Conclusions/Learning Points: Infections caused my MDR bacteria is a growing reality in pediatric age. Knowing their prevalence in our population can help implement preventive measures, as well as a more cautious and self-aware antibiotics prescription.

PV0023 / #1341

EVALUATING THE ANTIMICROBIAL RESISTANCE PATTERNS AMONG MAJOR BACTERIAL PATHOGENS ISOLATED FROM CLINICAL SPECIMENS TAKEN FROM PEDIATRIC PATIENTS IN TERTIARY HEALTH CARE IN KOSOVO

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: This study evaluates the epidemiology and antimicrobial resistance profile of Gram-negative bacteria (GNB), Gram-positive bacteria (GPB), and Candida spp. isolated from various clinical specimens in children.
Methods: Study included patient's clinical specimens collected during year 2022, for routine culture and their susceptibility testing. Isolation, identification and susceptibility were performed using conventional methods, Vitek 2. and broth microdilution methods.
Results: 1450 clinical specimens were tested, and the overall detection rate was 21.3%. 57.1% were GNB and 22.8% were GPB, while Candida spp. was 20%. The most isolated pathogens were Escherichia coli, Pseudomonas aeruginosa, Klebsiella spp., Acinetobacter baumannii, Burkholderia cepacia, Enterobacter spp. and Enterococcus spp. Highest resistance rate was observed for Klebsiella spp., ampicillin 100%, cefotaxime 88%, amoxicillin–clavulanic acid 76%, ceftazidime 60%. Salmonella enteritidis was found in 16 samples and resistance to levofloxacin was 25%. A. baumannii was sensitive only to colistin, and P. aeruginosa had low levels of resistance to amikacin, tobramycin and meropenem. Among GPB, CoNS was the most frequent, and Enterococcus spp. was found to have low levels of resistance to vancomycin and linezolid. Two isolates of VRE were detected with presence of Van A gene (Univero multiplex diagnostic). In GNB, A. baumannii was sensitive only to colistin, and P. aeruginosa had low levels of resistance to amikacin, tobramycin and meropenem.
Conclusions/Learning Points: This study entails the first descriptive report of resistant patterns, expressed by bacterial pathogens, affecting pediatric patients. Our findings revealed that the resistance rate among GNB and GPB associated with different infections in children is very high. These results suggest a constant screening and follow-up programs for the detection of antibiotic resistance, it also suggests development of antimicrobial stewardship programs in our country.

PV0024 / #1091

THE HORMETIC EFFECT OF DISINFECTANTS: MAKING PATHOGENS STRONGER

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Hormesis or the hormetic effect, is a phenomenon that occurs when an antimicrobial used at a low concentration or dose has a stimulatory effect on microbial growth instead of the intended inhibitory or microbicidal effect. This has been observed for several antibiotics such as tobramycin, tetracycline, and norfloxacin in ESKAPE bacterial pathogens such as Pseudomonas auruginosa. Recently research has shifted on to whether this phenomenon can be elicited by bacteria challenged by antiseptics, sanitisers and disinfectants. An increasing number of hospital acquired infections have been attributable to Serratia sp.
Methods: Therefore, the effect of sub-lethal levels of disinfectants on the growth Serratia sp. HRI (resistant isolate) and Serratia marcescens ATCC 13880 (type strain) were evaluated. The bacteria were cultivated in sub-lethal levels of the following antimicrobial compounds: benzalkonium chloride (BAC), Didecyldimethylammonium chloride (DDAC) and Virukill™. The maximum specific growth rate, doubling time and cell counts were compared between the two bacteria for all three QAC-based disinfectants.
Results: The results revealed significant increases in maximum specific growth rate and shorter doubling times for the resistant isolate, Serratia sp. HRI, when cultivated in sub-lethal levels of BAC and DDAC antimicrobials. These results confirm that the hormetic effect is not unique to antibiotics but can be conferred by antiseptic, disinfectant and sanitiser products as well.
Conclusions/Learning Points: This is deeply troubling as these compounds are vitally important in wound care, and instrument and equipment cleaning in healthcare. Incorrect dosage or inaccurate dilution of these products can cause an inadvertent stimulation of microbial growth instead of inhibition. The significant stimulatory effect for Serratia sp. HRI presented here represents the first time that hormesis has been observed in a Gram-negative bacteria for any disinfectant.

PV0025 / #1094

MOLECULAR INSIGHTS INTO ANTIMICROBIAL RESISTANCE OF SERRATIA SP. HRI

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: The increasing prevalence of antibiotic resistance has highlighted the importance of biosecurity as the only viable alternative to control microbial growth currently. Biosecurity relies heavily on effective disinfection which makes it troubling that disinfectant resistance is emerging at an alarming rate. Relatively little is known about disinfectant resistance, however, a few mechanisms have been elucidated with the help of bioinformatics.
Methods: Serratia sp. HRI is a multidrug resistant bacterium with high resistance capabilities across a broad range of disinfectants. Bioinformatics programs were run to combine data on whole genome sequencing, plasmid analysis and genomic island prediction tools to generate an antimicrobial resistance genes profile.
Results: Serratia sp. HRI harbours multiple low copy number plasmids containing 3 confirmed resistance genes encoding a SMR transporter (QacE), DMT/EmrE multidrug transporter and an EmrE family multidrug efflux pump. These antimicrobial resistance genes are located on plasmids with multiple toxin/antitoxin systems are so were conserved within the population after 90+ days of passaging. This shows that these resistance genes are highly conserved and have the potential to be highly mobile. In addition, whole genome sequencing and bioinformatic software were used to identify resistance islands within the genome of Serratia sp. HRI and a total of 90 antimicrobial resistance genes. Of the 90 genomic resistance genes, 21 were antibiotic resistance genes, 6 were disinfectant resistance genes and 52 multidrug resistance genes were identified.
Conclusions/Learning Points: The study of multidrug resistant bacteria such as Serratia sp. HRI provide a unique opportunity to find new resistance genes and elucidate new resistance mechanisms with the help of sequencing technology.

PV0026 / #2130

ANTIMICROBIAL RESISTANCE OF UROPATHOGENS IN PEDIATRIC URINARY INFECTIONS IN CENTRAL GREECE DURING 2012-2022

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Urinary tract infection (UTI) is a common cause of antibiotic use and/or hospitalization in childhood. Recently, there is a growing interest on emergence of resistant uropathogens. The aim of this study was to identify the most common UTI pathogens and their antimicrobial resistance patterns in Central Greece.
Methods: This is an 11-year study of UTI cases admitted to the Department of Pediatrics of the University General Hospital of Thessaly from January 1st 2012 to December 31st 2022.
Results: Based on the guidelines developed by the European Association of Urology and European Society for Paediatric Urology, we included children in whom a uropathogen was identified in a urine sample obtained by either clean-catch collection/midstream void or bladder catheterization, or suprapubic bladder aspiration. 543 UTI cases (53.4% female) aged 5 days to 17.2 years (median: 6.9 months, interquartile range: 1.9-30.3 months) were included. 137 (25.2%) of the 543 patients had at least one previous episode of UTI. In eight patients 2 pathogens were recovered in the same urine sample. In total, among 551 isolates, the five most frequently recovered pathogens were: Escherichia coli (396;71.9%), Klebsiella spp. (49;8.9%), Pseudomonas spp. (31;5.6%), Proteus spp. (27;4.9%), and Enterococcus spp. (20;3.6%). Klebsiella spp. isolates were more resistant to amoxicillin-clavulanic acid/cefotaxime/ceftriaxone/meropenem than E. coli isolates ($p<0.001$). Based on the availability of antimicrobial agent's susceptibility tests, when comparing the period 2018-2022 to the period 2012-2017, we noted an increase of both E. coli and Klebsiella spp. non-susceptibility to cefuroxime, cefotaxime/ceftriaxone and trimethoprim/sulfamethoxazole
(Table).

		Study period Number of patients with UTI		p
		2012-2017 N=332 UTI episodes	2018-2022 N=211 UTI episodes	
	Escherichia coli	n=242	n=154	
	Amoxicillin-clavulanic acid	35[a]/206 (17.0)[¶]	23[j]/143 (16.1)	0.82
	Cefuroxime	17[b]/201 (8.5)	58[j]/139 (41.7)	**<0.001**
Antibiotic resistance	Cefotaxime/ceftriaxone	8[c,j]/229 (3.5)	13/149 (8.7)	**0.03**
Antibiotic resistance	Meropenem	1[d]/163 (0.6)	1/122 (0.8)	0.84
Antibiotic resistance	Amikacin	1[e]/195 (0.5)	3/142 (2.1)	0.18
Antibiotic resistance	Trimethoprim-sulfamethoxazole	36/188 (19.1)	42[k]/142 (29.6)	**0.03**
	Klebsiella spp.	n=27	n=22	
	Amoxicillin-clavulanic acid	8[f]/23 (34.8)	9/20 (45.0)	0.49
	Cefuroxime	4[g]/20 (20.0)	12[l]/15 (80.0)	**<0.001**
Antibiotic resistance	Cefotaxime/ceftriaxone	3/22 (13.6)	8/21 (38.1)	0.07
Antibiotic resistance	Meropenem	0/21 (0)	3/17 (17.6)	N/A
Antibiotic resistance	Amikacin	2[h]/23 (8.7)	0/20 (0)	N/A
Antibiotic resistance	Trimethoprim-sulfamethoxazole	1/20 (5.0)	5/20 (25.0)	0.08

Intermediate: [a]21; [b]7; [c]1; [d]1; [e]1; [f]4; [g]2; [h]2; [i]1; [j]44; [k]2; [l]6

[¶]non-susceptible isolates/isolates tested (percent in parenthesis)

Conclusions/Learning Points: The emergence of non-susceptibility to several antimicrobial agents of E. coli or Klebsiella spp. strains has been noted recently. Pediatricians should be aware of the uropathogens antibiotic resistance.

PV0027 / #336

A PILOT STUDY TO DETERMINE RESISTANCE TO CLARITHROMYCIN BY RT-PCR IN PEDIATRIC PACIENTS WITH HELICOBACTER PYLORI INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Title of Case: A PILOT STUDY TO DETERMINE RESISTANCE TO CLARITHROMYCIN BY RT-PCR IN PEDIATRIC PACIENTS WITH HELICOBACTER PYLORI INFECTION
Background: H.pylori remains the most common cause of gastro-duodenal diseases. The increase in antibiotic resistance worldwide is worsening its eradication rates. The aim of study is to describe the population of patients infected by H.pylori finding out the resistance rates in our area.
.
Case Presentation Summary: Methods A descriptive study has been realized in the Hospital of Germans Trias i Pujol in Barcelona. We enrolled patients with H.pylori symptoms and positive stool antigen test (SAT). We performed an upper endoscopy and obtained gastric biopsies for rapid urease test (RUT) , Real-Time-Protein Chain Reaction (RT-PCR),and histological studies (hematoxilyn-eosin stain or immunohistochemistry). Results We enrolled 64 patients (4-17y). 90,6% of patients had dyspepsia, 3% anaemia, 4,7% both and only 1,6% gastrointestinal bleeding. In upper endoscopy we observed nodular antritis or gastritis in 46/64 (72%). RUT was positive in 89%. Histological analysis of biopsies documented gastritis low-moderate in antral mucosae (93,8%), finding H.pylori structure in the 90,6% of specimens. We perform 60 RT-PCR H.pylori in gastric sample: 6 were RT-PCR negative and 5/6 were also negative for RUT and histological studies. From the positive RT-PCR-biopsies, 40.7% showed mutation in the 23S rRNA gene (A2143G) associated with clarithromycin-resistance. Regarding treatment, 19/60 of patients (29.7%) received clarithromycin-based treatment and 41/60 (64.1%) metronidazole-based therapy. At the post-eradication control 43/60 had negative SAT (71,6%)
Learning Points/Discussion: Conclusions Our study demonstrates a high correlation between PCR-data and RUT / histological test and the high sensitivity of RT-PCR. In our area we find a resistance clarithromycin rate above 40%. Therefore we advise avoiding its use as a first- line treatment to improve the current eradication rates

PV0028 / #853

PREVALENCE OF MALARIA AND EARLY CLINICAL AND PARASITOLOGICAL RESPONSES TO TREATMENT OF ARTEMISININ-BASED COMBINATIONS IN ANGOLA.

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: In Angola, MINSA data show that 9,169,267 cases of malaria were registered in 2021: 90.8% (8,325,921) were confirmed cases whose 13,676 deaths. The dominant age group is children under 5 years with 35% of the total number of cases, representing 51% of deaths. We aimed to assess the prevalence of malaria and the early clinical and parasitological responses to treatment of Artemisinin-based combinations.
Methods: The research is observational and prospective based on early clinical and parasitological responses to treatment of Artemisinin-based combinations (Artemether+Lumefantrine and Artesunate+Amodiaquine). Monitoring was done on days 0, 1, 2, 3 and 7 (Figure 1). Children were selected by a systematic sampling method. The study was conducted between November and December 2022.

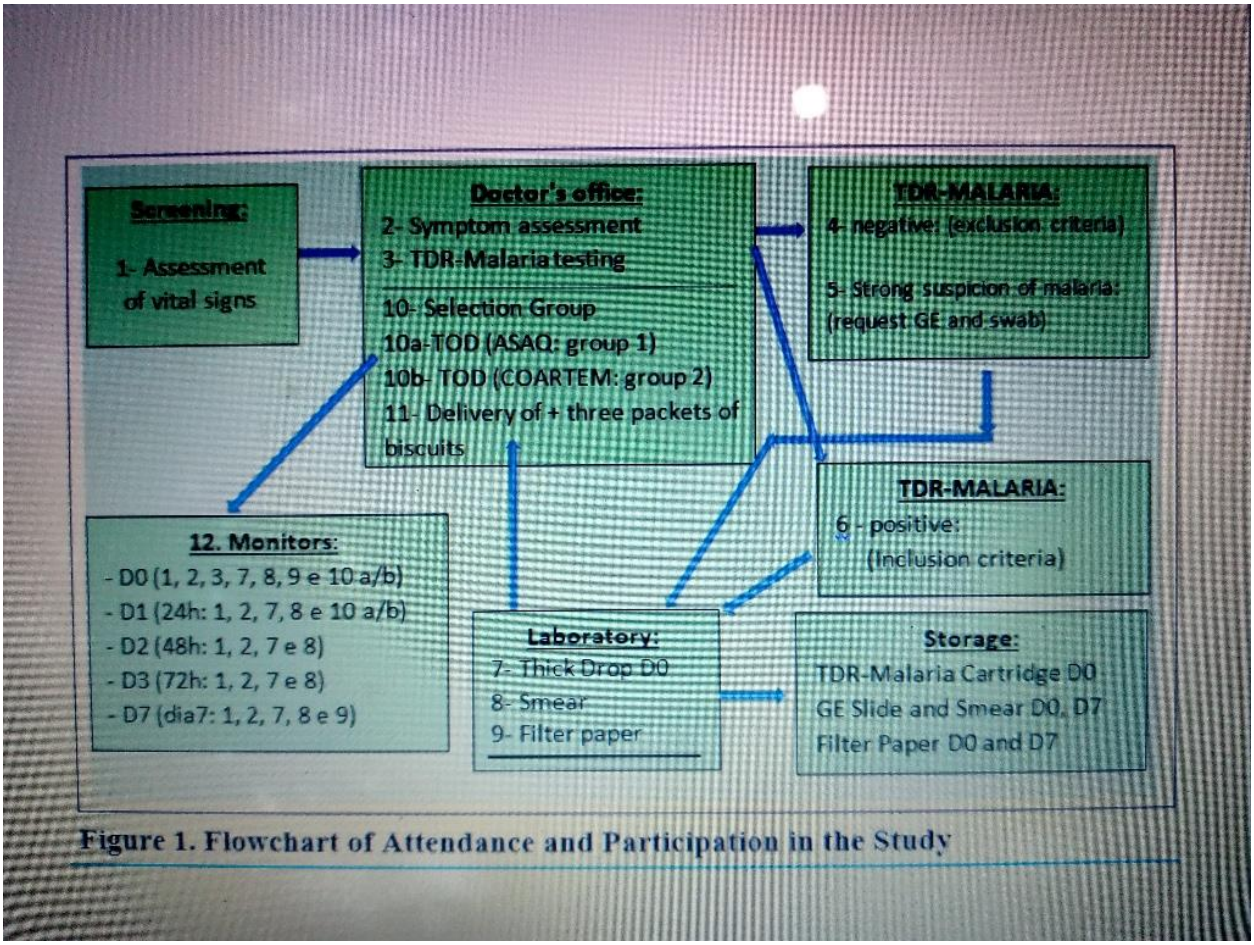
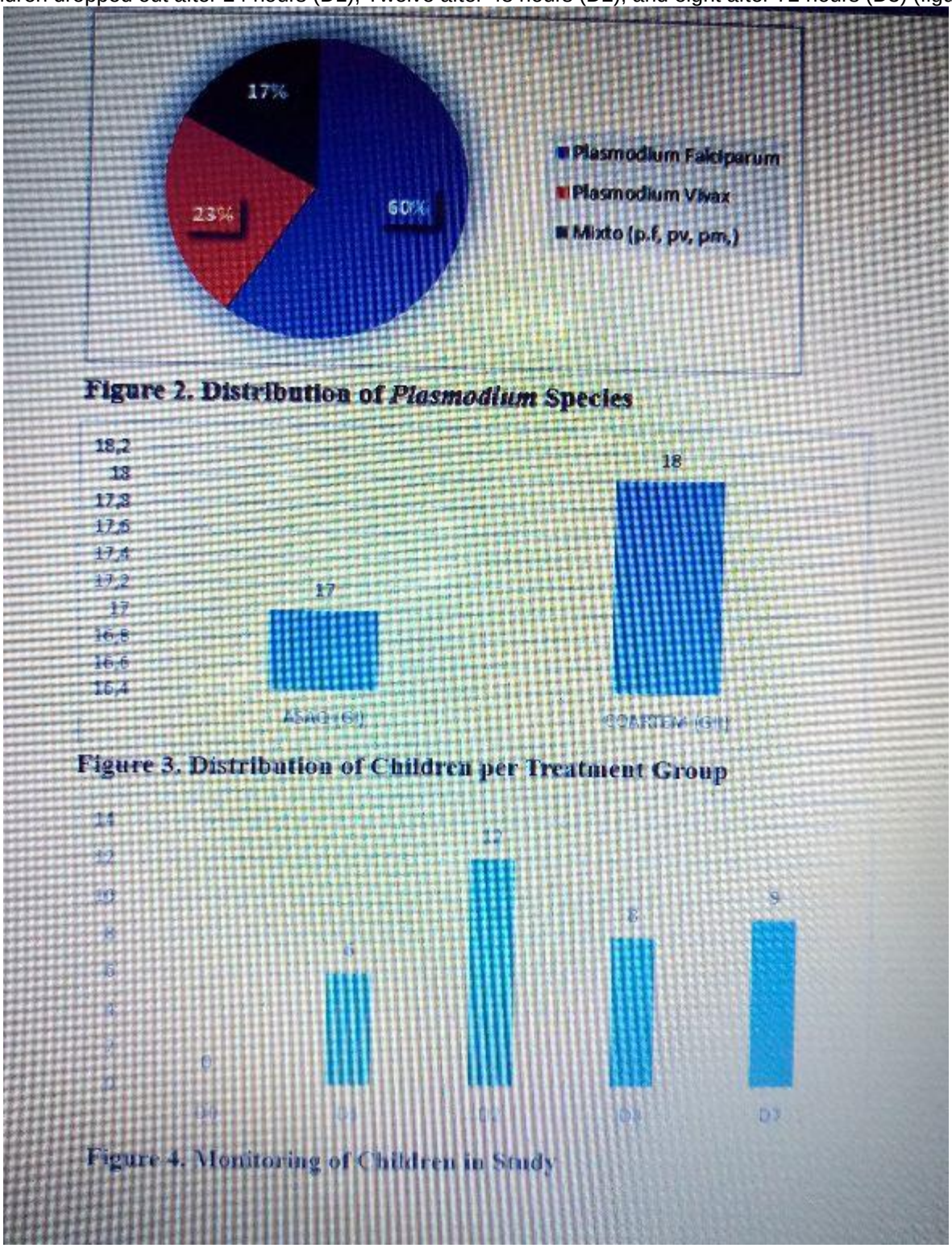


Figure 1. Flowchart of Attendance and Participation in the Study

Results: Eighty-two children were enrolled in the study. All were submitted to Rapid Diagnostic Test for malaria: 57% were female. Only 35 with Plasmodium spp. and thin and thick blood smears. Of these, 21

had Plasmodium falciparum, 8 with plasmodium vivax and 6 mixed (p.f, p.v and p.m.) (figure 2). Figure 3 shows that 51% received Coartem. All treated, only 9 completed the treatment with monitoring; Six children dropped out after 24 hours (D1); Twelve after 48 hours (D2), and eight after 72 hours (D3) (figure 4).



Conclusions/Learning Points: Although the number of children enrolled was low (82), the estimated prevalence of falciparum malaria (42.68%) follows the national average (35%). One of the reasons for the

high drop-out rate observed (74.29%), could be the strong appreciation of farming activities in this rainy season. These may have a negative impact on the success of malaria treatment.

PV0029 / #1597

ETIOLOGY AND ANTIMICROBIAL RESISTANCE PATTERNS OF ACUTE PYELONEPHRITIS CASES IN THE PAEDIATRIC CLINIC IN WARSAW.

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Urinary tract infections (UTIs) are one of the most common infections in children. Involvement of the upper urinary tract as in acute pyelonephritis (AP) is particularly dangerous. AP can lead to permanent renal damage and often requires prolonged hospitalization. The rapid emergence of multidrug-resistant (MDR) bacteria constitutes a major health problem as it may affect the effectiveness of UTI empiric treatment. Therefore continuous regional surveillance of antibiotic resistance (AR) is pivotal in proper selection of antimicrobials.
Methods: We performed quantitative retrospective analyses of urine cultures collected form children diagnosed with AP, admitted to the Paediatric Clinic at Bielański Hospital in Warsaw, from January 2020 to December 2022. We analysed 152 urine sample and positive monocultures were identified in 144 (94,7%) cases. Sensitivity tests to 19 antimicrobial drugs, belonging to 5 different classes (β-lactams, quinolones, phosphonates, aminoglycosides, antifolates), were performed.
Results: Escherichia coli was the most frequently isolated pathogen and was responsible for the 124 (86,1%) urine positive cultures of AP cases, followed by Klebsiella pneumoniae 6 (4,2%) and Enterococcus faecalis 5 (3,5%). In positive monocultures, 72 (50%) pathogens were sensitive to all tested antimicrobials, 10 (6.9%) expressed MDR. 72 (50%) pathogens were resistant to at least one antimicrobial: 68 (47,2%) ampicillin, 66 (45,8%) piperacillin, 37 (25.7%) trimethoprim, 19 (13,2%) amoxicillin/clavulanic acid. Empiric therapy, which usually consisted of II/III generation of cephalosporins, was effective in 128 (88,9%) patients, as AR to cefuroxime and cefotaxime were detected in 10 (6,9%) and 8 (5,6%) cases, respectively.
Conclusions/Learning Points: E. coli remains the leading cause of AP in our clinic. Empiric therapy with II/III generation cephalosporins was found effective in most cases. However, as MDR emerges AR surveillance should be continued. Acknowledgements: CMKP grant 501-1-020-19-22.

PV0030 / #1922

MULTIDRUG RESISTANT BACTERIA COLONIZATIONS IN HOSPITALIZED PAEDIATRIC PATIENTS WITH CANCER OR STEM CELL TRANSPLANTATION IN SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Multidrug resistant bacteria (MDRB) infections are a rising concern, especially in healthcare environment. The aims of this study were to describe the characteristics and risk factors for a new MDRB colonization and infection in paediatric patients admitted to a Haemato-Oncology ward.
Methods: Multicentre prospective study from May 2021-March 2022 in Spain. Patients < 18 years with diagnosed with cancer or stem cell transplantation (SCT) admitted to Hemato-Oncology wards were included. Rectal/nasal swabs for MDRB detection were performed at inclusion and periodically during a 90-day period. Active infection surveillance was performed during follow-up. Data of new colonisations and infections during the follow-up are presented.
Results: 142 patients were included; 136 (95.8%) completed the follow-up. 28 (20.6%) had undergone a SCT. Diagnoses were leukaemia (58;42.6%), solid organ tumour (67;41.9%), lymphoma (7;5.1%), sickle cell disease (SCD) (6;4.4%) and other diagnosis (7;5.1%). 11 (8%) patients had 13 new colonisations within the study period (one patient had 3). Six (46.2%) were carbapenemase-producing (100% VIM), and 5 (38.4%) ESBL-producing Enterobacteriaceae, 1 (7.7%) multi-drug resistant Pseudomonas and 1 (7.7%) SARM. Patients with SCT (OR:5.6[95%CI:1.6-19.9];p=0.004), SCD (OR:6.7[95%CI:1.1-41.5];p=0.021), more days of total hospital admission (OR:1.1[95%CI:1.0-1.1];p=0.004), having received more days of antibiotics (OR:1.0[95%CI:1.0-1.1]; p=0.044), and born abroad (OR:6.3[95%CI:1.4-19.0];p=0.036) had a higher risk (table). 41 (30.1%) patients had a bacterial infection, 3(2.2%) due to a MDRB; patients previously colonised did not have a higher
risk.

	New colonization		Total N=136	P value (OR [95%CI])
	Yes N=11	No N = 125		
Age (years)	7.9 (±5.6)	7.7 (±5.5)	7.7 (±5.5)	0.913
Women, n (%)	5 (45.5)	61 (49.2)	66 (48.9)	1.000
Born abroad, n (%)	3 (27.3)	7 (5.6)	10 (7.4)	**0.036 (6.3 [1.4-19.0])**
Having pets at home, n (%)	3 (27.3)	34 (27.4)	37 (27.4)	0.859
Number of cohabitants	4.3 (±1.2)	3.9 (±1.2)	3.9 (±1.2)	0.351
Stay abroad in the last 12 months, n (%)	2 (22.2)	7 (6.4)	9 (7.6)	0.141
HSCT, n (%)	6 (54.5)	22 (17.7)	28 (20.7)	**0.004 (5.6 [1.6-19.9])**
HSCT due to SCD, n (%)	2 (18.2)	4 (3.2)	6 (4.4)	**0.021 (6.7 [1.1-41.5])**
Colonization on admission, n (%)	3 (27.3)	11 (8.9)	14 (10.4)	0.089
Days of hospital admission*	62.1 (±34.1)	23.2 (±20.7)	26.2 (±24.4)	**0.004 (1.1 [1.0-1.1])**
Days of ICU admission*	0.36 (±1.2)	0.94 (±2.8)	0.9 (±2.7)	0.511
Days of severe neutropenia (< 500cells/mm3) *	23.2 (±26.1)	14.9 (±18.9)	15.4 (±19.6)	0.185
Days of central venous catheter*	70.3 (±35.6)	77.4 (±29.0)	76.9 (±29.3)	0.443
Days of antibiotic therapy *	35.1 (±31.7)	12.6 (±18.2)	14.3 (±20.4)	**0.041 (1.0 [1.0-1.1])**
Days of antipseudomonal cephalosporin use *	4.6 (±7.9)	3.1 (±6.2)	3.1 (±6.3)	0.437
Days of carbapenem use *	7.6 (±11.2)	1.4 (±3.6)	1.9 (±5.0)	0.094
Bacterial infection¥	5 (45.5)	36 (28.8)	41 (30.1)	0.256
MDRB infection¥	0 (0)	3 (100)	3 (2.2)	1.000

SCD: sickle cell disease. SCT: stem cell transplantation. ICU: intensive care unit. OR: odds ratio. CI: confident interval. IQR: interquartile range.
*Referred to the follow-up period (90 days from inclusion) for non-colonised patients and to adjusted days from inclusion to colonisation for colonised patients.
¥Referred to 90 days from inclusion for non-colonised patients and to 90 days from colonisation for colonised patients.
Quantitative variables are expressed as median (± IQR); qualitative variables as expressed as total number and percentages. OR (95%CI) is only expressed in variables with a statistically significant p value (< 0.05).

Conclusions/Learning Points: In our study, colonisation rates with MDRB in children with cancer or SCT during hospital admission was high. Children with SCT, SCD, born abroad, higher hospital stays and antibiotic use had an increased risk. MDRB infections were rare and no higher in colonised patients.

PV0031 / #1392

URINARY TRACT INFECTION CAUSED BY EXTENDED-SPECTRUM B-LACTAMASE PRODUCING ENTEROBACTERALES: A RETROSPECTIVE STUDY IN A PEDIATRIC DEPARTMENT OF A PORTUGUESE HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Enterobacterales are the most common cause of urinary tract infections (UTI). The production of extended-spectrum ß-lactamase (ESBL) by these bacteria and resistance to several antibiotics has become increasingly more common, limiting treatment options among children presenting with febrile UTI. The aim of this study was to analyze clinical, laboratory and therapeutic data of children with UTI caused by ESBL-producing bacilli.
Methods: Retrospective study, conducted in a pediatric department of a level II portuguese hospital, from January 2017 to December 2022. Children were identified from the microbiology database and data were collected from patient medical record.
Results: Over the 6-year study period, 1484 urine culture were positive for Enterobacterales; of these, 28 (1,9%) were found to be ESBL-producing bacteria: 20 Escherichia coli (71,5%), 7 Klebsiella pneumoniae (25%), 1 Enterobacter cloacae complex (3,5%). The ESBL-producing phenotype was detected in 1,8% E. coli and 11% K. pneumoniae. In 16 children (55%) it was the first UTI and in 27 (93%) it was community-acquired. In 15 cases (52%) were identified chronic conditions (mainly urological disorders). In the 30 days prior to UTI, 13 children (44,8%) received antibiotic treatment. Hospital admission was required in 7 cases (24,2%). In 13 cases (48,3%), antibiotic treatment was changed after identification of microorganism and its antimicrobial susceptibility. The prevalence of ESBL-producing bacilli UTI increased meaningly during the study (1,6% in 2017 versus 2,7% in 2022).
Conclusions/Learning Points: While the presence of ESBL-producing Enterobacterales has been predominantly associated to healthcare related infection, in our study, most cases were identified in the first episode of community-acquired UTI and in children with chronic conditions. Recognition of the emergence of ITU caused by community-acquired ESBL-producing bacilli is important to improve management of this cases in pediatric age.

PV0032 / #1444

ANTIMICROBIAL RESISTANCE FOLLOWING LEVOFLOXACIN PROPHYLAXIS DURING INDUCTION THERAPY FOR PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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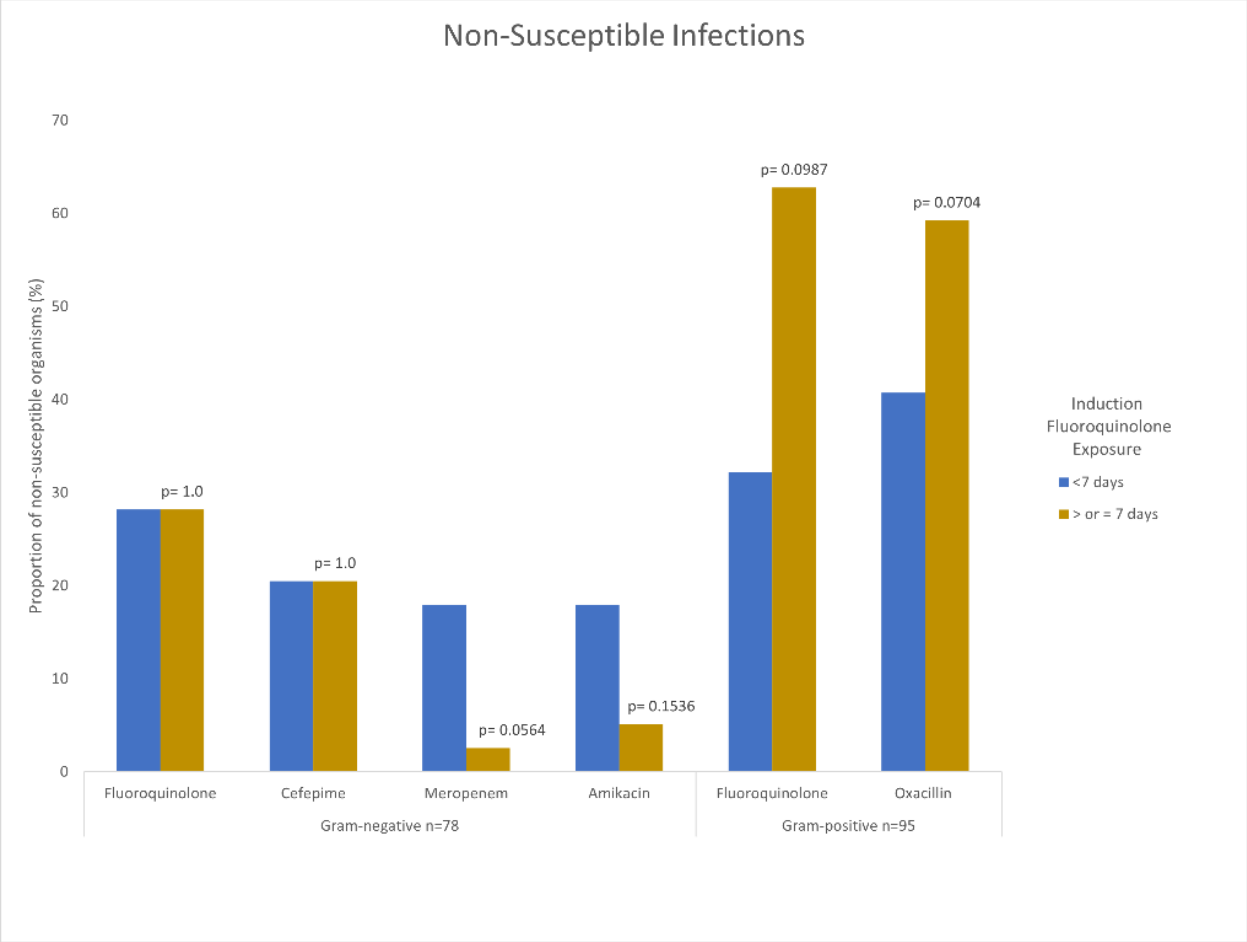
Backgrounds: Levofloxacin prophylaxis during induction therapy for pediatric acute lymphoblastic leukemia (ALL) can prevent life-threatening infections, but increases cumulative antimicrobial exposure while reducing cephalosporin, aminoglycoside and carbapenem exposure. Because of this mixed effect on antibiotic exposure, the effect of prolonged exposure to fluoroquinolones on subsequent risk of antimicrobial resistant infections is unknown.
Methods: This IRB-approved, single-center, retrospective cohort study of pediatric patients with newly diagnosed acute lymphoblastic leukemia (ALL) compared rates of antimicrobial resistance in microbiologically-documented infections occurring after completion of induction therapy in patients who had received <7 days vs ≥ 7 days of fluoroquinolone during induction on the Total XVI protocol from September 2008 to March 2020. Of participants who had ≥1 microbiologically documented bacterial infection, we calculated the proportion who had known bacteria non-susceptible to fluoroquinolones, cefepime, meropenem, amikacin, or oxacillin. Two-tailed p-values were estimated with Fisher's exact test. Multivariable logistic regression was used to test the possible effect of institutional secular resistance trends.
Results: Of the 598 evaluable participants with ALL, 138 had ≥1 culture-positive infection during post-induction therapy with known levofloxacin susceptibility (78 Gram-negative and 95 Gram-positive). In participants with ≥7 days induction fluoroquinolone exposure, there was a trend towards decreased meropenem and amikacin resistance in Gram-negatives and increased fluoroquinolone and oxacillin resistance in Gram-positives, mostly coagulase negative staphylococci (79%), but none were statistically significant. This finding was not better explained by institutional secular
trends.



Conclusions/Learning Points: Antimicrobial exposure is an important catalyst of antimicrobial resistance; in this study, there was a trend towards increasing resistance in low-pathogenicity Gram-positive, but not in Gram-negative organisms. Additional studies are needed to monitor the long-term effect of continued prophylaxis at the patient- and institutional-level.

PV0033 / #1907

CEFTAZIDIME-AVIBACTAM AZTREONAM VERSUS MEROPENEM COLISTIN FOR THE TREATMENT OF INFECTIONS DUE TO CARBAPENEM-RESISTANT ENTEROBACTER ALES IN CHILDREN: SINGLE CENTRE RETROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: There has been a worldwide increase and emergence of Carbapenem-resistant Enterobacteriaceae (CRE) which are leading cause of morbidity and mortality in intensive care units. Therapeutic regimen for CRE have evolved significantly in recent years with availability of novel β-lactam-β-lactamase inhibitor (βL-βLI) agents (e.g., ceftazidime-avibactam, meropenem-vaborbactam).
Methods: Retrospective, single, observational cohort study of inpatients who received CAZ-AVI or IV colistin with Meropenem for treatment of CRE infections between January 2019 and June 2022 .Data collected:- demographic characteristics , study drug, duration of therapy, etiologic pathogen, surgical intervention, comorbid conditions, risk factors, indwelling device and the clinical outcome .
Results: Total 33 patients with CRE were included in our study. Klebsiella pneumoniae was most common pathogen (87.3%) followed by E coli (12.7%). Most common carbapenemase isolated was NDM/OXA -48 from Carba R assay/BCID done in 9 patients out of 33. All episodes of infection were associated with healthcare interventions.- indwelling devices and central lines (96%). Polymicrobial infection was in 30% and 45% had surgical intervention in last 90 days. In hospital mortality was seen in 30.3%(n=10) of children . 17 (51.2%) children received meropenem- colistin therapy, out of which 8 (25.2%) had in hospital mortality ,12 received ceftazidime avibactam aztreonam of which 3.03% (n=1) had in hospital mortality. 3 children received high dose extended infusion of meropenem , 1 child received IV Fosfomycin. Clinical recovery from the CRE infection was significantly more common in patients who received Ceftazidime avibactam aztreonam [p-value=0.028, OR= 8.25, CI= (-0.1, 4.32)] than in patients who received colistin-meropenem regimen.
Conclusions/Learning Points: Ceftazidime avibactam aztreonam is associated with higher rate of clinical cure ,lower rate of mortality when compared with colistin meropenem -based regimen for treatment of CRE infections in children.

PV0034 / #2206

IMPACT OF THE COVID-19 PANDEMIC ON MULTIDRUG-RESISTANT BACTERIAL INFECTIONS IN A REFERENCE CENTER IN PEDIATRIC ONCOLOGY IN LATIN AMERICA.

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Antimicrobial resistance (AMR) is a growing global problem and the ongoing COVID-19 pandemic brought an alert about the increase in Multidrug Resistance (MDR) bacteria, due to the greater use of antibiotics. However, data obtained so far are conflicting, some, mainly in developing countries, showing an increase in MDR bacteria and in other regions revealing a decrease. We analyzed the differences in the epidemiology of MDR bacteria during the COVID-19 pandemic.
Methods: We conducted a descriptive study with positive blood cultures from pediatric cancer patients (up to 18 years old) treated at our service during the COVID-19 pandemic (2020 to 2022) compared to in the pre-pandemic period (2017 to 2019).
Results: In pre-pandemic period, 222 positive blood cultures were obtained, with 81 MDR bacteria (36.5%), 76.5% (62/81) ESBL, 13.6% (11/81) Carbapenem-resistant (CR), 6.2% (5/81) Carbapenem and Polymyxin resistance and 3.7% (3/81) VRE. Among the ESBL, E. coli, 32.3%, and K. pneumoniae, 29% ($p<0.001$) stand out mainly. Of the CR bacteria, 36.4% were Pseudomonas aeruginosa and 27.3% K. pneumoniae and Acinetobacter baumannii. All Carbapenem and Polymyxin resistance were K. pneumoniae and of VRE, Enterococcus faecium. During pandemic, 178 positive blood cultures were obtained, with 64 MDR bacteria (36%). There was a reduction in ESBL (68.75%), an increase in CR (18.75%) and a significant increase in VRE (12.5%, $p=0.047$). The main ESBL (44), again, E. coli, 38.6%, and K. pneumoniae, 29.5% ($p<0.001$). K. pneumoniae was also the most isolated within the CR, with 41.7% (5/12). Enterococcus faecium was isolated from 50% of VRE.
Conclusions/Learning Points: Cause of the increase in MDR is multifactorial and is associated with use of antibiotics, but also with other factors such as the environment, cross-transmission and difficulty in isolation due viruses.

PV0035 / #1241

SINGLE NUCLEOTIDE POLYMORPHISM IN QUINOLONE RESISTANCE-DETERMINING REGION IN DIARRHOEAGENIC E. COLI ISOLATES IN INDIAN PEDIATRIC POPULATION

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Antimicrobial resistance happens when microorganisms mutates in manners that render the drugs like antibacterial, antiviral, antiparasitic and antifungal, ineffective. The normal mutation process is encouraged by the improper use of antibiotics. Mutations leading to quinolone resistance occur in a highly conserved region of the quinolone resistance-determining region (QRDR) of DNA gyrAse and topoisomerase IV gene. In the current study, Single Nucleotide Polymorphism (SNP) in gyrA and parC genes in QRDR were analysed.
Methods: A total of 120 E. coli isolates (Diarrheagenic and nonpathogenic, both) recovered from fresh stool samples collected from children aged less than five years from Delhi, India.Antibiotic susceptibility testing was performed according to standard Clinical and laboratory standards Institute (CLSI) guidelines. Multiplex PCR was performed for SNP detection and confirmed by sequencing.
Results: SNPs in gyrA (A660-T660) and parC (C330-T330) were detected in 11.66 % and 2.5 % isolates, respectively. Among all Nalidixic acid and Ciprofloxacin resistant isolates, 29.78% isolates showed point mutation for gyrA gene, while 27.27 % isolates showed point mutation for parC and 5.17% isolates showed mutation for both gyrA and parC.
Conclusions/Learning Points: Current findings show that the QRDR have mutations in gyrA, parC genes. Our results suggest SNP in children may contribute to the development of multi drug resistance (MDR) in E. coli. These findings may be useful to understand the genetic factors involved in development of antibiotic resistance in pediatric population. DEC group are relevant in advancing our understanding of the disease for the synthesis of new diagnostic biomarkers.

PV0036 / #1158

INCORRECTLY USED DISINFECTANTS MAY DRIVE RESISTANCE DEVELOPMENT IN CLINICAL SETTINGS

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Backgrounds: Since 2020 the public has been required to drastically increase the use of certain disinfectants but due to the use of inefficient or poorly diluted disinfectants, bacteria are exposed to sub minimum inhibitory concentrations (MIC) of disinfectant, which may cause resistance to develop within the community. This is especially concerning in the clinical setting, where disinfectants are regularly used. With the last of our available antibiotics now showing decreased effectiveness against MDR gram negative bacillicocci ESKAP, it is important to establish wether or not incorrectly used disinfectants drives resistance development in the clinical setting.
Methods: Samples were collected from three hospitals and isolates with reduced susceptibility to quaternary ammonium compounds (QACs) were isolated. Abovementioned cultures were exposed to four dilutions of DDAC based disinfectant for a contact time. Surviving isolates were identified to be gram negative bacillicocci. ATCC wild type strains were subject to the same protocol and compared to that of the resistant isolates in order to determine degree of resistance.Gram negative ATCC Escherichia coli was exposed to sub MIC levels of DDAC based disinfectant with routine reasessment, to determine if exposure to sub MIC levels of disinfectant causes resistance to develop in gram negative bacillicocci.
Results: 99 samples were collected which yielded 260 CFUs with an average resistant population of 17%. Five resistant strains were identified and showed between 200%-400% reduced susceptibility to QACs compared to the ATCC strains. ATCC Echerichia coli exhibited a 100% decrease in susceptibility to QACs following sub MIC exposure for 20 days.
Conclusions/Learning Points: The clinical setting has an established resistant population of gram negative bacillicocci that likely have developed resistance due to exposure to sub MIC levels of disinfectant within the hospital setting.

PV0037 / #2049

CONTINUING FLACTUATION OF MACROLIDE RESISTANT GROUP A STREPTOCOCCAL ISOLATES IN PEDIATRIC PATIENTS DURING 2011-2021 IN CENTRAL GREECE

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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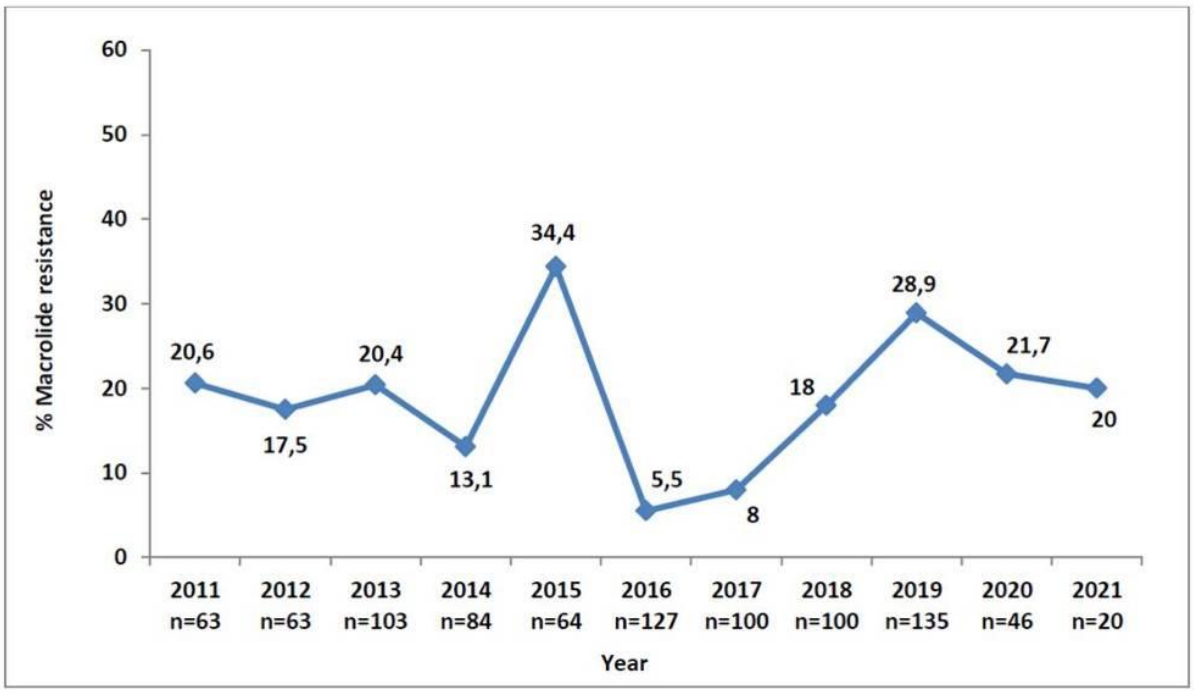
Backgrounds: Group A Streptococcus pyogenes (GAS) is the etiological agent of a wide range of infections. A greatly variable incidence in macrolide resistance has been reported world-wide for GAS. The aim of this study was το highlight macrolide resistance and determinants of GAS pediatric clinical isolates in Central Greece.
Methods: During the period 2011-2021, GAS isolates were collected from children with invasive and non-invasive infections, mostly pharyngeal, who were either examined in the outpatient clinics or admitted to the pediatric wards of the University General Hospital of Larissa.
Results: GAS was recovered from 905 children aged 0.8-15.6 years; Thirteen were recovered from patients with invasive disease cases, whereas 892 from non-invasive cases, mostly pharyngeal. We noted continuing fluctuation of macrolide-resistant isolates, while macrolide resistance was ≥20% in 6 out of the 11 study-years (Figure). No difference was observed in macrolide-resistance rates between invasive and non-invasive isolates (p=0.32). Among 164 macrolide-resistant isolates, 156 were emm-typed and belonged to 12 types, the five most common of which, in descending order, were emm28, emm77, emm12, emm9 and emm89. Each of the three most frequent emm types were revealed in 6 of the 11 study years, whereas emm9 predominated during 2019-2021. One hundred and nine of 156 genotyped resistant isolates possessed the erm(B) gene, either alone or in combination with the mef(A) gene.



Conclusions/Learning Points: Macrolide GAS resistance fluctuates considerably over time. Therefore, ongoing monitoring of sporadic clones of macrolide-resistant streptococcal isolates broadens the perspective of pediatric care physicians and may assist in the guidance of antibiotic usage.

PV0038 / #1439

SUCCESSFUL TREATMENT OF PERSISTENT MULTIDRUG-RESISTANT KLEBSIELLA PNEUMONIAE BACTEREMIA WITH CEFTAZIDIME-AVIBACTAM IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS01.B. RESISTANCE

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Title of Case: SUCCESSFUL TREATMENT OF PERSISTENT MULTIDRUG-RESISTANT KLEBSIELLA PNEUMONIAE BACTEREMIA WITH CEFTAZIDIME-AVIBACTAM IN CHILDREN
Background: Multidrug-resistant Klebsiella pneumonia (MDRKP) infection has been associated with high mortality. Ceftazidime-avibactam has been shown to be safety and efficacious in children and infants with multidrug-resistant gram-negative bacteria infections. We present two pediatric cases of persistent MDRKP successfully treated with ceftazidime-avibactam at Cipto Mangunkusumo hospital, Indonesia.
Case Presentation Summary: Case 1: A 9-month-old boy with a history of Kasai procedure for biliary atresia, presented with fever and was diagnosed with cholangitis. The infection was successfully managed with meropenem for 14 days based on a blood culture data of recent hospitalization that showed MDRKP (sensitive to carbapenem). Another infection occurred after meropenem was stopped, piperacillin-tazobactam and amikacin were given empirically. A blood culture again revealed MDRKP (pandrug resistant). Ceftazidime-avibactam was given for 10 days. Clinical improvement and bacterial clearance were seen on day 2 of the therapy without any renal or liver function disturbance. Case 2: A term baby girl, presented with gastrointestinal bleeding with a suspicion of neonatal sepsis, was treated with ampicillin-sulbactam. On day 5, she had pneumonia and the antibiotic was changed to cefoperazone-sulbactam and amikacin. On day 9, as infection worsened, meropenem and metronidazole replaced the antibiotics. Her clinical conditions continued to deteriorate that she needed mechanical ventilator and vasopressors. A blood culture revealed MDRKP (sensitive to levofloxacin and tetracycline). Clinical instability continued after levofloxacin and amikacin was given. Blood cultures on day 13 and day 17 again both revealed MDRKP. Levofloxacin was replaced by ceftazidime-avibactam for 10 days. She was discharged on day 54. Liver enzymes was slightly elevated, but normalized within 2 weeks.
Learning Points/Discussion: Ceftazidime-avibactam use in children and neonates was both safe and efficacious against MDRKP bacteremia.

PV0039 / #996

ANTIFUNGAL USE IN PEDIATRIC DEPARTMENTS IN A TERTIARY CARE LEVEL HOSPITAL DURING AND AFTER COVID PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Antifungal agents are often prescribed in pediatric patients but data on antifungal prescribing in specific pediatric settings are limited. The aim of this study was to record antifungal consumption in pediatric units of a single tertiary level hospital during and after Covid-19 pandemic.
Methods: A modified point-prevalence study (mPPS) was conducted in 2020 and 2022. All patients hospitalized in 6 pediatric departments [1 pediatric intensive care unit (PICU), 1 neonatal intensive care unit (NICU), 1 pediatric hematology/oncology department (PONC), 1 pediatric surgery and two general pediatric departments] of a general hospital, who were on systemic antifungals were recorded. Weekly data of antifungal consumption and individual patient data were collected prospectively during a 12-wk study period and compared between 2020 and 2022.
Results: The median percentage of pediatric patients receiving antifungal agents per mPPS week across all units on 2022 was 7.6% (range 5.1-9.1) in comparison to 10.7% (range 8.2-21.3) on 2020. The highest antifungal use in 2022 was found in PICU (md consumption= 37% per mPPS week), followed by PONC (md consumption 35% per mPPS week), whereas PONC had the highest consumption (md 57%), followed by PICU (md 17%) in 2020. Median consumption slightly increased from 3.4 to 5% in NICU. Micafungin was the most frequently prescribed agent followed by liposomal amphotericin B both in 2022 (39%, 29%, N=56), and 2020 (33%, 31%, N=52), accordingly. The third most common antifungal agent used on 2022 was fluconazole (13%, N=56) whereas on 2020 was voriconazole (17%, N=52).
Conclusions/Learning Points: A decrease in antifungal consumption among neonatal and pediatric departments was found during this study, with the majority of antifungal use found in PICU and PONC.

PV0040 / #896

IDENTIFYING VARIABLES BEHIND SUB-THERAPEUTIC LEVELS SERUM VANCOMYCIN TROUGH LEVELS IN PAEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Vancomycin is used for the treatment of gram positive bacteria. The concentration of vancomycin trough levels must be maintained between 10-20mg/L. In our hospital 49% of serum vancomycin levels are therapeutic whilst 34% of first levels are sub-therapeutic. Variables that affect the pharmacokinetics of vancomycin in children are age, gender, dose, frequency, renal function, weight, albumin, co-morbidities, medication and human error. The aim is to identify why 34% of first vancomycin trough levels are under 10mg/L in children in our hospital.
Methods: This project was developed as a retrospective cross sectional study between 2019 and 2021. Quantitative multi-stage sampling was used to collect the data. Variables were collected through the electronic/medical records. Analysis fell into two categories: Combined analysis with all age ranges and within infants, children and adolescents. Significance set at $p<0.05$ with 95% confidence intervals.
Results: The number of patients identified was 227 with 69 patients excluded from the dataset. 48% of patients achieved a therapeutic level, 38% of levels were sub-therapeutic and 14% were supra-therapeutic. Patients achieved a similar percentage total of therapeutic levels throughout each age group. Statistically significant variables were, gender, renal function, ward, co-morbidities (cancer or not) and medication.
Conclusions/Learning Points: Glomerular filtration rate was a significant variable in this service evaluation. Patients on a known interactive medication are more likely to attain a therapeutic vancomycin level, potentially due to the affect that two nephrotoxic drugs can have on renal function. Patients with a malignancy or solid tumour are more likely to attain a sub-therapeutic level than those patients who do not have a form of cancer. This may be due to augmented renal clearance that enhances the clearance of vancomycin resulting in lower serum trough levels.

PV0041 / #2235

THERAPEUTIC DE-ESCALATION IN PROBABILISTIC ANTIBIOTIC THERAPY IN PEDIATRIC INTENSIVE CARE

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: The rational use of antibiotics is crucial to prevent the emergence of multi-resistant bacteria that can lead to therapeutic impasse, especially in intensive care units. The de-escalation strategy is therefore naturally advocated as part of a better use of antibiotics. We aimed to evaluate the applicability and impact of this strategy in the pediatric intensive care unit
Methods: We conducted a prospective study spread over 4 months in the pediatric intensivr care unit of the CHU ibn rochd, including all patients under 15 years of age who had received probabilistic antibiotic therapy for more than 48 hours. Data analysis was performed usung SPSS software
Results: Out of 130 patients included in our study, 15,38% were de-escalated and 84,62% were not de-escalated. The yield of cultures was 39,9%. The clinical and biological deterioration rate after de-escalation was 10% vs 31,8% in the non-de-escalation group. Hospital mortality after de-escalation was 10%.
Conclusions/Learning Points: Antibiotic de-escalation appears to be a safe strategy to apply in critically ill children

PV0042 / #1715

THERAPEUTIC DRUG MONITORING OF VANCOMYCIN IN COAGULASE-NEGATIVE STAPHYLOCOCCI (CONS) BLOODSTREAM INFECTIONS IN CRITICALLY ILL PATIENT: A REAL-LIFE EXPERIENCE IN A TERTIARY CARE PEDIATRIC HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Bloodstream infections caused by CoNS are among the most frequent ICU-acquired-HAIs globally. First-line treatment for these infections is represented by vancomycin, an antibiotic with variable protein binding, eliminated via glomerular filtration, with time-dependent killing and prolonged post-antibiotic effect, whose optimal PK/PD target for efficacy and safety, although referred to severe MRSA infections, is an AUC/MIC ratio ≥400 with AUC<600. In case of MIC for vancomycin >1, the possibility of reaching this target with conventional non-toxic dosages is very poor, so alternative molecules should be considered.
Methods: A retrospective, single-center study was conducted regarding CoNS BSI events in critically-ill patients that occurred at Gaslini Hospital over five years, with the aim of evaluating the efficacy of vancomycin therapy in terms of achieving the desired PK/PD target and to determine whether there are any variables that interfere with the achievement of this target.
Results: The target of AUC/MIC≥400 with AUC<600, at 48 and 72 hours after initiation of therapy, was achieved in only 21% of neonates and 25% of pediatric patients, with an otherwise favourable outcome in terms of mortality and reinfection. In neonates population, mean albumin levels were higher in events in which, at 48 hours after initiation of therapy, AUC was ≥400 than in those in which <400 ($p<0.04$). In patients older than 30 days an inverse correlation was observed between eGFR and achieved AUC levels. Median eGFR at 72 hours was statistically higher (expression of hyperfiltration) in events with AUC<400, compared with those with AUC≥400 ($p<0.001$).
Conclusions/Learning Points: A cut-off of eGFR value in the first 72 hours of antibiotic treatment (145 ml/min/1.73m2) was identified, beyond which it is extremely unlikely to achieve an AUC≥400 for vancomycin in patients older than 30 days. A different antistaphylococcal empirical treatment is thus indicated in these patients.

PV0043 / #1350

THE BATTLE AGAINST NOSOCOMIAL PATHOGENS THROUGH THE PHARMACOKINETIC-PHARMACODYNAMICS APPROACH FOR SEPTIC PEDIATRIC BURN PATIENTS UNDERGOING VANCOMYCIN-MEROPENEM COMBINED THERAPY

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Optimizing antimicrobial prescriptions for severe infections is a challenge in critically ill children to improve clinical outcomes. The aim of this study was to evaluate drug effectiveness in septic pediatric burn patients undergoing vancomycin-meropenem combined therapy.
Methods: Pediatric septic patients with major burns (>30%) and preserved renal function receiving vancomycin (10-15 mg/kg q6h, 1-hour infusion) and meropenem (40 mg/kg q8h, 30-minutes infusion) were included. Individualized dose adjustments were made from therapeutic drug monitoring using two steady-state blood levels. Pharmacokinetic-pharmacodynamics (PK/PD) target recommended for vancomycin was $AUC^{ss}_{0\text{-}24}$/MIC>400; while the meropenem target considered was 100%fT>MIC. The main outcomes were therapeutic target attainment, clinical and microbiological cure.
Results: We included 17 patients, medians: 5 years, 18 kg. Vancomycin therapeutic target was attained in only 47% of patients against Gram-positive strains up to MIC 1 mg/L, and then individual dosing adjustments were performed to ensure antimicrobial coverage. Meropenem therapeutic target was initially attained against Gram-negative susceptible strains up to MIC 2 mg/L, and subsequently increased to MIC 4 mg/L using a 3-hour extended infusion. All patients presented clinical cure or negative cultures.
Conclusions/Learning Points: The combined vancomycin-meropenem with real-time therapeutic drug monitoring improves the effectiveness against infections in pediatric burn patients. The PK/PD approach allows individual dosing adjustments.

PV0044 / #1367

MEROPENEM EXTENDED INFUSION IN PEDIATRIC MAJOR BURNS UNDERGOING THERAPY OF SEPTIC SHOCK GUIDED BY CULTURES AND PHARMACOKINETIC-PHARMACODYNAMIC APPROACH.

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Meropenem is largely prescribed to septic patients with infections caused by Gram-negative nosocomial pathogens. Pathophysiological changes during the systemic inflammatory response syndrome may impact the pharmacokinetics of meropenem and the desired outcome. The objective of this study was to investigate meropenem effectiveness and drug disposition in pediatric major burns through real-time therapeutic drug monitoring and pharmacokinetic-pharmacodynamic (PK/PD) approach.
Methods: Pediatric burn patients with preserved renal function receiving meropenem and vasopressors were investigated after the recommended dose of 40 mg/kg every 8 hours administered by 3-hour extended infusion. Two blood samples were collected at the 3rd and 7th hours of starting the infusion and meropenem serum measurements were done by liquid chromatography. The therapeutic target considered was 100%fT>MIC. The one-compartment open model was chosen to investigate meropenem pharmacokinetics.
Results: The 42 included patients were distributed by age: 2-7 years (Group 1, n=11); 8-13 years (Group 2, n=11); 14-18 years. (Group 3, n=20). Significant changes between groups occurred in meropenem clearance, biological half-life, and volume of distribution. With the 3-hour extended infusion, therapeutic target attainment was attained against Gram-negative strains with intermediate susceptibility (MIC 4 mg/L).
Conclusions/Learning Points: The meropenem therapeutic target of 100%fT>MIC was attained for all patients despite significant pharmacokinetic changes resulting from burn injuries, septic shock, and body composition variation. The PK/PD approach based on real-time serum monitoring is an important tool to assess meropenem effectiveness and, consequently, to avoid antimicrobial resistance.

PV0045 / #1368

DO SEPTIC PEDIATRIC BURN PATIENTS UNDERGOING VANCOMYCIN THERAPY REQUIRE DOSE ADJUSTMENT BY PHARMACOKINETIC-PHARMACODYNAMICS APPROACH IN A REAL TIME FOR DRUG EFFECTIVENESS?

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Vancomycin serum monitoring is recommended for critically ill pediatric patients with infections caused by Gram-positive strains. It was investigated if dose adjustments must be done at the earlier period of septic shock based on the pharmacokinetics-pharmacodynamics (PK/PD) approach in pediatric burn patients.
Methods: Patients receiving vancomycin were investigated after the empiric daily dose and after dose adjustment. Therapy started with 40-60 mg/kg daily, one-hour infusion, and, if required, the dose was adjusted to attain the vancomycin therapeutic target: area under the curve/minimum inhibitory concentration ($AUC^{ss}_{0\text{-}24}$/MIC) > 400. Blood was sampled at the 3rd and 5th hour and the one-compartment open model was applied to investigate the pharmacokinetics. The outcomes considered were therapeutic target attainment, clinical and microbiological cure.
Results: We included 42 septic burn patients. The vancomycin therapeutic target was attained against Gram-positive pathogens up to MIC 1mg/L in only 43% of patients. With individualized dosing adjustments, the target was attained for all patients considering MIC of 1 mg/L and for 57% of patients against strains with MIC 2 mg/L. Clinical cure occurred in all patients.
Conclusions/Learning Points: Initial dose of vancomycin was subtherapeutic in most septic pediatric burn patients. Vancomycin therapy guided by cultures and serum levels for dose adjustment in real-time using the PK/PD approach permits an earlier intervention to reach the desired clinical outcome.

PV0046 / #379

LIVER ENZYMES DURING AND AFTER ANTIMALARIAL THERAPY IN NIGERIAN CHILDREN WITH UNCOMPLICATED PLASMODIUM FALCIPARUM INFECTION.

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Derangement of liver enzymes could occur during antimalarial treatment according to literature and this has been attributed to drug-induced liver toxicity.However, it remains unclear whether these changes in liver enzyme levels persist following the completion of antimalarial therapy. This study determines the effect of artemether-lumefantrine on plasma levels of four liver enzymes, namely;alanine aminotransferase [ALT],aspartate aminotransferase [AST],alkaline phosphatase [ALP] and gamma glutamyl transpeptidase [GGT] in children with uncomplicated Plasmodium falciparum infection.
Methods: We reviewed the records of all children who participated in a clinical trial of antimalarial drug in Ibadan, Nigeria and a sample of 102 children who met eligible criteria and with microscopically-proven Plasmodium falciparum infection treated with artemether-lumefantrine at recommended age-specific doses for 3 days.Study participants were followed up on days 3,7,14,21,and28 according to the WHO recommendation for treatment of malaria research participants.Inclusion criteria included symptoms attuned with acute uncomplicated malaria, including parasite density of at least 1000/µL and absence of chronic illness or danger signs of severe malaria.The results of ALT (U/L),AST (U/L),ALP (U/L)andGGT (U/L) at baseline (day 0),on day 3,and day 28 post-treatments were extracted and compared using Friedman tests.
Results: The median age of participants was 25 months(range =3 to119),and 49% were male.The mean values of ALTandAST did not change significantly over the course of the 28-day follow-up from baseline(25.8–19.1U/L p= 0.0984and50.4–52.2U/L p=0.1943 respectively). GGT decreased substantially between baseline 17.0 U/L(11.0-22.5) andday 28 15.0U/L(10.5-21.5) p=0.0010 while ALP increased over time(baseline:305.0U/L(216.0–403.5);day 28: 345.0 U/L(241.0–492.5)p=0.0303. Elevated ALT,AST,ALPandGGT were observed in 8.5%,20.0%,20.9%,and14.8% of participants,respectively.
Conclusions/Learning Points: Considerable rise in plasma levels occurred in ALP which could be indicative of liver injury occurring during antimalarial treatment among Nigerian children.Further research is needed to identify the underlying mechanism responsible for this drug-induced liver toxicity.

PV0047 / #1995

RIFAMPICIN AND NEUROPROTECTION - A SYSTEMATIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS01.C. PHARMACOLOGY

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Backgrounds: Patients with tuberculous meningitis (TBM) are at considerable risk for neurological sequelae. The aim of this study was to systematically review the evidence for neuroprotective effects of rifampicin in infectious and non-infectious diseases.
Methods: A systematic literature search was done in MEDLINE and Embase using the OVID interface with a time window of reported studies from 1 Jan 1946/47 to 8 Aug 2022, in accordance PRISMA. (PROSPERO ID: CRD42022349852). Articles were identified using the following search terms: tuberculosis, rifampicin, CNS, brain, neurodegenerative, stroke, dementia, Alzheimer, Parkinson, multiple sclerosis, demyelination, meningitis, encephalitis, neuropsychiatric, encephalopathy, and inflammation. Original articles investigating the effect of rifampicin in neurologically affected patients, either by infections of the central nervous system (CNS) or by neurodegeneration, were included.
Results: 1428 articles were identified, 62 were selected for assessment. 6 randomized, controlled trials were included in the analysis. Four of the studies showed a beneficial effect of rifampicin with reduced inflammatory parameters in the cerebrospinal fluid (CSF), less cognitive decline or brain atrophy. One study showed worsening of cognitive assessment scales in neurodegenerative patients treated with rifampicin compared to placebo.
Conclusions/Learning Points: Rifampicin might reduce neuronal inflammation in both infectious and non-infectious neurodegenerative diseases. High doses of rifampicin seem to be necessary for improved CNS effects in patients with TBM and the risk of increasing adverse effects with higher dosages seems low. Comparison between studies was, however, limited by different study designs including dose and duration of rifampicin as well as variable outcomes measured. To assess the potential neuroprotective effect of rifampicin in patients with neurodegenerative or infectious diseases, further trials using standardized evaluation of clinical, radiological and neuropsychological follow-up and a consensus definition of clinical neuroprotection are required.

PV0048 / #1424

INCREASE IN PAEDIATRIC OUTPATIENT ANTIBIOTIC PRESCRIBING FOLLOWING MARKED REDUCTIONS DURING THE PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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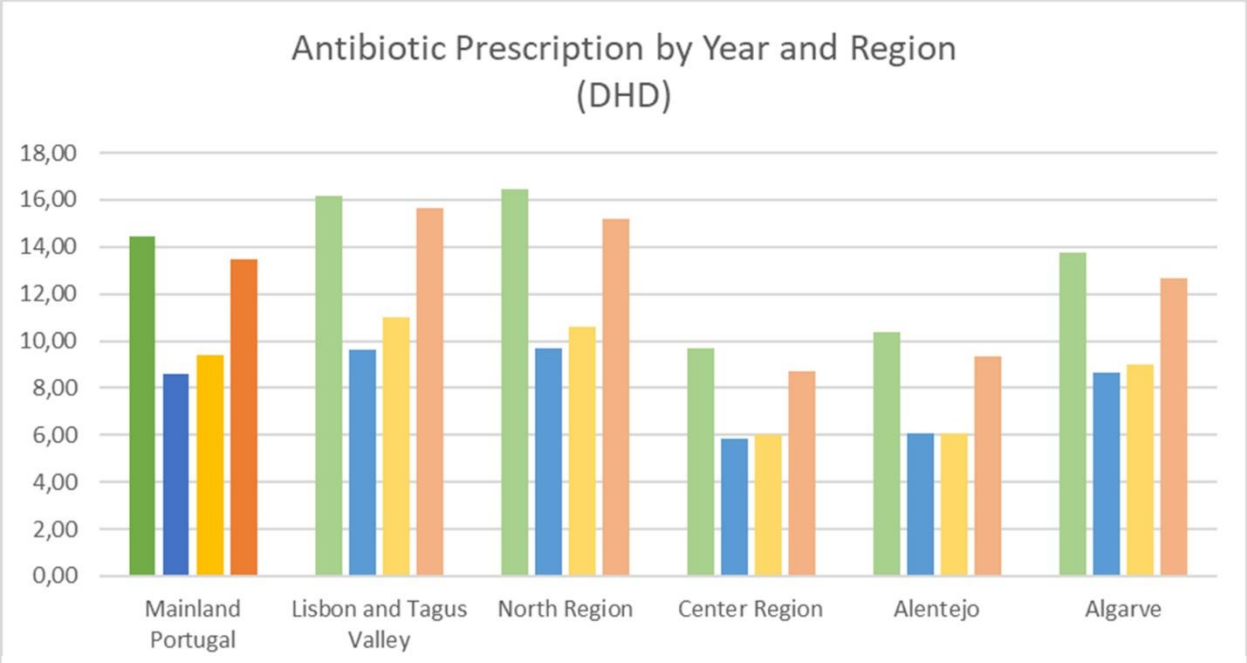
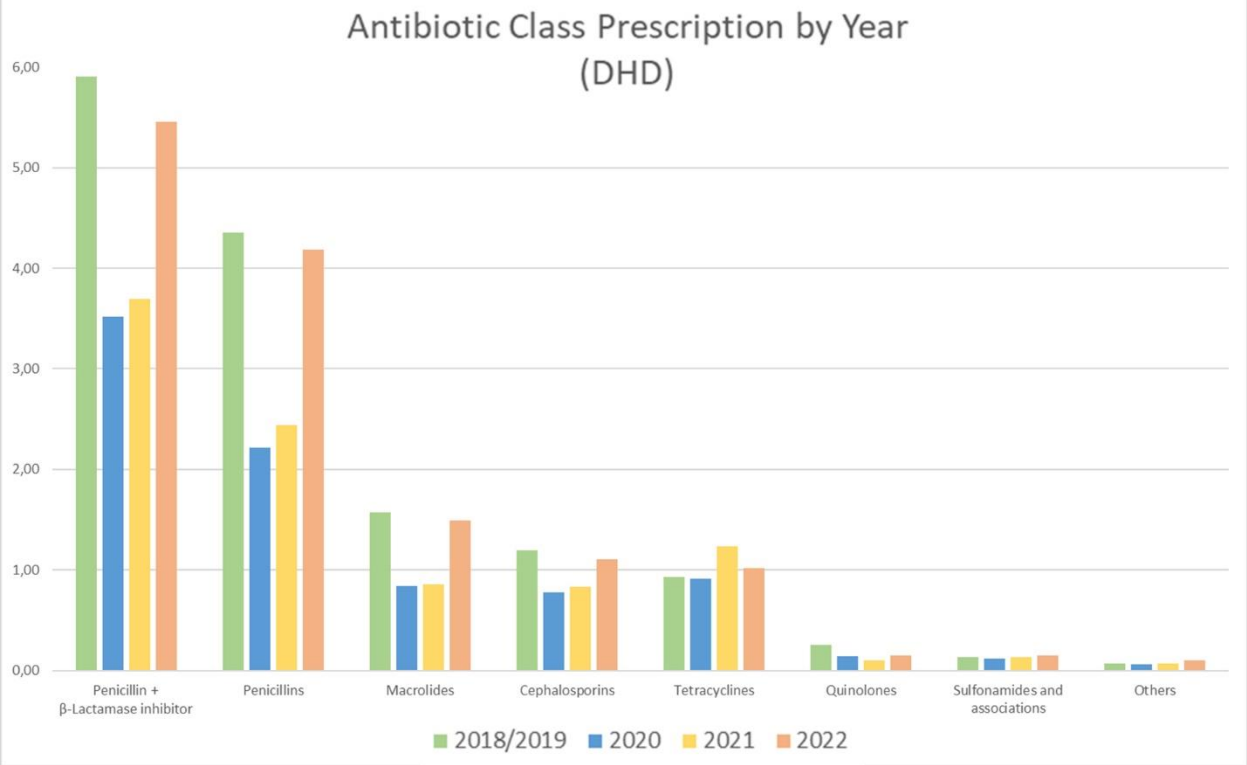
Backgrounds: The COVID-19 pandemic brought unexpected and unprecedented epidemiological changes in several common infectious diseases, with profound reductions in antibiotic use in ambulatory care in children in Portugal, a country that is in the “middle band’ for usage of antibiotics, to rates comparable to those normally seen in “low-use” countries. The aim of this study is to ascertain whether this reduction in prescription persisted when the non-pharmaceutical interventions were reduced and infections returned.
Methods: This is a retrospective, observational cohort study. Paediatric (<18 years) antibiotic prescription data, in Defined Daily Dose (DDD), was obtained from the Ministry of Health Primary Health Care Identity Card “BI-CSP” (https://bicsp.min-saude.pt), a public-access platform, that includes information about ambulatory prescribing from all primary care centers and public and private hospitals in mainland Portugal. Results are expressed in DHD, or DDD per 1000 inhabitants (<18 years) per day.
Results:





The marked reduction in antimicrobial prescribing, particularly in younger children and during the lockdown periods, especially for those antimicrobials most commonly used to treat respiratory-tract infections was quickly reversed in the first year after non-pharmaceutical interventions were lifted. There are marked asymmetries in prescribing amongst regions and high prescribing rates of Penicillin/beta lactamase inhibitors combinations (figure 1).

Conclusions/Learning Points: Our findings indicate that the profound changes in antibiotic use in ambulatory care in children in Portugal driven by the COVID-19 pandemic have very quickly reverted to prepandemic patterns.

PV0049 / #1960

THE EFFECT OF MULTIPLEX POLYMERASE CHAIN REACTION PANEL UTILIZIATION IN PEDIATRICS MENINGITIS MANAGEMENT/ANTIMICROBIAL STEWARDSHIP

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Empiric antibiotics use in children with suspected meningitis while awaiting CSF culture results may lead to inappropriate use of antimicrobial agents and exposure to their side effects unnecessarily. Multiplex Polymerase Chain Reaction (mPCR) is a diagnostic tool that can potentially aid in rapid identification of causative microorganism and providing targeted antimicrobial therapy particularly in patients who were pre-treated with antimicrobials prior to CSF culture which can reduce the sensitivity of the gram staining and culture.
Methods: A retrospective chart review of electronic medical records in the setting of inpatient encounters. It will be looking at children and adolescents (age 0 -16 years), admitted to Sheikh Khalifa Medical City (SKMC) with bacterial meningitis during the period from January 2018 to January 2022. mPRC was implemented at SKMC starting January 2020
Results: 98 patients were eligible to study criteria. 70 patients in the pre implemention of mPCR group and 28 after implementation. Most presenting symptoms were fever and lethargy that were present for 1 day. Duration of antibiotics were averaged to 2.5 days while awaiting initial CSF culture result. On the other hand, mPCR results were available on average by 2 hours from processing. Time to targeted therapy was on average 2 days. No early de-escalation of antimicrobials was seen in either group.
Conclusions/Learning Points: Despite much earlier access to negative mPCR CSF results, empiric antibiotics use continued until initial CSF culture results were present by 48 hours from processing them. On top of that, even if viral etiology detected on mPCR, antibiotics would still be continued. As a result, duration of hospital stay was increased by 2-3 days and more exposure to unnecessary antibiotics.

PV0050 / #1864

RULE OF ANTIBIOTIC PRESCRIBING FOR VIRAL RESPIRATORY INFECTIONS IN THE PEDIATRIC CLINIC AND URGENT CARE IN ALHASA REGION

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Viral acute respiratory tract infections are a frequent source of inappropriate antibiotic prescribing. We describe the prevalence of antibiotic prescribing for viral acute respiratory tract infections in the pediatric clinic and urgent care within a health system, and identify factors associated with overall and broad-spectrum antibiotic prescribing.
Methods: Retrospective chart review within a single pediatric referral health system. Visits of patients, 6 months- 15 years old, with a discharge diagnosis of a Viral acute respiratory tract infections from January 2022 to November 2022 . Data collected included specific Viral acute respiratory tract infections diagnosis, site type (Pedaitric Clinic or Urgent Care), provider type [pediatric medicine subspecialist or physicians, nurse practitioners, physician assistants and discharge antibiotics. Odds ratios and 95% confidence intervals were calculated where appropriate.
Results: There were 74,675 eligible visits, mean age 4.2 ± 4.4 years. Fifty-three percent were treated in Pediatric Clinic. Advanced practice providers, a term encompassing nurse practitioners and physician assistants, were the most common provider type (47.7%); 16.5% of patients were treated by a pediatric medicine subspecialist. Antibiotics were prescribed for 3.6% (95% CI: 3.72-3.92) of children with Viral acute respiratory tract infections; 23.4% (95% CI: 24.2-26.6) of these were broad-spectrum, most commonly first-generation cephalosporins (11%; 95% CI 10.2-11.9). Patients treated in an Pediatric Clinic or by a nurse practitioners, physician assistants and those receiving chest radiograph received antibiotics most frequently. Prescribing rates varied by specific Viral acute respiratory tract infections diagnosis.
Conclusions/Learning Points: Patients discharged from the pediatric clinic or Urgent care with Viral acute respiratory tract infections receive inappropriate antibiotics at a lower rate than reported in other community settings; however, they frequently receive broad-spectrum agents.

PV0051 / #801

CHALLENGES IN REACHING VANCOMYCIN TARGET TROUGH LEVEL IN NEONATES WITH THE CURRENT DOSING REGIMEN

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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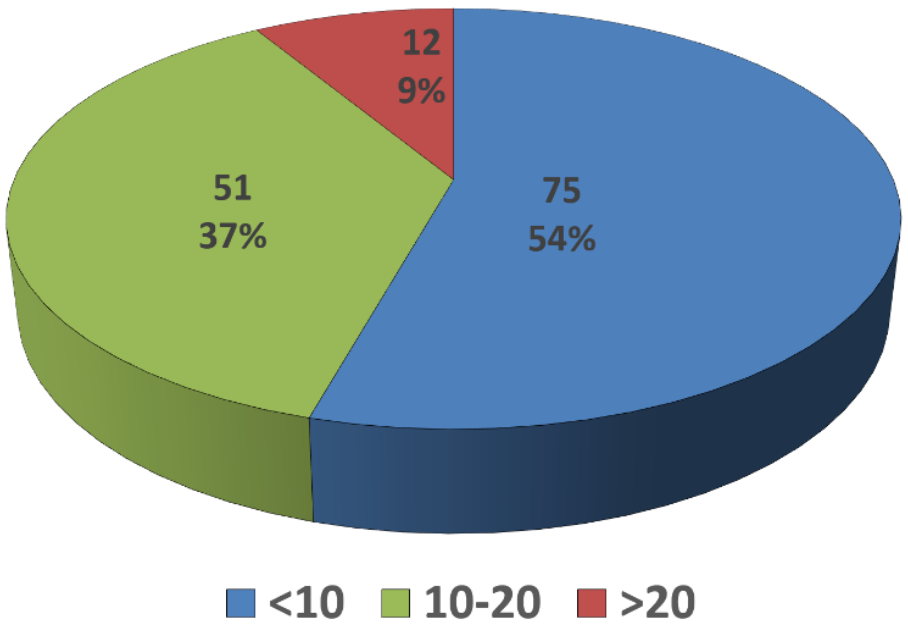
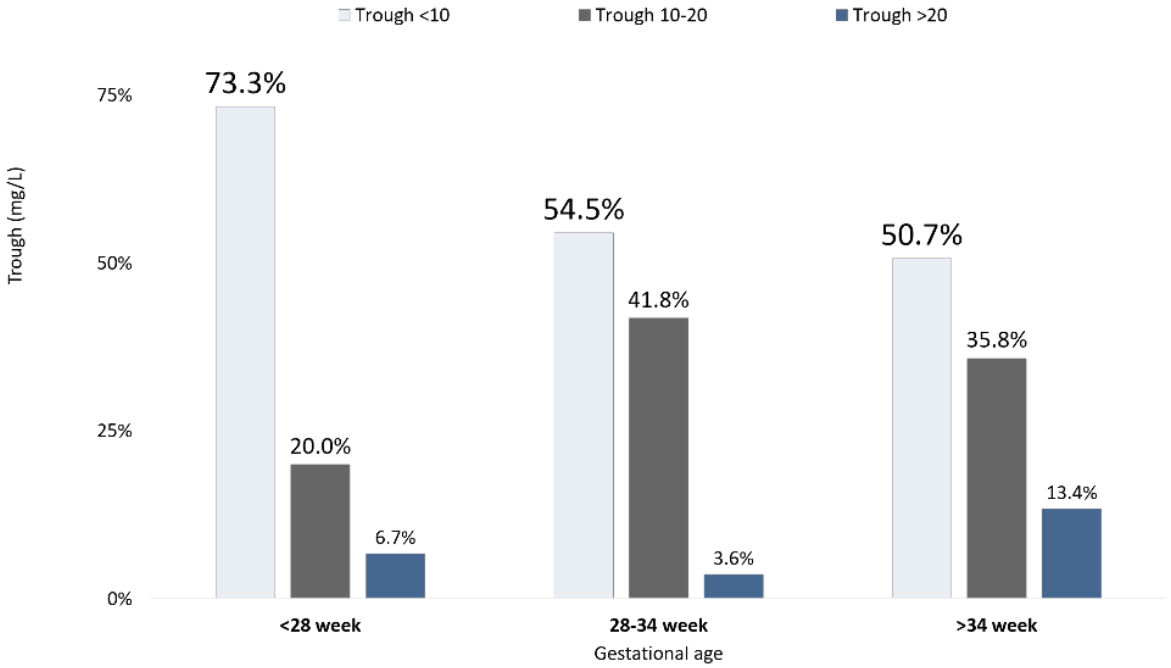
Backgrounds: Vancomycin is frequently recommended in neonates for infections caused by gram-positive bacteria resistant to ß-lactams.There are several different vancomycin dosing regimens for neonates, although attaining therapeutic trough level remains a challenge. Moreover, all of the dosing regimens are presented in a table format, with a restricted number of "dose categories" to account for population variation. The aim of this study is to evaluate the efficacy of vancomycin dosing based on NeoFax to achieve the target trough level and the proportion of neonates achieving an optimal therapeutic vancomycin level at the first vancomycin concentration assay.
Methods: A retrospective cohort study conducted in a tertiary care hospital from2019-2021.The study included138 neonates.In NICU up to44weeks of gestational age who received a minimum of three doses of vancomycin and had at least one concentration correctly drawn through. The primary outcome is the percentage of neonates that attained serum trough levels(10-20mg/L).In addition,The secondary outcomes are to evaluate the association between urine output and vancomycin trough and the incidence of nephrotoxicity of vancomycin alone or when combined with other nephrotoxic medicine.
Results: 37.0% achieved goal trough of(10–20mcg/mL), 54.3% had trough(<10mcg/mL)(p0.003), and 8.7% had trough(>20mcg/mL). In neonates<28weeks; 20% had trough(10–20mcg/mL) with q12hours dosing and wasn't associated with nephrotoxicity while NeoFax frequency was q18hours. For secondary outcomes only 2.2% of patients had post-vancomycin acute kidney injury and there was no significant association between gestational age(weeks) and urine output (ml/kg/hr).





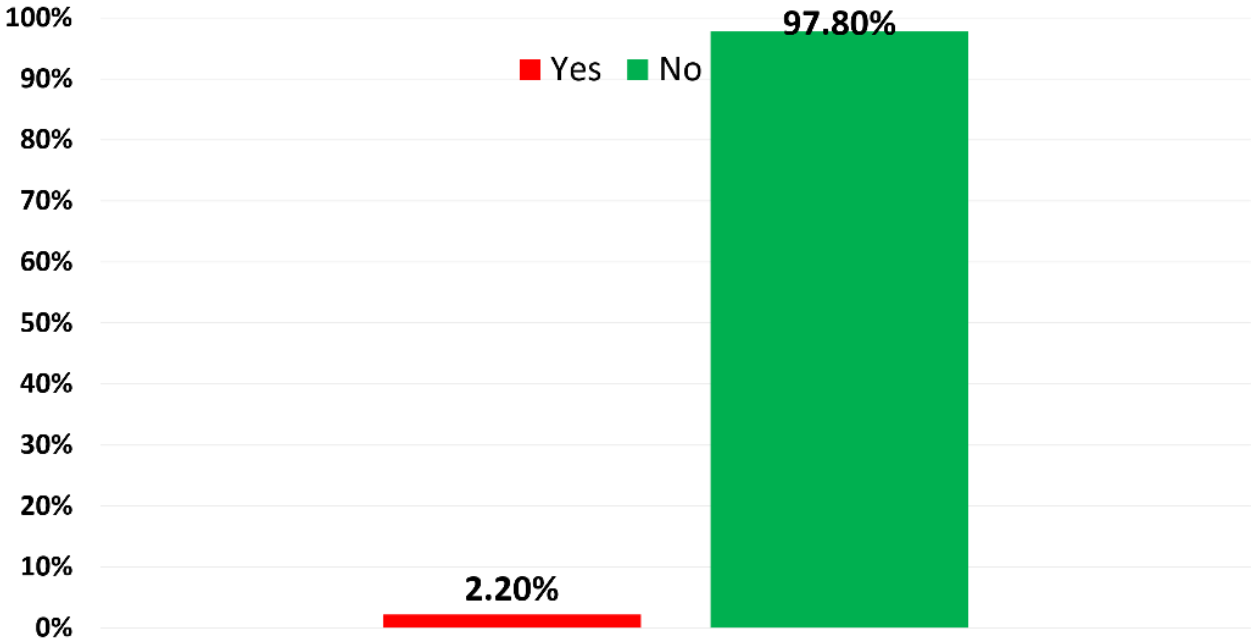
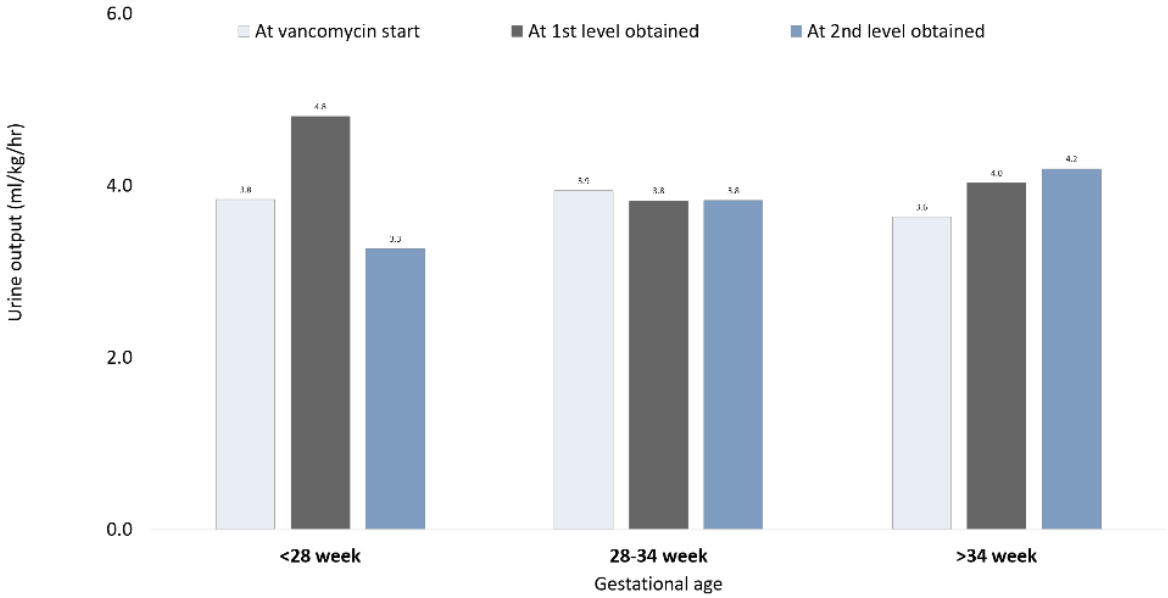


Figure 3: Vancomycin Acute Kidney injury



Conclusions/Learning Points: The current vancomycin dosing regimen based on Neofax®in NICU patients is insufficient in yielding serum trough concentrations of 10 to 20mg/L.

PV0052 / #2259

MANAGEMENT OF ANTIMICROBIALS IN PEDIATRIC HOME CARE IN RIO DE JANEIRO

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Management of antimicrobials is necessary in pediatric home care population. The aim is to identify the most used antibiotics in the treatment of tracheitis and pneumonia in pediatric home care patients.
Methods: We conducted a retrospective analysis of antimicrobials prescriptions during 2022. Need to change antibiotics within 15 days for the same infection due to lack of clinical response was considered TF. Patients hospitalized for the initial infectious reason were considered for HA.
Results: Two-hundred two patients were analyzed and the most used antibiotic in TRACHEITIS was ciprofloxacin. Treatment failure: We identified 14 FT among all 69 treatments for tracheitis (14/69=20%). Of these, 8 were using ciprofloxacin: 8/69 total = 12% FT among all treatments, and (8/28=28%) among ciprofloxacin treatments for this site. Hospital admission: despite starting treatment, 9 cases required HA (9/69 = 13%) and 5 of the patients who used ciprofloxacin for this site required HA (5/28= 18%). The most used antibiotic in PNEUMONIAS was amoxicillin/clavulanate. Treatment failure: We identified 13 FT among all 52 pneumonia treatments (13/52=25%). Of these, 9/52(17%) used amox/clav. FT among all treatments, and 9/18=50% among amox/clav treatments for this site. Hospital admission: despite starting treatment, 17 cases needed HA (17/52=33%) and 7 cases of patients who used amox/clav for this site required HA (7/18=39%).
Conclusions/Learning Points: the most commonly used antibiotics for tracheitis and pneumonia were ciprofloxacin and amoxicillin/clavulanate, respectively. We identified a high rate of TF and HA among pneumonia treatments with amoxicillin/clavulanate (39% and 50% respectively), suggesting that this should not be a first-line option for this indication in this population. Among tracheitis treatments with ciprofloxacin, the rate of HA was lower than that of TF (28% and 18% respectively).

PV0053 / #665

ANTIMICROBIAL USE AND UNDERSTANDING IN THE GAMBIA: A FRAMEWORK ANALYSIS OF PATIENT AND CAREGIVER PERSPECTIVES

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Antimicrobial resistance (AMR) is a global issue exacerbated by systemic antibiotic overuse and misuse. In Sub-Saharan Africa (SSA), quality AMR data is lacking, antibiotic regulation is poor, and infectious disease rates are high. To ensure the sustainability of an effective global response to infectious disease, coordinated action is required to limit further AMR whilst maintaining access to appropriate antibiotics. Assessing antibiotic use and understanding in areas where AMR is particularly problematic is essential. This includes exploring knowledge, attitudes, and practices underpinning antibiotic consumption. Our study addressed these themes in The Gambia, where such research is scarce.
Methods: Semi-structured interviews were conducted with clinic patients and caregivers. Topics included knowledge of antibiotics and AMR, experience of antibiotic use, and clinical scenarios where antibiotics should be sought or supplied. Contemporary fieldnotes were analysed according to Ritchie and Spencer's Framework Method, comprising familiarisation, coding, analytical framework development, and framework matrix data charting.
Results: The sample included 3 patients aged 12-20 and 7 caregivers of patients aged 4 months-12 years. Recurring concepts centred around antibiotic knowledge and use, health and disease understanding, and antibiotic supplier duties. Most participants demonstrated little antibiotic knowledge or AMR awareness. Despite some not knowing what antibiotics are, they reported having previously taken named examples for symptoms including pain and cough. When seeking antibiotics, participants described deferring to professional expertise over adopting a consumeristic approach. However, nobody had ever been advised against antibiotics.
Conclusions/Learning Points: Improved regulatory policies, supplier training and population education are required to ensure appropriate antibiotic use. These findings could inform interventions and future research evaluating their efficacy. Greater knowledge and rationalised antibiotic use have the potential to abate the current trajectory of rising AMR in SSA.

PV0054 / #2078

IMPACT OF ANTIMICROBIAL STEWARDSHIP PROGRAM IN THE USE OF ANTIBIOTIC IN THE NICU

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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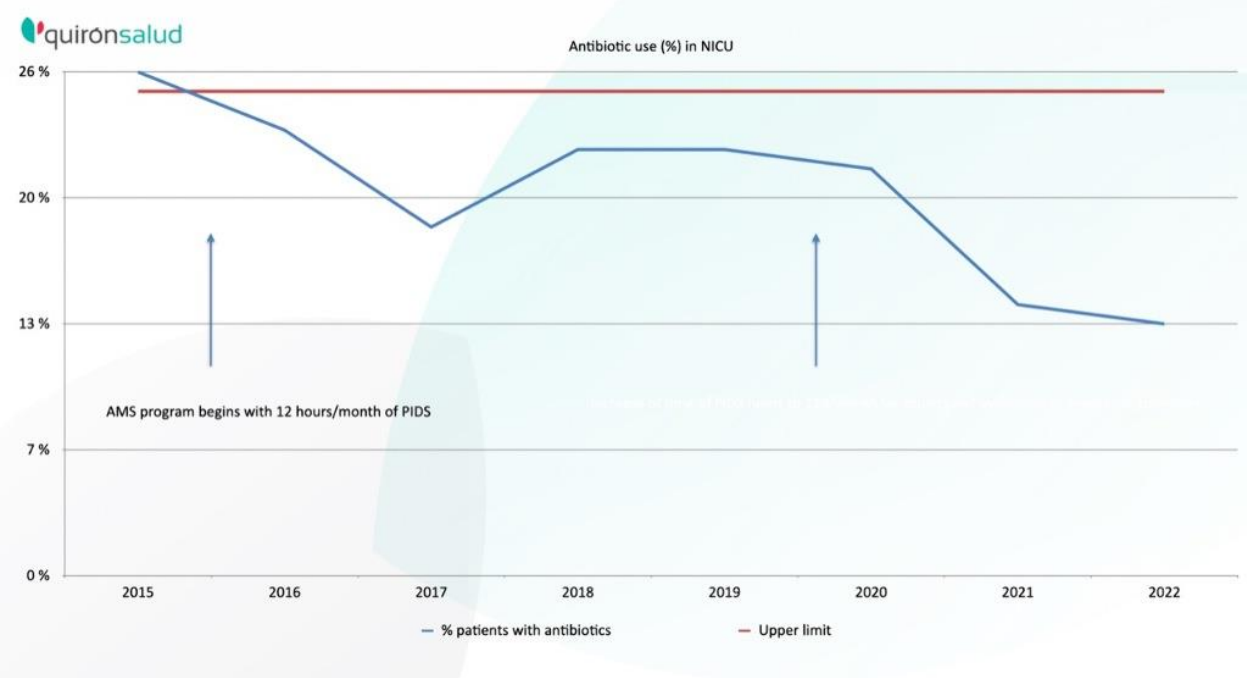
Backgrounds: Newborn are at high risk for infections, and sepsis is frequent in neonatal intensive care units (NICU) with high mortality and non-specific clinical manifestations has led to an overuse of antibiotics with prolonged duration and impact on the neonatal microbiome with sequelae in the medium and long term, and a dangerous effect on antimicrobial resistance. The objective of this study is to demonstrate the impact of of an antimicrobial stewardship program (AMS) on the reduction of the general use of antibiotics in a neonatal unit.
Methods: The trend in percentage of antibiotic use was calculated and analyzed (number of patients with antibiotics / number of patients hospitalized) for seven years (2015 to 2022) when the AMS program began. The program includes monitoring the consumption of restricted antibiotics, updating management guidelines, conducting rounds for the evaluation of the relevance of the antibiotics.
Results:



During the period analyzed, a downward trend in the use of antibiotics was observed, initially 27% in 2015 and 13% in 2022. This decrease was more noticeable after the intensification of the strategy with the hiring of pediatric infectology (2016) and the update of treatment guidelines (2019). No increase in mortality was observed. The percentage of resistant microorganisms stay very low in the last year (4,5% for ESBL in 2022 and witn no one carbapenemases).
Conclusions/Learning Points: AMS strategy has a positive impact in reducing the consumption of antibiotics in the neonatal unit.

PV0055 / #106

DRUG UTILIZATION EVALUATION OF VANCOMYCIN USE IN PEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: The judicious administration of vancomycin is necessary to prevent the further emergence of resistant organisms. The objective of this study was to evaluate the appropriateness of vancomycin prescriptions and the performance of drug utilization evaluation (DUE) on vancomycin prescriptions in an institutional setting with a low prevalence of MRSA infection.
Methods: Between April 2020 and March 2022, a historical-control study was conducted at the Department of Pediatrics, Ramathibodi Hospital in Bangkok, Thailand. All hospitalized children aged 0 to 18 years who received at least one dose of vancomycin were included. Before implementing DUE, the appropriateness of vancomycin prescriptions was retrospectively evaluated using DUE criteria. From April 2021 to March 2022, DUE was introduced on a voluntary basis. Demographic data, vancomycin usage, and clinical data were recorded. The outcome measures were the appropriateness of vancomycin prescriptions according to the indications based on the institutional guideline.
Results: A total of 423 vancomycin prescriptions were collected. There were 232 and 191 prescriptions in the non-DUE and DUE groups, respectively. The appropriateness of prescription was higher in the DUE group than in the non-DUE group (87.9% vs. 72.0%; p-value < 0.001). The DUE form was significantly associated with appropriate vancomycin prescriptions (adjusted OR 2.96: 95%CI 1.44-6.10; p-value = 0.003). In addition, ID consultation corresponded with more appropriate prescriptions (adjusted OR 3.87: 95%CI 1.95-7.67; p-value < 0.001).
Conclusions/Learning Points: DUE and ID consultation improved the appropriateness of vancomycin prescriptions in pediatric patients. Immunocompromised patients, such as cancer patients or transplant recipients, appeared to be associated with inappropriate vancomycin prescriptions.

PV0056 / #2524

COMPARISON OF DIFFERENT PPSS TIMING TO EVALUATE THE EFFECT OF ANTIMICROBIAL STEWARDSHIP PROGRAMS

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Background: To evaluate the change in antimicrobial prescriptions after the implementation of a stewrdship program, Point Prevalence Surveys (PPSs) have been used worldwide. However, the optimal frequency for PPS is still not known. The objective of this study was to assess the most feasible and sustainable timing for PPSs using AWARE classification that best defines patterns of hospital antibiotic use.
Methods: This is a secondary analysis of a dataset with daily antibiotic prescriptions in children admitted to the Pediatric Acute Care Unit of Padua University from October 2014 to August 2022. All prescriptions were collected and analyzed using the AWaRe classification. Different PPS timing were tested to evaluate which one could best reflect the prevalence of total annual prescriptions. The rate of antibiotic prescriptions in the specific time intervals was compared to the annual rate, and the difference was calculated.
Results: 4849 prescriptions were collected. The percentage of prescriptions collected with 1- or 2-times per year PPS was less than 5% of the total prescriptions, while with 1- or 2-times per month PPSs it was greater than 20%. Due to the substantial differences between rates, PPSs once and twice per year did not seem appropriate. Instead, once per month PPS seems to reflect, at best, the annual prescriptions, following the seasonal trend of antibiotic prescriptions. However, 3-,4- and 6-times per year PPSs could be acceptable, best combining the least number of surveys with adequate precision.
Conclusions/Learning Points: Collection of antibiotic prescriptions using PPSs 3-,4- or 6-times per year seems a feasible and sustainable method to monitor antibiotic consumption instead of daily data collection. This could be particularly relevant in low-resource settings, in which continuous data collection is not feasible due to high workload and lack of resources.

PV0057 / #1515

SINGLE-CENTRE EXPERIENCE: EARLY DISCONTINUATION OF ANTIBIOTICS (BEFORE ABSOLUTE NEUTROPHIL COUNT >500/MM3) IN PAEDIATRIC PATIENTS WITH CANCER AND/OR HSCT AND FEBRILE NEUTROPENIA

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Maintaining broad-spectrum antibiotics until resolution of fever and absolute neutrophil count (ANC) recovery is the standard of care for paediatric patients with cancer or haematopoietic stem cell transplantation (HSCT) and febrile neutropenia (FN). Despite this, there is growing evidence showing that stopping antibiotics before ANC recovery in low risk patients is safe. Data in the paediatric population is scarce. Objective: to describe characteristics and outcomes paediatric cancer patients with FN and discontinuation of antibiotics before ANC recovery.
Methods: Observational and retrospective study, including patients <18 years of age with cancer/HSCT admitted in a referral paediatric cancer centre for FN (June-November 2022) and in whom antibiotic treatment was discontinued before ANC >500/mm3. Patients with an identifiable source of infection, sepsis, PICU admission or antibiotic therapy prior to admission were excluded. We analysed epidemiological, clinical and laboratory data. Patients' outcome regarding readmission, new infection or death in the following 7-day period was recorded
Results: 43 episodes corresponding to 34 different patients were included. Generally, patients included and considered for early antibiotic discontinuation presented with low-grade fever and low procalcitonin levels. Table 1 shows main clinical, epidemiological and laboratory data. During the 7-day follow-up period, fever reappeared in 5 patients (11%), of whom only 2 required readmission (no PICU). No evidence of new bacterial infections and no deaths were
reported

Table 1

Qualitative variables	Frequency	Percentage
Gender (%) n= 34		
• Male	23	67.7%
• Female	11	32.3%
Diagnosis (%) n=34		
• Leukaemia or lymphoma	12	35.2%
• Solid tumours	18	52.9%
• Non-malignant haematological disease	4	11.7%
Fever duration (%) n=34		
• ≤ 24 hours	27	79.4%
• > 24 hours	7	20.5%
Antibiotic therapy (%) n=34		
• Piperacillin-tazobactam +/- amikacin	31	91.1%
• Meropenem	1	2.9%
• Teicoplanin	1	2.9%
• Vancomycin	1	2.9%
Quantitative variables	**Median (IQR)**	**Interquartile range (IQR)**
Age (years) n=34	7	2 - 12.2
Axillary temperature (ºC) n=34	38.1	37.8 - 38.6
Maximum C reactive protein (mg/L) n= 34	54	28.5 - 102.5
Maximum Procalcitonine (ng/mL) n= 32	0.11	0 - 0.29
Duration of antibiotic therapy (days) n= 34	3	3 - 4
ANC at the time of discontinuing antibiotics (mm3) n= 34	100	0 - 300

Conclusions/Learning Points: Our results suggest that antibiotic discontinuation before ANC recovery in selected paediatric patients with FN is safe and could allow early hospital discharge and reduce costs, drug toxicity and antimicrobial resistance. Our results are limited because of the retrospective and single-centre study design. Further prospective, controlled and multicentric studies are required to prove the safety of this strategy.

PV0058 / #2132

PRELIMINARY RESULTS AFTER APPLYING AN ASP IN CHILDREN WITH COMPLICATED APPENDICITIS

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: The effectiveness of antimicrobial stewardship programs (ASP) has shown a relevant impact in global health in the last decades, even though the data is still limited in the pediatric population. We performed a study to demonstrate the benefit of the implementation of an ASP in the pediatric ward.
Methods: Data from January-2021 to December-2022 was collected from a regional appendicitis database. We evaluated the use of broad-spectrum antibiotics, Days of Therapy (DOT), Length of Stay (LOS) and complications rate, before (group-A, n=43) and after (group-B n=34) the implementation of an ASP in complicated appendicitis (CA).
Results: A total of 153 children were diagnosed with appendicitis, 50.2% (n=77) were complicated. The average age in CA was 8.8 years-old (3-14 years) and 49 patients were male. Comparing age, sex, LOS and complications rate, no statistical differences were found in both groups (p>0.05). DOT in group-B was 1.8 days less compared to group A (p0.06), excluding the appendix mass, the reduction was higher, with 2.8 days. An important reduction in the use of broad-spectrum antibiotics was observed in group-B: 38% for piperacillin-tazobactam, 21.1% for amoxicillin-clavulanate and 100% for others such carbapenems, clindamycin or quinolones, with an increase of 91,8% for ceftriaxone/metronidazole. No statistically significant differences were found in LOS, with an average of 6.17 days and neither in complication rates. Yet, one moderate Clostridium difficile infection was observed in group A.
Conclusions/Learning Points: The implementation of ASP has improved the use of broad-spectrum antibiotics and DOT, without increased complications in complicated appendicitis. Although our data is limited, differences could be found in a long period of time. More studies are needed to define a best strategy in the treatment in CA in the pediatric population.

PV0059 / #1868

STAPHYLOCOCCUS AUREUS BACTEREMIA IN CHILDREN : THE NEED FOR AN ANTIBIOTIC STEWARDSHIP PROGRAM

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Staphylococcus aureus bacteremia is a frequent and severe infection with well-established management guidelines. The aim of this study was to assess the adherence to current management guidelines of Staphylococcus aureus bacteremia in pediatrics.
Methods: This was a single-center retrospective observational study from January 2020 to May 2022. We included all children (<18 years) with a blood culture positive for Staphylococcus aureus. The primary outcome was a composite criteria of blood culture monitoring (until a negative culture was obtain), antibiotic adaptation in the case of methicillin-sensitive Staphylococcus aureus, duration of antibiotic therapy, and removal of central venous catheter if present. We looked at this primary outcome in our whole population, in each department, and finally depending on the use of a pediatric infection disease consultation.
Results: Out of 114 children with a Staphylococcus aureus bacteremia, the management was in complete accordance with the guidelines for 29.8% of patients, in partial accordance for 62.3% of patients, mainly due to delayed therapeutic adaptations and short duration of antibiotic therapy, and in non-accordance for 7.9% of patients. The departments with the lowest adherence were the surgical departments (91.3% of partial or non-accordance). A significant association between the adherence to guidelines and the use of pediatric infectious disease consultation was found ($p = 0.024$).
Conclusions/Learning Points: This study showed that the management of Staphylococcus aureus bacteremia in our center is mostly not or partially in accordance with the current guidelines. We found a strong association between the use of pediatric infectious disease consultation and a better accordance to the management guidelines. This tends to justify the implementation of an antibiotic stewardship program with a systematic pediatric infectious disease consultation.

PV0060 / #1021

ANTIBIOTIC THERAPY ON THE PEDIATRIC ENVIN-HELICS DATA BASE

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Healthcare-associated infections (HAI) are a major public-health problem. The aim of this study is to compare the evolution of the antibiotics (ATB) used for HAI treated in Paediatric Intensive Care Units (PICU) from the Spanish registry Paediatric-ENVIN-HELICS.
Methods: Multicentre, prospective and observational study of HAI diagnosed in 25 Spanish PICU, during a three-month period from 2014–2021. The ENVIN diagnostic criteria adapted to paediatrics were used, based on ECDC recommendations.
Results: Total number of patients was 12958. In 2021 the rate of antibiotics use was 67%. Comparing 2021 with 2014, this rate decreased 12% ($p<0.001$). The number of ATB was 1.3/patient and 1.9/patient treated with ATB. An increase was observed in the prescription of meropenem for HAI diagnosed previous PICU admission of 1.6% and a decrease of 0.8% for HAI diagnosed in PICU ($p>0.05$). The empirical ATB treatment was inadequate in 10% of the cases (n=118). Comparing the last and the first year of the registry, in 2021 the early suspension antibiotic rate increases 8% ($p<0.001$) and the antibiotic stewardship is 12% higher ($p=0.016$). Antibiotic modifications happened in 14% of cases (n=199). Modifications due to poor clinical course decreased by 9.5% ($p=0.036$), and due to adverse effects/toxicity or the appearance of resistances remained stable since the beginning of the registry.
Conclusions/Learning Points: ATB use rate remains high (67%) in our patients, but trends downwards for the first time in 2021. Each patient receives almost 2 ATB. Carbapenems' use remains high for the treatment of HAI. Improvement of antibiotic policy has been effective through an increase in the rate of antibiotic stewardship and early suspension antibiotic rate. Modifications due to poor clinical course has decreased, while those due to adverse effects or new resistances remained stable.

PV0061 / #478

PSEUDOMONAS AERUGINOSA BACTEREMIA IN CHILDREN AND ADOLESCENTS: WHAT ARE THE RISK FACTORS ASSOCIATED WITH CARBAPENEM RESISTANCE AND MORTALITY?

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Pseudomonas aeruginosa bacteremia (PAB) is a serious infection and a therapeutic challenge due to increased resistance to carbapenems although risk factors in pediatrics are limited. Our objectives were to describe the prevalence and risk factors associated with carbapenem resistance (CR) and mortality in PAB.
Methods: Multicentric and retrospective study including patients <20 years old with PAB in four tertiary hospitals in Madrid between 2010-2020. Risk factors for CR-PAB and 30 day-mortality were analyzed with a multivariate analysis with stepwise regression.
Results: We included 151 PAB episodes (median age 29 months, IQR 3.5-87.1, 55% male) and 45 episodes (29.8%) were CR-PAB (8.0% VIM-type carbapenemase producers, 9.9% multidrug-resistant and 6.6% extensively drug-resistant, 5.3 % undetermined). CR was associated in the univariate analysis with carbapenem treatment in the previous month (OR: 8.82) and in the previous 6 months (OR: 6.11) and in the multivariate analysis with antibiotic treatment in the previous month (aOR: 11.15, 95%CI 4.40-28.19) and solid organ transplantation (aOR: 7.64, 95%CI 1.91-30.58). Thirty-day mortality was 23.5%; risk factors associated with PAB mortality are shown in Table 1. Source control was a protective factor (aOR: 0.11, 95%CI 0.03-0.34). Risk factors for mortality in CR-PAB were neutropenia (OR: 7.95 95%CI 1.19-85.98) and isolation of VIM-producing P. aeruginosa (OR: 5.23, 95%CI 1.50-18.17), being again the source control was a protective factor (OR: 0.06, 95%CI 0.01-0.38).

Table 1. Risk factors associated with mortality in *Pseudomonas aeruginosa* bacteremia (n=151). *Adjusted OR of variables included in the final multivariate logistic regression model selected through stepwise regression.

Risk factors	OR (95% CI)	Adjusted OR (95% CI) *
Carbapenem resistance	3.49 (1.46-8.28)	
Mechanical ventilation	2.99 (1.27-7.00)	
Parenteral nutrition	5.17 (1.22-6.72)	
ICU admission	2.92 (1.24 -7.06)	
Carbapenems in the previous 6 months	2.96 (1.22-7.22)	
Neutropenia	2.84 (1.11-7.05)	
Appropriate treatment delay	5.19 (1.75- 14.99)	
Renal insufficiency	3.34 (1.20-9.01)	
Inadequate empirical treatment	4.17 (1.60-10.65)	4.69 (1.65-13.32)
Sepsis at diagnosis	8.08 (2.30- 43.09)	7.17 (1.86-27.52)

Conclusions/Learning Points: PAB in children and adolescents has a high mortality. Nearly one-third are CR, being associated with the recent administration of carbapenems and solid organ transplantation. Inadequate empirical treatment, carbapenem resistance and sepsis at diagnosis were associated with mortality.

PV0062 / #2563

A DESCRIPTIVE STUDY OF VANCOMYCIN USE AT RED CROSS WAR MEMORIAL CHILDREN'S HOSPITAL, CAPE TOWN

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Background: Antimicrobial stewardship principles guide the clinical use of vancomycin, but paediatric vancomycin prescribing practices have not been evaluated in South Africa.
Methods: A retrospective audit of the use, prescribing practices, and monitoring of intravenous vancomycin and the spectrum of bacteria isolated on microbiological culture in children treated with intravenous vancomycin during a 12-month period at Red Cross War Memorial Children's Hospital (RCWMCH).
Results: 158 vancomycin prescription episodes for 143 children were included. Overall usage of intravenous vancomycin was 63 days of therapy/1000 patient days (IQR 38–72). The median starting dose was 15 mg/kg/dose (IQR 14–15) and the median daily dose was 45 mg/kg/day (IQR 43–60). Vancomycin was prescribed as empiric (127/158, 80%) and directed (31/158, 20%) treatment. The median duration of treatment for the definitive group was longer than the empiric group (p=0.001). Only 65/98 (66%) episodes where vancomycin treatment exceeded three days had vancomycin serum trough concentrations performed, and only 16/65 (25%) of these samples were obtained before the fourth dose. Prolonged antibiotic treatment of 14 days or more was not associated with gram-positive bacteria on culture (OR 1.02, 95% CI 0.17–4.2).
Conclusions/Learning Points: Dosing errors, prolonged empiric treatment and inappropriate vancomycin monitoring were problems associated with vancomycin prescriptions.

PV0063 / #2233

IMPACT ON COST AND TIME REDUCTION WITH SYSTEMATIZATION OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM (ASP) IN A CLINIC IN BOGOTÁ, COLOMBIA

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Antimicrobial stewardship programs (ASP) are a necessity to combat bacterial resistance. Limited resources make it difficult to analyze the information. The development of technological tools to systematize the ASP and optimize their management are needed
Methods: Quantitative, descriptive, retrospective study. Describes the process of developing and implementing a systematic tool for prescribing and analyzing antibiotic use. Comparing completion time, costs and frequency of errors using the manual method of prescription vs. The systematized tool. Describes indicators that can be analyzed with the 2 strategies and makes projections of costs, times and errors to date, in case of having continued with the antibiotic sheet (manual)
Results: Since its implementation, the strategy has saved clinicians 588 hours in prescribing antibiotics, and $56,000,000 COP. To the ASP group, 616 hours, and $76,407,853 COP. Added to $2,237,582 COP direct cost from the paper. Given that 14% of the sheets were filled out improperly, as of today it would not have been possible to analyze 5,401 prescriptions. Due to the automation and visualization on dashboards, the ASP will be able to carry out interventions in real-time, and analyze adherence to guidelines, doses, antibiotics, and cultures in real-time.
Conclusions/Learning Points: The systematization of the prescription and analysis of antibiotics optimized the management of the ASP. It reduced time, costs and facilitated its analysis, allowing resources to be directed to other needs. The analysis in real-time will allow targeted interventions to improve the use of antibiotics in the institution.

PV0064 / #574

ANTIBIOTICS STEWARDSHIP AND GUIDELINE ADHERENCE IN A SECONDARY LEVEL NEONATAL UNIT, ENGLAND.

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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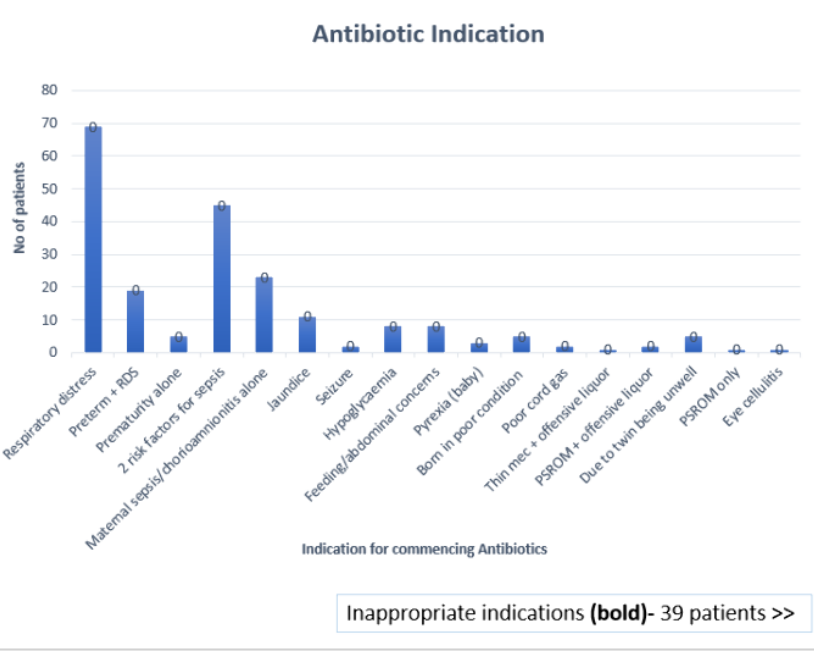
Backgrounds: Antibiotics are the most commonly prescribed medications in the neonatal unit. Higher levels of antimicrobial resistance among UK neonatal pathogens have been reported. We aimed to assess our antibiotics practice adherence to a) NICE guidelines (NG195) on antibiotics for the prevention and treatment of neonatal infection and b) The public health England toolkit for antimicrobial stewardship.
Methods: A retrospective observational study of all patients started on first-line antibiotics after birth, born from July 2021 to December 2021 in a level 2 neonatal unit in England. We examined clinical records, microbiology charts and drug charts. We reviewed the indication, time to first dose antibiotics given, time to blood culture result, duration, and justification If antibiotics were given more than 36 hours.
Results: 109 patients were included;130 (62%) from NICU and 79 (38%) from the postnatal ward. 75% were given antibiotics within 1hr of decision, delay beyond 1 hr was due to multiple cannulation attempts. Isolated maternal sepsis/chorioamnionitis was the major improper indication of starting antibiotics (Figure 1). Antibiotics were properly stopped at 36 hrs in 10% of patients and at 48hrs in 50% .88% of well babies, with negative CRP and blood culture received 2 doses of gentamicin while awaiting blood culture results. It takes an average of 42 hours to report a negative blood culture (an average of 38 if taken in-hours vs 43 if taken out-of-hours). and an average of 26hrs to report a positive Blood culture.



Indication	Number
Respiratory distress	69
Preterm+RDS	19
Prematurity alone	5
2 risk factors for sepsis	47
Maternal sepsis/chorioamnionitis alone	21
Jaundice	11
Seizure	2
Hypoglycaemia	8
Feeding/abdominal concerns	8
Pyrexia (baby)	3
Born in poor condition	5
Poor cord gas	2
Thin mec + offensive liquor	1
PSROM + offensive liquor	2
Due to twin being unwell	5
PSROM only	1
Eye cellulitis	1

Conclusions/Learning Points: The majority of antibiotics were started appropriately. The latest NICE guideline omitted isolated suspected maternal sepsis/chorioamnionitis as a red flag. We recommend refreshing juniors' knowledge of the guidelines, limiting cannulation attempts to 2 trials before escalation, and working with the microbiology lab to enhance the BC reporting time at 36 hrs.

PV0065 / #662

VANCOMYCIN PRESCRIBING PRACTICES ACROSS NEONATAL UNITS (NNUS) IN THE UNITED KINGDOM AND IRELAND

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Vancomycin is one of the most widely prescribed antibiotics on NNUs for Gram-positive sepsis. Neonatal randomised controlled trial (RCT) data are lacking, which impacts standardisation of antibiotic prescribing guidelines. Improper dosing of antibiotics can affect antimicrobial resistance development, and also clinical and safety outcomes. A comprehensive survey of vancomycin prescribing on NNUs in the United Kingdom and Ireland has not previously been conducted.
Methods: Local neonatal units (LNUs) and neonatal intensive care units (NICUs) were contacted between October 2019 and November 2022. Data were entered into a proforma then summarised. Data are presented for babies 23–44 weeks postmenstrual age (PMA) and 0–28 days postnatal age.
Results: 161 NNUs were identified and approached with a response rate of 96% (154/161; 71 NICUs and 83 LNUs). Vancomycin was prescribed by 110/154 (71%) NNUs. A large majority of NNUs (77/110; 70%) prescribed intermittent infusion regimens only; 9/110 (8.2%) prescribed continuous infusion only and 24/110 (21.8%) prescribed both. Twenty-three distinct intermittent infusion regimens and 13 distinct continuous infusion regimens were identified. PMA was the most commonly considered covariate in intermittent and continuous infusion regimens (21/23 (91%) and 10/13 (77%) respectively). Figure 1 shows the broad range of total daily doses by PMA, prescribed in intermittent infusion regimens. A 3-fold difference for PMAs 23–29 weeks was
seen.

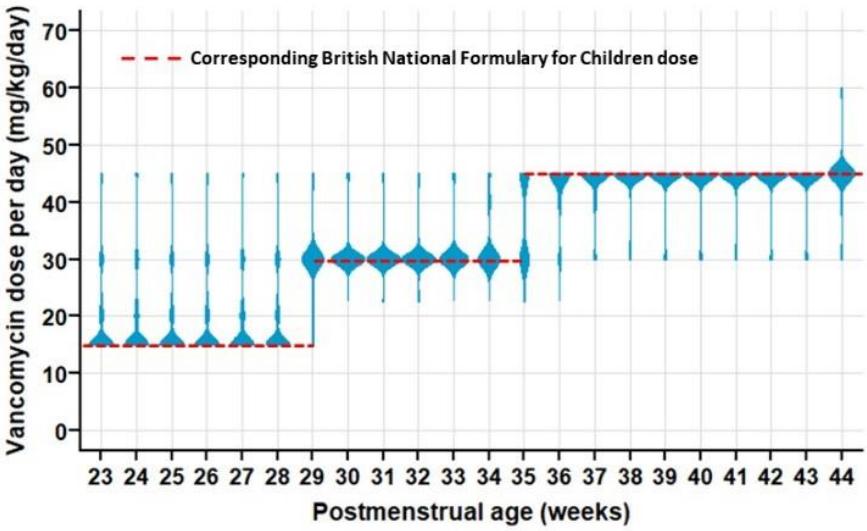

Figure 1: Range of vancomycin total daily doses seen in intermittent infusion regimens prescribed on British and Irish neonatal units

Dosing ranges are shown by postmenstrual age and for babies with postnatal ages between 0 and 28 days. Thicker lines represent a greater number of neonatal units prescribing that particular dose.

Conclusions/Learning Points: 57% of NNUs prescribing intermittent dosing regimens followed the British National Formulary for Children guidelines, however, a wide range of total daily doses were observed. This is concerning given the unknown consequences to treatment outcomes, potential toxicity and vancomycin (hetero)resistance emergence. 30% of NNUs prescribed continuous infusion regimens, despite no previous neonatal RCT comparing intermittent and continuous infusion regimens with an efficacy primary endpoint. Standardisation of vancomycin dosing practices are necessary.

PV0066 / #46

TEMPORAL PROFILE OF EMPIRICAL ANTIBIOTIC TREATMENT (EAT) USE IN CHILDREN 0-2 YEARS HOSPITALIZED FOR COVID 19 IN BUCHAREST, ROMANIA

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Ever since the beginning of the Covid 19 pandemic EAT has been frequently prescribed in patients with this condition - over time due to recommendations made by WHO the rate of use of EAT has decreased consistently ; however there are scarce published information regarding this decreasing in pediatric patients. Objective: assesment of the evolution over time of the rate of use of EAT in children 0-2 years hospitalized in our clinic with a positive PCR test for SARS-CoV-2 (Covid 19).
Methods: The study population - included children with Covid 19 discharged from our hospital in the 2nd semester of 2021 (lot A; = n: 96) and respectively the ones discharged in the 1st semester of 2022 (lot B; n= 84). In both lots was calculated the prevalences of children who received EAT. The prevalences were comparated and a $p<0.05$ was selected to denote statisticaly sigificances.
Results: The prevalence of children receiving EAT was (62.5 %) in lot A compared with (39.1 %) in lot B; the difference (24.30 %) being statisticaly significant (RR:0.62; 95% CI (0.46 – 0.84); p= 0.00087
Conclusions/Learning Points: We postulate that prospective audit and feedback, the main antibiotic stewardship intervention conducted in our hospital improved consistenly the manner of EAT prescribing, a way to mitigate the antimicrobial resistance.

PV0067 / #369

IMPACT OF A MULTI-FACETED ASP ON ANTIBIOTIC UTILIZATION AND GUIDELINE COMPLIANCE IN A TERTIARY PEDIATRICS HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Antimicrobial stewardship programs (ASPs) promote the judicious use of antimicrobials. We evaluate the impact of a multi-faceted ASP on the utilization of antibiotics in a tertiary pediatrics hospital in Singapore (KKH) after formal ASP establishment in July 2011.
Methods: ASP strategies included a prospective daily active review-and-feedback of broad-spectrum antibiotics (carbapenems, cefepime, vancomycin in year 1, and piperacillin-tazobactam in year 6) and a collaborative inter-departmental consolidation and implementation of evidence-based, hospital-wide guidelines from years 2 to 4, with yearly review and updates. This was a retrospective, pre-post single-center study on the impact of ASP (post-ASP: July 2011 to December 2021). Utilization of selected antibiotics was evaluated from January 2010 by days of therapy (DOTs) if available, and daily defined doses (DDDs) otherwise. Point-prevalence surveys in 2017 and 2021 was conducted to review the percentage of guidelines compliance.
Results: Appropriateness of carbapenem prescriptions improved from 56% to 80% post-ASP, p=0004; and piperacillin-tazobactam from 62% to 90% post-audit (years 6-11), p<0.001. Overall appropriateness of audited antibiotics ranged from 80 to 89%. Intervention acceptance improved from 57% in year 1 of ASP to 83% in year 11 post-ASP. There was a significant reduction in average carbapenem and vancomycin DOT per 1000 patient-days (13.5 to 6.2, p=0.002, and 9.5 to 3.8, p=0.04, respectively). Cefepime, piperacillin-tazobactam, ceftriaxone, augmentin, ceftazidime DDDs remained stable, though an increase in cefepime and decrease in piperacillin-tazobactam and ceftazidime utilization was observed (non-significant). Guideline compliance was 74% in year 5, compared to 84% in year 11.
Conclusions/Learning Points: A multi-faceted pediatric ASP improved the appropriateness of and reduced the utilization of certain broad-spectrum antibiotics prescribing.

PV0068 / #1181

APPLICATION OF WISCA (WEIGHTED-INCIDENCE SYNDROMIC COMBINATION ANTIBIOGRAM) TO GUIDE THE CHOICE OF EMPIRIC ANTIBIOTIC TREATMENT IN ONCOLOGICAL PAEDIATRIC PATIENTS WITH FEBRILE NEUTROPENIA: AN ITALIAN MULTICENTER STUDY

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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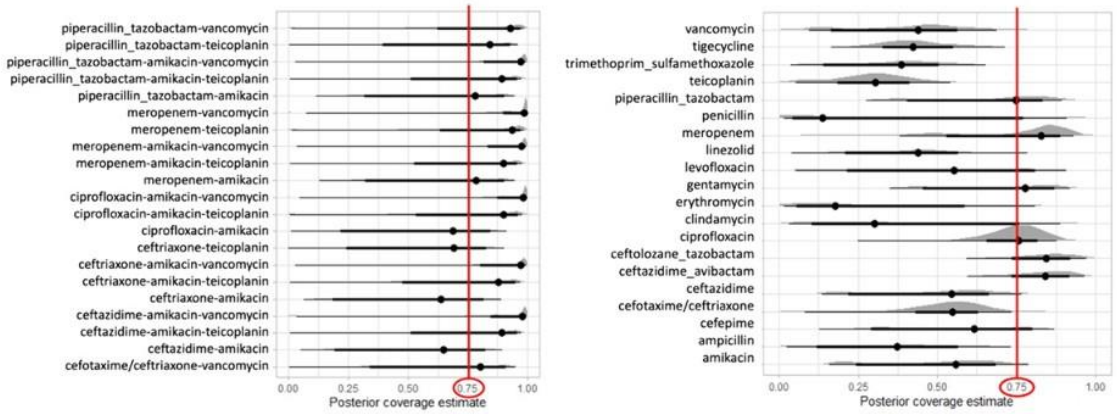
Backgrounds: Guidelines about febrile neutropenia (FN) in paediatric patients are not homogeneous; with the increasing number of multidrug-resistant organisms, the best empiric therapy should be driven by local epidemiology. The Weighted-Incidence Syndromic Combination Antibiogram (WISCA) attempts to satisfy the unmet need to obtain syndrome-specific local susceptibility data to guide empiric prescribing, providing estimates for several treatment regimens as a weighted average of pathogens susceptibilities. This study aimed to develop a WISCA model to inform empirical antibiotic regimens selection for FN in children in two Italian pediatric tertiary centers.
Methods: We included blood cultures from patients with a bloodstream infection and neutropenia admitted to the Paediatric Oncology/Haematology wards in Padua and Genoa from 2016 to 2021. Contaminants were excluded from the pool. WISCAs were developed by estimating the coverage of 20 antibiotics as monotherapy and of 21 combined regimens with a Bayesian probabilities distribution.
Results: We collected 350 blood cultures, including 196 gram-negative and 154 gram-positive bacteria. Considering most used antibiotic combinations, such as piperacillin-tazobactam (PI-TZ) plus amikacin, the median coverage was 78%. When adding a glycopeptide, the median coverage increased to 89%, while the replacement of PI-TZ with meropenem did not provide benefits (Figure). The developed WISCAs showed that no monotherapy offered an adequate coverage rate for the identified pathogens and confirmed the validity of the empiric regimens used in both centers (PI-TZ, amikacin and teicoplanin for Padua and PI-TZ plus amikacin for Genoa). The statistical significance, however, was not reached because of the limited sample
size.



Conclusions/Learning Points: The application of WISCA offers the possibility of maximizing the clinical utility of microbiological surveillance data derived from larger hospitals to inform the selection of the best empiric therapy while contributing to spare broad-spectrum antibiotics.

PV0069 / #603

IMPACT OF ANTIBIOTIC EXPOSURES ON ADVERSE INPATIENT OUTCOMES AMONG PRETERM, VERY LOW BIRTH WEIGHT (VLBW) INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Recent data suggests that excessive antibiotic usage among preterm infants have been independently associated with increased risk of adverse outcomes. As such, we aim to evaluate the association between antibiotic duration and inpatient outcomes of pre-term infants in our setting.
Methods: We conducted a cohort study involving infants born <32 weeks gestation, admitted to our tertiary-level NICU (1 January 2016-31 December 2021). Clinical characteristics, outcomes and antibiotic exposure was extracted from the department data collection and hospital electronic database.
Results: A total of 740 infants were included - median 28 weeks (IQR 26, 30) gestation, median birthweight 1057g (IQR 840, 1298), 379 (51.2%) male and 685 (92.6%) received antenatal steroids (Table1). Of these, 32 died (4.3%) and 321 (43.1%) had at least one severe morbidity. Overall, 130 (17.6%) did not receive antibiotics during admission, 274 (37.0%) received <4 days, 222 (30.0%) received 4-7 days and 244 (33.0%) received >7 days. After adjusting for gestational age, sex and antenatal steroids, compared to infants with <4 days of antibiotics, the adjusted odds ratio (AOR) of death among infants with 4-7 days of antibiotics was 1.1 (95%CI 0.15-7.4)(p=0.9) and 2.6 (95% CI 0.4-15.3)(p=0.2) for > 7 days. The AOR for deaths and/or severe morbidity were 1.5 (95%CI 0.9-2.3)(p=0.08) for infants with 4-7 days and 4.5 (95%CI 2.7-7.3)(p<0.0001) for >7 days exposure, compared to those with <4 days.

	Total Antibiotic Exposure (days)			
Infant baseline characteristics	**0-3**	**4-7**	**>7**	**Overall**
Gestational age, median (maximum, minimum) (weeks)	29 (24,31)	28 (23,31)*	26 (22,31)*	28 (22,31)
Gender (male), no. (%)	120 (44.4%)	121 (54.3%)*	138 (56.8%)*	379 (51.2%)
Birth weight, mean (SD) (g)	1183 ± 220	1086 ± 241*	887 ± 269*	1057 ± 274
Mode of delivery (Caesarean section), no. (%)	197 (71.9%)	151 (67.7%)	150 (57.7%)*	498 (67.3%)
Antenatal Steroids, no. (%)	256 (93.4%)	204 (91.5%)	225 (92.6%)*	685 (92.6%)
Death	1 (0.4%)	3 (1.3%)	28 (11.5%)*	32 (4.3%)
NEC, no. (%)	1 (0.4%)	0 (0.0%)	11 (4.5%)*	12 (1.6%)
BPD, no. (%)	49 (17.9%)	80 (35.9%)*	152 (62.6%)*	281 (38.0%)
Severe ROP, no. (%)	7 (2.6%)	6 (2.7%)	60 (24.7%)*	73 (9.9%)
Severe IVH, no. (%)	0 (0.0%)	2 (0.9%)	20 (8.2%)*	22 (3.0%)
Composite outcome, no. (%)	52 (19.0%)	83 (37.2%)*	186 (76.5%)*	321 (43.1%)

Necrotising enterocolitis (NEC) – Stage II and above using the modified Bell criteria; severe retinopathy of prematurity (ROP) – > stage 3; severe intraventricular haemorrhage – grade 3 or 4; bronchopulmonary dysplasia – defined as the receipt of oxygen or respiratory support at 36 weeks' postmenstrual age; * indicates that comparisons with infants who received 0-3 days of antibiotic exposure were statistically significant (p<0.05)

Conclusions/Learning Points: In our cohort of preterm VLBW infants <32 weeks gestation, infants with antibiotics exposure >7 days had 4.5 times the odds of death and/or severe morbidity compared to those

with <4 days, Given the high proportion of infants receiving prolonged antibiotics in the NICU, efforts to limit unnecessary antibiotic exposure are critical.

PV0070 / #1359

CLINICAL ASSESSMENT OF GROUP A STREPTOCOCCAL PHARYNGITIS IN AN EMERGENCY DEPARTMENT SETTING AT A TIME OF HEIGHTENED PUBLIC AWARENESS

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Public awareness of invasive Group A Streptococcal (iGAS) disease in children increased following media reporting of infections and deaths in the latter half of 2022 in Ireland, the UK, France and elsewhere. Rapid GAS testing has been validated for use in Emergency Department (ED) settings however is not routinely available in Irish EDs. The main objective of this study was to determine if formal culture and sensitivity (C&S) testing for GAS was performed in line with clinical decision rules (CDRs), where rapid testing remains unavailable, particularly in light of increased public awareness and parental concern.
Methods: Observational and retrospective study carried out by reviewing medical records and a register of throat swab specimens in the ED of a level 4 hospital. Data for patients <16 years old with a diagnosis of suspected bacterial tonsillitis between 6th December 2022 and 6th January 2023 were included. Data analysed included: age at presentation; presenting clinical symptoms; comorbid conditions and microbiological results.
Results: 34 patients were identified from the register of throat swabs sent for C&S. The mean age was 5.2 years. N=26 (76.5%) had no growth on throat swabs sent for culture, n=7 (20.6%) were positive for GAS and n=1 (2.9%) were positive for Streptococcus groups C and G. Logistic regression was performed; only the absence of cough was a significant predictor of GAS [OR 0.16 95% C.I. 0.02 – 0.09].
Conclusions/Learning Points: Allowing for a small sample, this group presented with heterogenous symptoms; CDRs may have had limited value. POC Rapid GAS testing may be a helpful adjunct to clinical evaluation in deciding when to treat with antibiotics. Assuaging parental concerns must be balanced with the principles guiding antimicrobial stewardship.

PV0071 / #1162

SKIN ERUPTIONS AND ANTIBIOTIC THERAPY- EFFECTIVENESS OF THE ORAL CHALLENGE TEST

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Skin eruptions can occur over the course of antibiotic therapy and concomitant viral infection. Differential diagnosis is often challenging. Thus, it is important to confirm or rule out drug hypersensitivity, allowing the safe prescription of these drugs.
Methods: The aim of this study was to evaluate the prevalence of positive oral challenge test (OCT) in children and to verify its application in detecting allergic antibiotic reactions. Retrospective analysis of the pediatric patients' clinical files in a Portuguese level II hospital. The patients were referred for suspected allergy to Amoxicillin and underwent OCT from January 2019 to December 2022. In the case of the patient had a compatible clinical manifestation, the OCT was interrupted and considered positive.
Results: A total of 75 patients were enrolled with an average age of 9.5 years (28 male (37,3%)). Of those, 74 reported cutaneous signs and symptoms. The most frequent symptoms were maculopapular rash (91%) and pruritus (55%), followed by urticarial lesions (14%), edema (7%) and gastrointestinal symptoms (5.4%). In 65% of cases Amoxicillin was the studied drug while in 35% was Amoxicillin-Clavulanic Acid (ACA). Both antibiotic therapies were prescribed for the treatment of acute otitis media (43%), acute tonsillitis (32%), urinary (12%) and respiratory (5%) tract infections and dental abscess (4%). OPP was positive in 4% (n=3): all of them manifested non-immediate rash, one presented edema and other one gastrointestinal symptoms.
Conclusions/Learning Points: This study demonstrated that the incidence of allergy to Amoxicilin or ACA is very low in children. This reinforces the importance of performing OCT, to rule out rather than to confirm drug allergy. The presence of allergy was excluded in a significant number of children, allowing the safe prescription of these first-line drugs.

PV0072 / #384

CURRENT CLINICAL PRACTICE IN SPAIN REGARDING DURATION OF ANTIBIOTIC THERAPY. NATIONAL SURVEY.

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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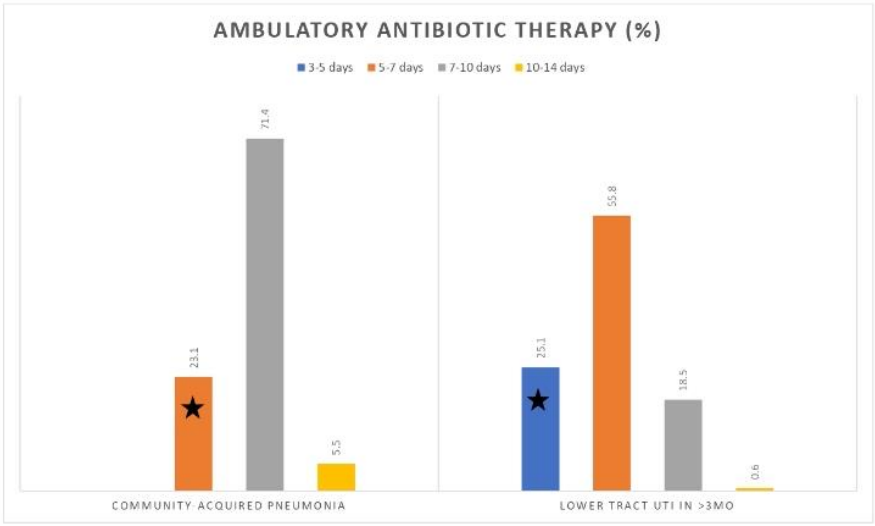
Backgrounds: Appropriate duration of antibiotic treatment is a key principle. Our aim is to document the current clinical practice among Spanish pediatricians in terms of the duration of antibiotic therapy in both inpatient and outpatient settings, mapping the difference between practice and guidelines, and thus detect opportunities to improve practice.
Methods: A national survey distributed in 2020 as a questionnaire about 7 main infectious syndromes in children: genitourinary, skin and soft tissue, osteoarticular, ear, nose and throat, pneumonia, central nervous system infections and bacteremia. Answers were contrasted with current recommendations regarding the duration of antibiotic therapy. Demographic analysis was also performed.
Results: Survey completed by 992 pediatricians in Spain (15590 total responses; 6662 by those used to prescribing intravenous antibiotics); 9.5% of pediatricians attending in the Spanish National Health System. Overall antibiotic duration was longer than recommended in 40.8% (6359/15590) and shorter in 16% (1705/10654). Among community-acquired infections: ⩽25% would opt for the recommended duration of lower urinary tract infection (UTI) (249/992) and pneumonia (229/992) respectively (figure 1). Among severe hospital-managed infections: longer courses were evidenced for non-complicated meningococcal infections (meningitis: 87.5% - 343/392; bacteremia: 91.3% - 358/392) and non-complicated pneumococcal (52.3%; 205/392), Gram-negative (86%; 337/392) and S. aureus bacteremia (55.8%; 219/392). Interventions may focus especially on more experienced clinicians for ambulatory infections and less experienced clinicians for invasive meningococcal infections and pneumococcal bacteremia. Also training of residents is needed for pyelonephritis, otomastoiditis, meningococcal meningitis and bacteremia.

Figure 1. Antibiotic duration practices for pneumonia and UTI. The black star shows the considered correct answer.



Conclusions/Learning Points: A noteworthy tendency towards prescribing longer than recommended antibiotic regimes among pediatricians was evidenced in this nationwide study, pointing out a wide range for potential improvement.

PV0073 / #1718

ANALYSIS OF ANTIBIOTIC CONSUMPTION ACCORDING TO THE AWARE CLASSIFICATION (ACCES, WATCH AND RESERVE) IN A TERTIARY PEDIATRIC HOSPITAL.

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: In 2017, the World Health Organization developed the AWaRe classification in which antibiotics are ordered in three categories: Access (free access), Watch (controlled use) and Reserve (reserved use). Our aim was to evaluate antibiotic consumption in a third level pediatric hospital according to the AWaRe classification, as a qualitative indicator of antibiotic use within a pediatric Antibiotic Stewardship Program.
Methods: Single-center retrospective study including the consumption of all parenteral antibacterial drugs in pediatric (≤18y) patients, from January 2015 to December 2019. Evaluation comprised medical, surgical and pediatric intensive care (P-ICU) and neonatal intensive care (N-ICU). Trend analysis of consumption was calculated based on days on treatment (DOT) weighted by care activity expressed in stays calculated as patient-days (PD). Antibiotics were classified according to the definitions of the AWaRe classification and described as the proportion (%) of each category.
Results: During the study period, the distribution of different antibiotics according to the AWaRe classification remained stable: Access antibiotics accounted for 43.1% of total consumption while Watch antibiotics represented 54.5%. Use of Reserve antibiotics was around 2.4% from 2015 to 2018, with a slight increase (4%) in 2019. The proportion of Access antibiotics was higher in surgical units (63.4%) and N-ICU (58.9%), and lower in medical units (36.2%) and P-ICU (30.1%). Reserve antibiotics were mainly used in medical specialties units, mostly colistin in cystic fibrosis patients with respiratory exacerbations.
Conclusions/Learning Points: Watch group use was higher than recommended, thus specific actions are needed to increase use of Access antibiotics. Nonetheless, Reserve antibiotics use was minimum and focused on cystic fibrosis. However, it's necessary to define the desirable percentages according to the hospitals' complexity, in order to correctly interpret our data and compare them with similar centers.

PV0074 / #556

IMPACT OF GUIDELINES IMPLEMENTATION ON EMPIRIC ANTIBIOTIC TREATMENT FOR PEDIATRIC UNCOMPLICATED OSTEOMYELITIS AND SEPTIC ARTHRITIS OVER A TEN-YEAR PERIOD: RESULTS OF THE ELECTRIC STUDY (OSTEOMYELITIS AND SEPTIC ARTHRITIS TREATMENT IN CHILDREN).

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Due to the growing evidence of the efficacy of intravenous cefazolin with an early switch to oral cefalexin in uncomplicated pediatric osteomyelitis (OM) and septic arthritis (SA) in children, we changed our guidelines for empiric antibiotic therapy in these conditions. This study aims at evaluating the impact of the guidelines' implementation in reducing broad-spectrum antibiotic prescriptions, duration of IV antibiotics and hospital stay, treatment failure, and recurrence.
Methods: This is a retrospective, observational, quasi-experimental study. The four years pre-intervention were compared to the nearly eleven years post-intervention (January 2012 - December 2015; January 2016 - October 2022). All patients aged 3 months to 18 years with OM/SA were evaluated for inclusion. Each population was divided into three groups: pre-intervention, post-intervention not following the guidelines, and post-intervention following the guidelines. Days of Therapy (DOT), Length of Therapy (LOT), length of hospital stay (LOS), broad-spectrum antibiotics duration (bsDOT), treatment failure, and relapse at six months were evaluated as outcomes.
Results: Of 87 included patients, 48 had OM and 39 SA. In OM patients, IV DOT, DOT/LOT ratio, and bsDOT were significantly lower in the guidelines group, with also the lowest proportion of patients discharged on IV treatment. Notably, significantly fewer cases required surgery in the post-intervention groups. Considering SA, LOS, IV DOT, DOT/LOT ratio, and bsDOT were significantly lower in the guidelines group. The treatment failure rate was comparable among all groups. There were no relapse cases. The overall adherence was over 70%.
Conclusions/Learning Points: The implementation of guidelines was effective in decreasing the use of combination, broad-spectrum antibiotics for both OM and SA. Our results show the applicability, safety, and efficacy of a narrow-spectrum IV empirical antibiotic regimen, which was non-inferior to broad-spectrum regimens.

PV0075 / #500

IMPACT OF A MULTIMODAL ANTIMICROBIAL STEWARDSHIP PROGRAM IN A PEDIATRIC CANCER CENTER, 2011-2021

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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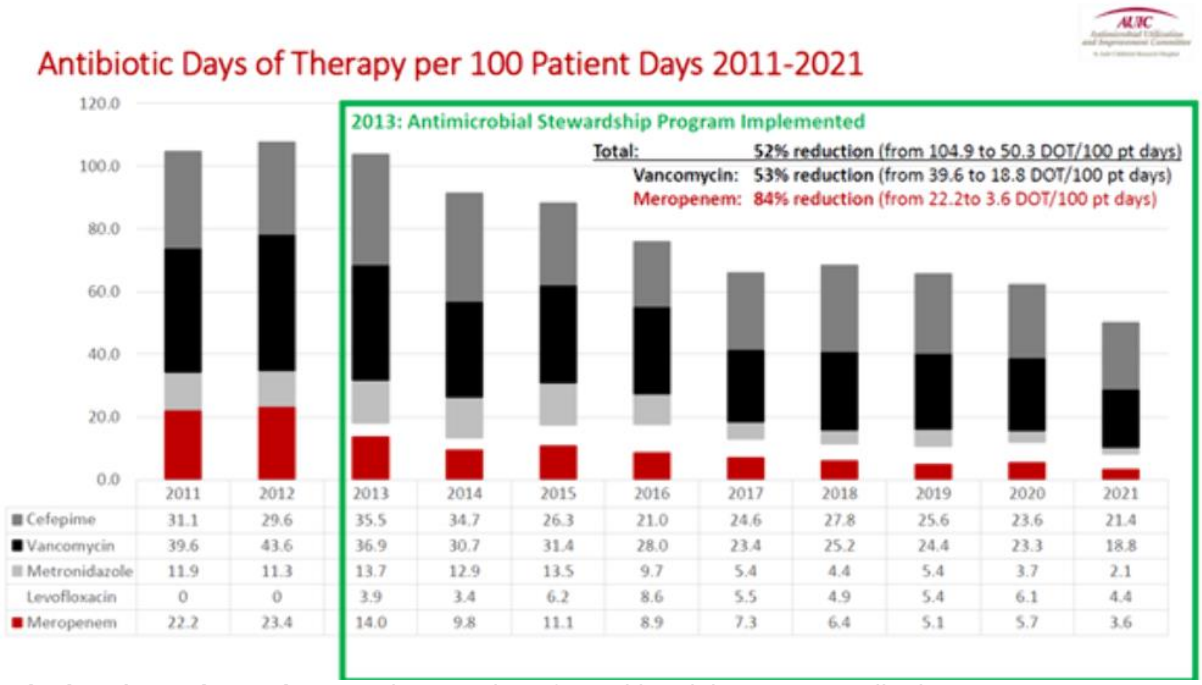
Backgrounds: Successful implementation of antimicrobial stewardship programs (ASP) in pediatric cancer hospitals is complex and challenging, and little is known of such programs' impact.
Methods: From 2011-2021 a multimodal antimicrobial stewardship program was incrementally implemented at a 76-bed pediatric cancer center. A multidisciplinary Antimicrobial Use and Improvement Committee (AUIC) led by physician and pharmacist directors of ASP was founded. After 5 years a second ASP pharmacist was hired. Processes for Prospective Audit with Feedback (PAWF) and Antimicrobial Time Outs (ATO) were developed and implemented. Institution-specific guidelines for common disease states were created, updated, and standardized through multidisciplinary consensus. Standardized measurement of antimicrobial use was validated and used for tracking outcomes.
Results: Prospective Audit With Feedback (PAWF) for meropenem and linezolid was implemented in 2013, and in 2021 there were 160 PAWF completed for meropenem with a 99% rate of recommendation acceptance. Beginning 2019, Antibiotic Time Outs (ATO) after 48 hours of therapy were performed for all (100%) inpatient antibiotic treatment courses, with an average of 2,000 courses per year. In 2021 the majority (75%) of ATO were performed by the primary medical services before 48 hours of therapy, and only 16% of courses were escalated or continued unchanged. From 2013-2021, institutional consensus guidelines were published on the hospital's intranet site for the clinical care of 28 infectious syndromes. During the 11-year study period, use of the 5 most common antibiotics decreased 52% from 104.9 days of therapy (DOT) per 100 days to 50.3 DOT/100 patient days. This reduction was led by an 84% reduction in meropenem use from 22.2 to 3.6 DOT/100 patient
days.



Conclusions/Learning Points: Implementation of a multimodal ASP at a pediatric cancer center was associated with reduction and modification of antimicrobial usage.

PV0076 / #2676

THE IMPACT OF THE IMPLEMENTATION OF A NEW CELLULITIS MANAGEMENT PROTOCOL IN A PAEDIATRIC EMERGENCY DEPARTMENT (ED)

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Background: Frequently patients with cellulitis requiring intravenous antibiotic therapy(IAT), were hospitalized. However, some cellulitis practice guidelines recommend short-course IAT as the first choice treatment. With the aim of reducing hospital-admissions, in December 2021 we implemented a new cellulitis management protocol, which establishes treatment using short-duration IAT in the emergency department short-stay area (ESA).
Methods: Observationl and retrospective study carried out by reviewing the medical records of patients<14 years-old with a diagnosis of cellulitis in the emergency-room of a tertiary hospital of a Spanish province between January-2021, to December-2022. Patients<6 months-old, immunocompromised patients, those with foreign-body cellulitis and orbital cellulitis were excluded. Data from 2022(n=186), after the application of the new protocol, were compared to data from 2021(n=147) using a statistical software (SPSS).
Results: Of 186 patients with cellulitis treated in 2022, 53(28%) required IAT. 9 were directly hospitalized and 44(83%) received IAT in the ESA: 6(13.63%) of them were hospitalized due to unfavorable evolution and the rest were discharged. In 9(4.83%) cases the new protocol was not followed. As shown in the table, in 2022 the number of hospitalizations was significantly lower than in 2021 (8%vs18.3%), moreover 56% of hospitalizations could have been avoided with the new protocol (attributable risk fraction = 0.56). Likewise, there was a reduction in the length of hospital stay, 2.13±2.5 days in 2022 vs 2.95±2.43 in 2021.

	2021	2022 After the n
Number of cellulites	147	186
Number of hospitalizations	27 (18,3%)	15 (8%)
Length of hospital stay	2,95 ± 2,43	2,13 ±2,5
Reconsults	0	1

Conclusions/Learning Points: After the implementation of the new protocol, the number of admissions and length stay have significantly decreased without complications or more visits to the ED.

PV0077 / #463

METHODS OF DETERMINING PRIOR ANTIBIOTIC USE IN PATIENTS PRESENTING TO AN OUTPATIENT DEPARTMENT IN THE GAMBIA

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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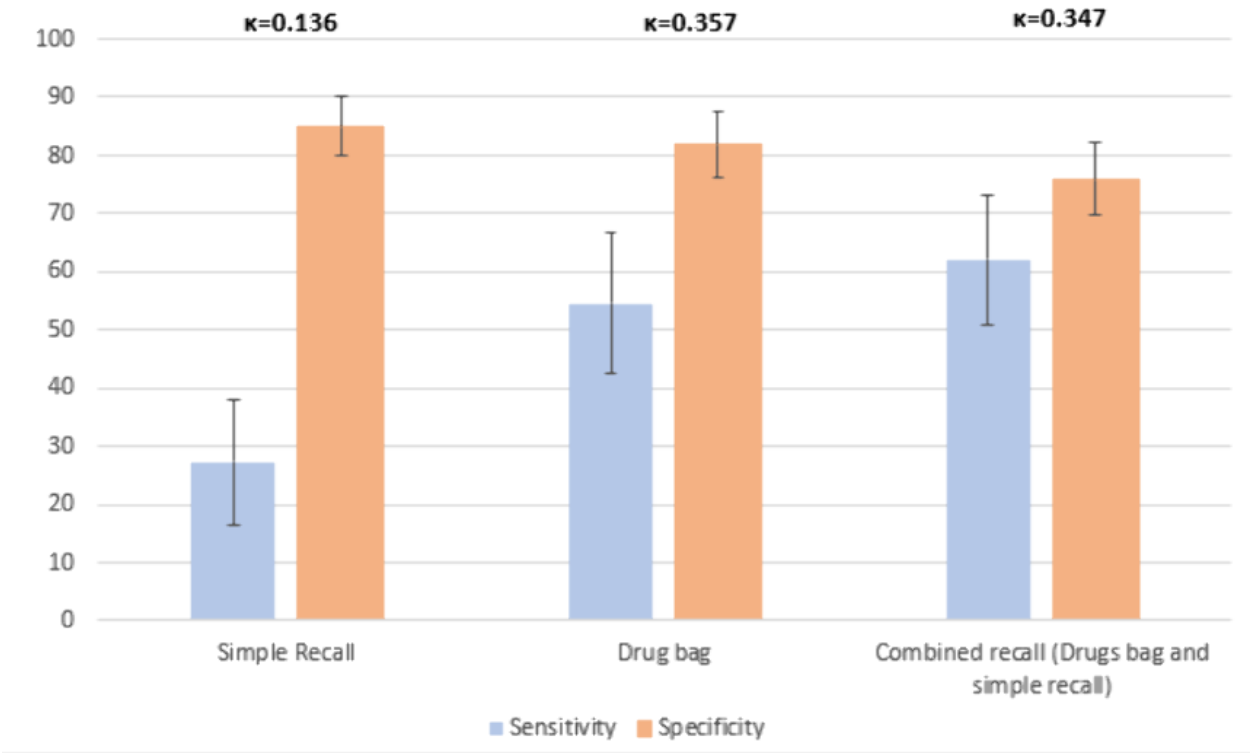
Backgrounds: Accurate data describing community antibiotic consumption are essential to inform policies which optimise antibiotic use and limit antimicrobial resistance. Data from Sub-Saharan Africa are especially sparse and prone to bias, being frequently derived from patient Simple Recall. The 'Drugs Bag Method' was designed to augment recall but has not been well-validated. Urinary antimicrobial activity (UAA) assays can be used to identify recent antibiotic consumption, but the impact of storage on their accuracy is unknown. We sought to assess the validity of Simple Recall and the Drugs Bag Method, and to investigate the effect of sample storage on UAA.
Methods: A ‘drugs bag’ was compiled containing antibiotics from dispensaries around the Medical Research Council Outpatient Clinic, Fajara, The Gambia. 600 patients were recruited from the clinic including 146 aged 3-19 years. Patients or their carers were asked about antibiotic consumption over the previous two days (Simple Recall), then if they remembered taking any medications from the drugs bag. Recall data were compared to a UAA assay. Positive urine samples were stored for seven days (at room temperature, 4°C and on dried filter paper) and re-tested.
Results: Drugs Bag aided recall had a greater sensitivity and agreement in comparison with UAA, than simple recall, as illustrated by Figure 1. UAA remained stable after sample storage on dried filter paper or at
4°C.

Figure 1 - A summary of comparisons between different recall methods.



Sensitivity and specificity are shown with error bars showing the 95% confidence intervals

Measure of agreement (Cohen's Kappa) is shown above the bars.

Conclusions/Learning Points: Simple Recall is frequently cited in studies investigating community antibiotic consumption in resource limited settings but is largely inaccurate. This study demonstrates that the 'Drugs Bag Method' can improve recall accuracy. Sample storage on dried filter paper could expand the use of UAA assays. These methods could improve accuracy of antibiotic consumption data in resource limited settings.

PV0078 / #2500

TREATMENT WITH FOSFOMYCIN FOR MULTI-DRUG RESISTANT KLEBSIELLA PNEUMONIAE IN INFANT WITH SEVERE SEPSIS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Title of Case: TREATMENT WITH FOSFOMYCIN FOR MULTI-DRUG RESISTANT KLEBSIELLA PNEUMONIAE IN INFANT WITH SEVERE SEPSIS: A CASE REPORT
Background: Management of multi-drug-resistant Klebsiella pneumoniae (MDR-KP) is still a major challenge for clinicians in NICU, with severe mortality and morbility. The optimal therapy for MDR-KP infections is still not well established and may includemeropenem, colistin, fosfomycin, tigecycline, and aminoglycosides, with suboptimal results.
Case Presentation Summary: Here is a case of severe late-onset neonatal sepsis in a preterm infant (28+2/7 weeks), male, appropriate for gestational age (AGA), born with cesarean section. Apgar score was 6 at 1' and 8 at 5'. At birth he was assisted in Continous Positive Airway Pressuse (CPAP) and transferred to Neonatal Intensive Care Unit (NICU), where he continued CPAP assistance. On day 6th elevated levels of C-Reactive Protein (CRP) were found, so empiric therapy with ampicillin and gentamicin was started. The impaired contractility shown at echocardiography led to start treatment with dobutamine. Due to worsening of respiratory distress, on day 10 the baby was intubated and needed invasive respiratory support. Emocolture showed positivity for MDR-KP. Due to persistent positivity of CRP and worsening of clinical conditions, gentamicin was replaced by cefotaxime on day 15. Blood cultures taken on days 15 and 18 were still positive for MDR-KP, so therapy with intravenous fosfomycin and meropenem in continous infusion was started. Hence, there was a progressive improvement of clinical conditions and the baby was extubated on day 22 and assisted with CPAP. CRP levels and emocolture were found negative and CPAP was suspended on day 25 .
Learning Points/Discussion: The results of this case suggest that the combination of fosfomycin and meropenem in continuous infusion effectively provided rapid therapeutic effect against MDR-K in a preterm infant with severe sepsis

PV0079 / #1339

SELECTIVE ALLERGIC REACTIONS TO CLAVULANIC ACID IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Title of Case: Selective allergic reactions to clavulanic acid in children
Background: Beta-lactam antibiotics are commonly prescribed drugs and allergic reactions to them have been frequently reported, and although most allergic reactions are due to amoxicillin, some reports indicate a selective drug allergy to clavulanic acid. The aim of the study was to characterize the population referred to the Pediatric Allergology consultation that underwent an oral challenge test due to suspected allergy to amoxicillin-clavulanic acid and whose diagnosis of exclusive allergy was later confirmed.
Case Presentation Summary: In the pediatric allergology consultation, 133 patients had oral provocation tests due to suspected allergy to amoxicillin–clavulanic acid. Most cases (69.5%) referred from the emergency department. The oral provocation test with amoxicillin–clavulanic acid was positive in 14 cases, of which 42,9% (n=6) had previously received amoxicillin–clavulanic acid without adverse events. Of the 10 patients who attended for oral provocation tests to amoxicillin, only 2 tested positive with a delayed skin rash reaction. It was found that 8 (57,1%) children had selective allergic reactions to clavulanic acid and 2 children had selective allergic reactions to beta-lactam.
Learning Points/Discussion: Our study demonstrates that, in the event of a positive oral provocation test to amoxicillin-clavulanic acid, investigation must continue with and oral provocation test to amoxicillin in order to determine if the clavulanic acid is the culprit drug. Selective allergic reactions to clavulanic acid allows the use of amoxicillin and other beta-lactams, which is important in daily clinical practice when offering alternative drugs to patients.

PV0080 / #1312

IMPACT OF A URINE CULTURE FOLLOW-UP PROGRAM ON THE REDUCTION OF INAPPROPRIATE ANTIBIOTIC USE IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Antibiotics are among the most prescribed drugs in the pediatric population and its' prescription is often inappropriate. Antimicrobial stewardship strategies are essential to reduce the emergence of antibiotic resistance. Ensuring a follow-up of results of urine cultures contributes to improve patient care as well as avoid unnecessary therapy. We aim to characterise the follow-up management of urine culture results of a paediatric emergency department (ED) and quantify the days of inappropriate antibiotic therapy avoided due to this approach.
Methods: We conducted a retrospective study in a hospital in the metropolitan area of Lisbon. Data was collected through a dataset referring to pediatric patients who visited the ED and had a urine culture performed in 2021. Urine culture results were reviewed and patients were contacted in ordered to iniciate, suspend or switch antibiotic treatment.
Results: 858 children and adolescents were included in the study. Approximately half of the patients (48.4%) who performed a urine culture in the ED were prescribed an antibiotic. 71.5% of patients who were prescribed an antibiotic and had a negative urine culture were contacted to discontinue the antibiotic. 494 days of inappropriate antibiotic treatment were avoided, corresponding to a 44.5% reduction in the number of antibiotic treatment days for these patients.
Conclusions/Learning Points: Our follow-up management led to a reduction of unnecessary antibiotic therapy days, thus leading to better patient care and potentially contributing towards a decreased spread of antibiotic resistance. Similar follow-up methods could be implemented in other hospitals with minimal added resources and with clear benefits for patients. Further efforts in implementing antimicrobial stewardship strategies in pediatric settings are needed.

PV0081 / #149

RETROSPECTIVE COHORT ANALYSIS OF OUTPATIENT ANTIBIOTIC USE FOR CLOSTRIDIOIDES DIFFICILE-INDICATED AGENTS IN BRITISH COLUMBIA, FROM 2000 TO 2018

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Clostridioides difficile (CDI) is the most common cause of nosocomial diarrheal infections. Historically, first-line treatment was metronidazole, but recent guidelines indicate oral vancomycin and fidaxomicin as primary for initial episodes. A provincial stewardship program has operated since 2005. Since program inception, surveillance of antibiotic use has been ongoing. However, this is the first study to review community-acquired CDI-indicated antibiotic use. Moreover, this study offers the first interpretation of fidaxomicin use since its addition to provincial formulary.
Methods: A retrospective cohort analysis included all outpatient dispensations for CDI-related antibiotics from January 1, 2000 to December 31, 2018. Antibiotic dispensations were extracted for: metronidazole (J01XD01), vancomycin (J01XA01), and fidaxomicin (A07AA12). Consumption rates were calculated as prescriptions per 1000 population. Rates were examined overall and then stratified by medication, age, and sex. Secondary outcomes of interest included adherence to provincial special authority criteria; and proportions of antibiotic use attributable to administrative health records for CDI.
Results: The average annual rate of prescribing was 18.5 per 1000 population for all CDI-indicated antibiotics. The rate of prescribing increased (15%) over the 19-year study period, from 17.2 to 19.8 dispensations per 1000 population. Metronidazole accounted for the most antibiotics dispensed year-on-year, however by 2018 it demonstrated only modest increase in use (15%). In comparison, fidaxomicin increased by 226% by 2018. Vancomycin had the highest percentage increase (621%), with greatest change occurring from 2014-2015, correlating to the dissemination of new clinical practice guidelines.

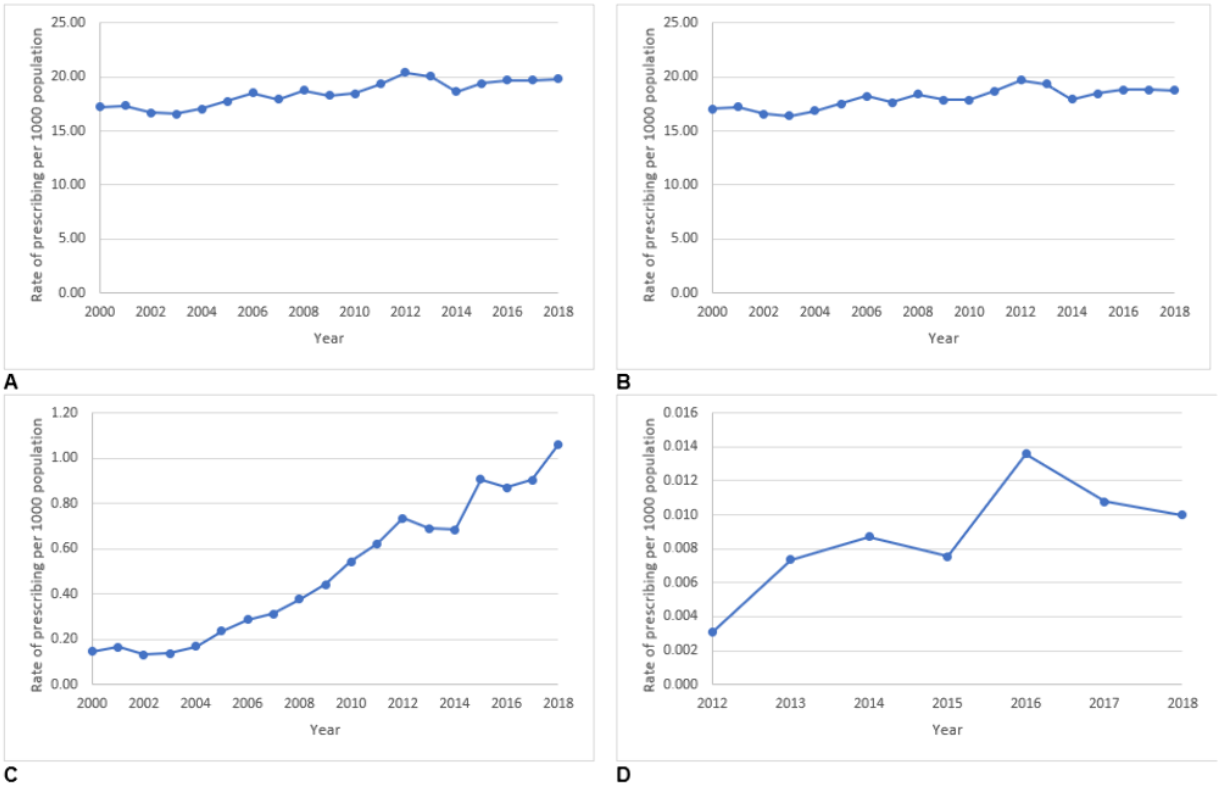

Figure 1. Overall rate of total oral CDI-indicated antibiotic prescribing and by individual antibiotic in British Columbia, 2000-18. (A) shows the rate of total antibiotic prescribing, combining all three antibiotics of interest. (B), (C), and (D) show the rate of prescribing for metronidazole, vancomycin, and fidaxomicin, respectively, throughout the study period.

Conclusions/Learning Points: This is the first study to evaluate outpatient prescribing for CDI-indicated antibiotics, and one of few studies to examine fidaxomicin since its introduction to Canadian formularies. Although causation cannot be inferred from study results, oral vancomycin and fidaxomicin use have increased with, or in advance-of, guidelines.

PV0082 / #389

OROFACIAL CLEFTS: IMPACT OF THE IMPLEMENTATION OF THE ANTIMICROBIAL PROGRAM IN OROFACIAL CLEFTS - CAN WE DO BETTER?

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Orofacial clefts (OC) constitute the most frequent facial malformation concerning 1/700 neonates in Europe. Treatment is multidisciplinary between maxillofacial surgeons and Pediatric Antimicrobial Stewardship Program (ASP), with a key role in the surgical prophylaxis and antibiotic treatment decision. We describe our ASP experience in OC surgery.
Methods: Retrospective cross-sectional study of patients ≤ 14 years old with OC intervened from 01/2020 to 06/2022 in Puerta del Mar University Hospital (Cadiz, Spain). ASP recommendations included: 1) Discontinuation of surgical prophylaxis within 24 hours after the procedure; 2) Antimicrobials of choice were cefazolin (25 mg/Kg/dose every 8 hours) plus metronidazole (30 mg/Kg/dose every 8 hours) OR amoxicillin-clavulanic (25 mg/Kg/dose every 6 hours); 3) Do not administer antimicrobial treatment. Surgical wound infections were also analyzed as complications.
Results: 41 children were operated: 58.5% (n=24) males and 41.5% (n=17) females. Of those, 48.8% (n=20) had cleft lip and palate, 39% (n=16) had isolated cleft palate, and 12.2% (n=5) had isolated cleft lip. A total of 24.3% (n=9) presented a genetic syndrome, being Pierre Robin sequence the most frequent. Antibiotic prophylaxis was used in 83% (n=34) of the patients, most commonly with amoxicillin-clavulanic (97%; n=33/34). Of those, 59% (n=20/34) received the right dose. The duration of antimicrobial prophylaxis was 1.9 days (1-7). In addition, 46% (n=19) children were treated at discharge, with amoxicillin-clavulanic (89%; n=17/19), during 5.9 days (3-7) and 79% (n=15/19) with correct dose. Interestingly, 68% (n=28) followed ASP recommendations. Surgical wound infections were reported in 4.9% (n=2): none of which followed ASP interventions.
Conclusions/Learning Points: Most of patients received prophylaxis with appropriate antimicrobial. High percentage of incorrect doses and long-lasting antimicrobial treatments were implemented. It is still important to conduct educational sessions and improve audits between specialist.

PV0083 / #912

PORT - A - CATH - RELATED INFECTIONS IN CHILDREN. HOW CAN WE IMPROVE THE MANAGEMENT OF THIS COMPLICATION?

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Placement of long-term central venous catheters (CVC) in children is increasing in recent years, and consequently the prevalence of related blood stream infections (BSI) . The use of CVC is indicated especially in case of difficult venous access, administration of medication (as chemotherapy) and parenteral nutrition. The serious consequences of CVC-BSI explain the need to implement local protocols and administer the most adequate antibiotic therapy. We analyse Port-A-Cath (PAC) related infections in our centre.
Methods: Retrospective observational study of patients ≤ 14 years old with PAC hospitalised between October 2017 to October 2022 in Puerta del Mar University Hospital (Cadiz, Spain). Information retrieved included demographic data, reason for placement and removal, duration of use, infectious event, microbiological data, and antimicrobial treatment. Differential time of positivity and differential quantitative blood cultures were the methods used to diagnose BSI.
Results: Of the 42 children with PAC included most of them had leukaemia 59% (25/42). In 95.2% (40/42) PAC was placed for treatment requirement. In 61.5 (16/26) patients, PAC was removed due to the end of therapy. 18/42 (43%) presented suspected PAC - BSI related infection. Peripheral blood cultures were not taken in 22 % (4/18) patients. The most frequent species detected were S. epidermidis 39% (7/18) and Gram - negative microorganisms 22% (4/18). There was great variability in the empirical antibiotic therapy used and 39% (7/18) of patients received targeted antibiotic. PAC sealing was performed in 50% (9/18) of children and vancomycin was used in 67% (6/9).
Conclusions/Learning Points: It is necessary to rule out PAC-BSI especially in hematologic patients with fever. It is still important to set local guidelines of management of CVC-BSI with appropriate microbiological diagnosis and therapy according to antimicrobial stewardship programs.

PV0084 / #1837

PREDICTORS OF ANTIBIOTIC ADMINISTRATION IN CHILDREN WITH RESPIRATORY INFECTION DIAGNOSED WITH SYNDROMIC PANELS

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Respiratory infections are the major cause of antibiotic overuse or abuse. The use of syndromic panels can reduce unnecessary antibiotic use and it may contribute to antimicrobial stewardship efforts. The aim of this study was to define predictors of antibiotic administration in children with respiratory infections.
Methods: Microbiological, clinical and laboratory data of children with respiratory infections were recorded retrospectively and were correlated with antibiotic use. In all children included in the study, a syndromic panel was applied (BIOFIRE® FILMARRAY® Respiratory panel, bioMerieux, USA).
Results: FilmArray was performed in 45 children with respiratory infection yielding positive results in 33/45. Viral pathogens were detected in all 33 cases. Antibiotic administration was documented in 15/45 cases (33.3%). No difference in antibiotic use was observed comparing treatment approaches before and during COVID-19 pandemic (41.2% versus 28.6%, p=0.384). Antibiotic use was not significantly correlated with negative results in FilmArray (26.7% in positive versus 46.7% in negative, p=0.180) or detection of coinfection (25% versus 26,9%, p=0.935). Absence of rhinitis (p=0.049) or sore throat (p=0.05) was associated with more frequent antibiotic administration, whereas symptoms indicative of acute bronchiolitis (18.8% versus 4.,8% in non-bronchiolitis group, p=0.05) were found to be correlated with less frequent antibiotic use. Higher CRP levels (p=0.013) and especially a cut-off of 40mg/dl (p=0.013) increased the risk for antibiotic prescriptions.
Conclusions/Learning Points: This study revealed that absence of symptoms indicative of viral infection, as well as higher CRP levels, are strongly associated with more frequent antibiotic administration. Study findings highlighted the impact of both clinical and laboratory parameters on treatment approach. Clinical diagnosis of acute bronchiolitis leads to decreased use of antibiotics in children treated for respiratory infections in accordance to guidelines.

PV0085 / #1289

A NATIONAL REVIEW OF UK PAEDIATRIC ANTIMICROBIAL GUIDELINES

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Clinical antimicrobial guidelines are a core component of antimicrobial stewardship (AMS) and the battle against antimicrobial resistance. This study therefore aimed to evaluate local paediatric antimicrobial guidelines across the UK.
Methods: All NHS trusts that care for paediatric inpatients across the United Kingdom were contacted and their inpatient paediatric antimicrobial guideline was requested. Four paediatric trainees reviewed and extracted data from collected guidelines December 2021- June 2022.
Results: A total of 121/154 (79%) of NHS trusts responded with a copy of their antimicrobial guideline, five trusts had no guideline. 116 guidelines were evaluated from England (98), Scotland (11), Wales (4) and Northern Ireland (3). Fifteen responses (13%) were from tertiary children hospitals with PID services. The majority of trusts (89%) followed local guidelines . Almost half of guidelines (49%) were delivered using smart phone applications. There was wide variation in the number of conditions covered in guidelines (range 8-57) and for each condition evaluated 10-77% of trusts did not provide a recommended duration for antibiotics. 29% (34/116) of guidelines did not include antimicrobial stewardship advice, however 100% (15/15) of trusts with local PID services provided AMS guidance. PID trusts covered a higher mean number of conditions (41 vs 34). Surgical and genitourinary conditions such as appendicitis (49%) and epididymitis (9%) were often absent from guidelines. Only 49% of guidelines provided an antibiotic recommendation for patients with penicillin allergy and sepsis. Antibiotics on the WHO 'Reserve' list were recommended in over a third of guidelines
Conclusions/Learning Points: UK local paediatric antimicrobial guidelines were variable in nature, often neglecting to include antimicrobial duration and stewardship. Future steps will involve disseminating individualised guideline feedback to local trusts, with the aim to improve antimicrobial stewardship across the UK.

PV0086 / #1175

ANTIMICROBIAL USE IN PATIENTS WITH CANCER AND HSCT IN A REFERRAL PEDIATRIC CENTER AFTER THE IMPLEMENTATION OF A NON-RESTRICTIVE ANTIMICROBIAL STEWARDSHIP PROGRAM

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Backgrounds: Antimicrobial stewardship programs (ASP) are important tools to improve antimicrobial use in the context of global growing resistance rates, especially in immunosuppressed patients. Objective: to describe antimicrobial use in admitted cancer/HSCT paediatric patients after the implementation of a post prescription review and feedback (PPRF)-based ASP, including the incorporation of a specifically dedicated infectious diseases (ID) paediatrician.
Methods: Observational retrospective study describing antimicrobial use in cancer/HSCT admitted patients in a referral paediatric centre in Barcelona (Spain), after the progressive implementation of an ASP (January 2019-December 2021). Prescriptions were evaluated regarding indication, spectrum, dosage, duration, and route of administration, and classified as optimal or non-optimal. Quantitative data, expressed in days-of-therapy/100 days present (DOT/100DP), was also recorded.
Results: 154 cross-sectional quality surveys were conducted (1410 prescriptions). The indication was therapeutic in 62.1% and prophylactic in 34.5%. The main indication for prescription was febrile neutropenia (37.9%). The overall percentage of optimal prescriptions was 82.7% (82% in 2019, 84% in 2020 and 82% in 2021). The main reasons for non-optimal prescription were excessive antibiotic spectrum (44%) and lack of indication (42%) (Figure 1a).There was an initial decrease and posterior stability in the use of antibacterials, specially in meropenem prescriptions (Figure 1b).

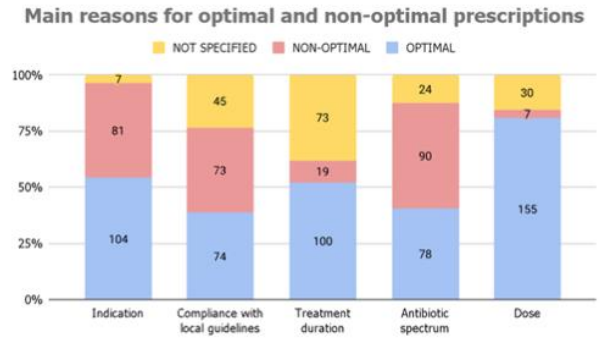

Figure 1a. Main reasons for optimal and non-optimal prescriptions during the studied period.

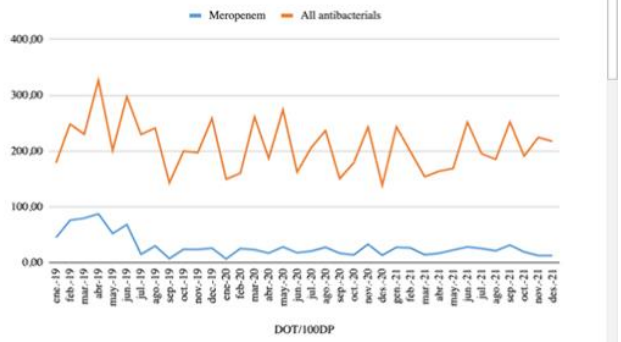

Figure 1b. Evolution of meropenem and antibacterial prescriptions, expressed in days-of-therapy/100 days present (DOT/100DP).

Conclusions/Learning Points: The implementation of an ASP contributed to achieve a relatively high quality of antimicrobial use and a trend to decrease in antibacterial prescription in cancer and HSCT paediatric patients. Longer follow-up could show further improvement. ASP evaluations identify areas of needed improvement, such as compliance to local guidelines and choosing an adequate antimicrobial spectrum. Allowing an improvement in clinical practice and a safer use of antimicrobials.

PV0087 / #2576

HEAD MYCETOMA: A DIAGNOSTIC AND THERAPEUTIC CHALLENGE

E-Posters Viewing
E-POSTER VIEWING: AS01.D. ANTIBIOTIC STEWARDSHIP

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Background: Mycetoma is a chronic suppurative granulomatous, localized, and destructive infection involving skin, subcutaneous tissue, fascia, muscle and sometimes invade the underlying bone. The infection is prevalent in tropical countries, generally follows traumatic inoculation.
Methods: Case report
Results: A 15-year-old, HIV negative male from S. Tomé e Principe presented with an ulcerated scalp lesion following face and head trauma three years earlier. There was progressively worsening with multiple painful inflammatory ulcerated scalp lesions, some with tender fluctuant swelling and superficial purulent discharge. Underlying bone with sclerotic lesions. Additionally, he had an ulcerated lesion on the left superior eyelid with episcleritis. MRI showed extensive sub-cutaneous, bone, orbit and pachymeningeal involvement. Biopsy of the lesions revealed granulation tissue with edema and hemorrhage areas, occasional giant multinucleated cells, and abscessed pseudocysts with white/greyish granules. Staining of granules revealed filamentous structures in their interior, Gram, PAS and Ziehl-Neelsen negative, and Grocott positive (negative on the first biopsy). These aspects were possible compatible with soft tissue mycetoma, particularly eumycetoma. Culture, pan fungic PCR, 16SRNA PCR and bacterial DNA sequencing were repetitively negative. Due to clinical severity, doubts in histopathology (initially suggestion of actinomycetes) and improvement with treatment regimen we maintained fungal and bacterial coverage during 18th months, with progressive clinical improvement after 2 months, complete resolution of cutaneous lesion after 6-12 months and MRI improvement after 18 months.
Conclusions/Learning Points: Mycetoma though rare can present in child with significant morbidity requiring early intervention to prevent further deeper extension and subsequent complications. Treatment of mycetoma usually was suboptimal, based on expert opinions, with a low cure rate despite a long treatment duration. In our case, despite the extension of the lesions and the therapeutic duration, there was a significant clinical improvement

PV0088 / #1578

NATIONAL CROSS-SECTIONAL STUDY ON THE PREVALENCE OF STREPTOCOCCUS PNEUMONIA SEROTYPES IN JORDAN AMONGST CHILDEN YOUNGER THAN AGE OF 5: THE VALUE OF MOLECULAR TECHNIQUES

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Streptococcus pneumoniae is the most common cause of community acquired pneumonia requiring hospitalization. Most of the countries in the Middle East have introduced PCV vaccine for the prevention of strep. pneumonia infections. Jordan is one of the few countries in the region who has not introduced the vaccine due to limited local evidence. Depending only on the culture results has underestimated the magnitude of the problem locally. This is in addition to lack of data on specific serotypes of strep. pneumonia leading to invasive infections locally.
Methods: a cross-sectional study to identify serotypes of pneumococcal bacteria for children hospitalized with invasive infections for children younger than age of 5 in representative national sites for the period between 1 October 2021 and 31 December 2022. The capsular reaction test, Quellung reaction, was conducted for culture positive cases. For children with radiological evidence suggestive of lobar pneumonia, blood samples were collected for the detection of Streptococcus pneumoniae nucleic acid using a qPCR assay
Results: 1007 cases with pneumonia, septicemia, meningitis were included. 990 cases with lobar pneumonia had postive PCR for blood samples. 12 septicemia cases were identified through blood culture and 7 cases of menigitis through CSF culture. Strep. Pneunomia contributed to 50% of all community pneumonia cases hospitalized. Serotypes 6B (17%) and 6A (14%) were the most common identified serotypes.
Conclusions/Learning Points: Strep. Pneumonia has a high underestimated burden in Jordan, revealved through the qPCR molecular assay. PCV-13 covers significantly more strep. Pneumonia serotypes in Jordan when compared with PCV-10, and ,therefore, is recommended as the first choice for the national immunization program in Jordan.

PV0089 / #1425

INCIDENCE AND RISK FACTORS OF SERIOUS STAPHYLOCOCCUS AUREUS INFECTIONS IN THE PEDIATRIC POPULATION. ROBERTO DEL RÍO CHILDREN'S HOSPITAL. CHILE 2016-2019

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: S. aureus (SA) infections have multiple clinical presentations. The incidence of these infections in children is poorly documented and information on risk factors associated with severe evolution is also scarce. Objective of this study was to determine the incidence of severe SA infections in the pediatric population treated at the Roberto del Río Children's Hospital (HRR) and to evaluate its association with possible microbiological, clinical, or social determinant risk factors.
Methods: Retrospective cohort, carried out at the HRR, in those patients with SA infection between 2016 and 2019. Outcome was severe SA infection. Data collection was obtained from electronical medical records. Ethics committee approved study. Descriptive statistics was use for description group. For analytic analysis was used Relative Risk with CI 95%. Statistical analysis with Stata16.
Results: 894 patients with SA infection were analyzed. 73% were managed hospitalized, 18% of them required to be managed in the Intensive Care Unit. 19.1% presented severe evolution. 0.8% lethality. 89.6% were MSSA. The cumulative incidence of SA infections in Northern Metropolitan Health Service population was 284/100,000 inhabitants <18 years of age. Risk factors associated with severe infection were age <2 years, comorbidity, previous hospitalization, and bacteremia.
Conclusions/Learning Points: Pediatric SA infections incidence is high, in our population, almost 90% SA are methicillin susceptible. Severe course of SA infection is associated with age <2 years, presence of comorbidities, previous hospitalization, and bacteremia like primary focus. No association with MRSA was found

PV0090 / #1244

MENINGOCOCCAL CARRIAGE AMONG UNIVERSITY STUDENTS IN LITHUANIA

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Lithuania is one of the most affected countries by invasive meningococcal disease in Europe, accounting for 2.9 cases per 100,000 population in 2017. Oropharyngeal carriage of N. meningitidis is thought to be a prerequisite for the development of invasive disease. In the industrialized countries, the highest prevalence of meningococcal carriage is in young adults reaches from 1 to 40%. The aim of this study was to determine risk factors that could influence meningococcal carriage, prevalence of carriage among Vilnius University students, and to perform genogrouping of carrier isolates.
Methods: Questionnaires and oropharyngeal swabs were collected from 18-25 year-olds students (n=300) in 2021-2022. Specimens were evaluated using culture and real-time polymerase chain reaction (rt-PCR) targeting the ctrA and porA genes. Cultured meningococcal isolates were genogrouped by the end-point PCR.
Results: Carriage prevalence detected by rt-PCR was 5.7% (17/300) for the total cohort. Out of 17 carrier isolates four isolates were encapsulated: three belong to genogroup B and one to Y. Four isolates were classified as capsule operon-null locus (cnl) and two ctrA-positive isolates were nongroupable. Meningococcal carriage was more common in males (6/71 (8.4%), p=0.2), students living in dormitories (5/59 (8.5%), p=0.7), smokers (7/80 (8.75%), p=0.3) and those who were not treated with antibiotics within the last year (14/231 (6,06%), p=0.58). Pubs or nightclubs attendance ≥5 times per 2 weeks, statistically significantly increased N. meningitidis carriage risk (3/9 (33.3%), p = 0.0).
Conclusions/Learning Points: The prevalence of N. meningitidis carriage was low among Vilnius university students. Most of the carriage isolates were unencapsulated. Encapsulated isolates belong to genogroups B and Y. Nightclubbing was associated with higher carriage rate. Further evaluation is needed to understand the dynamics of carriage among university students.

PV0091 / #1375

EARLY ANTIBIOTIC EXPOSURE IS ASSOCIATED WITH RISK OF CHILDHOOD INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Antimicrobials revolutionized modern day medicine and their use has saved millions of lives. However, through disruption of the immature gut microbiome, antibiotics, may have adverse effects on later health.
Methods: This population based birth cohort study included full term children born in Iceland from 2010 to 2019. The cohort of infants was divided into four groups according to early antibiotic exposure; I: Elective caesarean section. II: Vaginal birth and mothers received intrapartum antibiotics. III: Vaginal birth and infants received antibiotics during the first week of life for at least 48 hours. IV: Vaginal birth and no perinatal antibiotic exposure.
Results: In total, 43.547 children were born in Iceland from 2010 to 2019. Included in the study cohort were 22.393 children. Incidence rate ratio (IRR) of various infections and odds ratio (OR) of asthma later in childhood was calculated for each group. For all antibiotic exposure types, risk of infections and filled prescriptions was significantly increased with the largest risk observed for infants treated with antibiotics (20-100% increased risk, Table 1). In addition, the risk of diagnosis of asthma was significantly increased for exposed infants when compared with controls (OR: 1.28 – 1.89, p<0.05).

	I: Elective c-section (N = 1496)	II: Intrapartum antibiotics (N = 3413)	III: Antibiotics during first week (N = 356)	IV: No antibiotic exposure (N = 17128)	P-value
Incidence rate ratio (IRR)					
Respiratory infections	1.13	1.08	1.20	1.00	<0.05
Gastrointestinal infections	1.22	1.09	1.28	1.00	<0.05
Urinary tract infections	1.52	1.32	2.04	1.00	<0.05
Antibiotic prescriptions	1.20	1.19	1.25	1.00	<0.05

Table 1: Incidence rate ratio (IRR) for various infections and antibiotic prescriptions in four groups of children born in Iceland from 2010-2019 with different antibiotic exposure in early life.

Conclusions/Learning Points: In this cohort study, children with early antibiotic exposure had higher rates of infections and needed antibiotics more often later in childhood than children with no antibiotic exposure. Asthma was also significantly more common in children with early exposure to antibiotics. The potential late side-effect of antibiotic use seems to be of clinical importance and the data should encourage health care professionals to avoid unnecessary treatment of young infants.

PV0092 / #1844

A RETROSPECTIVE DATABASE ANALYSIS TO DESCRIBE SEQUELAE OF MENINGOCOCCAL DISEASE IN CHILDREN 0-14 YEARS IN ITALY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Although there are several studies on the incidence of meningitis, these are mainly based on surveillance or hospital data, and evidence regarding the long-term sequelae of invasive meningococcal disease (IMD) is lacking in Italy. Our study aimed to gather evidence on the burden of IMD, including long-term sequelae in children in Italy.
Methods: We used Pedianet, a nationwide database that contains anonymous patient-level data of more than 500.000 children enrolled by one of the family paediatricians part of the network since 2004, corresponding to about 4% of the annual paediatric population in Italy. Cases and sequelae were identified by searching the outpatient and inpatient diagnosis, clinical notes and hospital discharge letters for a diagnosis of IMD or a predefined sequela.
Results: From 2004 to 2021, we found 30 cases of IMD where the aetiology was confirmed to be Neisseria meningitidis. In 18 of the 30 cases, patients were boys, and the median age at the infection was 2.94 years. Sequelae related to the IMD episode were found in five boys (17% of IMD cases). The age at the IMD varied from 4 months to 6 years, and all the children were born between the years 2001 and 2008 (Table1).

Id	Sex	IMD date	Age at IMD	Sequela 1 date	Sequela 1	Delta in years	Sequela 2 date	Sequela 2	Delta in years
1	M	12/02/06	4.24	26/10/07	Emotional and behavioral disorders - Learning disabilities	1.70			
2	M	28/05/07	5.12	05/11/10	Musculoskeletal deficiencies - Strabismus and other disturbances of binocular movement, Other - Headache	3.44	23/09/13	Emotional and behavioral disorders - Emotional disorders specific to childhood and adolescence, Emotional and behavioral disorders - nausea, Emotional and behavioral disorders - vomiting	6.32
3	M	01/03/04	0.46	28/10/11	Emotional and behavioral disorders - Dyslexia and dysorthography	7.66	08/03/12	Other - Maculopathy on the retina	8.02
4	M	29/04/08	6.45	22/03/13	Emotional and behavioral disorders - Learning disabilities	4.90	21/01/15	Other - Headache, dizziness	6.73
5	M	23/09/10	2.02	02/10/14	Other - Sensorineural deafness	4.02	05/06/15	Neuromuscular diseases - Spastic hemiplegia and hemiparesis of the dominant hemisphere	4.70

Conclusions/Learning Points: Most of the sequelae included functional, emotional and behavioral

disorders, that are consistent with results observed in other European studies. Further real-world studies are needed to draw more comprehensive conclusions about IMD and sequelae in the Italian pediatric population.

PV0093 / #2612

A RETROSPECTIVE STUDY USING PEDIANET DATABASE TO EXPLORE HEALTHCARE RESOURCES UTILIZATION IN CHILDREN AGED ≤24 MONTHS WITH BRONCHIOLITIS IN ITALY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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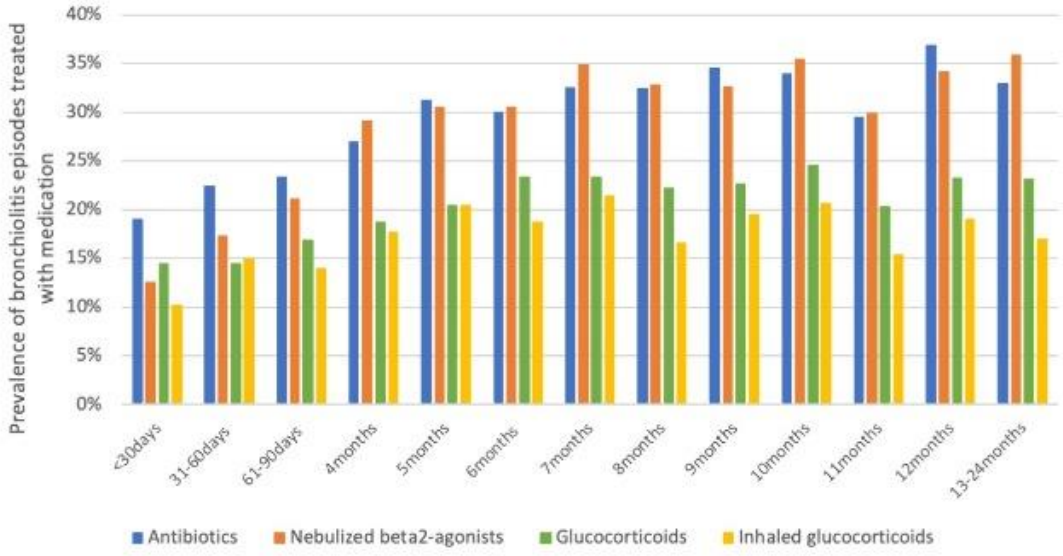
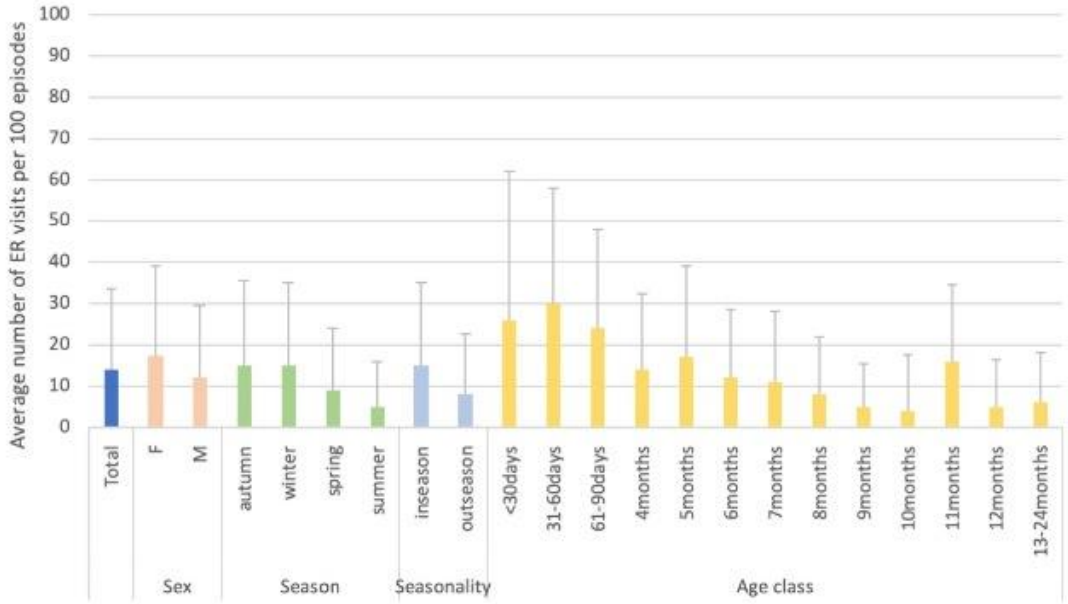
Background: Respiratory Syncytial Virus (RSV) is the leading cause of bronchiolitis, a common lower respiratory tract infection in children. >20% of children aged ≤24 months require medical assistance at the outpatient level because of RSV respiratory infection. However, the true burden of RSV-bronchiolitis is not well understood in Italy. This study aims to explore the burden of bronchiolitis and the one related to RSV.
Methods: The retrospective analysis retrieved data from Pedianet, a database of 161 family paediatricians in Italy, each one caring for around 1,400 children aged ≤14 years. We explored the healthcare resources utilization for all-cause bronchiolitis in subjects aged ≤24 months, from January 2012 to December 2019. Ambulatory visits, medications and examinations were collected for the cohort of Italy, while ER accesses were collected for the cohort of the Veneto Region.
Results: Among 108,960 children, we identified 7,956 episodes of bronchiolitis. Family paediatrician visits were more frequent in younger and previously healthy children. Each bronchiolitis episode required 2.2 visits on average. ER accesses were more frequent in children aged 0-7 months (Figure 1). X-ray chest, PCR and pulse oximetry were performed in 17%, 64% and 72% of ER cases, respectively. Finally, the prevalence of bronchiolitis at the outpatient level treated with Beta2-agonists and antibiotics was >30% (Figure
1).





Conclusions/Learning Points: This analysis shows how relevant is the burden of bronchiolitis at the primary-care level in Italy, especially for all infants in their first year of life. Because pathogen identification with PCR testing in outpatients is not frequent, especially at family paediatricians' offices, the true burden of RSV is unseen. Therefore, strengthening RSV surveillance at the outpatient level, both at family paediatricians' offices and ER, is a priority.

PV0094 / #722

WHAT DO MEDICAL STUDENTS KNOW ABOUT CONGENITAL CMV INFECTION IN GREECE? – A NATIONAL STUDY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Cytomegalovirus is the most frequent cause of congenital infection worldwide causing serious morbidity in newborns, infants, and children. Despite the clinical importance of congenital CMV(cCMV) infection, studies conducted so far conclude that there is limited awareness in medical community in the field. The aim of this national cross-sectional study was to assess the knowledge of cCMV infection among medical students in Greece.
Methods: We performed a questionnaire-based study on a convenient sample of medical students of seven medical schools assessing their knowledge in cCMV. The survey was conducted between September 2022 to December 2022
Results: A total of 515 questionnaires were returned and analyzed. The majority of participants(72%) were final year medical students and 57% were women. 51% of them admitted being aware of the disease burden. As for the ways of transmission, 60% could recognize kiss and blood as common ways of transmission, but only 18% mentioned infant`s urine. Most students (50-80%) were able to identify the clinical manifestations of cCMV infection, while the knowledge about diagnostic methods was low to moderate. Nearly one third of them (35%) did not know whether a licensed vaccine exists to prevent cCMV infection. Nearly all of them (94%) reported that the main source of information about cCMV was medical school training and internet. Finally, a great proportion(67%) admitted feeling overall inadequate as far as knowledge of cCMV infection is concerned.
Conclusions/Learning Points: Overall, our study indicates that further educational opportunities about cCMV should be offered medical students, particularly in subjects of the curriculum involving the care of women and children. Establishing medical students' solid knowledge background of the disease burden and educating them about preventative strategies for at-risk populations, should be the main pillars of such efforts.

PV0095 / #2076

BACTEREMIA DUE TO ELIZABETHKINGIA SPECIES

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Title of Case: Bacteremia due to Elizabethkingia species
Background: The ubiquitous bacterium Elizabethkingia spp., which has been linked to a number of illnesses including bloodstream and respiratory infections or meningitis or skin and soft tissue infections is typically seen in newborns and immunocompromised, and has substantial mortality rates. There have been a few small, localized outbreaks, mostly in healthcare facilities. Elizabethkingia are Gram-negative bacteria that tend to be intrinsically resistant to β-lactam/lactamase inhibitors, and carbapenems.
Case Presentation Summary: The first case was a 3-year-2-month-old boy, who was on the sixth day of ceftazidime treatment, with pneumoniae. Elizabethkingiae meningoseptica grew in endotracheal aspirate (ETA) culture. Levofloxacin was added to his treatment. The second case, a two-year-old boy with intracranial hemorrhage, pulmonary embolism, and pulmonary hypertension after an traffic accident was treated with extracorporeal membrane oxygenation. E.meningoseptica grew in ETA culture. Ceftazidime-avibactam was used. ETA culture cleared. Brain death occurred on 3 months later. The third case, a 2.5-year-old boy with aspiration pneumonia and pneumothorax due to feed a nasogastric tube, was brought to the pediatric critical care unit and had a thorax tube placed. Elizabethkingia anophelis was grown in blood culture. Meropenem, vancomycin, and gentamicin treatments were given because there was also K. pneumoniae growth in the concurrent catheter cultures. Vancomycin and gentamycin was stopped on 10th day, the growth ceased.
Learning Points/Discussion: There is still much to learn about the pathogen Elizabethkingia spp. with an intrinsic multidrug resistance phenotype, which causes opportunistic infections with significant fatality rates. Source control and strict compliance to isolation precautions is important.

PV0096 / #1531

ROTAVIRUS STRAIN CIRCULATION IN EUROPE AND THE MIDDLE EAST: SYSTEMATIC LITERATURE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Rotavirus strain circulation varies unpredictably. While different countries have implemented rotavirus strain circulation surveillance, regional studies aggregating information for Europe and the Middle East are needed. We performed a systematic literature review on rotavirus strain prevalence in Europe and the Middle East.
Methods: We included longitudinal and cross-sectional studies from multiple time points in the same setting, from Europe and the Middle East from January 2006 to August 2021, across all languages. We excluded studies of less than 6 months duration; we also excluded studies with a sample size of less than 30 individuals. One reviewer screened the titles and abstracts to remove all studies unrelated to rotavirus epidemiology. Two reviewers then screened all remaining studies. Data extraction on strain prevalence was subsequently performed by one reviewer and independently verified by a second reviewer, with disputes resolved through discussion.
Results: The search retrieved 7601 non-duplicate papers, of which 87 studies met inclusion criteria. Study locations included 22 countries spread over the Middle East and Western, Eastern, Northern, and Southern Europe. Countries in Europe and the Middle East displayed similar strain-specific distribution patterns. Since 2006 the prevalence of common rotavirus strains (such as G1 in the Middle East and Western, Southern and Northern Europe, and G2 and G4 in Eastern Europe) shifted towards greater strain diversity and less strain dominance by a particular strain. Further investigations are required to understand the mechanisms of changes.
Conclusions/Learning Points: This study provides an update on the rotavirus strain prevalence in Europe and the Middle East in the post-vaccination period. Continuous surveillance is important to monitor strain dynamics.

PV0097 / #2219

INFLUENCE OF THE PANDEMIC RESPIRATORY DISEASES ON COMMON INFECTIOUS DISEASE IN TAIWAN, 2008~2023

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: There were 2 pandemic respiratory diseases since 21th century: One was pH1N1 and the other was SARS-CoV-2. Both of them had cause major limitation on human transportation and social activity. We aimed to evaluate the influence of these two pandemics on some common infectious diseases in Taiwan.
Methods: The data of RODS (Real-time Outbreak and Disease Surveillance System, is a modular system that adheres to CDC's National Electronic Disease Surveillance System-NEDSS, which included Influenza like illness, acute diarrhea, hand-foot-mouth disease/herpangina, acute conjunctivitis and dengue fever) and notifiable diseases of Taiwan, were used to evaluate the influence of pH1N1 in 2009 and COVID-19 during 2020 to 2022.
Results: The influence of pandemic pH1N1 in 2009 did only little influence on the common infectious diseases in Taiwan. The activity of Influenza, enteroviral hand-foot-mouth disease/herpangina and red-eye disease (acute conjunctivitis) were dramatically decreased during the pandemic COVID-19 period, while was not the acute diarrhea in winter (mainly Norovirus). There were two autumn outbreaks of RSV in 2020 and 2022, and a summer endemic diarrhea in 2020 due to the lift of lockdown.
Conclusions/Learning Points: Pandemic respiratory disease (e.g. influenza and new Coronavirus) can cause transient change of common viral respiratory and enteroviral activity, while was not for acute diarrhea and zoonotic disease due to the limitation of movement and social contact. However, we should alert the immune debt after the pandemic COVID-19.

PV0098 / #1307

DIAGNOSIS AND TREATMENT OF GESTATIONAL AND CONGENITAL TOXOPLASMOSIS IN TWO HOSPITALS IN MEDELLÍN-COLOMBIA FROM 2016 TO 2020

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Congenital toxoplasmosis is the second cause of preventable congenital blindness worldwide and an important cause of neurological sequelae. The prevalence of toxoplasmosis in the Colombian general population is high (up to 47.1%). Less than 40% of pregnant women are properly screened or receive adequate and timely therapeutic management for gestational toxoplasmosis. Consequently, between 2-10 per 1,000 newborns are diagnosed with congenital toxoplasmosis. This study describes the characteristics of diagnosis, follow-up, and treatment of gestational and congenital toxoplasmosis in a population based on adherence to the recommendations of the Clinical Practice Guidelines in force in Colombia.
Methods: A retrospective descriptive study of a cohort of children under follow-up for pediatric infectious diseases due to exposure to gestational toxoplasmosis, with diagnosis or suspicion of congenital toxoplasmosis; evaluated in two high-complexity hospitals in Colombia between 2016 and 2020.
Results: Congenital toxoplasmosis was confirmed in 17.4% of the 247 infants included. In 98.3% of the pregnant women, the median number of prenatal check-ups was 7, and in 23.4% some risk factor for Toxoplasma gondii transmission was identified. IgM and IgG serologies were sent to 90% of the patients upon admission. 62.7% had positive IgM and IgG on admission, and positive IgM was documented in 22.2% during follow-up. 43 IgG avidity tests were performed, of which 26 were high; and there was positivity in 63.4% of the IgA performed on pregnant women. 89% of the pregnant women underwent fetal ultrasound, of which 19% had imaging alterations, such as cerebral calcifications. Primary prophylaxis with spiramycin was received by 65.5% of the mothers.
Conclusions/Learning Points: A high rate of gestational toxoplasmosis and variability in behaviors regarding the different guideline recommendations were detected, mainly in the diagnosis of gestational and congenital toxoplasmosis.

PV0099 / #2641

A PROPOSAL FOR STUDYING GPS' COMMUNICATION STYLES ABOUT MANDATORY CHILDREN VACCINATIONS

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: While hesitancy among physicians has been studied in depth, their communication practices about vaccines have not been a topic of wide scientific interest.
Methods: Sample: Simple random sample was used to ensure representativeness. The sample consists of 358 interviews with GPs in Bulgaria. Statistical analysis: We conducted an exploratory factor analysis using the questions about the role of the GPs which measures the model of communication. We forced the creating of four factors. Factor scores for each individual were computed as averages of the corresponding variables. ANOVA analysis and T-test were performed for studying relationships between variables.
Results: Our analysis reveal four factors and models of communication. The first is physician-centered model in which, refusal to vaccinate is equated with refusal to enrolment in the practice. The second is the patient-centered model in which the role of the practitioner is of an active communicator. The third model is of the informing physician – it is a model that is an exaggerated form of the patient-centered model in a context of mandates and personalized care. The fourth designates the tension felt by the GPs related to administration of vaccines. The analysis reveal complex relationships with other variables such as type of settlement, specialty, having hesitant parents in the practice, having experience with vaccine communicable diseases, etc.
Conclusions/Learning Points: We found paradoxical conclusion that in Bulgaria the hesitant parents are not sufficiently involved in active communication about vaccines by GPs. This means that most of the models of communications are formed on the basis of avoiding demanding patient-provider relationship (Reno et al. 2018), that possibly can lengthen the communication (Perkins and Clark, 2013) and impact the feelings of administrative burden and tension.

PV0100 / #2013

DETERMINATION OF BORDETELLA PERTUSSIS ANTIBODY LEVELS IN CHILDREN AGED 10-18 IN ESKIŞEHIR

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Pertussis is a contagious respiratory disease that can infect people of all ages, especially newborns and infants whose vaccination has not been completed. Despite the increase in vaccination rates, epidemics continue to occur every 3-4 years. Adolescents and adults are a source of infection for infants and young children.
Methods: Our study, it was aimed to determine the pertussis antibody level in children aged 10-18 in Eskişehir province, where we think that vaccine protection has decreased. The research was carried out in Eskişehir Osmangazi University Faculty of Medicine, Department of Child Health and Diseases. Between April 2021 and June 2021, they applied to Eskişehir Osmangazi University Faculty of Medicine, Department of Pediatrics 438 children with consent were included. Anti-pertussis toxin IgG and anti-filamentous hemagglutinin IgG from serum samples were studied using a commercial ELISA kit (EUROIMMUN, Lübeck, Germany). The analysis of the data was done with the chi-square test, and the results were considered significant at the $p<0.05$ level.
Results: Of the children, 45.7% (n=200) were boys and 54.3% (n=238) were girls, with a mean age of13.78±2.46 years. 99.8% (n=437) of the participants were vaccinated in accordance with the Vaccination Schedule of the Ministry of Health. Seropositivity was found to be 61.9%. The highest seropositivity was observed at the age of 11 at 68.5%, and the lowest seropositivity was observed at the age of 17 at 54.2%.
Conclusions/Learning Points: It was observed that seropositivity continued to decrease after the age of 14, but there was no significant difference between the ages.

PV0101 / #2122

ESCHERICHIA COLI PSEUDO-OUTBREAK AS A RESULT OF CONTAMINATION OF SALINE SOLUTIONS USED FOR PASSAGE IN THE LABORATORY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Title of Case: Escherichia coli Pseudo-outbreak as a Result of Contamination of Saline Solutions Used for Passage in the Laboratory
Background: The term ‘pseudo-outbreak’ refers to a condition in which a microorganism is found in culture at a greater rate than expected and that cannot be correlated, from a clinical perspective, with the supposed infection implied by results of cultures due to contamination of materials that would normally be sterile. Escherichia coli growths were observed in endotracheal aspirate (ETA) cultures of 18 adults in intensive care units (ICUs) and 6 children in the pediatric ICU in one-month.
Case Presentation Summary: A 3.5-year-old boy with pneumonia, a 6-month-old boy with the ARDS, a 6.5-year-old girl with a craniocervical mass, wound infection, an 8-month-old girl with bronchopulmonary dysplasia and respiratory failure, a 2.5-month-old girl with diarrhea and a 2.5-year-old boy with aspiration pneumonia and pneumothorax was admitted to PICU. There were changes in blood gase, respiratory parameters, respiratory sounds, or respiratory rate per minute. E. coli grew in all ETA cultures. Sensitivity remained the same. When it was noticed that the same microorganism was isolated more frequently than usual in different intensive care units of the hospital, an epidemic investigation was launched and it was determined that the saline solutions in the laboratory were contaminated.
Learning Points/Discussion: An outbreak is a sudden rise in the number of cases of a disease. Even if it is a gold standard diagnostic method such as culture, laboratory results should not preclude clinical evaluation, and physical examination findings should be considered distinguishing an outbreak from a pseudo-outbreak.

PV0102 / #1451

MENINGOCOCCAL EPIDEMIOLOGY IN COLOMBIA POST-PANDEMIC SEROTYPES SHUFFLING AGAIN

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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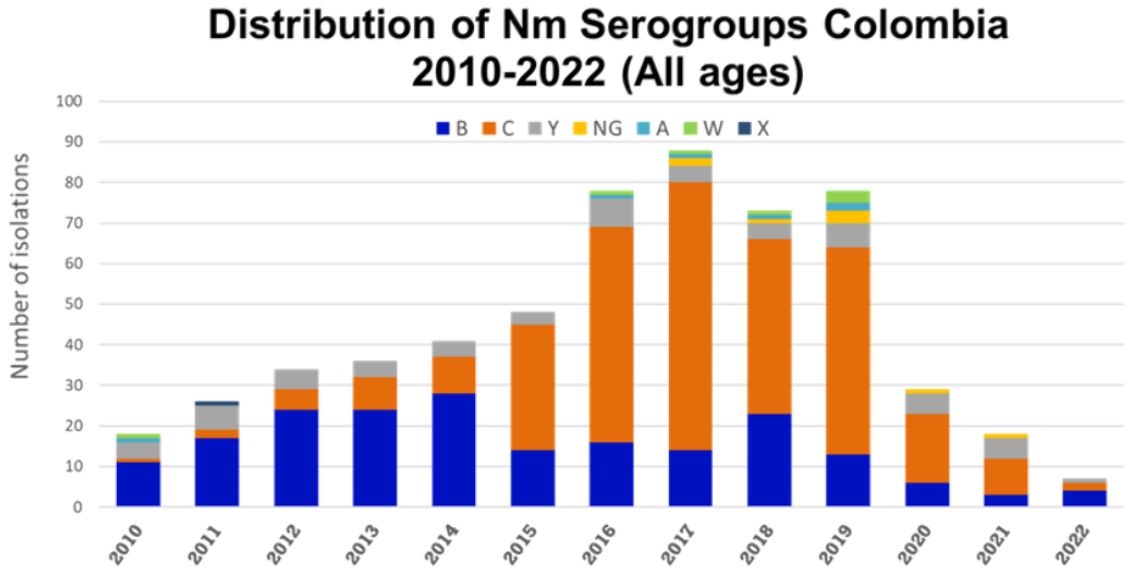
Backgrounds: In Colombia, by the 1990s the prevalent serogroup was MenB and since 2015 it has been MenC, with some isolates of MenY . As of 2019, the incidence per Nm was 0.22 with lethality in the general population of 23%. During the period from 2010 to 2020, different Nm outbreaks occurred in the country, and of all isolates, most were distributed in the age group 15-29 years, followed by <12 years and adults 30-49 years.
Methods: A retrospective descriptive study with information collected through the National Public Health Surveillance System
Results: During the period of the COVID-19 pandemic, the introduction of sanitary measures for the prevention and containment of SARS-CoV-2, as well as public information campaigns about the disease, generated an indirect reduction in the transmission of S. pneumoniae, H. influenzae and N. meningitidis, which in turn led to a significant reduction in life-threatening invasive diseases in many countries of the world caused by these pathogens, in the case of Colombia, these data were consistent with the decreases in cases reported for 2020 and part of 2021, until the beginning of 2022 when there was a rebound in suspected cases; however, the isolates obtained show a change in the predominant serogroup, now MenB is 50%, MenC is 40% and MenY
10%.



Conclusions/Learning Points: Due to the epidemic potential of IMD, it is important to establish a systematic surveillance system in each country that allows for rapid identification of the outbreak; implement effective control measures, such as access to vaccine supplies; and develop preventive policies against outbreaks and control of endemics.

PV0103 / #1535

THE FIRST CASE OF A DIPHTHERIA-LIKE ILLNESS CAUSED BY CORYNEBACTERIUM ULCERANS IN CZECHIA

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Corynebacterium ulcerans (C. ulcerans) may cause zoonotic infections in humans, such as diphtheria and extrapharyngeal infections. We report the first case of a diphtheria-like illness caused by C. ulcerans in Czechia and transmitted likely by a family dog to 87 years old immunocompromised woman. She was hospitalized with shortness of breath, hoarseness and aphonia and primarily diagnosed as nasopharyngitis mucopurulenta.
Methods: Swabs were taken from a sick woman with clinical signs of respiratory diphtheria and from the mouth and muzzle of a 9-month-old mastiff puppy. Confirmation of presence of the tox gene and toxin expression were carried out by the National Reference Laboratory at National Institute of Public Health in accordance with national surveillance requirements.
Results: Subsequently, MLST was used and confirmed the match between the strain C. ulcerans from a sick woman and strain C. ulcerans from her dog.
Conclusions/Learning Points: Mandatory vaccination against diphtheria was started in 1946. The last case of diphtheria in Czechia was reported in 1995 but a total of 5 cases of diphtheria, of which 3 cases of cutaneous form caused by C. diphtheria were diagnosed in family cluster (two siblings 5 and 9 years old and their father) and two cases caused by C. ulcerans were reported in 2022. Revaccination of the adult population is not yet recommended. In connection with the recommendations of the WHO and ECDC, we propose to sustain high vaccine coverage among children, the introduction of vaccination booster doses for the adult population and recommendations for experts to increase awareness of this disease.

PV0104 / #1299

COMMUNITY AQUIRED ROTAVIRUS GASTROENTERITIS COMPARED TO HOSPITAL ACQUIRED ROTAVIRUS GASTROENTERITIS IN BRASOV, ROMANIA DURING 2011-2021

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Gastroenteritis is one of the most common cause of hospitalization worldwide.
Methods: The study is an observational, descriptive, retrospective/prospective study enrolling 2065 children aged 0-60 months hospitalized at Children's Clinical Hospital of Brasov between 2011 and 2021. All children had a positive rotavirus result in stool specimen detected by immunochromatography. We aimed to evaluate and compare socio-demographic, clinical and treatment aspects between community acquired rotavirus gastroenteritis (CARG) and hospital acquired rotavirus gastroenteritis (HARG) at children hospitalized at the Children's Clinical Hospital of Brasov, Central Romania.
Results: Total number of rotavirus gastroenteritis cases between January 2011- December 2021 was 2065 cases. Community acquired rotavirus gastroenteritis (CARG) were 1739 cases (84,2%) and 326 cases (15,7%) hospital acquired rotavirus gastroenteritis (HARG). Urban and rural areas had equal percentage - 961 cases (55,2%) for CARG, 181 cases (55,5%) for HARG. Rroma children were 957 cases (56%) in CARG group and 194 cases (59,5%) in HARG. Girls - 933 (53,6%) in the CARG vs in HARG boys - 171 (52,4%). Average age for CARG was 14,64 months vs 12,24 months for HARG. Average hospitalization days for CARG - 5,09 days vs 7,51 days for HARG. Diarrhea was main admittance symptom - 1609 cases (92,5%) for CARG and 308 cases (94,4%) for HARG. HARG group received antibiotics more often - 204 (62,6%) vs 602 (34,6%) children in CARG.
Conclusions/Learning Points: Urban areas and rroma population were predominant for both studied groups. Girls were prevalent in CARG and boys in HARG. Different age group were affected 12-24 months for CARG and 1-6 months for HARG. Longer hospitalization days for HARG 7,51 days vs 5,09 days.

PV0105 / #2668

EPIDEMIOLOGICAL, LABORATORY AND CLINICAL CHARACTERISTICS OF CHILDREN WITH MEASLES AT ZIV MEDICAL CENTER DURING THE MEASLES OUTBREAK IN ISRAEL IN THE YEARS 2018-2019

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: We aimed to study the epidemiological, laboratory and clinical characteristics of children admitted with measles to a Northern Israeli hospital during the measles outbreak in the years 2018-2019
Methods: Children diagnosed with measles by PCR and/or serology, were included. Demographic, clinical and laboratory data were collected and analyzed into 3 age subgroups : 0-1y, 1-6y and 6-18y.
Results: Most of the 56 diagnosed children were 0-6 years old with median age of 51 months. The percentage of unvaccinated children 92.9% compared to 5.4% of patients who received only one dose of vaccine. One patient (1.8%) received two doses of vaccine. Overall, 53.6% of the diagnosed children were hospitalized with average length of hospitalization of 2.1 days. Clinically, all had a high fever and the most common symptoms were coryza, rash and conjunctivitis. Koplik spots were observed in 46.4% of children. The most common complications were pneumonia and oititis media. Lymphopenia and hyponatremia were observed in 42% and 90% of children respectively and both were mainly observed in the age group 7-18 years (p value <0.001 and 0.013 respectively)
Conclusions/Learning Points: The outbreak of measles in Israel in 2018-2019 proves that measles is still a viral disease with considerable hospitalization and morbidity rates. Since a significant number of patients are under the age of one year, the question arises regarding predating the first dose of the measles vaccine before the age of one year and likewise predating the second dose before the age of 6 years in order to ensure a higher immunity rate in young children.

PV0106 / #2655

MATERNAL VACCINATION FOR BORDETELLA PERTUSSIS IN LATIN AMERICA: REGIONAL SITUATION AND IMPACT OF IMPLEMENTATION ON NATIONAL VACCINATION SCHEDULES IN SELECTED COUNTRIES.

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: Infants are at high risk of serious morbidity and mortality attributed to Bordetella pertussis (Bp) in early childhood. Vaccination in pregnancy has become a key strategy to protect babies during these first months of life. The objectives of this study were to review of the situation of maternal vaccination for Bp in selected LATAM countries and to analyze the impact of the maternal vaccination strategy.
Methods: Working group from LATAM countries, where maternal pertussis vaccination was implemented, were invited to participate, with at least 5 years since the introduction of the maternal tetanus, diphtheria, and acelular pertussis (Tdap) vaccines in the National Calendar. For each country, the following information was requested: a- Incidence of total pertussis in < 1 year; b-Introduction of pertussis vaccine in pregnant women: year of onset and week of recommended pregnancy; c- Tdap vaccination coverage during pregnancy since implementation.
Results: Argentina, Chile, Costa Rica, Colombia and El Salvador participated. The data analyzed showed that the countries presented epidemic cycles with a decrease in incidence after the incorporation of the Tdap maternal vaccine and a greatest decline from the pandemic year (2020). The year of initiation and gestational week of recommendation are shown in Table 1. Years of introduction and vaccination coverage showed variability between countries. Table 1

Country	Year of introduction
Costa Rica	2011
Argentina	2012
Colombia	2013
El Salvador	2014
Chile	2017

Conclusions/Learning Points: The introduction of Tdap vaccine in pregnancy showed variations in the years of introduction of countries, as well as the recommended gestational age. Coverage differs across countries and over the years of introduction. Bp incidence decrease after maternal vaccination.

PV0107 / #1187

IMPACT OF MENINGOCOCCAL ACWY-CRM197 CONJUGATE VACCINE ON MENINGOCOCCAL DISEASE IN INFANTS AND ADOLESCENTS, AFTER ITS INTRODUCTION IN THE IMMUNIZATION SCHEDULE IN ARGENTINA: 36 MONTHS SURVEILLANCE.

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: In 2017, MenACWY-CRM197vaccine was introduced in the immunization schedule in Argentina (2+1,+1 at 11ys). In the pre-vaccination period (preVp,2012-2015), the burden of meningococcal disease (MD) had been assessed. To assess the impact of the intervention on MD incidence in ≤15ys during the post-vaccination period (postVp, Nov/2019-Oct/2022) and describe the clinical-epidemiological-bacteriological pattern of all confirmed MD cases of postVp vs preVp.
Methods: Active hospital surveillance in 6 pediatric sentinel units (PSUs) in Argentina. MD incidence per 10,000 hospital discharges between preVp and postVp was compared.
Results: In postVp, out of a total of 135,588 patients admitted to the 6 PSUs, 751 met the inclusion criteria as a suspected case of meningitis or MD (0.6%), of which 9.3%(70/751) had acute bacterial meningitis (ABM) and 1.1%(8/751) meningococcemia; 80.0%(56/70) of ABM cases and 12.5%(1/8) of meningococcemia cases were culture-positive, corresponding to Neisseria meningitidis 12.3%(7/57). 33.3%(7/21) of MD culture-negative cases were confirmed by PCR. Thus, there were a total of 14 MD cases, MD incidence rate 1.0(0.5-1.7) and reduction of 79.7%(64.5-88.4) in compared to the preVp. Of the 14 MD patients in the postVp, 7 were male, median age 44 months(IQR19-72), 7 had MenACWY-CRM_{197}, 3 underlying disease. Clinical presentations(n;%): meningitis with meningococcemia (6;42.9%), meningitis (5;35.7%) and meningococcemia (3;21.4%), without significant differences with preVp. There were no patients with neurological complications, sequelae, or deaths. Microbiological/molecular diagnosis was made in blood/serum (7;46.7%) and CSF (8;53.3%). Capsular group was identified in 9 samples (B:8; C:1).
Conclusions/Learning Points: The burden of MD caused by any capsular group in ≤15 years was reduced by 79.7%. The predominant capsular group was B. There were no fatalities. These data must be interpreted in the context of the pandemic and its impact.

PV0108 / #815

COVID PANDEMIC INFLUENCE ON THE HOSPITALIZATIONS RELATED TO RESPIRATORY SYNCYTIAL VIRUS (RSV) AMONG SPANISH INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: This epidemiological survey estimates the burden of bronchiolitis in children up to 2 year old in Spain during a three-year period (2019-2021)
Methods: Retrospective survey by reviewing data of the National Surveillance System for Hospital Data, including more than 98% of Spanish hospitals. All hospitalizations related to bronchiolitis for children up to 2 year old, reported during 2019-2021 period, were analysed. Codes were selected by using the 10th International Classification of Diseases: ICD-10-CM J21.0, J21.1, J21.8, J21.9. The monthly hospitalization rate, average length of hospitalization and case-fatality rate were calculated by using municipal register data.
Results: A total of 40,401 hospital discharges in children up to 2 year old were reported during the study period. The hospitalization rate was 2,305.48, 1,214.51 and 2,035.3 hospitalizations per 100,000 in 2019, 2020 and 2021, respectively. The average length of stay was 5.22 (5.15-5.30) days. 24 deaths were reported. The case-fatality rate was 0.06% (CI 95%: 0.04-0.09). Hospitalization rates were significantly higher in males (2,068.5 vs. 1,631.89 hospitalizations per 100,000, respectively). The typical seasonal epidemic pattern of bronchiolitis disappeared in 2020, after the COVID pandemics started and the epidemic peak was delayed from winter 2020 to spring 2021. Annual average cost for National Health Care System was 49 M€ with a mean hospitalization cost of 3,643 €.
Conclusions/Learning Points: Bronchiolitis in children up to 2 year of age still pose a significant health threat in Spain. The epidemiology of RSV has changed due to the impact of COVID-19 pandemics. Measures as the use of new monoclonal antibodies in newborns may help to decrease the burden of bronchiolitis.

PV0109 / #817

HOSPITALIZATIONS RELATED TO PNEUMOCOCCAL INFECTION IN CHILDREN IN SPAIN. INFLUENCE OF THE COVID-19 PANDEMICS (2019-2021)

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: This epidemiological survey estimates the hospital burden of pneumococcal disease in children in Spain during a three-year period (2019-2021)
Methods: Retrospective survey by reviewing data of the National Surveillance System for Hospital Data, including more than 98% of Spanish hospitals. All hospitalizations related to pneumococcal infection in children up to 14 years old, reported during 2019-2021 period, were analysed. Codes were selected by using the 10th International Classification of Diseases. The hospitalization rate, average length of hospitalization and case-fatality rate were calculated
Results: A total of 5,428 hospital discharges were reported during the study period. The hospitalization rate was 15.58(CI 95% 14.83-16.34) hospitalizations per 10,000 children up to 1 year old, 4.35(CI 95% 4.17-4.54) hospitalizations per 10,000 children from 1 to 4 years old and 1.17 (CI 95% 1.11-1.23) hospitalizations per 10,000 children from 5 to 14 years old. A total of 85 deaths were reported during the study period. The case-fatality rate was 1.6% (CI 95% (1.07-2.3 %), 1.38% (CI 95% (0.94-1.95 %) and 1.77% (CI 95% (1.22-2.48 %), in <1, 1-4 and 5-14 year old age groups, respectively. The hospitalization rate during the study period peaked for children aged 1-4 years old for pneumococcal pneumonia with 0.83 (CI 95% 0.75-0.91) hospitalizations per 10,000. For both pneumococcal sepsis and meningitis the highest hospitalization rate was found in infants up to 1 year old with 0.37 (CI 95% 0.25-0.49) and 0.27 (CI 95% 0.27-0.37) hospitalizations per 10,000 children, respectively.
Conclusions/Learning Points: Despite the impact of COVID-19 pandemics in most of the respiratory low tract diseases, pneumococcal disease has caused a high hospital burden and a significant health threat in children in Spain.

PV0110 / #1611

PRESCHOOL-LOCATED INFLUENZA VACCINATION COUPLED WITH INFLUENZA-LIKE ILLNESSES SURVEILLANCE: AN ITALIAN PILOT COMMUNITY STUDY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Following the WHO recommendation to improve the Influenza vaccination coverage in children, we have launched the first school-located influenza vaccination (SLIV) campaign with intranasal quadrivalent live-attenuated influenza vaccine (LAIV) among pre-school children in Italy. School-based immunization program was coupled with influenza-like illnesses (ILIs) surveillance using a self-sampling non-invasive saliva collection method. We describe the results of the pilot study conducted during the 2021/2022 influenza season.
Methods: The study involved five pre-schools in the Milan municipality (432 children). Immunization was carried out directly in school settings to all healthy children with Fluenz™ Tetra (AstraZeneca). Children - both vaccinated and unvaccinated - showing symptoms to be considered for ILI suspicion (onset of fever or feverishness, one or more respiratory and systemic symptoms), were asked to self-sample saliva under the parent/legal guardian's supervision. Saliva was tested for ILI differential diagnosis (Influenza A/B and SARS-CoV-2) by real-time RT-PCR.
Results: One hundred thirty-five children (mean age 5.2 years, range 3-6 years) participated in the study, adhering to both surveillance and vaccination. The percentage of adherence was 11-49%, with the lowest participation recorded in the last enrolled school. No children experienced adverse reactions after vaccination. During surveillance activity, 19 saliva samples were collected from 16 children; 31.6% tested positive for SARS-CoV-2, and none was positive for influenza.
Conclusions/Learning Points: For very young children and consequently for their parents, the school represents a familiar and trusted community environment. The participation in the school immunization campaign was good, considering possible absences due to the ongoing COVID-19 pandemic, and the intranasal administration was well-tolerated and could help to overcome parental hesitancy. Moreover, saliva sampling was a useful tool to reduce children's stress and increase parents' compliance.

PV0111 / #1910

TRENDS IN INVASIVE HAEMOPHILUS INFLUENZAE SEROTYPE B (HIB) DISEASE IN ENGLAND; 2008/09 TO 2021/22

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: The Haemophilus influenzae serotype b (Hib) conjugate vaccine has been highly successful in reducing the incidence of invasive Hib disease through a combination of direct and indirect protection. Recently, a number of European countries have reported an increase in invasive Hib disease. We aimed to describe the epidemiology, clinical characteristics and outcomes of children aged <15 years with invasive Hib disease over the past 14 years in England.
Methods: UKHSA conducts national surveillance of invasive Hib disease and provides a national reference laboratory for confirmation and serotyping. General practitioners are contacted to complete a clinical questionnaire for all confirmed Hib cases.
Results: During 2008/09-2021/22, there were 8,412 invasive H. influenzae infections overall, including 1,316 in children, of which 1,139 (86.6%) were serotyped. Most (937, 82.3%) were due to non-encapsulated H. influenzae, followed by Hif (106, 9.3%), Hie (24, 2.1%), Hib (50, 4.4%) and Hia (20, 1.8%). Invasive Hib disease in children declined from 18 cases in 2008/09 to 3 in 2018/19[MB1] , and only two cases since 2020/21, when COVID-19 pandemic restrictions were implemented. Hib incidence was highest in <1-year-olds (4.9/100,000[MB2] ; n=32). Most children presented with meningitis (23/49, 46.9%) and 80% (40/50) had an underlying comorbidity. Deaths due to Hib were rare (case fatality rate, 4%), with only two deaths, during 2010/2011.
Conclusions/Learning Points: In England, invasive Hib disease remains rare in children, with no fatalities reported for more than a decade.

PV0112 / #1485

MEASLES OUTBREAK IN EAST JAVA, INDONESIA, IN 2022

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: The impact of the Covid-19 pandemic affected the high incidences of many vaccines preventable diseases, especially measles. In 2022 the Indonesian Government made Child Immunization Month Program all over the country with variable results; however, the outbreak of these diseases continues. This study aimed to analyze the measles outbreak in East Java Province, Indonesia in 2022.
Methods: This surveillance study was based on daily, weekly, and monthly reports from 38 District Health Offices. The information mentioned many items, including name, sex, age, address, the immunization status of the children, day of diagnosis, place of health services, and the data of the specimen (blood and urine). The confirmed diagnosis was made based on serology results from the referral laboratory in Surabaya.
Results: During 2022 there were 1689 clinically compatible cases of measles. Positive serology results were found in 436 cases. More than half cases were from September – December 2022. Madura Island, with 4 districts, has 45% of cases; meanwhile, Surabaya, as the capital city of the province, had 22% of cases. The biggest age group were 1-4 and 5-9 years old (range 4 months – 64 years). Girls (51%) slightly outnumbered boys. Fourteen percent of patients received measles vaccines at least twice. All patients survived. The total cases in Indonesia in 2022 were 3341 confirmed cases. In East Java itself, in 2021, all confirmed cases were only 13.
Conclusions/Learning Points: There were significantly increased measles cases in East Java in 2022. The additional immunization program had given little impact. Some questions, such as the quality of the routine immunization program and methods of recording and reporting, also arise from the outbreak data

PV0113 / #335

PERINATAL AND OTHER RISK FACTORS FOR COMMON INFECTIONS IN INFANCY: A PROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Limited data from prospective cohort studies in high income countries are available on the perinatal risk factors for common infections in children. Our hypothesis was that perinatal factors may be risk factors for the number of and duration of infectious episodes during the first year of life.
Methods: In this prospective HELMi (Health and Early Life Microbiota) birth cohort study of full-term infants (n=1052) born in 2016-2018, the number and duration of infection episodes were collected online at weekly to monthly intervals. In a multivariate regression model, the main exposures were perinatal factors such as mode of delivery and intrapartum antibiotics. Environmental factors were additional exposures. The outcomes were the number and duration of infectious episodes in the first year of life.
Results: The mean number of infection episodes was 4.2 (2.9SD) and the mean duration of infection symptoms was 44 days (40SD). Upper respiratory infections accounted for 83% of the episodes (3674/4455). Perinatal factors were not associated with the number nor the duration of infection episodes, but Caesarean section was associated with an increased occurrence of urinary tract infections in infancy (adjusted odds ratio (aOR) 3.6, 95%CI 1.13-11.1). Of the additional exposures male sex (aOR 1.1, 95%CI 1.0-1.2) and the presence of siblings (aOR 1.3, 95%CI 1.2-1.4) were associated with the number of infection episodes.

TABLE 1. Mode of delivery and intrapartum antibiotics as a risk factor for the occurrence of infections in full-term infants during their first year of life

	Caesarean delivery n=176 No. of episodes Mean (SD), crude	Vaginal delivery n=876 No. of episodes Mean (SD), crude	Caesarean delivery versus Vaginal delivery aOR[a] (95% CI)	Vaginal delivery, antibiotics yes n = 208 No. of episodes Mean (SD), crude	Vaginal delivery, antibiotics no n = 668 No. of episodes Mean (SD), crude	Exposure to antibiotics in vaginal delivery yes versus no aOR[a] (95% CI)
All infections	3.8 (2.5)	4.3 (3.0)	0.93 (0.86–1.01)	4.1 (3.0)	4.4 (3.0)	0.95 (0.88–1.03)
Respiratory tract infections	3.2 (2.4)	3.6 (2.7)	0.93 (0.85–1.02)	3.3 (2.6)	3.7 (2.7)	0.92 (0.83–1.00, p=0.051)
Upper respiratory tract infections	3.2 (2.4)	3.6 (2.7)	0.94 (0.86–1.03)	3.3 (2.6)	3.7 (2.7)	0.92 (0.84–1.00, p=0.050)
Urinary tract infections	0.03 (0.3)	0.01 (0.1)	3.6 (1.1–11.1)	0.01 (0.1)	0.01 (0.1)	1.2 (0.20–5.8)
Gastrointestinal infections	0.2 (0.4)	0.2 (0.5)	0.83 (0.58–1.2)	0.2 (0.5)	0.2 (0.5)	1.0 (0.75–1.4)
Other infections	0.4 (0.7)	0.5 (0.8)	0.90 (0.71–1.2)	0.6 (0.8)	0.5 (0.8)	1.1 (0.92–1.4)

aOR, adjusted odds ratio; CI, confidence interval

Values are aORs and 95% CIs obtained by using a Poisson regression model.

[a]All the aORs were adjusted for sex, year of birth, mode of delivery, intrapartum antibiotics, number of siblings, parental asthma, maternal education, use of probiotics during pregnancy and a furry pet in the household.

Conclusions/Learning Points: This prospective cohort study showed that perinatal factors, mode of delivery and intrapartum antibiotics were not associated with the risk of common infections in infancy, but Caesarean delivery was associated with a risk of urinary tract infections.

PV0114 / #1543

RESPIRATORY SYNCYTIAL VIRUS (RSV) HOSPITALIZATION IN

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: This study analyzed hospital admissions in Italy for RSV for infants below one year of age, and their variation between seasons June 2015-May 2016, and June 2018-May 2019.
Methods: The volume of acute admissions for RSV diagnosis was analyzed in two periods, June 2015-May 2016 and June 2018-May 2019, through Italian Hospital Admission database. Several respiratory illness admissions were identified by ICD-9-CM diagnoses (main and secondaries) and divided in three groups: RSV coded (ICD-9-CM 079.6, 466.11 and 480.1, group 1), bronchiolitis (ICD-9-CM 466.19; group 2) and others respiratory associated illness codes group 3); the share of each group and its dynamic all over the time have been calculated as well as the length of stay
Results: In June 2018-May 2019, a total of 20,937 admissions were recorded in Italy. The 36.9% of them were specifically due to RSV, cases in group 1, the 48.5% were bronchiolitis of unknown infection agents (group 2) and the 14.7% belonged to group 3. The highest hospitalization rate for RSV (group 1) was found in January (575.6 for 100,000 inhabitants), followed by February (511.1) and December (273.1). The mean length of hospital stay varied from 9 days in October to 4.0 days in August. Respect to the first period considered (June 2015-May 2016) overall trends in incidence of respiratory illness showed an increase of 5.4%, while the incidence of RSV coded cases increase of 28.8%. The share of RSV coded cases (group 1) increased of 6.7 percentage points between the two periods considered.
Conclusions/Learning Points: In the last three years, hospitalizations for bronchiolitis in infants below 1 year appear to be increased in Italy, especially the RSV-codes bronchiolitis, which may be attributable to increased use of appropriate diagnostic tests.

PV0115 / #352

EPIDEMIOLOGICAL ANALYSIS ON INVASIVE MENINGOCOCCAL DISEASE (IMD) IN ITALY: FOCUS ON HOSPITALIZATION FROM 2015 TO 2019

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Invasive meningococcal disease (IMD) is a life-threatening illness caused by the pathogen Neisseria meningitidis. IMD affects all ages, can progress rapidly, have several manifestations and can cause serious lifelong sequelae. This study analyzed hospital admissions for IMD in epidemiological and economic terms in Italy from 2015–2019 with focus on 0-19 years old population.
Methods: The volume of acute admissions for meningococcal diagnosis was analyzed in the period from 2015–2019. IMD admissions were identified by ICD-9-CM diagnoses. Costs were assessed using current DRG tariffs
Results: In 2019, a total of 237 admissions for meningococcal disease were recorded in Italy. The highest IMD rate was found in infants below one year of age (3.48/100,000), followed by 1-4 years (1.05/100,000) and 15-19 years (0.84/100,000). The mean length of hospital stay varied from 8.6 days in 1-4 years to 11.9 days in age group 15-19. For the year 2019, the total costs for acute inpatient admissions were €2,001,093 (all ages included), while the mean cost of hospitalization was €9,307.4 (+1.3% vs. 2015). When the costs were stratified, the highest mean acute inpatient admission costs were seen in those 15-19 years (€9,099.60) and the lowest in the 0-1 year range (€5,997). Trends in incidence by age group from 2015-2019 showed a statistically significant decrease in the age group 0-1 year. For all years, mortality associated with meningeal syndrome was lower compared to septic shock with or without meningitis and for the period considered mortality rates ranged from 6.7% to 7.3%.
Conclusions/Learning Points: From 2015-2019, hospitalizations for IMD appear to be decreasing slightly in Italy, even if mortality remains high. Favorable trends in hospitalizations for IMD were seen in the 0-1 year age group, which may be attributable to increased vaccination.

PV0116 / #1698

IMPACT OF COVID-19 PANDEMIC ON INFLUENZA CIRCULATION IN HOSPITALIZED AND OUTPATIENTS CASES OF ACUTE RESPIRATORY INFECTIONS (ARI).

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Respiratory viruses are the main cause of respiratory infection in the pediatric population. Before the COVID-19 pandemic, Influenza had a typical epidemiological pattern in winter season. During 2020 and 2021, no influenza cases were detected while in 2022 it had an atypical behavior with outbreaks in summer and spring months. Objective: To compare the viral circulation pattern in ARI cases under 18 years of age with and without hospitalization criteria in a pediatric hospital in Buenos Aires between EW 1-52 of 2022.
Methods: Observational, cross-sectional, descriptive study of patients with respiratory symptoms with and without requiring hospitalization in 2022. Virological diagnosis was made by RT-PCR of nasopharyngeal aspirates.
Results: During 2022, from a total of 4,097 outpatient visits for respiratory infection, 2,399 were tested (58.5 %) and 1,224 (51 %) were positive for viruses: influenza (22.9 %) was predominant followed by rhinovirus (11.6 %). Meanwhile 492 hospitalized ARI cases were reported with a positivity rate of 66.3% being RSV (24.6%) predominant followed by influenza with a prevalence of 7.9%. Influenza A showed a bimodal pattern (EW 10-12 late summer; EW 38-42 spring), coinciding both peaks in outpatient and hospitalized cases. Influenza B showed a single peak in late winter first in outpatient cases with an impact on hospitalized cases 3 weeks later. Outpatient cases were older, with lowest frequency of comorbidities and history of previous hospitalizations for respiratory causes compared to hospitalized patients.
Conclusions/Learning Points: During and after COVID-19 pandemic influenza showed changes in epidemiological pattern and seasonality.

PV0117 / #1370

HAND-FOOT-MOUTH DISEASE: ATYPICAL CUTANEOUS MANIFESTATION AND DETECTION OF COXSACKIEVIRUS TYPE A6 IN THE AMAZON REGION, STATE OF PARÁ, BRAZIL.

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Hand-foot-mouth disease (HFMD) caused by Enterovirus A71, Coxsackievirus and Echovirus, characterized by fever and erythematous papular eruption located mainly on hands, feet and mouth. In Asia and the USA, the disease is notifiable allowing the monitoring of clinical manifestations and circulating viral genotypes. In Brazil it is not possible estimate the impact and profile of the disease.
Methods: An observational, prospective and longitudinal study was carried out from January 2019 to February 2020, in Pará state, north of Brazil, Amazon region. Outpatients with symptoms of HFMD were followed until resolution of symptoms. Stool samples, oropharyngeal swab, skin swab and blood samples were obtained for detection of enteroviruses by viral isolation, RT-PCR and genotyping.
Results: A total of 92 participants were included, of which 81% (75/92) had laboratory confirmation of the disease. Enterovirus were detected in 73% (55/75) of stool samples; 65% (49/75) of oral swab: 57% (43/75) of skin lesion swab and 28% (21/75) on blood samples. The time elapsed between onset of symptoms and the collection of stool samples averaged 7.7 days. Most outpatients were male (53%), younger than five years (82,6%). Vesiculobullous lesions were predominant (83%) and peeling of skin was observed in 91% of participants, about 11 days after the onset of disease (mean duration 17 days); onychomadesis occurred in 37% of cases, about 20 days after onset of symptoms (mean duration 22 days). Fever occurred in 91% of subjects. The genotyping was possible in 47 fecal samples, showing Coxsackievirus type A6 in 85% (40/47).
Conclusions/Learning Points: This study revealed predominance of bullous lesions in children with HFMD caused by Coxsackievirus A6 in amazon region. Such findings reveal the importance of continuous surveillance of HFMD in tropical countries.

PV0118 / #1124

UNSATISFACTORY LEVEL OF TICK-BORNE ENCEPHALITIS MORBIDITY IN CZECHIA CONTINUES

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Tick-borne encephalitis (TBE) is a severe acute neuroinfection transmitted predominantly by tick bite or consumption of raw milk. The incidence of TBE is particularly high in Central Europe but foci of infection are still spreading to other countries as well as to higher altitudes. The disease affects all age groups including children. With increasing age, both the clinical severity of the disease and the risk of complications and sequelae increase.
Methods: Retrospective descriptive analysis of case-based TBE data from the Czech nationwide infectious disease reporting system.
Results: In 2021, 589 TBE cases were reported in Czechia (incidence 5.5 per 100,000 inhabitants). The continuous increase in incidence for six years between 2015-2020 was thus interrupted and the 2021 season was milder. According to preliminary data for 2022, the number of cases increased again, reaching 697 cases with an incidence of 6.6 per 100,000 inhabitants. The incidence of tick-borne encephalitis is highest in adults between 50 - 75 years, however in children and adolescents is increasing; on average it represents 15.2% of all reported cases in 2015-2019 but in 2021 and 2022 it was more than 17%.
Conclusions/Learning Points: Czechia is one of the countries with the highest TBE incidence in Europe and the number of TBE cases accounts for almost a quarter of all cases reported in the EU. The proportion of TBE in children and adolescents is increasing. Vaccine prevention is desirable in all age groups

PV0119 / #848

EARLY-LIFE PNEUMONIA IDENTIFIES CHILDREN AT ELEVATED RISK OF CHRONIC RESPIRATORY DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Chronic respiratory disease (CRD) is frequent in children. We hypothesized hospitalized community-acquired pneumonia (CAP) before age 2 years may identify infants at higher risk of subsequent CRD as well as other respiratory outcomes, especially among infants with comorbidities.
Methods: A retrospective matched-cohort design and data from two sources—Optum Electronic Health Record Database (2012-2019, commercial) and Merative Medicaid Multi-State Database (2013-2019)—were employed. Each study population comprised infants hospitalized for CAP before age 2 years ("CAP patients") as well as comparators without CAP before age 2 years ("comparison patients") who were matched on comorbidity profile and propensity scores. Risks of study outcomes—CRD, reactive airway disease (RAD), CAP hospitalization, outpatient CAP, all-cause hospitalization—from age 2-5 years were estimated for CAP and comparison patients in each study population, overall and by comorbidity profile.
Results: Risks of study outcomes from age 2-5 years were markedly higher among CAP patients versus comparison patients in both commercial and Medicaid populations, by: 1.9 and 1.5 for CRD; 2.5 and 2.0 for RAD; 6.4 and 7.3 for CAP hospitalization (Table). CAP patients with comorbidities had higher risks of outcomes than CAP patients without comorbidities, but relative risks of outcomes for CAP patients versus comparison patients were comparable irrespective of comorbidity profile. Risk of CRD after age 2 years was highest among infants with hospitalized CAP closer to age 2 years (not presented herein).

Table. Rates and relative risks of study outcomes from age 2 to 5 years among commercially and Medicaid-insured CAP patients and comparison patients, overall and within subgroups defined on comorbidity profile

		Chronic Respiratory Disease*		Reactive Airway Disease*		CAP Hospitalization		Outpatient CAP		All-Cause Hospitalization	
	No. Pts.	Rate/ 100 PY	RR	Rate/ 100 PY	RR	Rate/ 100 PY	RR	Rate/ 100 PY	RR	Rate/ 100 PY	RR
Commercial											
All Children											
CAP	1,309	10.0	1.9	5.0	2.5	1.9	6.4	3.7	3.0	6.8	4.2
Comparison	6,545	5.3	--	2.0	--	0.3	--	1.2	--	1.6	--
Children w/ Comorbidity											
CAP	387	12.9	2.0	6.4	2.2	3.8	5.3	4.9	3.1	14.3	4.3
Comparison	1,935	6.5	--	2.9	--	0.7	--	1.6	--	3.3	--
Children w/o Comorbidity											
CAP	922	8.8	1.8	4.5	2.7	1.1	8.9	3.2	3.0	3.7	3.9
Comparison	4,610	4.8	--	1.7	--	0.1	--	1.0	--	0.9	--
Medicaid											
All Children											
CAP	1,544	16.1	1.5	7.6	2.0	1.1	7.3	4.8	3.1	4.4	2.7
Comparison	7,720	10.6	--	3.8	--	0.2	--	1.5	--	1.6	--
Children w/ Comorbidity											
CAP	422	21.5	1.6	9.3	1.8	2.3	6.8	6.2	3.3	8.8	3.3
Comparison	2,110	13.4	--	5.3	--	0.4	--	1.9	--	2.7	--
Children w/o Comorbidity											
CAP	1,122	14.2	1.5	6.9	2.1	0.7	9.2	4.3	3.1	2.8	2.4
Comparison	5,610	9.6	--	3.3	--	0.1	--	1.4	--	1.2	--

CAP: community-acquired pneumonia; PY: patient-years; RR: relative risk

*Chronic respiratory disease (CRD) was defined as asthma, hyperactive airway disease, recurrent wheezing, recurrent bronchitis, recurrent OM, recurrent pneumonia, recurrent sinusitis; reactive airway disease (RAD) was defined as asthma, hyperactive airway disease, recurrent wheezing.

Conclusions/Learning Points: Pneumonia before age 2 years is associated with increased risk of CRD between ages 2 and 5 years. The proportion of infants with subsequent CRD is highest among infants with comorbidities and highest when pneumonia occurs closest to age 2 years. These observations suggest a potential causative role for early pneumonia in subsequent CRD.

PV0120 / #1820

CLOSTRIDIOIDES DIFFICILE AMONG CHILDREN WITH ACUTE GASTROENTERITIS IN THE COMMUNITY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Clostridioides difficile infections (CDI) in children are usually milder as compared to adults. The reports of CDIs in children have been increasing but were mainly hospital based. We explored CDIs among children with acute gastroenteritis in the community.
Methods: We conducted a prospective cohort study recruiting children >3 years from kindergartens. The prescriptions of children were submitted by their parents to the investigators to determine consumption of antibiotics. When acute diarrhea developed, children's fecal specimens were subjected to an enzyme immunoassay (EIA) of glutamate dehydrogenase (GDH) plus toxins. The specimens testing positive for GDH were further analyzed by Xpert® CD assay. Confirmed C. difficile cases refer to positive EIA test and/or Xpert® CD assay. All specimens were tested by FilmArray® GI panels for pathogen detection.
Results: Of the 318 enrolled children in 2021–2022, 387 prescriptions were received. Antibiotics prescription rates varied in hospitals (9/44, 20.5%), pediatric clinics (31/226, 13.7%) and non-pediatric clinics (65/117, 55.6%). A total of 15 episodes of acute gastroenteritis, 3.7 episodes per 1000 children-month follow up, were reported. Among 8 episodes during September and December 2022, 11.4 per 1000 children-month follow up, 2 episodes (2/15, 13.3%) were associated with C. difficile. Both cases received a cephalosporin before CDIs and recovered smoothly. The rate of antibiotics-associated diarrhea was 1.9% (2/105). At least one pathogen could be found in 73.3% (11/15) of fecal specimens, including norovirus (4), campylobacter (2), enteropathogenic Escherichia coli (EPEC) (2), sapovirus (2) and salmonella (1).
Conclusions/Learning Points: CDIs should be considered among children with acute gastroenteritis in the community, especially those with prior antibiotics consumption.

PV0121 / #800

INTERCHANGES OF HEXAVALENT VACCINES, DATA FROM THE FRENCH PEDIATRIC AMBULATORY RESEARCH IN INFECTIOUS DISEASES (PARI)

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Vaccine interchanges occur when two or more vaccines covering the same diseases are used to complete a multi-dose immunization series. In France, two hexavalent vaccines have been marketed for many years, Infanrix Hexa® (IH) and Hexyon® (H), whereas Vaxelis® (V) has been available since April 2018. Data on interchangeability of hexavalent are scarce, while this may occur in practice with parents bringing to the pediatrician the vaccine delivered by pharmacy or during shortage.
Methods: For children born between January 2020 and December 2022, we prospectively collected anonymized vaccination data using the PARI (pediatric ambulatory research in infectious disease) network based on automated data extraction from the software (Axi5-Infansoft®, CompuGroup Medical) of 125 pediatricians of the French primary care association (AFPA).
Results: Among the 41,750 hexavalent doses administered (including 7% preterm infants [<37 weeks]), H represented the majority (63.1%), followed by V (21.5%) and IH (15.5%). For preterms ≤ 32 weeks, the distribution was about 50% each for IH and H. Among the 5,843 children who received 2 doses of hexavalent, H+H represented 62%, V+V, 20% and I+I, 14% of the schedules while interchangeability accounted for 4% with 6 different combinations observed. Among the 8,675 children who received 3 doses of hexavalent, H+H+H represented 61% of the schedules, V+V+V, 21%, I+I+I,13% and interchangeability accounted for 5% with 18 different combinations observed.

	<28 weeks (n=107)	28-32 weeks (n=566)	33-36 weeks (n=1,922)	≥37 weeks (n=32,711)	Total (n=41,733)
Infanrix Hexa®	50 (46.7%) [37;57]	282 (49.8%) [46;54]	394 (20.5%) [19;22]	4,982 (15.2%) [15;16]	6,453 (15.5%) [15;16]
Hexyon®	56 (52.3%) [42;62]	271 (47.9%) [44;52]	1,212 (63.1%) [61;65]	21,215 (64.9%) [64;65]	26,315 (63.1%) [63;64]
Vaxelis®	1 (0.9%) [0;5]	13 (2.3%) [1;4]	316 (16.4%) [15;18]	6,514 (19.9%) [19;20]	8,965 (21.5%) [21;22]

Conclusions/Learning Points: This large study evaluating real practice of hexavalent vaccines in France showed rare occurrence of interchanges and a different distribution of the 3 available vaccines according to gestational age at-birth.

PV0122 / #804

WORRYING INCREASE IN VACCINATION DELAYS AFTER COVID PANDEMIC, DATA FROM THE FRENCH PEDIATRIC AMBULATORY RESEARCH IN INFECTIOUS DISEASES (PARI)

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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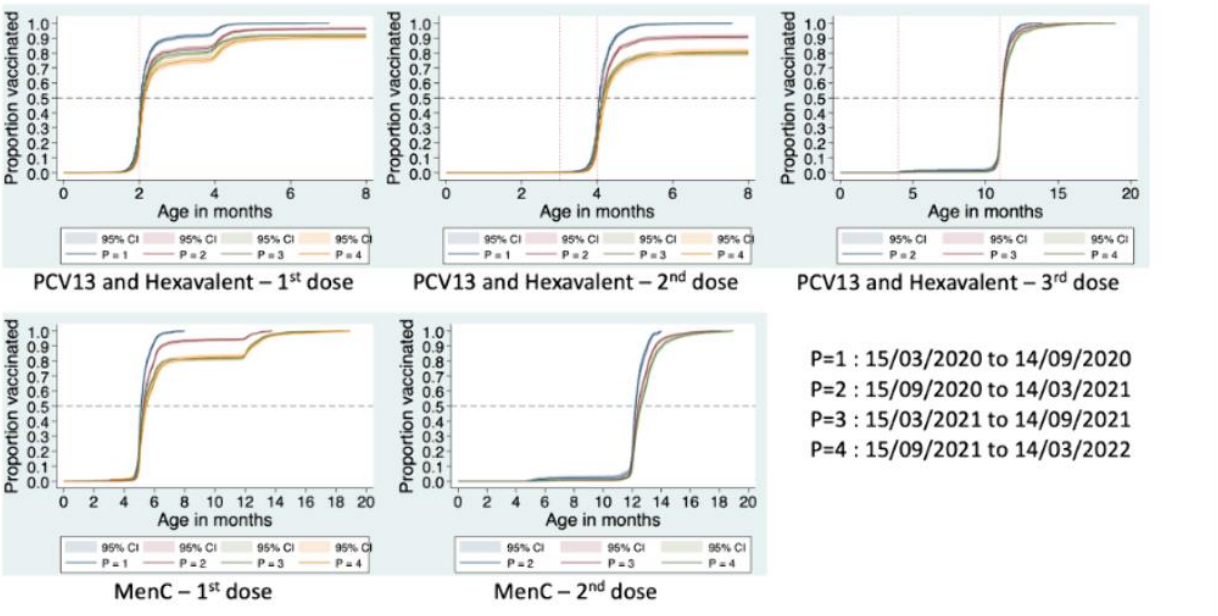
Backgrounds: In France, infant vaccination against 11 diseases is mandatory since January 2018. In the context of COVID pandemic, we aimed to describe compliance with the immunization program according to the age recommended for each dose for non-preterm children <18 months old.
Methods: We used the PARI network, based on automated data extraction from the software (Axi5-Infansoft®, CompuGroup Medical) of 125 pediatricians of AFPA to provide real-time vaccination data. Children vaccination data were analysed in 6-month intervals, starting with the first French lockdown from March 15th 2020 to September 14th 2020 (Period 1), September 15th 2020 to March 14th 2021 (Period 2), March 15th 2021 to September 14th 2021 (Period 3), September 15th 2021 to March 14th 2022 (Period 4). Delayed immunization was defined as >15 days after the recommended age for vaccines administered before 6 months of age, and >2 months for vaccines administered after 10 months of age. Delays in vaccination were described with survival curves.
Results: Data for 19,207 children in France with 159,341 vaccinations showed that the delays in vaccination significantly increased after the lockdown. From periods 1 to 4, for PCV13 and hexavalent, the percentage of delay >15 days increased from 13 to 30% and from 10 to 33%, for the first dose and the second dose, respectively. For first dose of MenC, the percentage of delay >15 days increased from 21 to 48% from periods 1 to
4.



Conclusions/Learning Points: This large study based on automated data extraction of vaccines data evaluated real practices of mandatory vaccinations in France. Our results raise concerns about the

increasing delays in mandatory vaccination after the COVID lockdown. High coverage and timely vaccination are necessary to maintain disease protection.

PV0123 / #2720

MEASLES VIRUS INFECTION AMONG VACCINATED AND UNVACCINATED CHILDREN AND ADOLESCENTS IN POLAND (2019-2022)

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: Despite the availability of a safe and effective vaccine, measles is re-emerging in Poland due to sub-optimal measles vaccine coverage. The study aim was to document trends and characteristics of reported cases of measles in Poland in the recent years (2019-2022).
Methods: The epidemiological situation of measles among children and adolescents (aged 0-19 years) in Poland was analyzed on the basis of the case-based questionnaires of cases suspected of measles sent to National Institute of Public Health by the Sanitary and Epidemiological Stations.
Results: Between 2019 and 2022, there were 441 measles cases among children and adolescents, out of which 399 (90.5%) occurred in 2019. Most patients in 2019 were adolescents aged 10-19 years (63.3%) and unvaccinated individuals (67.9%). In the last three years, the most commonly affected age groups were 1 to 4 years (47.6%), and 5 to 9 years (33.3%). Among 40 measles cases with known vaccination status, 62.5% had been vaccinated and 72% of those had only received one dose of vaccine. No deaths due to measles have been reported during the period 2019-2022.
Conclusions/Learning Points: Public health strategies to increase vaccine coverage with routine and supplementary vaccination campaigns must be supported, especially now, facing humanitarian crises, global mobility and sub-optimal measles vaccine coverage.

PV0124 / #782

RAPID STAND-UP OF A NATIONAL SEMI-HARMONISED APPROACH TO HUMAN JAPANESE ENCEPHALITIS VIRUS SEROSURVEILLANCE FOLLOWING NOVEL EPIDEMIC SPREAD IN AUSTRALIA

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Japanese encephalitis (JE), is caused by the mosquito-borne JE virus (JEV), is endemic to Asia. Approximately 68,000 cases occur annually, most of which are in children. In 2021 human/swine/vector infections were detected across large geographic areas of eastern and southern Australia; only rare sporadic JEV infections in remote Northern Australia had been detected previously.
Methods: Multiple human/animal/vector surveillance activities were designed to assess JEV transmission risk. A national human serosurveillance program tested sera from blood donors and targeted high-risk human populations (people of all ages living in areas with detection of infected animals or vectors). Consent-based sampling included a detailed participant questionnaire on demographic, vaccination, exposure and other data. Blood samples were tested for JEV-specific total antibody using a defined epitope blocking assay, and examined for cross-reactivity to other local endemic flaviviruses, MVE and Kunjin.
Results: A total of 5,254 serum samples from blood donors attending nine blood collection centres in high-risk areas and three lower-risk centres in six of eight Australian states and territories were analysed. Preliminary results indicated 2.1% (95% CI 1.6–2.6) seropositivity in high-risk areas, compared to 1.1% (95% CI 0.7–1.7) in low-risk areas. Higher JEV seroprevalance rates (4-8%) were seen in targeted high-risk populations. Additional results will be presented and data mapped to information from animal and vector studies.
Conclusions/Learning Points: In response to the unexpected emergence of JEV across the vast Australian continent, a nationally consistent multimodal human serosurveillance program has provided evidence of infection in asymptomatic populations and informed targeted allocation of limited JEV vaccines to risk areas.

PV0125 / #1974

CLINICAL AND ECONOMIC BURDEN OF VARICELLA IN PEDIATRIC INPATIENTS AT FOUR INSTITUTIONS IN THE CITY OF GUATEMALA FROM 2015 TO 2019

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: There is a lack of information in Guatemala regarding health resource utilization (HCRU) and associated costs among the hospitalized pediatric population diagnosed with varicella.
Methods: A retrospective, observational, multicenter study was conducted in four hospitals in Guatemala City. Medical records of patients aged 0-14 years diagnosed with varicella from 2015 to 2019 were reviewed. HCRU was estimated from medical records. The direct costs were calculated using data from national formularies, insurance, and official national sources. All costs were obtained in local currency (Quetzal) and an exchange rate of $7.579926 was used
Results: Records of 124 hospitalized patients were analyzed, 40.3 % were female and 58.9% male. 98.4% patients had one hospitalization and 1.6% two. An average of 10.6 lab and 1 imaging test per patient were performed. Over-the-counter drugs were prescribed by 55.6%, antibiotics in 66.1% and antivirals in 69.4%. The median hospital stay in bed service was 7.7 days (IQR:4,9) and ICU stay were 7.5 days (IQR:2,9). 21.8% of the patients required intensive care. The median healthcare cost per patient was $1,397 (IQR:906, 3335). Among them, most costly were: hospitalization $892 (IQR:595,1338), lab tests $51 (IQR:28,84.), antibiotics $45 (IQR:0.00,141) and prescription medications $18 (IQR:6, 37). Complications related to varicella were present in 66 % of patients, most frequent were the infectious ones, mainly soft tissue infection (35.5%) and pneumonia (13.7%). The most frequent non-infectious complication was haematological alterations (10.5%). The median difference in direct costs between patients with and without complications was $908, which represented an increase of 52%.
Conclusions/Learning Points: Hospitalizations due to varicella are associated with a considerable economic and clinical burden. Complications related to this disease are frequent and have an important impact in the costs associated to health care.

PV0126 / #1761

RESPIRATORY SYNCYTIAL VIRUS (RSV) INFECTION IN CHILDREN IN SOUTHERN MOZAMBIQUE: INCIDENCE OF DISEASE, ASSOCIATED MORTALITY, AND RISK FACTORS

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Respiratory syncytial virus (RSV) is a leading cause of under-5 morbidity and mortality. Low and middle-income countries concentrate most (90%) of the RSV burden. We aimed to determine the incidence of RSV acute lower respiratory infections (ALRI), and associated mortality and risk factors, among African children.
Methods: A health facility-based prospective observational study was carried out in children aged 0-60 months hospitalized with WHO-defined clinical criteria for pneumonia at the Manhiça District Hospital (MDH), in Southern Mozambique. Clinical and demographic data was collected through standardized questionnaires. A nasopharyngeal aspirate (NPA)/swab (NP) was collected from all study children at enrolment. Respiratory samples were analyzed for RSV detection by molecular methods (TaqMan Array). In this area, HIV prevalence in pregnant women attending ANC is high (21%), and 30% of admitted children at MDH are HIV positive.
Results: A total of 330 children admitted with WHO-defined criteria for severe pneumonia were recruited between October 2019 and September 2022. Among 90 NP tested RSV prevalence was 22.2% (20/90). NP and NPA are being tested at Centro de Investigação em Saúde de Manhiça (CISM) using TaqMan Array Card technology, and primers and probes specific for RSV-A and RSV-B using RT nested PCR. Final analyses of clinical and microbiological data are currently ongoing, and will be presented in May at ESPID 2023.
Conclusions/Learning Points: An RSV maternal immunization strategy is being considered for the prevention of severe disease in infants less than six months of age. In this context, generating data of the burden and RSV infection in African young infants is essential.

PV0127 / #1137

RECENT MICROBIOLOGICAL TRENDS OF STREPTOCOCCUS PNEUMONIAE FROM CHILDREN IN JAPAN

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: With the worldwide focus on COVID-19 infections, interest in multidrug-resistant bacterial infections, including Streptococcus pneumoniae, is declining. However, pneumococcal infections are an important cause of morbidity and mortality in pediatric infectious diseases. In this study, we aimed to determine the prevalence and antimicrobial susceptibility patterns of Streptococcus pneumoniae isolated from pediatric patients in general hospitals in central Japan from 2021 to 2022.
Methods: A cross-sectional study was conducted on 40 patients diagnosed with pediatric sepsis at a Japanese general hospital for 2 years.Medical records added to the clinical species were used for clinical characteristics. Microorganism identification and antimicrobial susceptibility testing were performed with the VITEK2 system.
Results: Forty Streptococcus pneumoniae were isolated among which 26 (65%) were males and 14 (35%) were females. Thirty (75%) bacteria were isolated from nasal discharge and 4 (10%) isolates were isolated from blood. The age incidence of 0 - 1 years, 1 years, 2 years, and over 3 years age groups were 6 (15%), 16 (40%), 5 (12.5%), and 13(32.5%), respectively. In this study, 14 (30.5%) Streptococcus pneumoniae strains were found to be multidrug resistant to three or more drugs. These 11 cases contained all penicillin-resistant Streptococcus pneumoniae. Twenty-eight (70%) Streptococcus pneumoniae cases were resistant to both erythromycin and tetracycline.
Conclusions/Learning Points: Despite infection control measures with COVID-19, pneumococcal infections spread easily in the community, suggesting progressive multidrug resistance of Streptococcus pneumoniae. Continuous drug susceptibility surveillance, not only in Japan but also at the global level, is essential to reduce morbidity and mortality of pneumococcal infections in the future.

PV0128 / #2670

VACCINATION DELAY AND COMPLETE VACCINE COVERAGE IN BRAZILIAN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: Vaccine coverage has been dropping in Brazil since 2016.
Methods: In order to learn its true proportion and some of the associated factors, we carried out a vaccine coverage survey in all Brazilian capital cities (27) of children born in 2017 and 2018 living in urban areas. The sample size was 31028. The dates that the vaccines recommended by the National Immunization Program (PNI) were administered were obtained by photographing vaccination cards or searching the PNI registry. We classified as delayed doses those given 30 days or more of the date scheduled by the PNI. We defined complete administered vaccine coverage (CVA) when a child had been given all the vaccines recommended by the PNI up to 24 months of age. Up to the age of 6 months, the PNI recommends the administration of one dose of intradermal BCG and hepatitis B, two doses of rotavirus, pneumococcus, and meningococcus, three doses of inactivated poliomyelitis vaccine, and the pentavalent vaccine (diphtheria, tetanus, whole cell pertussis, hepatitis B and Haemophilus influenzae B).
Results: CVA for children who had received all doses scheduled for the first 6 months of life without any delay was 80% (IC95% 78-82), and 55% with any delayed dose (53-58). Delay was higher in the North region; for younger mothers with less schooling, who were single and had more children; lower income families; children vaccinated at public services, with more difficult access to vaccination centers or facing difficulties to be vaccinated at a center.
Conclusions/Learning Points: Delay reduces CVA significantly and is associated with characteristics of mothers, socioeconomic status of families, and access to vaccination centers and how they operate.

PV0129 / #297

SPORTS PRACTICE AND INFECTIONS IN THE PEDIATRIC AGE: PROTECTION OR RISK FACTOR?

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Infections are often non-severe in the pediatric population, but if they occur frequently, they can be life-altering. Regular sport practice has been associated with protection against respiratory tract infections (RTI) but also with a predisposition to suffer from some entities such as skin infections. Our objective is to evaluate the relationship between sports activity and infections in children.
Methods: An analytical retrospective study including all the patients attending to the Child Health Program visits at 6 and 12-14 years old between April 2022 and July 2022 was performed. Demography, extracurricular sports activity (frequency, type of sport) and the number of infections in the last year were analyzed. Patients who practice sports regularly and those who do not were compared to assess the infection rate in each group.
Results: Three hundred and tree children were included, 112 were 6 years old and 191 were teenagers (12-14 years old). 248 (81.8%) practiced sport regularly, 69 (36.1%) with a frequency of more than 6 hours per week in the teenagers group. The most common infection was upper RTI (34.6% of patients). Only three patients (1%) required hospitalization for infectious causes. No influence was observed between sport practice and the frequency of infections in general (p=0.385). A decrease in upper RTI was observed in children who practiced team sports (p=0.003). Sport practice, contact sports and team sports practice did not show an increase in skin infections. The complete results are summarized in Table 1.

TABLE 1. STATISTIC ANALYSISIS BETWEEN SPORTS ACTIVITY AND THE INCIDENCE OF INFECTIONS IN THE LAST YEAR, BOTH IN THE OVERALL SAMPLE AND BY AGE GROUP.

	OVERALL (n=303)		
	Yes	No	p
Sport activity	248 (81.8%)	55 (18.2%)	
Two or more infections/Y			0.385
Yes	71 (28.6%)	19 (34.5%)	
No	177 (71.4%)	36 (65.5%)	
Upper RTI			0.357
Yes	83 (33.5%)	22 (40.0%)	
No	165 (66.5%)	33 (60.0%)	
Skin infections			0.465
Yes	12 (4.8%)	4 (7.2%)	
No	236 (95.2%)	51 (97.8%)	
Contact sports	25 (8.2%)	278 (91.8%)	
Two or more infections/Y			0.515
Yes	6 (24%)	84 (30.2%)	
No	19 (76%)	194 (69.8%)	
Upper RTI			0.568
Yes	10 (40.0%)	95 (34.2%)	
No	15 (60.0%)	183 (65.8%)	
Skin infections			0.765
Yes	1 (4.0%)	15 (5.3%)	
No	24 (96.0%)	263 (94.7%)	
Team sport	118 (38.9%)	185 (61.1%)	
Two or more infections/Y			0.119
Yes	29 (24.5%)	61 (32.9%)	
No	89 (75.4%)	124 (67.1%)	
Upper RTI			**0.003**
Yes	**29 (24.5%)**	**76 (41.1%)**	
No	**89 (75.4%)**	**109 (58.9%)**	
Skin infections			0.240
Yes	4 (3.3%)	12 (6.4%)	
No	114 (96.7%)	173 (93.6%)	

	AGE GROUP					
	6 years (n=112)			12- 14 years (n=191)		
Sport activity	Yes	No	p	More than 6 H/W	Less than 6 H/W	p
	92 (82.1%)	20 (17.9%)		69 (36.1%)	122 (63.9%)	
Two or more infections/Y			0.097			0.442
Yes	41 (44.5%)	13 (65.0%)		54 (78.2%)	101 (82.8%)	
No	51 (55.5%)	7 (35.0%)		15 (21.8%)	21 (17.2%)	
Upper RTI			0.074			0.546
Yes	40 (43.5%)	14 (70.0%)		17 (24.6%)	35 (28.6%)	
No	52 (56.5%)	6 (30.0%)		52 (75.4%)	87 (71.4%)	
Skin infections			0.074			0.214
Yes	4 (4.3%)	3 (15.0%)		5 (7.2%)	4 (3.2%)	
No	88 (95.7%)	17 (85.0%)		64 (92.8%)	118 (96.8%)	

ABBREVIATIONS. Y: Year. RTI: Respiratory tract infections. H/W: Hours per week.

Conclusions/Learning Points: We did not find an increase of infections, including skin infections, in patients who practice sports. Sports activity could be a protective factor for the development of upper RTI in children. However, larger-scale researches are needed to clarify this fact.

PV0130 / #1899

BLOOD CELLS DISORDERS IN HIV INFECTED CHILDREN IN DOUALA CITY ,CAMEROON

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: HIV infection is a priority health issue for sub-saharan Africa. Litterature suggests that this disease impairs the human body through its effects on blood cells, preferentially immune cells and hematological parameters. This study aimed at determining the effects of HIV infection on blood cells in children
Methods: The survey was conducted from April 2016 to April 2017. Children up to 19 years, 139 HIV negative and 286 HIV positive were enrolled. A flow cytometer and an automated analyzer were used to assess immunological and hematological parameters respectively. Chi-2 or Fischer's exact tests were used to compare proportions; Mann-Whitney and Anova tests for means. Statistical significance was set at $p<0.05$.
Results: Anemia prevalence was 42.82 % with two cases of severe anemia. Anemia was associated with HIV statut. Children with HIV presented higher anemia prevalence 47.2 versus 31.7% (p=0.003). Anemia was also associated with immunodeficiency. Children with moderate and severe CD4 T cells suppression presented the highest burden in both under 6 years (P= 0.004) and children aged 6 years and above (P=0.01). Anemia was normocytic both in HIV and HIV free groups and mostly hypochromic than normochromic. Thrombopenia was not associated with HIV status (P=0.7)
Conclusions/Learning Points: Anemia was high in HIV infected. A better management of anemia in those groups is thus very important for a healthy community

PV0131 / #2272

INVASIVE PNEUMOCOCCAL DISEASE IN THE CZECH REPUBLIC AND WHOLE GENOME SEQUENCING ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: In 2021, altogether 264 cases of invasive pneumococcal disease (IPD) were entered in the surveillance database of the Czech Republic (CR). The age-specific incidence rates reached 0.9/100 000 in children under 1 year of age, i.e. 1 IPD case, com- pared to 4.5 /100 000 in 2020, i.e. five cases of IPD, and 2.6/100 000 in children aged 1 to 4 years, i.e. 12 cases, compared to 1.8/100 000 in 2020, i.e. eight cases of IPD. The most afflicted age group was 65 years and over, with an absolute number of 140 cases, i.e. 6.6/100 000, in comparison to 119 cases, i.e. 5.6/100 000, in 2020. Fourteen cases of IPD occurred in persons previously vaccinated with pneumococcal vaccines, six of whom were children aged 0–4 years, one was from the age group 5–39 years, and seven were 65 years and over. Forty-eight reported deaths were associated with the detection of pneumococci in clinical specimens from normally sterile body sites. Streptococcal Infections for typing. The most commonly identified serotypes in 2021 were 3, 8, 19A, and 6C.
Methods: The diagnosis was based not only on the conventional but also on the molecular methods.
Results: Whole genome sequencing (WGS) is currently the most sensitive and the most effective method to study populations of infectious agents. WGS data analysis will provide a detailed insight into the genetic relationships among the Czech populations of S. pneumoniae of all serotypes studied. This WGS data will be presented until 2022.
Conclusions/Learning Points: Supported by Ministry of Health of the Czech Republic, grant nr. NU22-09-00433 from the.

PV0132 / #1643

HUMAN PAPILLOMAVIRUS-ASSOCIATED CANCERS IN MEN IN COLOMBIA

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: HPV-associated cancers affect both genders. Since 2012, HPV vaccination has been included in the Colombian Immunization Program targeting 9-17-year-old girls. Data on burden of disease in men is crucial to support policy recommendations to expand vaccination to boys.
Methods: To estimate the burden characterize hospitalization and mortality rate of HPV-associated cancers in adult men in Colombia. This was a retrospective cohort study evaluating adult men with HPV-associated cancers (anus, penis, and selected head and neck sites). All new cases hospitalized in 2015 (index data), were extracted from the national administrative database under the International Classification of Diseases-10 for HPV-associated cancers (SISPRO; hospitalization, length-of-stay [LOS] and age). This cohort was followed for 3 years. From a disaggregated national base (MIPRES-SISPRO), incident cases and deaths were obtained to estimate mortality rate and mortality-to-incidence ratio (MIR) from 2015-2019.
Results:

Table 1. Summary of main findings of HPV-associated cancers among men in Colombia

Anatomical Site	Hospitalization (2015-2018 data from 2015 cohort population)				Mortality (2015-2019 national data)			
	Age, mean (SD)	Frequency	Hospitalization rate /100,000	LOS (days), (SD)	New cases	Deaths Frequency	Mortality-to-incidence ratio	Mortality Rate /100,000
Anus	51.5 (±17.3)	405	0.1	6.2 (±10.2)	4,268	4,268	1.1(1.05 -1.12)*	5.3
Penis	55 (±18.2)	764	0.07	7.5 (±10.2)	554	554	0.2(0.19 -0.22)	0.7
H&N	60.1. (±15.7)	2,153	0.18	10.3 (±14.8)	4,492	4,492	0.9(0.88 -0.94)	5.6
Larynx	64.9 (±13)	900	0.32	11.4 (±13.5)	2,033	2,033	1.3(1.26 -1.37)*	2.5
Oral cavity	57.8 (±16.9)	631	0.11	11.8 (±17.9)	1,332	1,332	0.8(0.74 -0.82)	1.7
Oropharynx	56.8 (±15.9)	622	0.15	7.3 (±12.3)	1,125	1,125	0.6(0.6 -0.67)	1.4

*Ratio above 1 are considered unreliable

We identified a total of 3,322 new hospitalizations by HPV-associated cancer in men. The mean age at index data ranged from 51.5 years in anal cancer from 64.9 in larynx. The highest hospitalization rate and LOS were seen in head and neck cancer (H&N)(Table 1). The percentage of re-hospitalization in the year 2 and 3 was 10.5% and 3.1%, 31.5% and 6.7, and 30.9% and 8.5% for anal, penile, and H&N cancers, respectively. Among the H&N sites, laryngeal cancer has the highest re-hospitalization rate (45.4%). Between 2015-2019, 13,004 men died of HPV-associated cancers; larynx had the higher cancer death rate. High MIR were seen in all HPV-associated cancers.
Conclusions/Learning Points: This study provides real-world evidence on the substantial burden of HPV-associated cancers among men in Colombia. These findings can be used to evidence-inform policymaking regarding HPV prevention in men.

PV0133 / #1675

BURDEN OF HPV-ASSOCIATED CANCERS AMONG MEN IN MEXICO

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: In addition to anogenital warts, the prevention of penile, anal, and head and neck cancers represents potential benefits of the HPV vaccine. Currently, vaccination of boys is not included in the National Immunization Program in Mexico. Since there is a lack of data on HPV burden of disease in men, the use of real-world evidence using national databases can offer a magnitude of the problem.
Methods: To describe hospitalization characteristics and mortality rate of HPV-associated cancers among men in Mexico from 2012-2017. This was a retrospective observational study using national databases in Mexico to identify penis, anus, and selected sites of head and neck (H&N [oropharynx, oral cavity, and larynx]) cancers in men ≥ 18 years, according to the International Classification of Diseases, from 2012-2017. Hospitalization rate, length of stay (LOS) and age at discharge were obtained from two structured hospital discharge databases (SAEH and Sectorial). Mortality data was extracted from the National Mortality Epidemiological and Statistical System (SEED).
Results: From 2012 to 2017, a total of 9,004 hospitalizations occurred among men with anal, penile, and selected H&N cancers. The mean age at hospitalization ranged from 53.5 years for anal cancer to 63.8 years in larynx. H&N cancer was the most common HPV-associated cancer and had the highest hospitalization and mortality rates, driven by laryngeal cancer. The LOS was 2.5, 4.0, and 4.1 for anal, penile, and H&N cancers, respectively (Table
1).

Table 1. Mean age at discharge, hospitalization rate, LOS, and mortality rate by anatomical site, 2012-2017

Anatomical Site	Age (years), mean (SD)	Hospitalization			Mortality
		Frequency	Rate 100,000 (CI)	LOS (days) mean (CI)	Rate 100,000 (CI)
Anus	53.5(±38)	352	0.9 (0.78-0.96)	4.1 (3.58-4.56)	0.1 (0.06-0.08)
Penis	55.6(±15.3)	1,256	3.1 (2.94-3.28)	4 (3.81-4.28)	0.5 (0.45-0.51)
Head and neck	60.8(±14.6)	3,698	9.2 (8.86-9.45)	2.5 (2.37-2.6)	3.1 (3.05-3.2)
Larynx	63.6(±11.7)	2,182	5.4 (5.17-5.63)	2.6 (2.46-2.81)	1.8 (1.75-1.86)
Oral cavity	57.3(±17.5)	1,009	2.5 (2.34-2.65)	2.2 (2.05-2.36)	0.7 (0.66-0.73)
Oropharynx	57.1(±15.7)	507	1.3 (1.15-1.36)	2.5 (2.2-2.75)	0.6 (0.59-0.66)

Conclusions/Learning Points: In Mexico, real-world evidence of hospitalizations, LOS, and mortality showed a substantial disease burden of HPV cancers among men in Mexico. These findings may inform policy decisions focused on the need for HPV disease prevention strategies in men.

PV0134 / #1192

PASSIVE SURVEILLANCE FOLLOWING VACCINATION WITH TYPHOID CONJUGATE VACCINE IN NEPALESE CHILDREN.

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Typhoid fever is endemic in low-income countries. The WHO recommends the use of typhoid conjugate vaccines (TCV) to control typhoid in high burden settings. In 2017, short term efficacy of TCV was evaluated in a field study in Nepal.In this participant and observer blinded randomized controlled trial, 20,019 children 9 months to less than 16 years, were vaccinated either with TCV or meningococcal conjugate vaccine (MenA).After 2 years of follow up, participants were unblinded and those in the control arm were offered Vi-TCV vaccine and vice-versa. The objective of this study is to assess the incidence of typhoid and paratyphoid fever in the vaccinees as well the background incidence in the non vaccinated individuals of the catchment area.
Methods: This is an ongoing prospective cohort study conducted in 18 community clinics along with a hospital based fever clinic. Any clinic attendee from the catchment area, who had fever for 2 or more days and/or temperature>_38C had their blood cultures drawn. Blood culture data were recorded in the redcap.
Results: A total of 8054 participants attended the fever clinics from Oct 2021-Dec 2022. There were 2090 febrile participants and 1995 had their blood cultures drawn. Out of 105(5.2%) positive blood cultures 33.3%(35/105) were contaminated, 27.6 %(29/ 105) grew S.Typhi and 36.1 %(38/ 105) grew S.Paratyphi . Similarly, 2 cultures were positive for Streptococcus pneumonia and 1 positive for E.Coli.
Conclusions/Learning Points: In this ongoing study of relative vaccine effectiveness (VE measured between groups vaccinated at different time points), passive surveillance for enteric fever provides data on burden in children presenting with fever and will be used to establish whether there is waning in vaccine efficacy over time.

PV0135 / #1633

THE BURDEN OF ROTAVIRUS GASTROENTERITIS IN THE CZECH REPUBLIC, DATA ABOUT THE COVERAGE OF VACCINATION

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Rotaviruses are the most frequent aetiological agent among patients with diarrhoeal disease worldwide. Epidemiological data could be the basis for the recommendation of vaccination.
Methods: The importance of rotavirus gastroenteritis was analysed retrospectively using official reports, and laboratory data from Czech laboratories from the years 2002-2022. Data on the vaccination against rotavirus infections was estimated on the basis of the numbers of vaccines distributed.
Results: There were 95,816 reported cases of rotavirus gastroenteritis in total. Among them 63,3% were children under the age of 5 (the incidence 534.2/100,000 inhabitants per year). Hospitalisations were also reported as a 76.6% of all reported cases. Among children under 5 years of age 3,219 hospitalizations were reported in 2022. Based on this data and with the use of the Soriano-Gabarroś method, it is estimated that, annually in this agegroup, another 25,752 were out-patients with more benign rotavirus gastroenteritis . There were 48 deaths reported from rotavirus gastroenteritis (among these 10 children under 1 year). The highest case fatality rate is among people over 65 years of age (0.34%). The highest incidence rate was between March and May in the analysed period. On the basis of the more frequent and more sensitive laboratory confirmation of diarrhoeal disease in recent years, as well as better reporting, rotavirus gastroenteritis is seen to be increasing. At the same time, the numbers of vaccinated children are very low. Vaccination started in 2007, and the estimated coverage of vaccinated of children in the first year of life was 21.7% by the end of 2021.
Conclusions/Learning Points: The results indicate the need for universal vaccination against rotavirus infections in the Czech Republic.

PV0136 / #1918

EPIDEMIOLOGICAL-MOLECULAR STUDY OF RESPIRATORY VIRUSES INVOLVED IN PAEDIATRIC INFLUENZA-LIKE ILLNESS (ILI) CASES IN LOMBARDY (NORTHERN ITALY) FROM AUGUST 2021 TO NOVEMBER 2022

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

Cristina Galli[1], Laura Pellegrinelli[1], Arlinda Seiti[1], Lucia Crottogini[2], Giovanni Anselmi[1], Valeria Primache[1], Emanuela Matteucci[1], Margherita Scurria[1], Elham Afzalpour[1], Sandro Binda[1], Danilo Cereda[2], Elena Pariani[1]
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Backgrounds: As a regional reference laboratory of the Italian influenza-like illness (ILI) surveillance network (InfluNet&RespiVirNet), we conducted an epidemiological-molecular study to track the respiratory virus circulation in paediatric ILIs in Lombardy (Northern Italy) in 16 consecutive months.
Methods: In the framework of the InfluNet&RespiVirNet activities, 1274 nasal-pharyngeal swabs (NPSs) were collected from as many outpatients aged ≤14 years in Lombardy from August 1st, 2021 to November 30th, 2022. Specific real-time PCR assays were performed to detect influenza viruses (IVs), SARS-CoV-2, respiratory syncytial virus (RSV), metapneumovirus (MPV), parainfluenza viruses (PIV), rhinovirus (RV), enterovirus (EV) and adenovirus (AdV).
Results: Overall, in 84.5% of NPS at least one virus was identified; a single virus was in 67.6% and more than one virus was co-detected in 32.4%. IVs were detected in 19.4% of NPSs, almost all (98%) were A(H3N2), with an epidemic peak in March/April 2022 and then in September/November 2022. SARS-CoV-2 was identified in 6.1% of ILIs with the highest detection frequencies in January, March/April, June and November/December 2022. RSV was detected in 17% of ILIs with an epidemic in November 2021 and November 2022. 13,8% of ILIs were PIV-positive and three epidemic curves were observed: November/December 2021, April/July and September/November 2022. RV, EV, AdV and MPV were detected in 27.3%, 11.1%, 9.7% and 9.4% of ILIs, respectively. These viruses circulated throughout the study period with no specific pattern. A higher risk of infection for RV was estimated in 0-2 years (37%) and 3-5 years (23.1%) age groups, and for IVs in children 6-10 years (43.6%) and 11-14 years (46.6%).
Conclusions/Learning Points: ILIs integrated surveillance allows the monitoring of the community transmission of viral respiratory infections by uncovering any change in their epidemiological features.

PV0137 / #1630

A RISK PANEL FOR THE EVOLUTION OF SEASONAL EPIDEMICS OF BRONCHIOLITIS AND FLU IN CATALONIA, SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Bronchiolitis, mostly caused by respiratory syncytial virus (RSV), and flu among other respiratory viruses, are behind seasonal saturation at healthcare centres in Catalonia (Spain). We aimed to define a set of indicators to assess the risk level of these epidemics, based on both incidence and their dynamics, and considering epidemical thresholds.
Methods: We performed a risk evaluation system that we previously developed for monitoring COVID-19. We used publicly available data on daily cases of influenza and bronchiolitis in children from the Information System for Infection Surveillance in Catalonia (SIVIC) of the Health Department of Catalonia, including the Moving Epidemic Method (MEM) to define epidemic thresholds. We pre-processed the data with a 7-day average and consider the data's weekly report pattern. We named our indicator effective potential growth (EPG) and defined it as the product of the 7-day cumulated incidence of infections (A_7) by the empirical reproduction number (ρ_5) which is computed as the ratio of new cases with respect to cases 5 days ago ($EPG=A_7 \cdot \rho_5$). Finally, we performed a retrospective analysis to determine the suitability of the indicator.
Results:

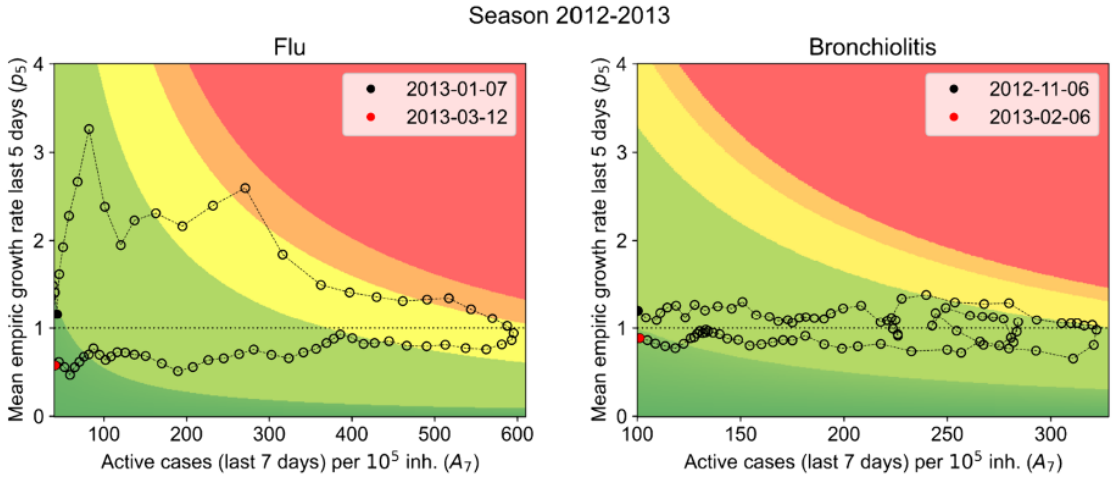

Figure 1. Risk diagrams for season 2012-2013 for flu (left) and bronchiolitis (right). They show ρ_5 with respect to A_7 starting from the black point and finishing at the red point. The background colours correspond to EPG values classified by the epidemic levels.

The MEM method allowed us to define epidemic weekly incidence levels (infections per 10^5 inhabitants)

for influenza (<15 yo) and bronchiolitis (<4 yo) as 55 and 100 baseline, 370 and 330 medium, 640 and 430 high and 810 and 480 very high, respectively. We observed that EPG forecasts properly when the epidemic exceeds these thresholds in 1 week. Figure 1 shows an example of risk diagram.
Conclusions/Learning Points: We created a new EPG that successfully anticipates overcoming bronchiolitis and influenza epidemic thresholds. Together with the weekly growth tax, this can be a powerful surveillance tool to be generalised to other infectious diseases with seasonal epidemics.

PV0138 / #1797

INVASIVE PNEUMOCOCCAL DISEASE IN CHILDREN AT THE UNIVERSITY MEDICAL CENTRE LJUBLJANA, SLOVENIA, 2013-2021: THE SURPRISING IMPACT OF SUBOPTIMAL VACCINE UPTAKE

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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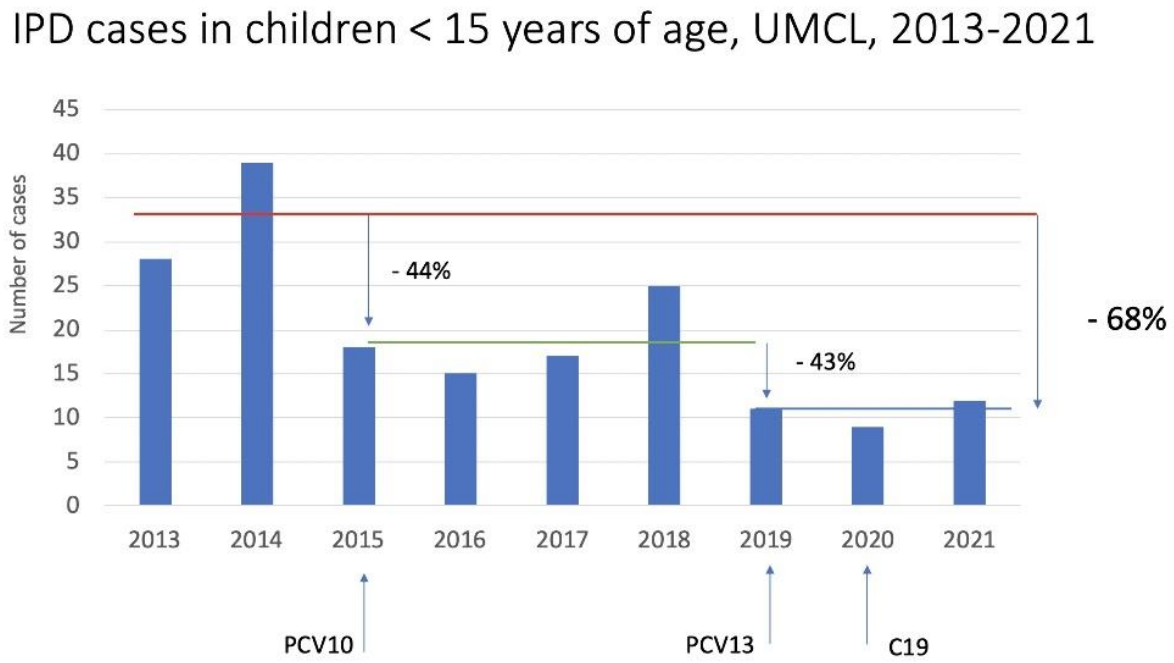
Backgrounds: In Slovenia, PCV10 was introduced in the NIP in 2015 on a 2+1 schedule and in 2019 a switch to PCV13 was made. Unlike other vaccines PCV is non-mandatory with lower vaccine uptake (58.2% of children being completely vaccinated in 2021). We aimed to investigate the number of invasive pneumococcal disease (IPD) cases and serotypes in children < 15 years of age from 2013 to 2021 at the University Medical Centre Ljubljana (UMCL), the largest academic tertiary care hospital in Slovenia.
Methods: Clinical features and demographic data of all IPD cases were analyzed with serotyping being performed at the National Laboratory of Health, Environment and Food.
Results: There were 174 cases of IPD in the study period with bacteremia and bacteremic pneumonia being the predominant clinical syndromes. From the prevaccine period 2013- 2014 to PCV10 period 2015-2018 there was a 44% decrease in the average number of IPD cases with a further 43% decrease in the PCV13 period from 2019 to 2021 with covid prevention measures having additional impact on IPD incidence. There was a gradual switch to non-vaccine serotypes from 2013 to 2021 with serotypes 14, 1, 18C, 19A and 6A being the most prevalent in prevaccine era, serotypes 1, 14 and 19A prevailing during PCV10 era and nonPCV13 vaccine serotypes representing more than 50% of isolates in the PCV13 era with 24F becoming the most prevalent
serotype.



Conclusions/Learning Points: In spite of suboptimal PCV uptake a 68% decrease in IPD number in children was observed at the UMCL 4-6 years after PCV introduction accompanied by serotype replacement.

PV0139 / #2051

SEASONALITY OF RESPIRATORY SYNCYTIAL VIRUS IN CHILDREN IN BELGIUM AND THE IMPACT OF THE SARS-COV-2 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: The Covid-19 pandemic has disrupted the typical seasonality of respiratory infections worldwide. To secure proper preventive actions against RSV in children, many countries were alerted to improve their surveillance systems to ensure timely detection of the virus.
Methods: Local data from the Jessa Hospital was compared to data collected by the national institute of Health (Sciensano).
Results: Before the Covid-19 pandemic, the start of the RSV season was found to be relatively consistent, most often around week 41/42, (beginning of October), with a median peak at week 49 (December). The end of the season was more difficult to define with season duration ranging from 13 to 28 weeks. The emergence of SARS-CoV-2influenced the dynamics of RSV. In Belgium, there was no 2020 winter peak. Local and national data show a delayed RSV wave in the 2021 spring season. Peak values did not exceed the regular winter peaks, but an 'ongoing plateau' from early spring to mid-summer. Also 2021 showed atypical seasonality, lacking a high winter peak but continued reporting of RSV infections beyond the normal end of season in March (week 13). The 2022 winter season is ongoing, with clear increase of RSV-positive cases since October 2022. The epidemic threshold was exceeded mid-November.
Conclusions/Learning Points: The COVID-19 pandemic situation showed the importance of surveillance and the need for real-time registration of in- and out-of-season RSV outbreaks. In Belgium, current RSV surveillance could be optimized to allow efficient RSV prophylaxis guidelines.

PV0140 / #1590

IMPROVING FLU VACCINE ACCEPTANCE IN CHILDREN LEVERAGING ON COVID-19 VACCINATION LESSONS

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: An influenza vaccination campaign for children aged 6-59 months was launched in Galicia (Spain) on October 17th, 2022. Vaccines were delivered through the regular vaccination points in primary care, targeting a total of 69,142 children and aiming for 60% vaccination coverage (VC).
Methods: A pilot plan to boost vaccine uptake was launched, consisting of an information campaign, mass vaccination sites opening during a weekend, and flexible electronic citation. Pilot 1 targeted 3,293 families with unvaccinated children within a 20-minute isochrone of the Santiago de Compostela hospital. Providing easy parking and access to the outpatient facilities of the hospital, where a multidisciplinary clinic with 6 simultaneous vaccination points was set. Pilot 1 SMS was sent on November 17th.Following Pilot 1, the health authorities decided to implement a second pilot study (Pilot 2) that was extended to the seven Galician healthcare districts, 43,900 families with unvaccinated children received the invitation to bring their child for flu vaccination to the nearest hospital among any of the 14 hospitals in the region, in addition to the usual vaccination points, during the weekend of November 26th and 27th.
Results: Pilot 1 intervention had the immediate effect of increasing VC by 2.5%. During the vaccination weekend at the hospital, a further 3.5% VC was achieved, resulting in an overall increase of 6%. A multivariate linear model adjusted for days and health districs showed a significant 5.84% increase (95% CI: 2.75, 8.92) of vaccination coverage in Pilot 1 and VC increase of 4.48% (95% CI: 3.17,5.78) in Pilot2.
Conclusions/Learning Points: Boosting flu vaccine uptake in children leveraging on past lessons learnt during COVID-19 vaccine campaigns may be useful for other countries as part of their measures promoting influenza vaccination in children.

PV0141 / #960

AGE-DEPENDANT INCREASE IN IPD INCIDENCE IN 2022 CORRELATES WITH RESPIRATORY VIRUSES DYNAMICS.

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Non pharmaceutical interventions (NPIs) implemented against the spread of COVID-19 have led to an unprecedented decrease of both viral and invasive pneumococcal diseases (IPD). An IPD rebound in some age groups has been reported after NPI partial relaxation. Viral infections, mainly respiratory syncytial virus (RSV), influenza, and human metapneumovirus (hMPV), are potential triggers of IPD.
Methods: We analyzed the incidences of IPD and hospitalizations for RSV, influenza, hMPV, and adenovirus in France between 2015 and May 2022 using the National medico-administrative database. Quasi-Poisson regression was used to estimate standardized incidence ratios (SIRs) by dividing the observed incidence by the “expected” incidence if NPIs would not have been implemented. SIRs were calculated for the early COVID-19 period (from March 2020 to March 2021), and the late COVID-19 period (from April 2021 to May 2022), for the following age groups (<2 years, 2-4 years, 5-14 years, 15-44 years, 45-64 years, and ≥65 years). Correlation between IPD SIRs, and of viral infections was assessed with the Spearman correlation method.
Results: We analyzed 25,890 IPD, and 402,523 hospitalizations for the viruses of interest. Compared to the early COVID-19 period, a significant difference was only observed for children aged 5-14 years during the late COVID-19 period (SIRs from 25.3%, 95%CI 19.3-37.0 to 53.2%, 95%CI 38.7-85.1). Observed IPD incidence remained lower than expected for all age groups and during both COVID-19 periods. We observed a significant correlation between IPD SIRs and those for influenza (Spearman correlation coefficient r=0.65, p=0.03), RSV (r=0.82, p=0.002), and hMPV (r=0.78, p=0.004) by contrast to adenovirus (r=0.36, p=0.26).
Conclusions/Learning Points: Differences in viral infection may partially explain the different age-specific patterns of IPD, reinforcing the link between IPD and viral infections.

PV0142 / #2157

CHARACTERISTICS AND OUTCOME OF CHILDREN WITH STAPHYLOCOCCUS AUREUS OSTEOARTICULAR INFECTIONS ACCORDING TO CLINDAMYCIN SUSCEPTIBILITY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: S. aureus, especially MRSA, can cause severe osteoarticular infections (OAI). The aim of this study was to compare the clinical presentation and outcome between OAI caused by clindamycin-resistant (CRSA) and clindamycin-susceptible (CSSA) S. aureus and to evaluate the prevalence of antibiotic resistance of S. aureus within the study period.
Methods: Children with S. aureus OAI prospectively enrolled in the RioPed National-network (2015-2022) were retrospectively evaluated. Epidemiological, clinical, microbiological and outcome data collected in a RedCap platform were used. We analysed possible factors linked to clindamycin resistance and susceptibility. The study was divided in two periods (P1:2015-2018 and P2:2019-2022).
Results: S. aureus was identified in 320 (21.4%) of the 1,494 children with OAI enrolled. The susceptibility to clindamycin was available in 128 isolates(MRSA 9.4%) which were evaluated. No differences were observed in prevalence of CRSA between MSSA and MRSA (12.9 vs 8.3% p 0.640). No increase in the resistant rates to methicillin and clindamycin was observed during the study period: MRSA: 12% P1 vs 7.8% P2 and CRSA 12% P1 vs 13% P2. All isolates evaluated were susceptible to vancomycin, rifampin, TMP-SMX and linezolid. Levofloxacin resistance was 1.8%. The rate of penicillin-resistant S.aureus (PRSA) decreased from P1 to P2 (95.8 vs 82.5%; p=0.036). MRSA OAI required more surgery (83.3 vs 48.7%;OR 95% CI:5.27[1.10-25.11]), more PICU admissions (28.6 vs 3.7%;OR 95% CI:10.40[1.40-77.21]) and had non-significant higher rate of complications (66.7 vs 38.3%;OR 95% CI:3.23[0.92-11.35]). No differences were observed according to clindamycin susceptibility.
Conclusions/Learning Points: In our study, the prevalence of MRSA and CRSA OAI in children remained stable in recent years, whereas PRSA significantly decreased. Resistance to clindamycin was not associated to MRSA. Unlike MRSA OAI, those produced by CRSA were not associated to worse clinical outcome.

PV0143 / #2009

INCIDENCE AND SEVERITY OF SPANISH CHILDREN WITH INVASIVE GROUP A STREPTOCOCCAL DISEASE (2019-2022): A NATIONAL MULTICENTER STUDY (PEDGAS-NET)

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

Elvira Cobo Vázquez[1], David Aguilera-Alonso[2], Isabel Mellado Sola[3], Elena Rincón López[4], Jaime Carrasco-Colom[5], Ana Isabel Piqueras[6], Francisco José Sanz-Santaeufemia[7], Dolores Falcon[8], Daniel Blázquez-Gamero[9], Victoria Rello-Saltor[10], Eloísa Cervantes[11], Leticia Martinez-Campos[12], Laura Martín-Pedraz[13], Calle-Miguel L[14], Elena Colino[15], Beatriz Jiménez-Montero[16], Anna Gamell-Fulla[17], Rut Del Valle-Pérez[18], Marta Pareja-León[19], María Sánchez Codez[20], Borja Guarch-Ibáñez[21], Núria López[22], Elena Del Castillo[23], Montserrat Ruiz-García[24], Arantxa Berzosa Sánchez[25], Gloria Caro[26], David Grandioso-Vas[27], Ana Jové-Blanco[2], Manuel Oltra-Benavent[6], María José González-Abad[28], Ángela Manzanares[29,30], Mayli Lung-Suárez[31], Ana Menasalvas Ruiz[32], Begoña Carazo-Gallego[33], Javier Cuenca-Gómez[15], Almudena Alonso-Ojembarrena[34], Anna Hernández-Ventura[21], Lucía Figueroa-Ospina[35], Marta Llorente-Romano[36], Pilar Galán[37], Lourdes García-Rodríguez[38], Emilia Cercenado-Mansilla[39], Marta Illán-Ramos[40], Elena Sánchez-Marcos[7], Genoveva Yagüe[41], Cristina Calvo[3], Jesus Saavedra-Lozano[42]
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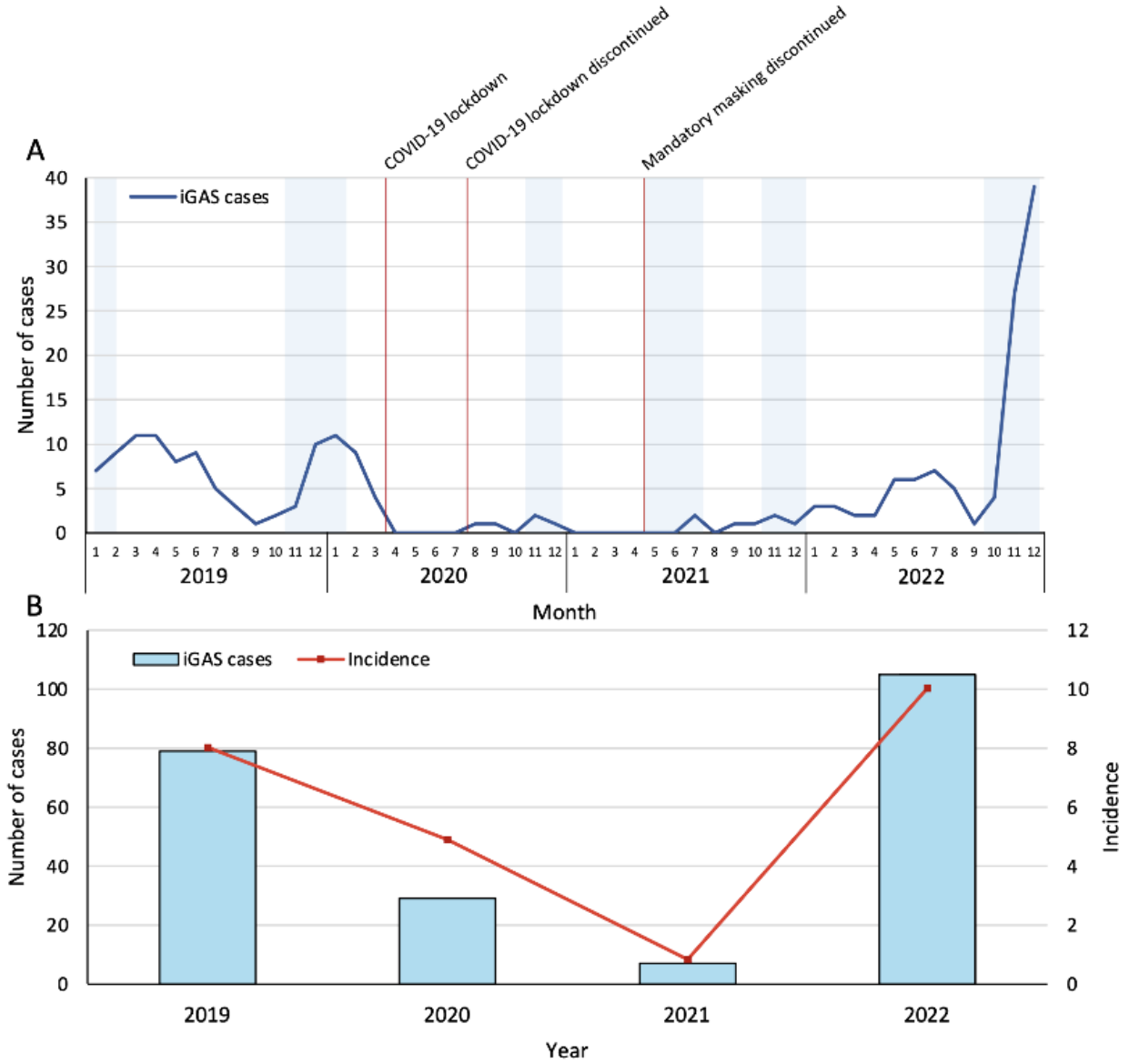
Backgrounds: In December 2022, the United Kingdom and other countries alerted of a significant increase in severe invasive group A streptococcal infection (iGASi) in children. An increase in mortality was also observed. This study aimed to describe iGASi cases in Spain over four years, analyzing

changes in incidence or severity.
Methods: PedGAS-net is a multicenter ambispective cohort study conducted in 29 Spanish hospitals to evaluate patients ≤16 years diagnosed with microbiologically confirmed iGASi. The epidemiology, clinical syndromes, and outcomes of these children between January 1, 2019-December 31, 2022, were analyzed.
Results: Two hundred and twenty children with iGASi were evaluated;125 (56.8%) male. Median age was 41.2 months (IQR:19.3–81.0). Eighty-nine (40.5%) children required PICU. Most common clinical syndromes were pneumonia (n=66, 29.6%;42/66 with pleural effusion), skin and soft tissue infection (n=50, 22.7%), osteoarticular infection (n=27, 12.3%) and primary bloodstream infection (n=23, 10.5%). Furthermore, twenty-five (11.4%) and ten (4.5%) children developed streptococcal toxic shock syndrome and necrotizing fasciitis, respectively. The average annual incidence rate of iGAS was 5.96 episodes/100,000 children attended at the emergency department/year. Incidence and its distribution are depicted in Figure1. Comparing iGASi in 2019 versus 2022, we found higher incidence in 2022 (8.0/100,000 vs. 10.0/100,000; p=0.134), mainly November-December 2022. Additionally, PICU admission and pneumonia were also more frequent in 2022 (48.6%vs.30.4%, p=0.013, and 36.2%vs.22.8%, p=0.050, respectively). Four patients (1.8%) died, three in December/2022. Figure: 1A:iGAS infections by moths/year. RSV season (blueshading). COVID-19 measures (red lines) in Spain. 1B:Incidence of
iGASi/year.



Conclusions/Learning Points: Compared to the pre-pandemic COVID-19 period, observed a significant increase in severity and number of iGASi in 2022, remarkably clustered in last weeks. We have also seen an increase in pneumonia cases, possibly related to temporal coincidence with RSV and influenza seasons in Spain.

PV0144 / #461

ACUTE GASTROENTERITIS IN ALBANIAN CHILDREN DURING THE YEAR 2021

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Acute gastroenteritis (AGE) is a common infectious disease in the pediatric age and the major presenting situation in our hospital's Emergency department (ED). 2021 was the second year of the Covid-19 pandemic, and measures to prevent its spread have influenced reducing the AGE cases but not so much because these have not been strictly respected as in the previous year.
Methods: The aim of this study was to show the epidemiological data, risk factors, clinical characteristics, complications, and the tendency of this disease. The study included all children with signs of AGE aged from 1mounth to 14 years old, presented in the Pediatric Emergency room of University Hospital: 'Mother Teresa,' Tirana, Albania, during the period 1 January to 31 December 2021.
Results: During this period 5613 children presented with signs of acute gastroenteritis, among them 351(6.2%) were severe cases that have been admitted to the hospital. The most affected age groups were 13m-4 years and 4-14 years which also, had an equal number of 1926(34%) cases, almost, the same as we noted for severe forms too, of 127(2.2%). The peak of incidence was in august with 1704(30%), meanwhile, the majority of admissions were in July with 75 (1.3%). About the causative agents, we found mostly rotavirus and cases with the SARS-Cov2 virus.
Conclusions/Learning Points: AGE continues to cause a large number of hospital visits. It's been three years since the rotavirus vaccine was introduced in Albanian's main national vaccination scheme. As a developing country, we have few possibilities for performing tests to discover the etiology of all the AGE cases even those of severe forms. We hope to achieve this in the following periods in order to complete our study.

PV0145 / #583

COMPARISON OF CLINICAL COURSE AND OUTCOME OF CONFIRMED DENGUE PATIENTS WITH AND WITHOUT DENGUE VACCINE IN A TERTIARY HOSPITAL IN THE PHILIPPINES

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Dengue is the leading cause of childhood morbidity and mortality globally more than any other vector-borne viral disease. In 2016, Dengue vaccine was introduced in a school based immunization program in the Philippines however was discontinued after nearly 3 years. Local data regarding Dengue vaccine that would supplement vaccine research and development are limited.
Methods: This is a retrospective, cohort study of clinical course and outcome in confirmed pediatric Dengue patients with and without Dengue vaccine between January of 2018 and December 2019 in a Tertiary Hospital from Bataan, Philippines. Clinical records were analyzed using statistical tools.
Results: A total of 239 subjects were included in the study – 177 non-vaccine recipients and 62 vaccine recipients. The mean age group among the 239 subjects was 12.5 years old with male predominance. Three doses were administered among the vaccinated. Previously infected were only 18.8%. No significant difference was seen among 197 admitted as Dengue with warning signs, while 42 were with Severe Dengue. There is a statistical significance among the non-vaccinated who experienced anorexia and abdominal pain. Joint pains and narrow pulse pressure were more on those vaccinated. Significantly, non-vaccinated patients were NS1 positive and were more leukopenic and thrombocytopenic upon admission. Patients found positive to IgM and IgG were however significant among the vaccinated group. Mortality was at 1.3% on the non-vaccinated patients, while 0% on those vaccinated patients. The non-vaccinated patients stayed longer, which was statistically significant. No significant difference in the management and outcome was
seen.

Summary Statistics the Significant Values of each Variables

	All (n=239)	Without Vaccine (n=177)	With Vaccine (n=62)	P value
Age (years), mean ± sd	12.5 ± 1.5	12.7 ± 1.6	11.9 ± 0.8	0.0002*
Gender, n, %				
Male	135 (56.5)	97 (54.8)	38 (61.3)	0.3762 ns
Female	104 (43.5)	80 (45.2)	24 (38.7)	
Dengue Severity, n, %				
Dengue with warning signs	197 (82.4)	149 (84.2)	48 (77.4)	0.2296 ns
Dengue Severe	42 (17.6)	28 (15.8)	14 (22.6)	
Hospital Stay, mean ± sd	4.5 ± 2.1	4.8 ± 1.9	4 ± 2.4	0.0104*
History of dengue (Yes), n, %	45 (18.8)	40 (22.6)	5 (8.1)	0.0119*
Hemoglobin	136.6 ± 15.6	137.5 ± 14.3	134.1 ± 18.6	0.1390 ns
Hematocrit	0.4 ± 0.1	0.4 ± 0.1	0.4 ± 0.1	0.1844 ns
WBC	5.6 ± 3.7	4.3 ± 2.5	9.3 ± 4.1	0.0001*
Neutrophils	0.6 ± 0.2	0.6 ± 0.2	0.6 ± 0.2	0.0714 ns
Lymphocytes	0.3 ± 0.2	0.3 ± 0.2	0.3 ± 0.2	0.9466 ns
Platelet Count	179.4 ± 98.5	150.1 ± 70.7	264 ± 116.6	0.0001*
ALT	103.8 ± 199.1	110.4 ± 204.4	8.4 ± 2.3	0.4927 ns
AST	130.2 ± 211.8	136.8 ± 217.5	34.4 ± 29.2	0.5175 ns
PT	12.9 ± 2.8	12.6 ± 3.0	13.9 ± 2	0.5000 ns
PTT	44.8 ± 10.0	44.9 ± 11.6	44.6 ± 5.5	0.9729 ns
NS1, n, %				
Negative	90 (37.7)	42 (23.7)	48 (77.4)	0.0001*
Positive	149 (62.3)	135 (76.3)	14 (22.6)	
IgM, n, %				
Negative	136 (56.9)	110 (62.1)	26 (41.9)	0.0058*
Positive	103 (43.1)	67 (37.9)	36 (58.1)	
IgG, n, %				
Negative	133 (55.6)	110 (62.1)	23 (37.1)	0.0007*
Positive	106 (44.4)	67 (37.9)	39 (62.9)	
Duration of Fever, mean ± sd	3.6 ± 1.0	3.5 ± 1.1	3.7 ± 0.9	0.3268 ns
Anorexia	96 (40.2)	80 (45.2)	16 (26.2)	0.0075*
Abdominal pain	133 (55.6)	108 (61)	25 (40.3)	0.0049*
Vomiting	149 (62.3)	115 (65)	34 (54.8)	0.1573 ns
Headache	112 (46.9)	80 (45.2)	32 (51.6)	0.3847 ns
Bleeding	48 (20.1)	34 (19.2)	14 (22.6)	0.5693 ns
Rashes	40 (16.7)	30 (16.9)	10 (16.1)	0.8819 ns
Joint pains	9 (3.8)	1 (0.6)	8 (12.9)	0.0001*
Hypotension	32 (13.4)	20 (11.3)	12 (19.4)	0.1097 ns
Narrowed pulse pressure	8 (3.3)	1 (0.6)	7 (11.3)	0.0001*
Organ impairment	3 (1.3)	3 (1.7)	0 (0)	0.5686 ns
Antipyretic	236 (98.7)	175 (98.9)	61 (98.4)	0.7693 ns
Inotropes	19 (7.9)	16 (9)	3 (4.8)	0.2937 ns
Blood transfusion	21 (8.8)	18 (10.2)	3 (4.8)	0.2029 ns
Alive	236 (98.7)	174 (98.3)	62 (100)	0.5702 ns
Expired	3 (1.3)	3 (1.7)	0 (0)	0.5702 ns

**Significant, ns not significant*

Conclusions/Learning Points: Thus, the Dengue vaccine provided a remarkable protection on patients 10-15 years old, however, its robustness can be better substantiated by a higher population analysis with all the requested necessary laboratories.

PV0146 / #308

INCIDENCE OF PUBLIC HEALTH SURVEILLANCE REPORTED LYME BORRELIOSIS CASES AMONG CHILDREN IN 19 COUNTRIES, 2005-2020

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Lyme borreliosis (LB), the most common tick-borne illness in Europe and North America, occurs among both adults and children. The global burden of LB in children has not been well described.
Methods: We reviewed national public health agency websites to identify LB surveillance systems that report age-specific data. Census data were used to derive incidence estimates. Incidence in children were estimated for the years of available surveillance data in each country.
Results: We identified age-specific data in 19 (68%) of 28 countries with public health surveillance for LB: 2 countries in Asia (Japan and South Korea), 15 countries in Europe, and 2 countries in North America (USA and Canada). The following age strata were used to report pediatric data: <19 years of age (14 (74%) countries); <14 years (3 (16%) countries), <17 years and <24 years (1 (5%) country each). Across all 19 countries, the 5–9 year age stratum had the highest proportion of LB cases in children. Pediatric LB incidence was low in the two countries in Asia (<1/100,000 children per year [PCY]), high in the USA (5-15/100,000 PCY) and varied widely across countries in Europe (<1-240/100,000 PCY). The highest LB incidence in children worldwide was in Slovenia (150-240/100,000 PCY). In Denmark, Norway, and the USA, pediatric LB cases represented >20% of total reported cases.
Conclusions/Learning Points: Pediatric LB cases represent an important proportion of the LB cases reported in public health surveillance systems worldwide, highlighting the need for prevention efforts targeting pediatric populations.

PV0147 / #2295

GENDERNEUTRAL HPV-VACCINATION IN THE VACCINATION PROGRAMME IN FLANDERS 2019-2022 – ESTIMATE OF GENDER DIFFERENCE IN PARTICIPATION AND COVERAGE

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: The HPV-vaccination programme was introduced in Flanders in September 2010 for girls (first year of secondary school). Since September 2019 the programme is gender neutral. A vaccination coverage survey in 2020 for adolescents born in 2007 showed an HPV vaccination coverage for the first dose of 92,3 % in girls and 86,7% in boys and for the 2nd dose 84,3% in girls and 77,3% in boys. All vaccinations with free-of-charge vaccines should be registered in the vaccination registry (Vaccinnet).
Methods: We analysed HPV-vaccination data for adolescents born from 2006 to 2010, registered in Vaccinnet during the school years 2019-2020, 2020-2021 and 2021-2022 in order to evaluate to what extent the difference in coverage between girls and boys persisted after the starting schoolyear 2019-2020. We also aimed to evaluate whether the 2nd dose coverage has increased.
Results: The number of registered vaccinations from September 2019 to August 2022 was similar for girls and boys born in 2007, 2008 and 2009. From all adolescents who received a first HPV-vaccination during this period about 95% completed their vaccination with a 2nd dose.
Conclusions/Learning Points: Data analysis of registered HPV-vaccinations showed that the vaccination uptake in the vaccination programme is similar for boys as for girls born in 2007, 2008 and 2009. Over 95% of participants at the programme completed the vaccination with a second dose. This suggests that the difference in coverage for the first year of the programme was mainly because of boys who hadn't been offered the vaccination yet at the time of the coverage study.

PV0148 / #595

INTUSSUSCEPTION: AN ASSESSMENT OF THE IMPACTS OF THE COVID-19 LOCKDOWNS AND LINKS TO VIRAL AETIOLOGY

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Intussusception is the primary cause of acute bowel obstruction in infants. The majority of cases are classed as idiopathic and of these cases viral infection has been implicated as a cause. In recent years, the implementation of COVID-19 public health measures led to significant decreases in the prevalence of communicable diseases. During these times, reductions in intussusception frequency were anecdotally reported - reductions greater than would be expected with our current understanding of its infectious aetiology.
Methods: We conducted a retrospective, multi-state, ecological study that covered a twelve year period. Monthly case numbers of ICD-10-AM K56.1 'Intussusception' coded admissions were acquired from state-wide admissions datasets from New South Wales (NSW), Victoria and Queensland, representing 77.62% of the eligible Australian population. These counts were compared against publicly available information regarding the differing jurisdictional lockdowns in order to investigate a correlation between intussusception frequency and lockdown periods.
Results: We found a negative association between intussusception frequency and lockdown periods in both eligible states. The largest reductions were seen in the under 2 year age groups with Victoria experiencing a 62.7% reduction (Rate ratio (RR) = 0.37, $p < 0.0001$) and NSW a 40.1% reduction (RR = 0.599, $p = 0.006$) during lockdown times. Geographical variations in lockdown restrictions were controlled for in both states and in Victoria both Metropolitan Melbourne and Regional Victoria experienced decreases of 51%.
Conclusions/Learning Points: Our ecological study demonstrates significant decreases in the frequency of paediatric intussusception admissions during the COVID-19 lockdown periods. We hypothesise that this decrease is due to a reduction in circulating viruses during these times. The unexpected magnitude of the reductions suggests that the true proportion of infectious disease-caused idiopathic intussusception may be greatly underestimated.

PV0149 / #1338

TRENDS OF CARBAPENEM RESISTANCE IN PEDIATRIC CARDIAC ICU: A 7-YEAR EXPERIENCE IN AN ITALIAN HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: The impact of Gram- resistance is considerably greater in intensive care unit (ICU), where prevalence is high and clinical outcomes are especially poor. In Italy, the national surveillance performed from 2014 to 2017 on sepsis reported 7,632 carbapenem-resistant organism (CRO) infections, almost all due to K.pneumoniae carbapenemase (KPC) enzyme (95.2%). Here we describe a cohort of pediatric patients with CRO infections admitted in a cardiac ICU, highlighting the important changes in carbapenemase production occurred in the last years in our hospital.
Methods: All patients admitted to the cardiac-ICU of the Bambino Gesù Children's Hospital in Rome during the 2016-2022 period with an infection caused by a CRO were enrolled in the study.
Results: Data were collected from 42 patients. The reason of CICU admission was cardiac surgery in 50% of cases and heart failure in 38%. 40% of patients needed ventricular assistance or ECMO. 52% of patients were already colonized by a CRO. Pseudomonas was the main isolated CRO, followed by Klebsiella and Enterobacter. Carbapenemase production was present in 31% of cases, with VIMs being highly predominant. The main type of CRO infection was pneumonia (64%), followed by sepsis (34%) and urinary tract infections (7%). Attribuable mortality to CROs was 5%; 30-day relapse rate by the same isolate was 5%. During the 7-year period, we observed important changes in carbapenemase production by CROs; since 2018, VIMs progressively increased becoming the most identified carbapenemases in 2021.
Conclusions/Learning Points: The progressive increase of MBL-producing pathogens in our hospital is challenging in terms of therapeutic options. Updated national and international estimates on trends and molecular characteristics of carbapenemase production by CROs are needed to guide studies on new antibiotic agents that could target these MDR bacteria.

PV0150 / #1169

PROSPECTIVE STUDY OF ANNUALLY RECORDED INFLUENZA CASES IN A PEDIATRIC POPULATION: THE PANDEMIC EFFECT

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Following discontinuation of COVID-19 quarantine isolation measures an increase of various viral and becterial infections has been observed amongst pediatric populations. The aim of our study was to investigate the distribution of hospitlized type A and B influenza pediatric cases during 2022 compared to before Covid-19 pandemic.
Methods: Data from hospitalized cases were consecutively collected in a district Pediatric Department for the period 1st January 2022 up to 31st December 2022 and were compared with similar data from 2019, before Covid-19 pandemic. Cases were analyzed in relation to their sociodemographic characteristics, influenza and coronavirus vaccination status, clinical and laboratory findings and complications.
Results: Prevalence of pediatric hospitalized influenza cases was quadrupled in the year 2022 (29/262, 11%) compared to 2019 (before the Covid-19 pandemic) (9/288, 3%). In 2022 a second influenza wave has been observed started in September. Peak month of the year came earlier in December 2022 (51.7%) compared to February 2019 (66%). Influenza type A was 93% of the cases with mean duration of hospitalization 3,3 days. Boys were 55%, mean age was 6 years, and of Greek nationality were 79%. Amongst cases influenza vaccination rate was 11% and of those eligible for Covid-19 vaccination 85% were unvaccinated. Complications had 41% of cases; 8% bacteremia, 25% pneumonia, 25% otitis media, 16.6% myositis and 8% eyelid oedema.
Conclusions/Learning Points: Prevalence of influenza pediatric hospitalized cases has been increased in the years following Covid-19 pandemic compared to before with low timely vaccination rate observed. Our data corresponds with data from the National Public Health Organization. They can be used to make necessary accommodations in the national pediatric vaccination schedule regarding influenza, in order to prevent future outbursts.

PV0151 / #2515

REGIONAL ASSESSMENT OF TETANUS AND DIPHTHERIA PREVALENCE IN ADULT POPULATION.

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: Immunizations against influenza and other antigens such a Streptococcus pneumoniae herpes zoster, covid-19 are recommended for elderly people furthermore regular booster vaccinations against tetanus, diphtheria and in some cases, pertussis are recommended in many European countries for adults, including elderly people. Vaccination recommendations for adults differ between individual countries and vaccination coverage data is sparse. Tetanus-specific antibody concentrations are generally higher than diphtheria-specific antibodies, and a substantial proportion of adults, and particularly of elderly people, do not have protective antibody concentrations against diphtheria.
Methods: We aimed to record the Tetanus and Diphtheria prevalence in prefecture of Attica in Greece by measuring serum IgG specific antibody levels to Tetanus and Diphtheria. A stratified sampling plan based on region of Attica was applied in order to produce a representative sample, taking into consideration age group (30 to 80+) and sex. During September 2022 to March 2023 In total 466 subjects participated in the study. Exclusion criteria were age under 30 years old, residence, and symptoms for illness. We excluded participants under 30 years old from the study because the vaccination coverage in the infants and young teenagers in Greece is in a high proportion
Results: The proportion of antibody prevalence for diphtheria of sera with diphtheria antibody levels varied between 0.01 το 0.69 IU/mL. The majority of the participants 64% has been protective antibody levels. The proportion antibody prevalence for tetanus of sera with tetanus antibody levels varied between 0.01 to 0.72 IU/mL. We record proportion of protective levels for tetanus 81%.
Conclusions/Learning Points: A considerable proportion of adults in the prefecture of Attica do not have antibody levels that are protective against diphtheria and tetanus.

PV0152 / #257

COHORT EVENT MONITORING ON ADVERSE EVENTS FOLLOWING IMMUNIZATION DURING THE FIRST FOUR YEARS OF CHILDHOOD VACCINATIONS IN THE DUTCH NATIONAL IMMUNIZATION PROGRAMME

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Although a lot is known about the adverse event following immunization (AEFIs) profile of childhood vaccinations, there is a gap in knowledge concerning the (risk factors of) recurrence, time course and burden of AEFIs after multi-dose vaccines. To gain more insight into these aspects, the Netherlands Pharmacovigilance Centre Lareb set up a cohort event monitoring (CEM) study for vaccines being administered according to the Dutch National Immunisation Program (DNIP) within the first four years of a child's life.
Methods: The inclusion period for this prospective cohort study ran for a year and will follow children vaccinated in the DNIP from birth until the age of four. During this period, there are 4 to 5 vaccination moments. Parents of children were invited to participate during regular DNIP vaccination invitation letters. After registration, parents will receive two online questionnaires per vaccination moment to gain insight into experienced AEFIs by their children. In addition to this, two medical background baseline questionnaires will be sent. There will be two interim analysis and one final analysis. Due to the long-running period in which data is collected, we are able to perform both cross-sectional (i.e. per vaccination moment) and longitudinal (i.e. transcending multiple vaccination moments) analysis. Allowing for the calculation of recurrence risks of certain adverse events over a child's vaccination period.

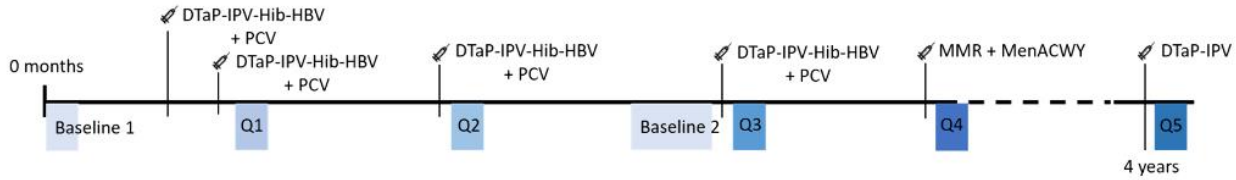

Figure 1: Timeline of the DNIP and questionnaire (Q) scheduling. Each questionnaire is sent 7 days after the expected vaccination date.

Results: Currently, 6300 participants have been included that together have reported a total of 7992 AEFIs.
Conclusions/Learning Points: This unique study hopes to provide insight into (risk factors of) recurrence of AEFI, course of experienced AEFIs and its burden on the child's daily life. In addition, collected data will also be used as a baseline dataset to which later modifications of the DNIP can be compared to.

PV0153 / #2737

A NATIONWIDE DATABASE ANALYSIS OF THE BURDEN OF HOSPITALIZED PEDIATRIC PERTUSSIS IN FRANCE, 2008-2020

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Background: Introduction
In the absence of mandatory notification, estimating the burden of pertussis in France has mostly relied on sentinel surveillance. In 2013, the pertussis vaccination schedule shifted the infant series from a 3+1 to a 2+1 series with the inclusion of a booster at 6 years while keeping the 11-13 years booster.
Objective
To estimate the cumulative incidence of hospitalized pertussis in <18 years-old from 2008 to 2020 in France, overall and stratified by age group, and vaccination schedule.
Methods: This retrospective cohort study among <18 years-olds over 2008-2020 used the French healthcare claims database (SNDS). Cases were identified by ICD-10 codes A37. Cumulative incidences were estimated against age- and sex-representative SNDS sample and census data. Negative binomial regression was used to generate cumulative incidence ratios (CIR) adjusted for the cyclical pattern of pertussis.
Results: In total, 7,212 hospitalized pertussis cases <18 years-old were identified, with outbreaks in 2009, 2012/13 and 2017/18. CIR in 2008-2012 vs. 2013-2020 periods were not statistically significant except in the 12-17 years group.
Conclusions/Learning Points: Like other countries, cyclical endemicity of pertussis was observed in France, with the highest burden in infants <6 months. The change in vaccination schedule did not affect the incidence of hospitalized pertussis in most age groups.

Age-group	Cases (n)	Cumulative Incidence 2008-2012*	Cumulative Incidence 2013-2020*	Adjusted CIR 2008-2012 vs. 2013-2020 schedule [95% CI]*¥
0-1 months	1,962	125.8	109.5	0.86 [0.66;1.12]
2-5 months	3,775	126.3	101.9	0.78 [0.55;1.10]
6-11 months	460	8.2	9.6	1.18 [0.87;1.59]
1-5 years	559	1.2	1.0	0.92 [0.78;1.09]
6-11 years	277	0.5	0.4	0.77 [0.52;1.15]
12-17 years	179	0.4	0.2	0.51 [0.38;0.69]
0-17 years	7,212	4.4	3.5	0.79 [0.58;1.08]

* per 100,000 inhabitants

¥ adjusted by calendar year, 3+1 schedule (2008-2012) as reference

PV0154 / #506

NEED FOR VARICELLA VACCINATION IN INDIA

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Varicella vaccination is not yet a part of the national immunization program in India. In absence of this, varicella outbreaks keep on occurring in various parts of the country. In view of the nonavailability of recent seroprevalence data from India, this study was planned.
Methods: This study aimed to find out the proportion of protected individuals against varicella by measuring the specific IgG antibody titer among children (9-12 years), adolescents (15-18 years), and adults (25-30 years). In this cross-sectional, observational study, apparently healthy subjets from Outpatient departments (OPDs) of a tertiary care hospital in Northern India, over one year period (July 17-June 18), were enrolled after taking informed written consent; and their blood sample was collected. Institute ethics committee clearance was obtained before enrollment. IMMUNOLAB GmbH, Kassel (Germany) Varicella Zoster IgG ELISA kit was used.
Results: A total of 80 healthy subjects (M:F=47:33) were enrolled from three age groups having mean ages of 10.7, 17.0, and 26.9 years. Subjects with a history of varicella vaccination in past were excluded from enrollment. In our study, antibodies (IgG) against varicella were >12 U/ml (seroprotective) in 40% (10/25), 96% (24/25), 76.7% (23/30) in age groups 9-12 years, 15-18 years and 25-30 years respectively. A total of 46.3%(37/80) of subjects were sure about the history of having varicella in past, and 86.5%(32/37) of them had protective antibodies having a positive predictive value of 86.5%.
Conclusions/Learning Points: A large proportion (about 1/4th) of young adults remains susceptible to varicella infection in India, which could have a potential to cause outbreaks. For countries having higher proportion of susceptible population after age of 18 years, most cost-effective strategy could be selective immunization of adolescents, who didn't have history of varicella in past.

PV0155 / #508

SEROEPIDEMIOLOGY OF DENGUE IN INDIA

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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Backgrounds: Vaccination against dengue remains an important prevention strategy today. Dengvaxia, the first dengue vaccine that has been approved for use in 9-45 years, was found safe only in seropositive (dengue IgG+ve) individuals. WHO recommends its use only in seropositive individuals after the prevaccination screening. In public health, it can be used without a prevaccination strategy, only for populations having very high seroprevalence (>80%). In view of the nonavailability of such regional seroprevalence data, this study was planned.
Methods: This study aimed to find out the proportion of seropositive individuals against dengue infection by measuring the specific (IgG) antibody titer among children (9-12 years), adolescents (15-18 years), and adults (25-30 years). In this cross-sectional, observational study, apparently healthy subjects from OPDs of a tertiary care hospital in Northern India, over a one-year period (Jan19-Dec19), were enrolled after taking informed consent; and their blood sample was collected. Institute ethics committee clearance was obtained before enrolment. Penbio dengue virus (Standard Diagnostics, Yongin-si, South Korea) IgG indirect ELISA quantitative kits were used. A Panbio units >11 was labelled as seropositive for IgG against Dengue infection, indicating evidence of past dengue infection.
Results: A total of 80 subjects(M:F=39:41) were enrolled from three age groups(25 in 9-12 yrs, 25 in 15-18 yrs, and 30 in 25-30 years). In our study dengue antibodies(IgG) were >11 Penbio Units(seroprotective) in 44%(11/25), 72%(18/25), 73%(22/30) in age groups 9-12 years, 15-18 years and 25-30 years,respectively.
Conclusions/Learning Points: Although the seroprevalence against dengue(IgG) antibodies in our study was on the higher side, in studied age groups; but this was below WHO predefined cut-off of >80%. Based on the above study, if Dengvaxia has to be used in India, it should only be done only after individual prevaccination screening.

PV0156 / #925

EPIDEMIOLOGY OF INVASIVE MENINGOCOCCAL DISEASE IN FOUR LATIN AMERICAN COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS02.A. POPULATION STUDIES AND SURVEILLANCE

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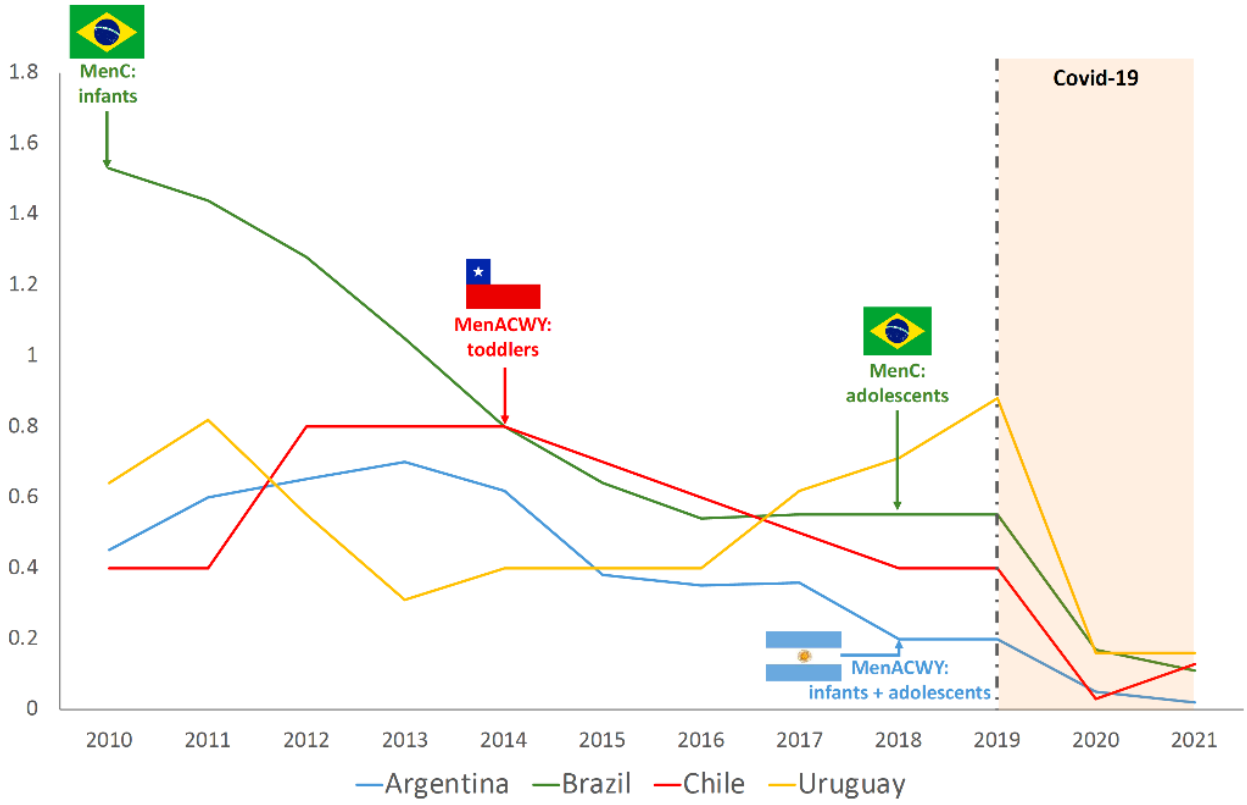
Backgrounds: Surveillance of meningococcal disease (MD) is crucial after the implementation of vaccination strategies to monitor its impact on disease burden. Argentina, Brazil and Chile have introduced meningococcal conjugate vaccines (MCV) into their National Immunization Programs (NIP), while Uruguay has not. The aim of this study is to describe epidemiological trends in these countries
Methods: Descriptive study of MD incidence rates, serogroup distribution, case fatality rates (CFR) and MCV uptakes, during the period 2010-2021 in Argentina, Brazil, Chile and Uruguay. Data were extracted from national surveillance programs, references laboratories and NIPs.
Results: A decreasing incidence trend was observed in Argentina, Brazil and Chile from 2010 to 2019, while a significant increase was seen in Uruguay from 2017 to 2019. During Covid-19 pandemic a sharp decrease in incidence rates was demonstrated in all countries. The following median incidence rates were found during the study period: Argentina: 0.37 (IQR= 0.2-0.61), Brazil: 0.59 (IQR= 0.54-1.22), Chile: 0.45 (IQR= 0.4-0.77), and Uruguay: 0.44 (IQR 0.18-0.78). Infants had the highest incidence rates, followed by children 1-4 years, without a peak in adolescents. A reduction of serogroups C, W and Y cases occurred in Argentina, Brazil and Chile, after introduction of MCV, while the proportion of cases due to serogroup B increased in all-four countries. Overall median CFR was 21%. Median uptake of MCV for Argentina and Brazil were respectively, 71.5% and 94.5% for infants, 62.5% and 85% for toddlers and 47.5% and 61% for adolescents; while for Chile was 96% for
toddlers.

Figure. Incidence of meningococcal disease, Argentina, Brazil, Chile and Uruguay, 2010-2021



Conclusions/Learning Points: Experience after the implementation of MCV programs in South America was successful, reducing the burden of MD due to the vaccine serogroups. High vaccine coverage will be crucial in the post-pandemic period to maintain population protected.

PV0157 / #140

COST-EFFECTIVENESS ANALYSIS OF CELL-BASED VERSUS EGG-BASED SEASONAL INFLUENZA VACCINATION IN PEDIATRIC POPULATION IN TAIWAN

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Virus mutations can be introduced during egg-based influenza vaccine production, potentially reducing vaccine effectiveness (VE). Cell-based influenza vaccines avoid egg-adaptive mutations, potentially improving VE. We assessed the cost-effectiveness of cell-based quadrivalent influenza vaccine (QIVc) versus egg-derived quadrivalent influenza vaccine (QIVe) in children (6mons-17yrs) from the payer's and societal perspective in Taiwan.
Methods: We developed an age-stratified static model comparing estimated costs and health benefits of vaccination using a one-year time horizon. Taiwanese influenza disease burden data, vaccination coverage rates and healthcare resource use, utility and unit costs inputs were sourced from reports from Taiwan. The relative VE (rVE) of QIVc vs QIVe was assumed to be 8.1% for this pediatric population based on a published meta-analysis. A high egg-adaptation scenario was also assessed. Costs were expressed in 2022 U.S. dollars and cost-effectiveness threshold was three times Taiwan's Gross Domestic Product per capita (US$99,177). Deterministic and probabilistic sensitivity analyses were performed.
Results: Compared to QIVe, QIVc would prevent additional 18,141 influenza cases, 2,598 complications, and 301 hospitalizations per year. The incremental cost-effectiveness ratio (ICER) per QALY from the payer's and the societal perspective, respectively, was US$65,176.40 and US$36,292.01 in the base case and US$43,223.71 and US$14,339.33 in the high egg-adaptation scenario. Deterministic sensitivity analyses showed that infection incidence rate, vaccine coverage and prevalence of A/H3N2 strain were the main drivers of the ICER. Deterministic sensitivity analyses showed that infection incidence rate, vaccine coverage and prevalence of A/H3N2 strain were the main drivers of the ICER.
Conclusions/Learning Points: Switching vaccination strategy from QIVe to QIVc is predicted to have significant impact in reducing influenza-associated disease burden for the pediatric population in Taiwan. The potential benefits with QIVc would be even higher within high egg-adaptation influenza seasons.

PV0158 / #1130

ASSOCIATION BETWEEN AIR POLLUTANTS, SEASONAL INFLUENZA, AND ACUTE OTITIS MEDIA IN CHILDREN: RETROSPECTIVE ANALYSIS USING INPATIENT DATA ACROSS 22 YEARS

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Acute otitis media (AOM) is the most common diagnosis for childhood acute illness, accounting for 13.6 million pediatric office visits annually. It is currently acknowledged as a bacterial complication of viral upper respiratory tract infection (URI). Other potential risk factors of AOM aside from URI, involve exposure to environmental air pollution and cold seasons. In this study, we examined the relationship between meteorological factors, air pollutants, influenza infection, and AOM in children.
Methods: We collected territory-wide hospitalization data from 1998 to 2019 in Hong Kong to investigate the relationship in children aged below 16 years. Quasi-Poisson generalized additive model in conjunction with distributed-lag non-linear model was used to elucidate the association of interest, with weekly AOM admissions for children as the response variable and weekly influenza-like illness-positive (ILI+) rates and air pollutants (i.e., oxidant gases, sulfur dioxide, and fine particulate matter) as predictors, while controlling for meteorological variations.
Results: There were 21,224 hospital admissions due to AOM for children throughout a 22-year period. The cumulative adjusted relative risks (ARR) of AOM were 1.15 (95% CI, 1.04-1.28) and 1.07 (95% CI, 0.97-1.18) at the 95th percentile concentration of oxidant gases (65.9 ppm) and fine particulate matter (62.2 μg/m³) respectively, with reference set to their medians of concentration. The ARRs exhibited a monotone increasing trend for all-type and type-specific ILI+ rates, indicating ILI+ Total, A/H1N1, A/H3N2, and B were all statistically significantly associated with an increased risk of AOM.
Conclusions/Learning Points: Our findings suggested that policy on air pollution control and influenza vaccination for children need to be implemented, which might have significant implications for averting AOM in children.

PV0159 / #1282

COST-EFFECTIVENESS OF THE 20-VALENT PNEUMOCOCCAL VACCINE COMPARED TO THE 15-VALENT PNEUMOCOCCAL VACCINE IN SWEDISH CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Since September 2019, only the 10-valent pneumococcal conjugate vaccine (PCV10) has been used across all counties in the Swedish pediatric national immunization program (NIP). The 15-valent vaccine (PCV15) is to be used in the pediatric NIP from September 2023, but much of the current disease burden is attributed to serotypes contained in higher-valent vaccines (PCV20). The objective of this study is to determine the cost-effectiveness of switching from PCV15 to PCV20 in Sweden's paediatric NIP.
Methods: A decision-analytic model was used to compare the cost-effectiveness of switching from PCV15 to PCV20 in 2024 over a 10-year time horizon from a payer perspective. The model uses historical age and serotype-specific invasive pneumococcal disease (IPD) epidemiological data from Sweden between 2011 and 2018 to project future incidence across all ages. Projections of non-invasive disease incidence rates are assumed to vary proportionally with IPD. Vaccine and direct medical costs were publicly available and obtained from Apotek Hjärtat and the Västra Götalandsregionen (VGR) price list, respectively. Costs and outcomes are both discounted at a rate of 3%.
Results: PCV20 is estimated to avert an additional 111 IPD cases, 4,933 otitis media cases, 1,377 pneumonia cases, and 32 deaths over 10 years across all ages. Despite higher vaccine acquisition costs, PCV20 is cost-saving compared to PCV15 and would reduce healthcare spending by over 270 million SEK (Table

Table 1. Results on cost-effectiveness of PCV20 vs PCV15 in Sweden's paediatric NIP			
Outcomes	**PCV15**	**PCV20**	**Incremental**
Disease cases			
Bacteremia	3,275	3,164	-111
Cases in < 5-year-olds	167	157	-10
Cases in ≥ 5-year-olds	3,108	3,007	-101
Meningitis	364	352	-12
Cases in < 5-year-olds	18	17	-1
Cases in ≥ 5-year-olds	345	334	-11
Inpatient pneumonia	17,611	16,926	-684
Cases in < 5-year-olds	6,853	6,435	-418
Cases in ≥ 5-year-olds	10,758	10,491	-266
Outpatient pneumonia	213,793	213,100	-693
Cases in < 5-year-olds	11,364	10,671	-693
Cases in ≥ 5-year-olds	202,429	202,429	-0
Simple OM	192,268	187,361	-4,908
Complex OM	7,386	7,361	-25
Total	434,691	428,264	-6,427
Deaths			
IPD	519	503	-16
Deaths in < 5-year-olds	11	10	-1
Deaths in ≥ 5-year-olds	508	493	-15
Inpatient pneumonia	587	571	-16
Deaths in < 5-year-olds	69	64	-5
Deaths in ≥ 5-year-olds	518	507	-11
Total	1,106	1,074	-32
Costs (SEK)			
Vaccine	2,136,185,413	2,174,946,155	38,760,743
IPD	334,587,009	324,507,752	-10,079,256
Pneumonia	2,781,271,665	2,702,253,681	-79,017,984
OM	9,084,988,906	8,863,611,847	-221,377,059
Total	14,337,032,993	14,065,319,436	-271,713,357
Outcomes			
Life years	54,545,498	54,545,518	20
QALYs	36,849,643	36,849,674	31
ICER			**PCV20 dominant (cost-saving)**
Abbreviations: IPD = invasive pneumococcal disease; OM = otitis media; NIP = national immunization program; PCV = pneumococcal conjugate vaccines; QALY = quality-adjusted life year.			
Notes: The cost-effectiveness analysis was run over 10-year time horizon from a payer perspective.			

1).

Conclusions/Learning Points: In Sweden, replacing PCV15 with PCV20 on the pediatric NIP is not only estimated to provide greater public health impact, but also save substantial future healthcare costs and individual suffering. The inclusion of PCV20 in Sweden's adult NIP as of 1 December 2022 may also further reduce remaining pneumococcal disease burden in older populations.

PV0160 / #1260

PUBLIC HEALTH IMPACT AND COST-EFFECTIVENESS OF POTENTIAL ADOLESCENT MENACWY VACCINATION STRATEGIES IN GERMANY

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: In Germany, invasive meningococcal disease (IMD) caused by serogroups C, W and Y is accountable for almost half of all reported cases. IMD incidence peaks in the infant/toddler and adolescent/young adult populations. Nevertheless, the German Standing Committee on Vaccination (STIKO) so far only recommends meningococcal C conjugate vaccination at 12 months of age as well as a catch-up for unvaccinated individuals up to 17 years. Currently there is no routine MenACWY vaccination recommended. The aim of this study was to analyze the impact of implementing various hypothetical infant and/or adolescent vaccination strategies on the protection against IMD caused by serogroup A, C, W and Y in Germany. Our results can serve as evidence to consider a recommendation switch from monovalent to a quadrivalent vaccine, as implemented in other European countries such as the UK and Netherlands.
Methods: Analysis was performed using a static population-cohort model, that evaluates the burden of IMD and associated costs and outcomes. We compared the cost-effectiveness of various meningococcal vaccination strategies. The model considers the effects of both acute IMD and its long-term complications as well as direct and indirect costs of IMD.
Results: Our modelling demonstrated that all strategies including MenACWY vaccine are extremely effective in decreasing the number of cases and preventing death and offer good value for money, with the greatest benefit observed when individuals are vaccinated with MenACWY at both 12 months and 16 years of age.
Conclusions/Learning Points: These results indicate the advantage of implementing a broader meningococcal vaccine recommendation in Germany that can provide toddler and adolescents with direct protection against IMD caused by serogroup A, C, W and Y as well as protecting other population groups via an adolescent herd effect.

PV0161 / #1269

PUBLIC HEALTH IMPACT OF THE 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE COMPARED WITH THE 15-VALENT PNEUMOCOCCAL VACCINE IN CHILDREN ACROSS THREE SPANISH REGIONS

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: In Spain, the 13-valent pneumococcal conjugate vaccine (PCV13) is part of regional infant national immunization programs (NIPs). Higher-valent PCVs, 15-valent (PCV15) and 20-valent (PCV20), might be implemented in the future as they cover a larger portion of the remaining pneumococcal disease burden. Therefore, we aim to estimate the public health impact of switching from PCV13 to PCV15 or PCV20 in the three most populated regions of Spain: Madrid, Andalusia, and Catalonia.
Methods: A decision-analytic model was adapted to estimate the future public health impact of switching from PCV13 to PCV15 in 2023, or PCV20 in 2024, considering the potential availability of the pediatric indication. The model used historical age- and serotype-specific epidemiological data of invasive pneumococcal disease (IPD) and non-invasive pneumococcal diseases from three Spanish regions between 2013 and 2019 to estimate future disease burden. The public health impact for each program was compared over 5-years and reported in ages <5 years and 5-14 years.
Results: Compared to PCV15, switching to PCV20 is estimated to avert more pneumococcal disease cases and deaths in Spain regions (Table 1). As in Madrid, PCV20 is estimated to prevent an additional 77 IPD cases, 6,726 otitis media (OM) cases, 595 inpatient and outpatient pneumonia cases. In Andalusia, the incremental impact of PCV20 amounts to 46 IPD cases, 15,322 OM cases, 507 inpatient pneumonia cases. Meanwhile, an additional 93 IPD cases, 6,500 OM cases, 354 inpatient and outpatient pneumonia cases are estimated to be averted by PCV20 in
Catalonia.

Table 1. Results on public health impact associated with higher-valent PCV implementation in Spain's pediatric population across three Spanish regions over five years.

Regions	**Madrid**		**Andalusia**		**Catalonia**	
Population Size	**1,026,826**		**1,336,821**		**1,178,946**	
Ages < 5 years	328,971		394,429		356,465	
Ages 5-14 years	697,855		942,392		822,481	
Vaccination Strategies	**PCV15**	**PCV20**	**PCV15**	**PCV20**	**PCV15**	**PCV20**
Disease Cases						
Bacteraemia	**535**	**468**	**329**	**289**	**650**	**570**
Bacteraemia cases < 5 years	346	316	296	269	499	452
Bacteraemia cases 5-14 years	189	152	33	20	151	118
Meningitis	**88**	**78**	**54**	**48**	**108**	**95**
Meningitis cases < 5 years	57	53	49	45	83	75
Meningitis cases ≥ 5-14 years	31	25	5	3	25	20
Inpatient pneumonia	**3,067**	**2,723**	**3,142**	**2,635**	**1,482**	**1,260**
Inpatient pneumonia cases < 5 years	2,321	2,123	2,594	2,306	848	767
Inpatient pneumonia cases 5-14 years	746	600	548	329	634	493
Outpatient pneumonia	**12,953**	**12,702**	**N/A***	**N/A***	**2,882**	**2,750**
Outpatient pneumonia cases < 5 years	2,951	2,700	-	-	1,382	1,250
Outpatient pneumonia cases 5-14 years	10,002	10,002	-	-	1,500	1,500
Simple Otitis Media	**320,050**	**313,324**	**247,761**	**232,439**	**112,489**	**105,989**
Total	336,693	329,295	251,286	235,411	117,611	110,664
Deaths						
IPD	**20**	**18**	**15**	**13**	**28**	**24**
IPD deaths < 5 years	17	15	14	13	25	22
IPD deaths 5-14 years	3	3	1	0	3	2
Inpatient pneumonia	**15**	**12**	**13**	**9**	**10**	**8**
Inpatient pneumonia deaths < 5 years	6	5	6	5	2	2
Inpatient pneumonia deaths 5-14 years	9	7	7	4	8	6
Total	35	30	28	22	38	32

Abbreviations: PCV = pneumococcal conjugate vaccine; IPD = Invasive pneumococcal disease.
*N/A = Due to the lack of local incidence data, outpatient pneumonia cases for Andalusia were not estimated in this analysis.
Notes: In the 5-year impact analysis, PCV15 is assumed to be available in 2023, one year before the PCV20, which is assumed to be available in 2024.

Conclusions/Learning Points: Compared to implementing PCV15 in 2023, implementing PCV20 in 2024 is estimated to provide greater public health impact on pneumococcal disease for children in three Spanish regions over a 5-year time horizon, despite a one-year delay in implementation.

PV0162 / #749

ESTIMATING THE COST EFFECTIVENESS OF SWITCHING TO HIGHER-VALENT PEDIATRIC PNEUMOCOCCAL CONJUGATE VACCINES IN THE UNITED KINGDOM

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Currently, the 13-valent pneumococcal conjugate vaccine (PCV13) is administered under a 1+1 schedule for children in the United Kingdom (UK). Higher-valency PCVs, 15-valent (PCV15) and 20-valent (PCV20), might be considered in the future for expanding coverage and improving protection. We evaluate the cost-effectiveness of PCV20 or PCV15 using either a 2+1 or 1+1 schedule for pediatric vaccination in the UK.
Methods: Using a dynamic transmission model, we simulated future disease incidence and costs under PCV13 1+1, versus PCV20 2+1, PCV20 1+1, PCV15 2+1, and PCV15 1+1, from the UK National Health Service perspective. The model was parameterized using UK serotype specific invasive pneumococcal disease (IPD) surveillance data and published literature for other epidemiological and economic parameters. Unknown epidemiological inputs were fitted using a calibration procedure. For each vaccination program, we prospectively estimated disease cases, direct costs, quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratio (ICER). Scenario analyses were undertaken to examine impact of model assumptions and parameter uncertainty.
Results: Over a 5-year period, PCV20 2+1 was estimated to avert the most disease cases and gain the most additional QALYs versus other vaccination programs (Table 1). PCV20 2+1 was the optimal strategy with an ICER of £12,374/QALY versus PCV20 1+1, and was dominant (cost saving and more effective) versus PCV15 (2+1 or 1+1) and PCV13 1+1. PCV15 1+1 was dominant versus PCV13 1+1, but PCV15 2+1 was not cost-effective compared with PCV13
1+1.

Table 1. Cost-effectiveness results for PCV20 2+1 versus other vaccination program strategies (5-year time horizon)

Parameter	PCV13 1+1	PCV15 1+1	PCV15 2+1	PCV20 1+1	PCV20 2+1
Disease Cases					
Bacteremia	28,577	28,525	28,484	24,799	24,027
Meningitis	3,175	3,169	3,165	2,755	2,670
Otitis media	442,096	436,733	433,896	400,011	389,585
Inpatient Pneumonia	1,032,519	1,031,194	1,030,116	912,320	887,912
Total cases	1,506,368	1,499,621	1,495,661	1,339,886	1,304,194
Deaths					
IPD	8,452	8,444	8,435	7,395	7,180
Inpatient Pneumonia	156,254	156,117	155,991	138,830	135,316
Outcomes					
Life-years	292,020,301	292,020,429	292,020,548	292,036,625	292,039,989
QALY	249,079,991	249,080,235	249,080,452	249,107,092	249,112,748
Costs					
Vaccination	£389,272,046	£392,704,401	£598,573,431	£417,493,631	£632,348,909
IPD	£196,431,422	£196,141,864	£195,895,456	£170,816,678	£165,490,643
Inpatient Pneumonia	£5,868,877,199	£5,863,316,038	£5,858,145,157	£5,197,011,899	£5,058,336,082
Otitis media	£36,680,558	£36,249,317	£36,017,319	£33,234,765	£32,373,327
Total	£6,491,261,225	£6,488,411,620	£6,688,631,362	£5,818,556,974	£5,888,548,962
ICER					
Vs PCV13 1+1		Dominant	£428,644/QALY	Dominant	Dominant
Vs PCV15 1+1			£921,330/QALY	Dominant	Dominant
Vs PCV15 2+1				Dominant	Dominant
Vs PCV20 1+1					£12,374/QALY

ICER = incremental cost-effectiveness ratio; IP = inpatient; IPD = invasive pneumococcal disease; OP = outpatient; PCV20 = 20-valent pneumococcal conjugate vaccine; PCV15 = 15-valent pneumococcal conjugate vaccine; PCV13 = 13-valent pneumococcal conjugate vaccine; QALY = quality adjusted life year.

Keywords: pneumococcal disease; vaccine; cost-effectiveness

Conclusions/Learning Points: Results demonstrate PCV20 is more effective and cost-saving compared with PCV13 or PCV15. PCV20 administered under a 2+1 schedule compared with a 1+1 schedule was estimated to be cost-effective. Policymakers should consider the substantial reduction in disease cases with PCV20, which may more than offset vaccination costs.

PV0163 / #528

QUANTIFYING THE HISTORIC IMPACT OF PCV13 AND CURRENT BURDEN OF PNEUMOCOCCAL VACCINE SEROTYPES IN ROMANIAN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Romania introduced the 13-valent PCV (PCV13) into the pediatric national immunization program (NIP) in 2017, yet there remains residual pneumococcal disease burden associated with non-PCV13 serotype disease. Higher-valent PCVs (PCV15 and PCV20) share the same serotypes covered by PCV13, while PCV15 covers 2 additional serotypes, whereas PCV20 covers 7 additional serotypes. We estimated the retrospective impact of PCV13 as well as the remaining clinical and economic burden attributed to PCV serotypes in Romanians <5 years.
Methods: Two Excel-based models were used to estimate (1) the historic number of pneumococcal disease cases and deaths averted since PCV13 implementation; and (2) the current annual clinical and economic burden of invasive pneumococcal disease (IPD), pneumonia, and acute otitis media (AOM) based on IPD serotype distribution in Romanians <5 years for PCV13 (63%), PCV15 (63%) and PCV20 (81%). For both analyses, the clinical, epidemiologic, and cost data were sourced or estimated from published studies. A human capital approach was taken to estimate hours of caregiver lost productivity per episode of pediatric pneumococcal disease and consequent indirect non-medical burden.
Results: Since 2017, PCV13 was estimated to avert over 188,000 pneumococcal disease cases and 950 deaths in 3 years. Based on current epidemiology in Romania, PCV20-unique serotypes are estimated to account for 38,811 cases, 94 deaths, and 21,399,589 lei in direct medical and indirect non-medical costs compared to PCV13 and PCV15 serotypes annually (Table

Table 1. Estimated burden of current PCV serotypes in Romanian children.			
	PCV13[a]	**PCV15[a]**	**PCV20[a]**
Disease cases			
IPD	53	53	68
Inpatient CAP	4794	4794	6164
Outpatient CAP	12863	12863	16538
AOM	118129	118129	151880
Total	135839	135839	174650
Deaths			
Bacteremia	3	3	4
Meningitis	2	2	3
Inpatient CAP	288	288	370
Total	293	293	377
Direct Medical costs			
Bacteremia	358,192 lei	358,192 lei	473,390 lei
Meningitis	96,134 lei	96,134 lei	123,601 lei
Inpatient CAP	20,930,091 lei	20,930,091 lei	26,910,118 lei
Outpatient CAP	4,900,922 lei	4,900,922 lei	6,301,186 lei
AOM	16,393,903 lei	16,393,903 lei	21,077,876 lei
Total	42,689,244 lei	42,689,244 lei	54,886,171 lei
Indirect Non-medical costs			
IPD	100,421 lei	100,421 lei	128,842 lei
Inpatient CAP	6,696,246 lei	6,696,246 lei	8,609,858 lei
Outpatient CAP	2,495,417 lei	2,495,417 lei	3,208,366 lei
AOM	22,916,981 lei	22,916,981 lei	29,464,662 lei
Total	32,209,065 lei	32,209,065 lei	41,411,727 lei
Total costs (direct + indirect)	74,898,309 lei	74,898,309 lei	96,297,898 lei
Abbreviations: PCV = pneumococcal conjugate vaccine; IPD = invasive pneumococcal disease; CAP – community acquired pneumonia; AOM – acute otitis media. [a]Serotype distributions sourced from Falup-Pecurariu et al., 2022			

1).

Conclusions/Learning Points: PCV13 has had substantial impact since its introduction in the pediatric population. However, PCV20 serotypes encompass a considerable amount of the current pneumococcal disease burden in Romanian children <5 years. When available, PCV20 may substantially reduce disease, healthcare expenditure, and productivity loss.

PV0164 / #316

IMPACT OF THE COVID-19 PANDEMIC ON SOME PEDIATRIC INFECTIOUS DISEASES IN ALBANIA

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: The first case of the 2019 Coronavirus Disease (COVID-19) in Albania was identified on March 8, 2020.The aim of this study is to evaluate impact of the COVID-19 pandemic on pediatric infectious diseases such as Infectious Mononucleosis,Visceral Leishmaniasis,Varicella,Sepsis et Skin and Soft tissue infections by comparing them before (January 2105-February 2020) and after the start of the COVID-19 pandemic (March 2020-September 2022).
Methods: Our study presents a retrospective analysis based on the collection of epidemiological data such as age, gender, days of hospital stay on 1482 patients admitted to the University Hospital Center"Mother Thereza",Pediatric Infection Diseases Department for the period January 2015-September 2022 with the diseases taken in the study.
Results: 1482 hospitalized children included in the study make up 9.35% of the total number of admissions in the department of pediatrics ID.1164(9.64%) were before the COVID19 pandemic and 334(8.5%) after its onset. In the first year of the pandemic, the diseases studied were 6.36% of the total number of admissions, in the second year 9.74% and in the current year up to September11%.For diseases such as Visceral Leishmaniasis,Sepsis,Skin and Soft tissue infections, a significant difference was observed after the pandemic.The average age of the children to the study was 3.81 ± 3.20 before and 3.57 ± 2.97 after its start (p 0.242).No significant effect on gender
Conclusions/Learning Points: The strategies taken to reduce COVID-19 have effectively affected not only the maintenance of control of COVID-19, but also the prevalence of hospitalizations for infectious diseases.COVID 19 pandemic has also affected and the duration of hospitalization for infectious diseases.A continuous increase of these infectious diseases is observed during the second year of the pandemic and currently.

PV0165 / #650

RANKING OF IMMUNIZATION PROGRAMS IN LATIN AMERICA, YEAR 2020

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: The Expanded Program on Immunization (EPI) of the Americas is one of WHO's most successful. However, the implementation and achievements of goals show inequalities between countries. We aimed to build a Ranking of Latin-American national immunization programs (NIPs) that compares different realities, identifies challenges, and encourages countries to improve.
Methods: Eighteen countries were selected. Information published on official websites of ministries of health, WHO, PAHO and UNICEF, and from interviews with experts from each country were collected. A ranking was constructed for the year 2020, with a maximum score of 417 points, based on domains and indicators linked to vaccinations given at different stages of life, influenza vaccination, vaccination in special populations; programmatic aspects; and vaccine coverage rates (VCRs).
Results: Access to public information was heterogeneous between countries. Calendars differed mainly in the use of novel, acellular, inactivated, or combined vaccines, and the extent to non-pediatric vaccination. VCRs were low for the region and only 4 countries reported VCRs >95% for DPT1, DPT3, POL3 and SRP1 in 2019. The general ranking was led by Chile, reaching 66.4% of the maximum score. Other countries' scores varied between 51.3% (Uruguay) and 23.9% (Bolivia), showing, the lowest ranked, most restricted calendars, limited scope of flu vaccination and/or to special populations, low VCRs, and programmatic gaps. However, when domains were analyzed individually, the order of the ranking changed highlighting strengths and weaknesses in each country.
Conclusions/Learning Points: Achieving adequate VCRs, transparency in public information, and progression in vaccination schedules are common challenges in most Latin-American countries. This Ranking aims to stimulate PNI leaders to improve and reach unmet goals. The periodicity of this exercise will show the evolution and positioning of these programs over time.

PV0166 / #1147

GLOBAL DISEASE BURDEN AND RISK FACTORS OF ACUTE LOWER RESPIRATORY INFECTIONS ASSOCIATED WITH RESPIRATORY SYNCYTIAL VIRUS IN PRETERM CHILDREN IN 2019: A SYSTEMATIC ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Preterm children form a high-risk group for respiratory syncytial virus (RSV) infection and severity outcomes. We assessed the global disease burden and risk factors for RSV-associated acute lower respiratory infection (ALRI) in preterm children.
Methods: Using aggregated data from published studies and individual participant data shared by the investigator group on respiratory infectious diseases, we estimated RSV-associated ALRI community incidence and hospital admission among preterm children, <37 weeks of gestational age (wGA), aged under two years in 2019, through two-stage random-effects meta-regression analyses that accounted for age, gestational age and time trend. Using individual participant data, we assessed individual-level prenatal, sociodemographic and household factors, and underlying medical conditions for RSV-associated ALRI incidence, hospital admission, and severe outcomes.
Results: We included 47 studies from published studies and 17 studies with individual participant data. We estimated globally in 2019, there were 1.64 million (95% uncertainty range: 1.36–1.99) RSV-associated ALRI episodes and 533,000 (385,000–730,000) hospital admissions in preterm infants under one year. Compared with all infants, preterm infants had comparable RSV-associated ALRI incidence rate but higher hospitalisation rate (rate ratio= 2.30, 95% CI: 1.48-3.51); for the second year of life, RSV-associated hospital admission rate remained higher in early preterm children (<32 wGA; rate ratio=2.26, 1.27–3.98). (Table) Analyses of risk factors showed that while most factors associated with RSV-associated ALRI were perinatal and sociodemographic characteristics, factors associated with severe outcomes were mainly underlying medical conditions such as congenital heart disease and chronic lung disease.
Conclusions/Learning Points: Preterm infants carry a disproportionately high RSV disease burden in the first year of life. Early preterm children have lower but noteworthy RSV hospital burden in the second year of life.

PV0167 / #474

MODELLING THE PUBLIC HEALTH IMPACT OF MENACWY AND MENC ADOLESCENT BOOSTER VACCINATION STRATEGIES IN GERMANY.

E-Posters Viewing
E-POSTER VIEWING: AS02.B. MODELLING STUDIES

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Backgrounds: Invasive meningococcal disease (IMD) is a severe infection caused by Neisseria meningitidis, which can be life threatening or lead to lifelong impairments. Adolescent vaccination has largely contributed to decreased IMD burden in several countries. In Germany, routine vaccination against meningococcal disease is only recommended for MenC in toddlers, and protective effects wane over time. Our objective was to assess the public health impact of adolescent booster strategies with conjugate meningococcal vaccines in Germany.
Methods: We developed a dynamic transmission model to estimate meningococcal carriage of five serogroup-compartments (AY/B/C/W/Others) across all age groups until 2060 and derived cases of IMD via case:carrier-ratios. In evaluated scenarios, the status quo of MenC toddler vaccination was compared to the addition of either a MenC or MenACWY booster at ages 12-14 or 15-17 years. In all scenarios, we considered vaccine effectiveness against IMD and carriage acquisition.
Results: The model estimated the introduction of a MenACWY booster to significantly decrease IMD incidence, preventing up to 34 IMD cases per year and up to 762 cases overall until 2060. The majority of prevented cases was due to herd effects, decreasing IMD cases across all age groups. The protective effect was independent of booster vaccination age. In contrast, introducing a MenC booster led to a small decrease in IMD incidence of up to 3 IMD cases per year and 49 cases prevented over the total extrapolation period.
Conclusions/Learning Points: The results suggest that MenACWY booster vaccination in adolescents in Germany could have a significant impact in reducing IMD cases in all age groups, whereas adding MenC booster vaccination has a minor impact. Our analysis can inform public health policy decisions to maximize the population-level benefits of meningococcal vaccination.

PV0168 / #1825

NURSING BEST PRACTICES AND CHALLENGES IN THE FIRST RSV CONTROLLED HUMAN INFECTION MODEL IN THE NETHERLANDS

E-Posters Viewing
E-POSTER VIEWING: AS03.A. VACCINE DEVELOPMENT (PHASE 1-2) – VIRAL

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Backgrounds: Respiratory syncytial virus (RSV) is the second cause of death in infants worldwide. Controlled Human Infection Model (CHIM) studies are an important tool to limit costs and accelerate the development of new vaccines. Conducting a CHIM is challenging and requires best practices for nursing. Participant satisfaction and compliance are essential to conduct a successful CHIM.
Methods: We aim to distill best nursing practices from an inpatient RSV CHIM for use in a future outpatient CHIM. We describe nursing practices and challenges in an inpatient quarantine setting, where six healthy adults were inoculated with 0.5 mL of 104PFUs RSV-A Memphis 37. Nasal sampling, blood draws and oral swabs were performed daily. Upper respiratory tract symptoms and temperature were self-reported. Data on nursing challenges and best practices was obtained by surveying potential study participants before recruitment and final study participants after trial termination.
Results: Privacy as well as a common space to meet fellow-participants, facilities to study and exercise, a global day structure and possibility to go outside during quarantine were the most important conditions to participate. Our nursing best practices, including hygiene measures like droplet isolation, made it possible to safely meet these conditions. Research personnel in close and frequent contact with infected participants remained RSV negative during the study period. The most important recommendation after trial termination from study participants was a personal investment in the relationship between study participants and study personnel.
Conclusions/Learning Points: In a future outpatient RSV CHIM participants can safely make use of outdoor space and a shared living room. Adopting hygiene measures around these key conditions for study participation will be important in the conduction of a successful outpatient RSV CHIM with high participant compliance.

PV0169 / #1956

RESPIRATORY SYNCYTIAL VIRUS CONTROLLED HUMAN INFECTION MODELS (CHIM) AS A TOOL FOR ACCELERATED VACCINE DEVELOPMENT

E-Posters Viewing
E-POSTER VIEWING: AS03.A. VACCINE DEVELOPMENT (PHASE 1-2) – VIRAL

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Backgrounds: Globally respiratory syncytial virus (RSV) is the second cause of death in infants. Thirty-three RSV prevention candidates are in development with an extended half-life monoclonal antibody within reach for high-income countries. Urgent next steps include ensuring access and affordability to RSV interventions of an RSV vaccine globally. RSV Controlled Human Infection Models (CHIM) limit costs and time of vaccine development and potentially prevent large and costly late-stage failures in clinical trials.
Methods: The aim was to set up an RSV CHIM in the Netherlands. The primary outcome was at least one productive infection. Secondary outcomes included viral load and self-reported upper respiratory tract (URT) symptom scores over time. Six healthy adults were inoculated with 0.5mL of 10^4PFU RSV-A Memphis 37. Nasal lavages were performed daily. URT symptoms (maximum score 24) and temperature were self-reported from baseline (day 0) through 10 days post-inoculation (DPI). We measured RSV viral load by RT-qPCR and viral titration by TCID50 on nasal washes. A productive infection was defined as two positive PCR tests on two consecutive days after 2 DPI.
Results: 83.3% (5/6) participants were infected with RSV. One RSV+ participant was asymptomatic. Symptoms started at median 2 DPI (range 0-3) with main complaints of sneezing and a runny nose. No participants developed a fever. The total URT symptom scores of infected participants peaked on 5 DPI (median score 4, range 1-4), which coincided with the peak in viral load on 4 DPI (median 5.32×10^9 RSV copies/mL, range 4.86×10^6-1.52×10^{10}).
Conclusions/Learning Points: We performed a successful proof-of-concept of RSV CHIM in the Netherlands with an infection rate of 83.3%. Next steps include use of RSV CHIM in the Netherlands as a tool for rapid vaccine development.

PV0170 / #629

ANTIBODY LEVELS TO SIX STAPHYLOCOCCUS AUREUS VACCINE CANDIDATES IN HEALTHY ADULTS

E-Posters Viewing
E-POSTER VIEWING: AS03.B. VACCINE DEVELOPMENT (PHASE 1-2) – BACTERIAL AND ALL NON-VIRAL

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Backgrounds: Staphylococcus aureus (SA) is important pathogen responsible for significant morbidity and mortality worldwide. Its high antibiotic resistance profile reinforces the need for efficacious vaccines. Although several promising animal studies of SA vaccine candidates have been reported, most of human SA vaccine trials have fallen short of expectation. Since SA is a commensal opportunistic bacterium and humans encounter SA frequently throughout their lifetime, we hypothesized that the antibody level of the SA vaccine candidate antigens would be high even in the serum of healthy adults who had not been infected with invasive SA, and that these antibodies would interact with functional antibodies induced with vaccines.
Methods: We purified six protein vaccine candidates, ClfA (clumping factor A), IsdB (iron-regulated surface determinant B), SpA (staphylococcal protein A), MntC (manganese transport protein C), Hla (alpha-hemolysin toxin) and TBA . We performed ELISA to measure specific antibody titers in healthy adult sera (n=85) and immunoglobulin products (n=25).
Results: All tested adult sera showed extremely high levels of Hla-specific antibody (18,504±10,700), whereas the mutated toxoid (Hla toxoid) showed only 7,216±4,885 indicating that the structural changes in Hla toxoid do not interact with some Hla-specific antibody. Other vaccine candidate antigens also showed very high antigen-specific IgG levels in sera [TBA (8,590±7,070), ClfA (3,922±2,490), IsdB (8,072±5,665), Spa (4,385±2,694)]. Surprisingly, MntC antigen showed relatively low antibody levels (1,602±1,319). Specific IgG levels to all six antigens in immunoglobulin products were higher than those in human sera..
Conclusions/Learning Points: We speculated that the presence of a natural antibody induced by commensal SA may interact with the binding of functional antibodies induced by the vaccine, thereby influencing the efficacy of the vaccine. Natural SA specific Ab should be considered in the development of efficacious SA vaccines.

PV0171 / #1060

IMPACT OF A NEW ADJUVANT, VSA-1 ON THE IGG SUBCLASS COMPOSITION OF PNEUMOCOCCAL ANTIBODIES

E-Posters Viewing
E-POSTER VIEWING: AS03.B. VACCINE DEVELOPMENT (PHASE 1-2) – BACTERIAL AND ALL NON-VIRAL

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Backgrounds: Streptococcus pneumoniae is an important human pathogen and pneumococcal conjugate vaccines (PCVs) have been highly effective against the serotypes included in the vaccine. However, infections by the non-vaccine serotypes have become more common and PCVs with twenty or more serotypes are being developed. Since inclusion of more serotypes has greatly reduced the immunogenicity of PCVs, a novel adjuvant is desirable. We have therefore examined a new adjuvant (VSA-1) for enhancing immunogenicity of PCV13 and IgG2a antibody response. VSA-1 is a semisynthetic saponin adjuvant prepared from naturally occurring and abundantly available Momordica saponin (Wang et al. J Med Chem. 2019; 62:9976).
Methods: Four groups of female BALB/c mice (6 per group) were immunized with normal saline, one tenth human dose of PCV13, PCV13+VSA-1, and PCV13-QS21 on days 0, 14 and 14. QS21 is another saponin adjuvant. Blood samples were obtained on day 42. IgG subclass of pneumococcal antibodies in the pooled serum samples of each group were determined with pneumococcal antibody ELISA for seven serotypes (3, 4, 6B, 9V, 14, 19A and 19F) using enzyme-conjugated antibodies against mouse IgG1, IgG2a or IgG3.
Results: Both VSA-1 and QS-21 boosted IgG1, IgG2a and IgG3 antibodies titers against seven selected serotypes (Table
1).

Table: Fold increase in ELISA titer of each IgG subclass over the saline group

		Serotype							Average
	Group	3	4	6B	9V	14	19A	19F	(n=7)
IgG1	A (Saline)	1	1	1	1	1	1	1	1
	B (PCV only)	27	737	39	1056	42	102	119	303
	C (PCV+QS21)	119	1370	300	2187	793	173	175	731
	D (PCV+VSA1)	112	2187	222	2187	1741	219	236	986
IgG2a	A (Saline)	1	1	1	1	1	1	1	1
	B (PCV only)	2	3	1	17	1	2	1	4
	C (PCV+QS21)	10	71	8	678	17	14	15	116
	D (PCV+VSA1)	5	96	1	618	216	23	49	144
IgG3	A (Saline)	1	1	1	1	1	1	1	1
	B (PCV only)	7	30	2	29	22	1	14	15
	C (PCV+QS21)	18	165	8	402	360	49	246	178
	D (PCV+VSA1)	19	182	6	301	2187	44	15	393

The titer is defined as the serum dilution that produced 6X above the background signal.

Conclusions/Learning Points: VSA-1 is as effective as QS21 in enhancing antibody response to PCV13

and significantly increasing IgG2a antibody response. While additional studies are required, VSA-1, which is much more accessible and of lower toxicity than QS-21, appears to stimulate Th1 as QS-21 does.

PV0172 / #512

MEASLES AND RUBELLA SEROEPIDEMIOLOGY IN PREVIOUSLY VACCINATED YOUNG ADULTS AGED 18-30 IN A NON-ENDEMIC REGION

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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Backgrounds: The WHO Western Pacific Region has set the goals to eliminate measles and rubella. Yet, 95% measles seroprevalence is needed to achieve herd immunity as measles virus is very transmissible with an R0 of 12-18. In 2019, a measles outbreak occurred in the Hong Kong International Airport with 29 airport staff infected within a month, and further led to transmission to 2 healthcare workers aged between 20-25 known to have received 2 doses of MMR vaccine. Secondary vaccine failure due to antibody waning and lack of boosting by circulating virus, as well as interrupted vaccination efforts during COVID-19 pandemic, slows measles and rubella eradication worldwide. Resumption of international travel after COVID restrictions are lifted may lead to imported measles outbreak in non-endemic regions.
Methods: We conduct a cross-sectional study for healthcare students and workers aged between 18-30 innoculated by 2 doses of MMR vaccine, with a follow-up prospective cohort study for those screened to be without adequate antibody protection. Luminex assay is used to screen for measles and rubella seronegativity, and those negative are confirmed by enzyme linked fluorescent assay (VIDAS).
Results: 792 participants were recruited in the study. 427 participants (53.9% of total) tested seronegative for measles by Luminex, and 240 participants (30.3%) were confirmed seronegative or indeterminate for measles on VIDAS. 93 participants (11.7%) tested seronegative for rubella on Luminex, and 20 participants (2.5%) were confirmed seronegative for rubella on VIDAS.
Conclusions/Learning Points: There is a high rate of measles seronegativity among previously twice-vaccinated healthy adults aged 18-30 living in regions with no local transmission. We will study the immunogenicity of a booster dose of measles-mumps-rubella in seronegative young adults.

PV0173 / #1732

ESTIMATED ADDITIONAL BURDEN AVERTED FROM USE OF CELL-BASED INFLUENZA VACCINES COMPARED TO EGG-BASED INFLUENZA VACCINES AMONG CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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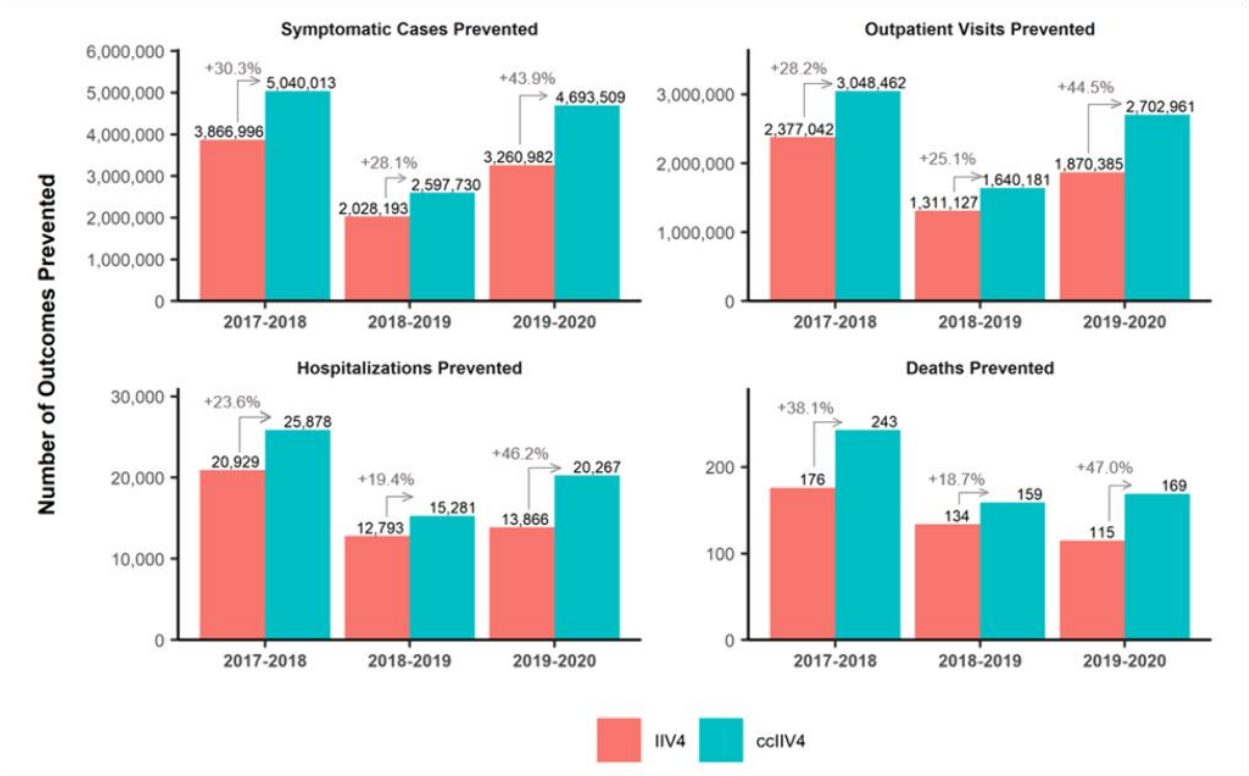
Backgrounds: Influenza vaccines have traditionally been produced in eggs, which can introduce egg-adaptive mutations. Cell-based influenza vaccines avoid egg-adaptive mutations, potentially improving match to circulating influenza viruses and therefore vaccine effectiveness. This study modeled the public health impact if all vaccinated children (<18 years of age) in the United States received cell-propagated inactivated quadrivalent influenza vaccine (ccIIV4) compared to egg-propagated inactivated quadrivalent influenza vaccine (IIV4) across the 2017-2018 through 2019-2020 Influenza Seasons.
Methods: The modeling method used by the US Centers for Disease Control and Prevention (CDC) for estimating overall burden averted due to influenza vaccination was extended to a relative vaccine effectiveness (rVE) context. The model utilized CDC data on influenza vaccine uptake, influenza incidence, influenza-related healthcare resource use and deaths. CDC estimates of absolute vaccine effectiveness (aVE) (any vaccine) were used as the aVE ofIIV4. Based on previously published rVE estimates generated from the same real-world database, the rVE of ccIIV4 vs IIV4 was assumed to be 19.3% in 2017-2018, 7.6% in 2018-2019, and 17.2% in 2019-2020.
Results: The CDC estimated that influenza vaccine coverage ranged from 58-75% among the 73.8 million children <18 years of age in the US during the 2017-2020 influenza seasons. Figure 1 shows the anticipated number influenza-related cases and complications that would be averted if all vaccinated children received ccIIV4 or IIV4. Across the 3 influenza seasons, use of ccIIV4 would result in prevention of an additional 3,175,081 symptomatic illnesses, 1,833,049 outpatient visits, 13,837 hospitalizations, and 147
deaths.

Figure 1: Number of Outcomes Prevented from Use of ccIIV4 Compared to IIV4 Among Children <18 Years of Age: 2017-2018 Through 2019-2020 Seasons



Conclusions/Learning Points: Use of ccIIV4 instead of IIV4 during the 2017-2020 influenza seasons in the US would have had a substantial public health impact due to a 28.1% to 43.9% increase in influenza cases prevented.

PV0174 / #1608

STUDY OF VACCINATION COVERAGE AGAINST HUMAN PAPILLOMAVIRUS IN PREADOLESCENTS IN THE REGION OF MURCIA (SPAIN)

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

Senay Rueda-Nieto[1], María Teresa Navarro-Esteban[2], Matilde Zornoza-Moreno[3], Francisca Tornel-Miñarro[3], Francisco Hernández-Fuentes[2], Jaime Jesús Pérez-Martín[3]
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Backgrounds: Although HPV vaccination is important in preadolescent males, in neighbouring countries coverage is lower than in females. Vaccination of males has been included for the first time in Spain during 2022. Our objective is to evaluate coverage in 12-year-old males and females, comparing them with each other and with last year.
Methods: A descriptive study was carried out to evaluate HPV coverage up to January 9, 2022 in those born in 2010 and up to January 9, 2023 in those born in 2011. They were compared by sex in both years (provisional data) and estimated the variation based on the consolidated data of the previous year. Vaccination was carried out through a school program with time to receive both cohorts only the first dose.
Results: Until January 9, 2022, where vaccination programs only included females, provisional data for 2010 cohort show coverage in females (71.4%) higher than in males (1.1%) ($p<0.05$). The consolidated data show a percentage increase of 19.7% in the female sex, reaching a coverage of 85.5%. For the 2011 cohort, the provisional data until January 9, 2023 again show greater coverage in the female sex (67.3%) compared to the male sex (61.3%) ($p<0.05$). If this variation remained constant, the consolidated data for the 2011 cohort would show coverage of 73.4% in men and 80.6% in women.
Conclusions/Learning Points: HPV coverage in preadolescent males is lower compared to other unfunded vaccines in Spain, where acceptance of unfunded vaccines can reach 70%. Universal vaccination against HPV increases coverage in males and approaches it to that observed in females. In our work, the difference between the sexes is smaller than in neighbouring countries and the consolidated data may reduce it further.

PV0175 / #1224

DIVERSITY, QUALITY, MAGNITUDE, AND FUNCTIONALITY OF THE HUMORAL RESPONSE TO A LIVE-ATTENUATED TETRAVALENT DENGUE VACCINE IN PEDIATRIC PARTICIPANTS FROM A PHASE 3 EFFICACY TRIAL

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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Backgrounds: Most dengue cases occur in children, and severe dengue drives the global economic burden of the disease. Immune responses targeting viral structural and nonstructural (NS) proteins have a role in protection against severe dengue. Takeda's live-attenuated tetravalent dengue vaccine, TAK-003, is comprised of structural proteins from each serotype in an attenuated dengue virus (DENV) serotype 2 (DENV-2) genomic backbone. TAK-003 was designed to elicit a dengue-specific immune response against the entire DENV backbone.
Methods: Samples from children and adolescents aged 4–16 years participating in a phase 3 efficacy trial (DEN-301, NCT02747927) of 2 doses of TAK-003 were assessed for magnitude and functionality of antibody (Ab) responses to structural and NS DENV proteins. Measurements included concentration and affinity maturation of vaccine-elicited binding Abs; breadth and specificity of neutralizing Abs; magnitude of complement-fixing Abs (CFAs); and Abs against the viral toxin NS1.
Results: TAK-003 elicited robust, tetravalent humoral responses against DENV in both baseline seronegative and seropositive vaccine recipients, including affinity-matured anti-DENV binding Abs, cross-reactive and serotype-specific nAbs with coverage across genetically diverse DENVs, CFAs, and anti-NS1 Abs. These Ab responses peaked at 30 days post-second vaccination and remained above baseline levels through the end of 1 year post-second dose. The data also showed high correlation and concordance with the neutralizing Ab responses observed in DEN-301 against all 4 DENV serotypes.
Conclusions/Learning Points: This is the first comprehensive characterization of the magnitude, quality, and functionality of the humoral immune response to a dengue vaccine in a pediatric population. The diversity of TAK-003-driven Ab responses observed in this analysis may contribute to the robust efficacy against hospitalized dengue cases reported in children and adolescents during the pivotal efficacy trial.
Acknowledgements: Study sponsored by Takeda.

PV0176 / #1089

EFFECT OF THE INTERVAL BETWEEN BIRTH- AND SECOND-DOSE OF HEPATITIS B VACCINE ON PERINATAL TRANSMISSION OF HEPATITIS B VIRUS

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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Backgrounds: Mother-to-child-transmission is one of the most common ways of hepatitis B infection. Different interventions are in place to reduce perinatal transmission but there is scarce data on the impact if any, of the interval between the birth dose (HepB-BD) and the second dose (HepB-SD) of Hepatitis B vaccine. To compare perinatal transmission of HBV according to the time interval between HepB-BD and HepB-SD in South Korea between 2002 and 2013.
Methods: This was a retrospective cohort study using an administrative de-identified dataset containing relevant information of mothers and their offspring regarding Hepatitis B. Descriptive analyses as well as univariate (chi-square) and multivariate analyses (logistic regression) were conducted to assess association between the outcome and the exposure.
Results: In the dataset 39,313 infants were born to HBsAg-positive mothers, and 1027 (2.6%) were HBsAg-positive at ≥9 months. Results of the multivariate analysis are shown in table 1. Table 1. Multivariable analyses for factors associated with risk of perinatal HBV infection among infants born to HBV-infected mothers

	Adjusted OR
Second dose schedule <8 weeks (vs. ≥8 weeks)	0.79
Maternal age (vs. ≥35 years)	
<25 years	1.52
25–29 years	1.06
30–34 years	0.91
Non-Korean mother (vs. Korean mother)	1.56
Maternal HBeAg-positive (vs. maternal HBeAg-negative)	7.66
Short gestational length (24–36 weeks) (vs. 37–42 weeks)	0.68
Vaginal delivery (vs. Caesarean section)	0.94

Conclusions/Learning Points: In South Korea maternal factors (i.e., HepB e antigen status, age or nationality) increased the risk of infection whereas short gestational length decreased this risk. The HepB-BD–HepB-SD interval (<8 vs. ≥8 weeks) did not alter the risk.

PV0177 / #1206

IMMUNOGENICITY OF MEASLES-MUMPS-RUBELLA VACCINATION (MMR) AT SIX MONTHS OF AGE MEASURED BY MEASLES PLAQUE REDUCTION NEUTRALIZATION TEST (PRNT) AND ELISA IGG MEASLES, MUMPS, AND RUBELLA

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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Backgrounds: Measles is an extremely contagious disease with the highest risk of complications in infants under twelve months of age. Vaccination rates are below levels eliciting herd immunity. Thus, efforts must be made to protect infants. Early MMR vaccination could be a solution to this challenge, but maternal antibodies may blunt responses. Studies regarding MMR immunogenicity in six months old infants are sparse.
Methods: In this double-blind placebo-controlled RCT, 6540 healthy infants were randomized 1:1 to receive either M-M-R VaxPro or placebo (solvent only) at age five to seven months. A sub-population (N=647) had serum samples collected prior to intervention, and four weeks after both intervention and routine vaccination at 15 months of age. Data were analyzed using Tobit regression adjusted by sex and prematurity as randomization was stratified by these factors. Geometric mean concentrations (GMC) and GMC ratios (GMR) are reported. Seroprotection rates (SPRs) were calculated using the WHO-convention cut-off concentrations of 120 mIU/mL for measles neutralizing antibodies and 10 IU/mL for mumps and rubella IgG. Influence of maternal measles antibodies was examined graphically.
Results: Mean age at intervention was 6.4 months. Samples were collected 26.9 days after intervention. Post-intervention PRNT GMC was 119.6 mIU/mL for MMR group (placebo 25.0 mIU/mL), GMR 4.8 (95%CI 3.8-5.9). SPRs were; PRNT 44.0% MMR group (placebo, 12.5%), and in the ELISA IgG analysis mumps 33.0% (placebo 2.1%), rubella 60.8% (placebo 10.0%). Responses were inhibited by presence of even low levels of maternal antibodies. Early MMR did not affect the response to routine MMR at 15 months.
Conclusions/Learning Points: MMR at five to seven months of age is immunogenic in 30 % of vaccinated infants against measles and mumps and in 50% against rubella measured four weeks after intervention.

PV0178 / #711

VACCINE EFFECTIVENESS OF FSME-IMMUN JUNIOR FOR THE PREVENTION OF TICK-BORNE ENCEPHALITIS (TBE) IN CHILDREN 1-15 YEARS OF AGE IN LATVIA, 2018-2020

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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Backgrounds: Tick-borne Encephalitis (TBE) is an infection by the Tick-borne Encephalitis virus (TBEV) with central nervous system signs and/or symptoms. TBE is endemic in Latvia and elsewhere in Europe and Asia. In Latvia, pediatric TBE vaccines, including FSME-IMMUN Junior (FSME-Jr), are recommended, and partially government-reimbursed, for children 1-15 years-of-age but TBE vaccine effectiveness (VE) in children has not been reported.
Methods: Rīga Stradinš University conducted nationwide population-based surveillance for TBE cases in collaboration with the Centre for Disease Prevention and Control, the National Reference Laboratory, and 15 hospitals. Serum and cerebrospinal fluid were tested by ELISA for TBEV-specific IgG and IgM antibodies. After informed consent, patient interviews and medical record review were used to determine the proportion of TBE cases FSME-Jr fully-vaccinated (on-schedule receipt of the three-dose primary series) (PCV). General population surveys conducted by IPSOS in 2019 and 2020 were used to determine the proportion of the population FSME-Jr fully-vaccinated (PPV). FSME-Jr VE (with 95% confidence interval) was estimated using the screening method (VE=1−((PCV/(1−PCV)/(PPV/(1−PPV)).
Results: From 2018-2020, surveillance identified 36 TBE cases in children 1-15 years-of-age; all cases were hospitalized, 5 (14%) for >12 days. TBE incidence in children 1-15 years-of-age was 4.0/100,000 population per year. Of the TBE cases, 34 (94%) were unvaccinated, 1 (3%) was FSME-Jr fully-vaccinated, and 1 (3%%) was partially-vaccinated. Among children 1-15 years-of-age with a reported vaccination status in the general population, 44% were unvaccinated, 13% were FSME-Jr fully-vaccinated, and 43% were partially-vaccinated or received another TBE vaccine. VE of FSME-Jr was 90.1% (27.3-98.6) against TBE.
Conclusions/Learning Points: FSME-Jr was highly effective in preventing TBE in children 1-15 years-of-age in Latvia. Increasing FSME-Jr uptake and adherence to the recommended three-dose schedule is essential to maximize FSME-Jr public health impact.

PV0179 / #1646

ANALYSIS OF INFLUENZA VACCINATION COVERAGE IN THE ARAB POPULATION AGED 6 TO 59 MONTHS IN A SOUTHEAST SPANISH REGION

E-Posters Viewing
E-POSTER VIEWING: AS03.C. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – VIRAL

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Backgrounds: The 2022/2023 influenza vaccination campaign is the first in which children aged 6 to 59 months are vaccinated in Murcia (Spain), observing halfway through the campaign a notably lower coverage in Arabs (6.5%) compared to general population (29.1%). We believe that the language barrier may be one of the reasons, so the objective is to evaluate such coverage in Arabs under 5 years of age, before and after implementing a communication strategy.
Methods: A quasi-experimental study was conducted from December 2022 to January 2023, evaluating influenza vaccination coverage in under 5 years of age after 2 and 4 weeks of sending SMS messages to parents with infographics in Arabic about the suitability of the vaccine and a link to request an appointment for its administration. The children were divided into group A (health areas 1-4) and group B (health areas 5-9) which served as a control by sending them the SMS one week later.
Results: Before the implementation of the strategy, coverage was 4.7% in group A and 8.8% in group B. In the 2-week evaluation in group A, coverage increased to 7.7% and in group B up to 11.4% ($p<0.01$). At 4 weeks, group A reached 9.0% coverage and group B 12.9%, with no significant differences from the previous intervention in any of the groups ($p=0.23$ and $P=0.53$ respectively), but finding significant differences with respect to the previous intervention ($p=0.05$). Global coverage was 10.74% at the end of the evaluation.
Conclusions/Learning Points: The language barrier may explain part of the low coverage in this population, but these figures are not explained solely by language problems, since the effect of the strategy dissipates. More studies are needed to assess the causes of this problem.

PV0180 / #950

TYPHOID ANTI-VI ANTIBODIES SEROPREVALENCE AMONG PREVIOUSLY TYPHOID CONJUGATE VACCINE (TCV) UNVACCINATED AND VACCINATED INDIAN CHILDREN AND ADULTS

E-Posters Viewing
E-POSTER VIEWING: AS03.D. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – BACTERIAL AND ALL NON-VIRAL

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Backgrounds: Prevalence of high typhoid anti-Vi-IgG antibodies could infer protection and serve as a marker for typhoid exposure. Therefore, this study was planned which aimed to define age-wise trend of seropositivity among previously TCV unvaccinated and vaccinated subjects.
Methods: In this observational cross-sectional study, apparently healthy subjects of identified age groups attending OPDs of a tertiary care hospital in Northern India over last one year were enrolled. Prior ethical clearance was obtained. Serum was tested for typhoid anti-Vi-IgG antibodies using specific ELISA VaccZyme kit. Those with GMTs >10 IU/ml(~2 ug/ml) were considered seropositive.
Results: Out of a total 80 subjects enrolled, 31,16,10,15, and 8 were in 5-8,9-12, 13-16,17-20 and 21-24 years age-groups. Out of these 80 subjects, 29(36.3%) received 1-dose TCV in past. Baseline seropositivity rates for seropositivity among previously unvaccinated subjects in these defined five age groups were 33.3%,25%,25%,27.3%, and 16.7%, respectively, even without receiving any TCV in past. GMTs in these age groups were 4.52,19.84,5.74,3.44, and 4.4 IU/ml, respectively. While the proportion of seropositive subjects in those who received one dose of TCV in past was 92.3%,50%,100%,75%, and 50% in same age groups. Out of these 29 subjects, 24(82.8%) had titers in seroprotective range. GMT in these vaccinated groups was 69.98,59.11,73.23,19.84 and 31.36 IU/ml. Median duration since vaccination(one dose TCV) and testing was 50.0 months, showing average persistence of antibodies at least for 4-5 years, although it could be longer if followed further.
Conclusions/Learning Points: Persistence of protective antibodies against typhoid in the majority(82.8%) of subjects in follow-up(after receiving 1-dose TCV in past) and significantly higher titers among vaccinated compared to previously unvaccinated subjects, given the high disease burden and emerging drug resistance justifies the introduction of TCV in our national immunization program.

PV0181 / #1803

UNDERSTANDING RESPIRATORY TISSUE RESIDENT MEMORY T-CELL RESPONSES FOLLOWING BORDETELLA PERTUSSIS VACCINATION – PROGRESS TOWARD MORE EFFECTIVE NEXT GENERATION VACCINES

E-Posters Viewing

E-POSTER VIEWING: AS03.D. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – BACTERIAL AND ALL NON-VIRAL

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Backgrounds: Bordetella pertussis is the third leading cause of vaccine-preventable deaths in under-5's, despite high global vaccination coverage. This is proposed to be due to rapidly waning immunity following the switch from whole cell (wP) to acellular (aP) vaccination. Evidence from animal models suggests aP vaccines, in contrast to wP vaccines or natural infection, fail to prime tissue resident memory t-cell (TRM) responses in the nasal mucosa and lung that prevent colonisation with B.pertussis. The objective of the study was to investigate the impact of aP or wP vaccines on TRM frequency and function.
Methods: We recruited patients undergoing elective tonsillectomy (n=20), bronchoscopy (n=10) or healthy volunteers (n=20) and sub-divided by priming childhood immunisation with aP or wP. Tonsil, bronchoalveolar lavage fluid (BALF), nasal mucosa and blood samples were collected. Immune cells were isolated and cultured with B.pertussis antigens. Antigen-specific cytokine-producing TRM cells were quantified by flow cytometry.
Results: We identified IFN-γ and IL-17-producing $CD4^+$ TRM in human adeno-tonsillar, nasal and BALF. These TRM were expanded by culture with sonicated B. pertussis. Adults immunised with wP as infants have significantly more B. pertussis-specific IL-17-producing CD4 TRM in nasal mucosa and IFN-γ-producing CD4 TRM in tonsil than adults who received aP ($p=0.005$, $p=0.007$). We have also demonstrated IFN-γ-producing B.pertussis-specific TRM in the airway epithelium of wP vaccine recipients.
Conclusions/Learning Points: Immunisation with wP but not aP vaccines induces antigen-specific cytokine-producing TRM throughout respiratory tissues that persist up to 30-years following initial vaccination. In mice, these cells in the nose and lung have been associated with protection against colonisation following B. pertussis aerosol challenge. Our findings support a novel vaccine that induces IL-17 and IFN-γ-producing TRM is likely to be more effective than current aP vaccines.

PV0182 / #715

PREDICTING EFFECTIVENESS OF THE V114 VACCINE 2+1 REGIMEN AGAINST INVASIVE PNEUMOCOCCAL DISEASE IN A PEDIATRIC POPULATION

E-Posters Viewing
E-POSTER VIEWING: AS03.D. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – BACTERIAL AND ALL NON-VIRAL

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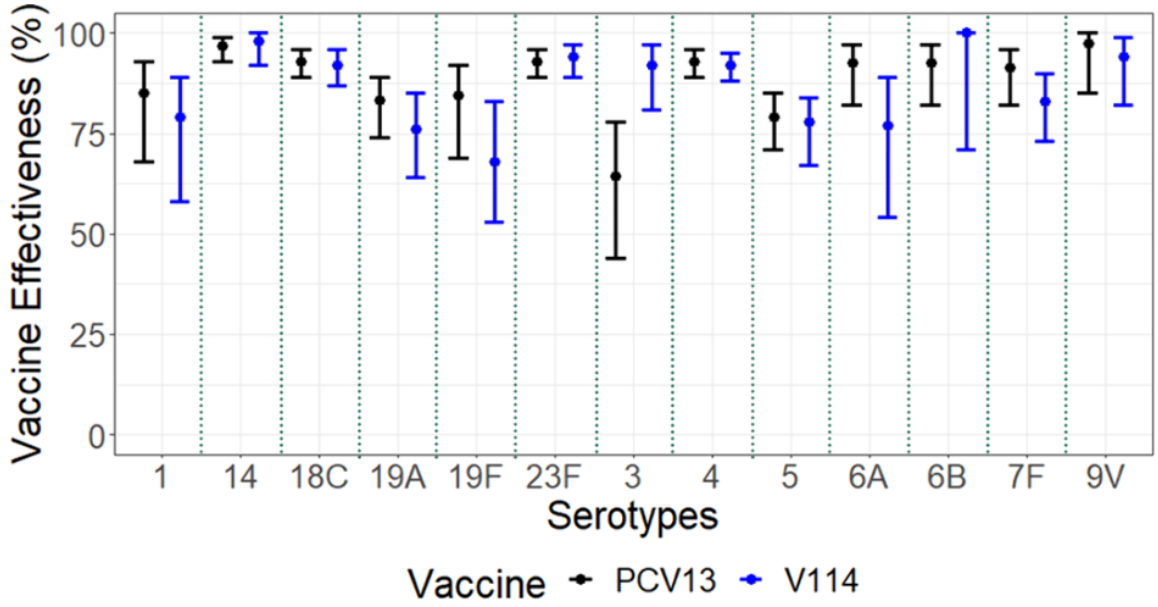
Backgrounds: Pneumococcal conjugate vaccines' (PCVs) strength of immune response across each serotype, as measured by antibody concentrations, varies by vaccine and may be reduced by increasing valency. Therefore, because clinical trials for novel PCVs lack efficacy endpoints, it is important to assess the impact of these vaccines by predicting their effectiveness against invasive pneumococcal disease (IPD). The objective of this work was to predict the serotype-specific effectiveness of V114 against IPD in a European Union (EU) pediatric population given a 2+1 regimen using a previously qualified method[1]. [1]Ryman (2022)
Methods: The first step was to estimate serotype-specific protective antibody concentrations (C_p) for each serotype in PCV13. Using serotype-specific antibody concentrations after primary series vaccination with placebo and PCV13 (in an EU pediatric population administered a 2+1 regimen), reverse cumulative distribution curves (RCDCs) were generated. These were combined with the known serotype-specific vaccine effectiveness values of PCV13[2] to estimate serotype specific C_p values. The second step predicted the vaccine effectiveness for each serotype using these C_p value estimates and the RCDCs of serotype-specific antibody concentrations (after primary series vaccination with placebo and V114). [2]Savulescu (2022)
Results: Observed and predicted vaccine effectiveness against IPD shown in figure below.



*Observed PCV13 effectiveness values are from an indirect cohort analysis[2]. PCV13 effectiveness values for serotypes 4, 18C, and 23F are an aggregate value of PCV7-common serotypes, and the serotype 5 effectiveness value is an aggregate of non-PCV7 serotypes.

Conclusions/Learning Points: V114 serotype-specific effectiveness against IPD in an EU pediatric

population (administered in a 2+1 dosing regimen) was predicted to be similar for most of the shared serotypes with PCV13, greater for serotype 3, and lower against the less common serotypes 6A and 19F.

PV0183 / #2154

DOES MATERNAL PERTUSSIS IMMUNISATION DURING PREGNANCY IMPACT INFANT ANTIBODY RESPONSES TO SUBSEQUENT ROUTINE PERTUSSIS VACCINES?

E-Posters Viewing
E-POSTER VIEWING: AS03.D. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – BACTERIAL AND ALL NON-VIRAL

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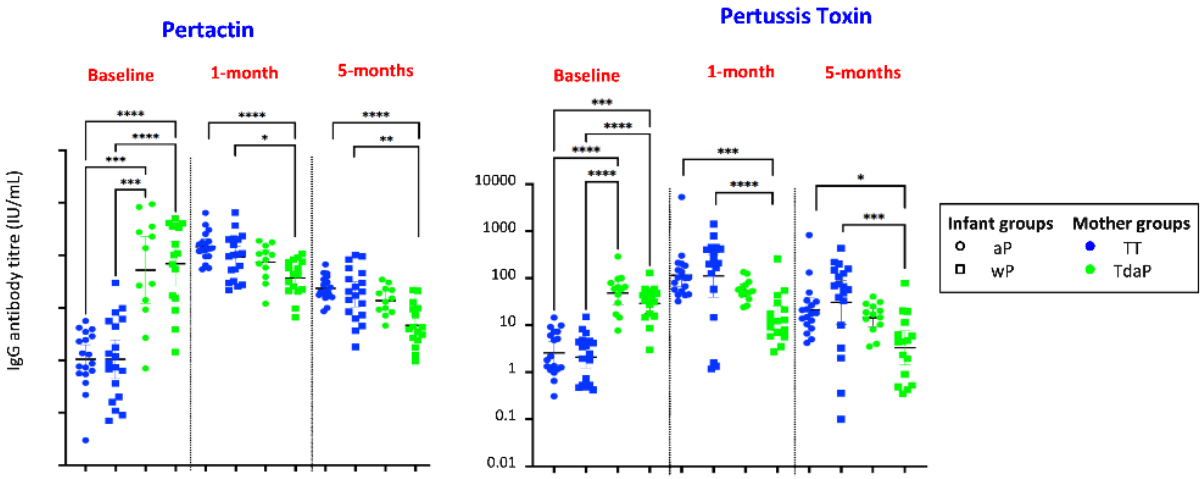
Backgrounds: Replacement of whole-cell (wP) by acellular pertussis (aP) vaccines may be a key factor underlying recent resurgence in pertussis, especially in highly vaccinated populations. This has led to the implementation of additional pertussis boosters, including tetanus-diphtheria-aP (TdaP) during pregnancy. A concern, however, is potential blunting of infants' endogenous immune responses to subsequent routine vaccines. We conducted a randomised-control trial, the Gambian Pertussis study (GaPs), as part of PERtussIS COrrelates of Protection Europe (PERISCOPE) consortium, to investigate the immunogenicity of primary infant vaccination with aP versus wP vaccines, and the impact of maternal TdaP immunisation in The Gambia.
Methods: Samples of serology were collected from up to 342 infants until 9-months of age, at up to 5 time points pre-and post-completion of primary immunisation. Systemic vaccine-specific IgG was quantified using a fluorescent bead-based multiplex immunoassay; pertussis-toxin (PT) neutralisation and serum-bactericidal assays assessed antibody function.
Results: Preliminary analysis of an initial cohort demonstrated that infants born to TdaP-vaccinated mothers (versus tetanus-toxoid only) had: a)significantly higher pertussis-specific antibody responses at baseline prior to primary immunisation b)following primary vaccination, less prominent antibody increases from baseline, with the lowest anti-PT and anti-pertactin IgG levels observed at 1-and 5-months post immunisation in those who had received wP c)notably, no significant difference in PT-neutralising antibody
levels



Conclusions/Learning Points: This is the first mother-infant vaccine study of its kind on pertussis in a Sub-Saharan African setting. Our findings point to a blunting effect of maternal immunisation on infant pertussis antibody responses following primary vaccination, although patterns and functional relevance may vary between specific vaccine antigens, with clinical significance yet to be established. Formal in-

depth analysis of the entire cohort and correlation with data on cellular and mucosal antibody responses will be informative.

PV0184 / #852

POST HOC ANALYSIS OF IMMUNOGENICITY OF A 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV20) IN A 3-DOSE INFANT IMMUNIZATION SERIES BY AGE OF INFANT DOSE

E-Posters Viewing
E-POSTER VIEWING: AS03.D. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – BACTERIAL AND ALL NON-VIRAL

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Backgrounds: PCV20 was developed to expand pneumococcal disease protection. This report describes the immunogenicity of a PCV20 3-dose series in infants starting at 2 or at 3 months of age.
Methods: In this Phase 3 study (NCT04546425) conducted in Europe and Australia, infants were randomized to receive 3 doses of PCV20 or PCV13, with the first dose at ≥42-≤112 days of age. Primary results from this trial will be presented separately. A descriptive post hoc analysis was performed to summarize the immunoglobulin G (IgG) responses to PCV20 in subgroups who received Dose 1 at 42-74 days of age and Dose 2 at 85-134 days of age (2-4-month subgroup) or Dose 1 at 75-115 days of age and Dose 2 at 135-180 days of age (3-5-month subgroup). Both subgroups received Dose 3 (toddler dose) at 11-12 months of age.
Results: 660 infants were in the 2-4-month subgroup (PCV20, n=331; PCV13, n=329), 296 were in the 3-5-month subgroup (PCV20, n=140; PCV13, n=156). After PCV20 Dose 2, IgG geometric mean concentrations (GMCs) ranged from 0.03 µg/mL (serotype 6B) to 2.97 µg/mL (serotype 15B) in the 2-4-month subgroup and 0.05 µg/mL (serotype 6B) to 4.55 µg/mL (serotype 15B) in the 3-5-month subgroup. After PCV20 Dose 3, GMCs were 0.74 µg/mL (serotype 3) to 13.89 µg/mL (serotype 15B) and 0.71 µg/mL (serotype 3) to 11.81 µg/mL (serotype 15B) in the 2-4-month and 3-5-month subgroups respectively.
Conclusions/Learning Points: IgG responses observed after 2 doses of PCV20 were generally higher in the 3-5-month subgroup, but by the 3rd (toddler) dose there was a strong boost and the responses in both subgroups were similar PCV13 subgroups also showed this trend. This study was funded by Pfizer Inc.

PV0185 / #1764

PHASE 3 SAFETY AND IMMUNOGENICITY STUDY OF 20-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV20) ADMINISTERED IN A 4-DOSE INFANT IMMUNIZATION SERIES

E-Posters Viewing
E-POSTER VIEWING: AS03.D. VACCINE EFFICACY (PHASE 3) AND EFFECTIVENESS – BACTERIAL AND ALL NON-VIRAL

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Backgrounds: The 20-valent pneumococcal conjugate vaccine (PCV20) was developed to expand pneumococcal disease protection. This phase 3 study evaluated key safety and immunogenicity data of PCV20 with a 4-dose infant immunization series.
Methods: In this phase 3, double-blind study (NCT04382326) conducted in the United States and Puerto Rico, healthy infants were randomized equally to receive 4 doses of PCV20 or PCV13 at 2, 4, 6, and 12–15 months of age. Objectives included noninferiority of immunoglobulin G (IgG) geometric mean concentrations (GMCs;2-fold criterion) at 1 month after Dose 4 (co-primary) and Dose 3 (key secondary), and participants (%) with predefined IgG concentrations 1 month after Dose 3 (co-primary; 10% criterion). The 7 additional PCV20 serotypes were compared with the lowest result among vaccine serotypes in the PCV13 group for noninferiority evaluation. Other objectives included demonstration of opsonophagocytic activity (OPA) and boosting responses. Safety assessments included local reactions, systemic events, and adverse events.
Results: 1991 participants received Dose 1 (PCV20, n=1001; PCV13, n=990); 85% received all doses. For IgG GMCs 1 month after both Dose 4 and Dose 3, all 20 serotypes met noninferiority criteria. For the percentage of participants with predefined IgG concentrations after Dose 3, noninferiority was met for 8/13 matched serotypes and 6/7 additional serotypes; four serotypes narrowly missed the statistical noninferiority criterion. PCV20 elicited OPA responses after Doses 3 and 4, and booster responses after Dose 4. The safety profile of PCV20 was similar to PCV13.
Conclusions/Learning Points: A 4-dose infant series of PVC20 had a safety profile similar to PCV13 and elicited robust serotype-specific immune responses expected to protect against pneumococcal disease due to the 20 vaccine serotypes.

PV0186 / #1455

SHOULDER INJURY RELATED TO VACCINE ADMINISTRATION (SIRVA) IN PAEDIATRIC PATIENTS: A CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Title of Case: SHOULDER INJURY RELATED TO VACCINE ADMINISTRATION (SIRVA) IN PAEDIATRIC PATIENTS: A CASE SERIES
Background: Shoulder injury related to vaccine administration (SIRVA) is a rare but serious adverse event following immunisation (AEFI) following improper vaccine administration too high in the shoulder. It characteristically presents as sudden onset shoulder pain and restricted movement within 48 hours of vaccination. Symptoms can last for months, impacting physical and mental health, and impacting activities of daily living. SIRVA is well recognised in adults but there is limited information on paediatric populations. We examined reports submitted to SAEFVIC, the vaccine safety surveillance service in Victoria, Australia, from 2007-2022 to identify cases of SIRVA in vaccinees over 12 months old and describe the occurrence and outcomes of SIRVA in paediatric vaccinees.
Case Presentation Summary: Among 66,661 AEFI reports received, 354 SIRVA reports were identified, of which 13 (3.7%) were in <18-year-olds (range 1-16, median 12 years); 8 females and 5 males. Median time to symptom resolution was shorter in <18-year-olds (45.5 days) compared with adults (92.5 days, [p=0.01]).
Learning Points/Discussion: Reports of paediatric SIRVA were low, despite the volume of routine vaccines administered during childhood. Influencing factors may include developing shoulder anatomy, positioning during vaccination, immuniser experience, and, in young children, inability to fully communicate their symptoms. SIRVA should be considered as a differential diagnosis in recently vaccinated children presenting with persisting shoulder pain and restricted movement of the vaccinated limb , with timely diagnosis and treatment important to minimise symptom duration.

PV0187 / #816

INFANT VACCINATION AGAINST PERTUSSIS IN ARGENTINA: PARENT-REPORTED OUTCOMES ON REACTOGENICITY, IMPACT ON DAILY ROUTINE AND SATISFACTION AFTER PENTAVALENT WHOLE-CELL OR HEXAVALENT ACELLULAR PERTUSSIS VACCINES

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: In Argentina, a pentavalent whole-cell pertussis vaccine is used in the National Immunization Program, however hexavalent acellular vaccines are available in the private market. The objetive was to describe parent or guardians´ perceptions on reactogenicity, daily routine and satisfaction after a 1st or 3rd dose of a DTwP-Hib-HB plus IPV (wP-group) or DTaP-IPV-HB-Hib vaccine (aP-group; Hexaxim) in infants.
Methods: Prospective observational study. Parents/guardians of infants attending vaccination centers in Buenos Aires city were asked to fill out an online 7-day post vaccination questionnaire. Descriptive analyses of study variables were carried out.
Results: Five-hundred and thirty parents/guardians answered the questionnaire for wP-group (276 1st and 254 3rd dose) and 541 for aP-group (289 1st and 252 3rd dose). The percentage of parents/guardians referring solicited reactions by dose are shown in table 1. Negative impact on daily life in wP-group and aP-group were, respectively: social activities 36%, 20%; routine 48%, 24%; mood 39%, 23%; vitality 47%, 24%; sleep 50%, 30%; and appetite 22%, 7%. Parents satisfaction with the vaccination process (very satisfied or satisfied) was 96% and 98% for wP-group and aP-group respectively. Table 1.

Adverse Event	Vaccine Dose	Percentage of AE (%)	
		wP-group	aP-group
Pain	1st	92.7	32.3
	3rd	72.0	23.8
Redness	1st	53.4	18.4
	3rd	49.6	26.6
Swelling	1st	65.9	11.2
	3rd	59.1	20.6
Fever	1st	55.8	17.1
	3rd	41.4	12.3
Irritability	1st	75.8	60.4
	3rd	69.4	42.0
Vomiting	1st	18.9	15.3
	3rd	11.5	6.4
Loss of appetite	1st	34.2	19.8
	3rd	38.2	17.5
Drowsiness	1st	43.2	34.0
	3rd	32.3	18.7

Conclusions/Learning Points: Reported reactogenicity and impact on family daily routine

was higher in infants receiving wP-pentavalent than aP-hexavalent vaccines. Both groups showed a high level of satisfaction with the vaccination process.

PV0188 / #771

SAFETY AND EFFICACY OF ONE VERSUS TWO DOSES OF THE LIVE ATTENUATED VARICELLA VACCINE IN CHILDREN THAT HAVE UNDERGONE HEMATOPOIETIC STEM CELL TRANSPLANTATION

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: Life threatening varicella zoster virus (VZV) infections can occur after hematopoietic stem cell transplantation (HSCT); therefore, prevention is important in these patients. However, fatal cases of vaccine-induced disseminated VZV infections have been occasionally reported with LAVV after HSCT, and low response rates at around 65% have been observed, without a clear benefit of a second dose. Due to the lack of data in children, we aimed to investigate safety and immunogenicity of the live attenuated varicella vaccine (LAVV) in children that underwent HSCT after administration of the MAV/06 strain LAVV.
Methods: This was a prospective study of children <19 years old that were seronegative for VZV IgG post-HSCT. Varicella-like rash within 3-weeks of immunization, and herpes-zoster-like blisters were monitored at each monthly visit after immunization. ELISA and FAMA assays were carried out 4-12 weeks after dose-1 and after dose-2 in children that were seronegative after dose-1.
Results: A total of 45 children were included in this study. No varicella-like rash of herpes zoster-like blisters were observed in any of the patients. A total 71.1% (n=32/45) achieved seroconversion after 1-dose. A second dose was administered in children that were seronegative after the 1st dose. Overall, a total 96.3% (n=43/45) achieved seroconversion after 1-dose or 2-doses of the MAV/06 LAVV. Two patients that did not achieve seroconversion after the 2nd dose received a 3rd dose of the MAV/06 LAVV, however, remained seronegative.
Conclusions/Learning Points: The MAV/06 LAVV post-HSCT is safe and effective in inducing immunity against VZV in children.

PV0189 / #2648

ESTIMATING HOSPITAL RATES OF SERIOUS ADVERSE EVENTS IN CHILDREN IN INDIA- ARE WE MISSING THESE IN THE AEFI SURVEILLANCE REPORTING?

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Background: The adverse events following immunization (AEFI) surveillance in India suffers from underreporting, bias and quality challenges. The lack of background rates for key AEFI events further challenges the interpretation. This multisite network study targeted to estimate the baseline hospital outcome rates for the selected AEFI and control conditions/outcomes, document the vaccine exposure status and investigate the association between select vaccine-event pairs. The current abstract presents the hospital event rates and vaccine exposure status.
Methods: The MAASS network undertook a prospective observational surveillance study and collected data over a 29-month period (November 2017- March 2020) at 22 (15 public and 7 private) hospitals in India. All hospitalized children aged 1-24 months were screened to identify the conditions of interest and for the eligible ones, detailed data were collected using standardized tools. Seven AEFIs conditions including acute demyelinating encephalomyelitis (ADEM), aseptic meningitis, Guillain-Barré syndrome (GBS), Kawasaki disease, intussusception, seizures, and thrombocytopenia; and four control conditions including dengue, malaria, sepsis and urinary tract infections (UTI) were targeted.
Results: A total of 90,147 age-eligible children were screened and 8,362 definite cases were documented. The event rates for AEFIs were: ADEM- 5.5, aseptic meningitis- 424.9, GBS-8.9, Kawasaki disease-43.4, intussusception-725.5, seizure-4946.6, and thrombocytopenia-262.9; and for the non-AEFI control conditions were: dengue-443.7, malaria-140.9, sepsis-1458.7, and, & UTI-815.3 cases per 100,000 hospitalized children aged 1-24 months. Standardized case definitions were met for > 90% of dengue, thrombocytopenia, intussusception, and malaria cases, while <50% of aseptic meningitis and UTI cases met the criteria. Vaccine exposure information was obtained for 89% of the cases and 42% had exposure within four weeks.
Conclusions/Learning Points: These findings address a critical evidence gap and provide pre-pandemic background rates for potential AEFIs for vaccine safety surveillance purpose.

PV0190 / #1437

USE OF MOBILE TECHNOLOGY FOR THE REPORT ON PHARMACOVIGILANCE OF VACCINES IN PANAMA

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: Opportune reporting of adverse reactions following immunization is a priority in the context of the Expanded Program on Immunizations (EPI) worldwide. We aimed to validate the use of a mobile app to record and monitor the adverse events and reactions after immunization and compare its performance against paper-diary.
Methods: We conducted a translational, observational cohort study of children/parents, pregnant women, or older adults to evaluate the use of an electronic-diary mobile-app TrialPal® by IntegraIT (e-diary) compared to a paper-diary as reporting instrument for adverse events and reactions after immunization. A pilot phase with focus groups was followed by an implementation/ vaccination phase. The participants were subjects eligible to receive vaccination from the Expanded Program on Immunizations (EPI) of Panama. The following outcomes were assessed within the next 7 days following immunization: timeliness, completeness, compliance, and user preference. User preference was evaluated by the participants through a confidential survey. Descriptive statistics and t-test and Chi-square tests were used to analyze the difference between the groups.
Results: A total of 362 participants were screened, and a total of 180 participants were included, as follows: 79 children/parents, 21 pregnant women, and 80 older adults. Overall, an opportune real-time reporting was observed through the e-diary, without differences among study groups. Children/parents were more compliant than adults, and compliance was better with the e-diary. A significant number of symptoms were reported in the e-diary than in the paper diary. The experience using both diaries was similar according to the satisfaction survey, but e-diary was a preferred option to report.
Conclusions/Learning Points: Adverse reactions to immunization through mobile applications might be a suitable alternative for pharmacovigilance in clinical trials or in real world settings.

PV0191 / #1064

ATTENUATION FAILURE LEADING TO MORBIDITY AND MORTALITY CASES IN IMMUNOCOMPETENT CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: Problems with viral attenuation have led to pathogenic varicella zoster virus (VZV) vaccine strains causing varicella-like rash and herpes zoster in immunocompetent children post-immunization. Therefore, discrete monitoring post-licensure is extremely important. This study aimed to differentiate between wild versus vaccine strain in children suspicious of vaccine-related VZV infections and investigate causes for attenuation failure.
Methods: Vesicle fluid, blood, or cerebrospinal fluid (CSF) samples from cases suspicious of vaccine-related VZV infections were collected prospectively. VZV DNA was isolated and ORF 22, ORF 62, and six SNPs exclusively only identified in vaccine S were sequenced in the patient's samples, and in vaccines A, B, C, and S.
Results: During the study period, 14 patients were diagnosed with vaccine-related VZV infections. Of these, 71.4% (n=10/14) presented as herpes zoster, all involving the ipsilateral C5-7 dermatome of the injection site, and 50% (n=7/14) had samples available for DNA isolation and sequencing. A total 85.7% (n=6/7) were 100% genotypically identical to vaccine S's pOKA strain which the patients were all found to have received, whereas one identified as wild type pOKA strain. Disseminated VZV infection occured in one case, which progressed to hemophagocytic lymphohistiocytosis and died of pulmonary hemorrhage within two months of immunisation. VZV DNA was isolated from his vesicle fluid, blood, and CSF, and was identical to vaccine S's pOKA VZV strain. Compared to wild type pOKA, in vaccines A, B, and C, two SNPs in ORF62 caused synonymous mutations in the amino acid sequence of VZV's Immediate-Early Protein 62 (IE62), however, vaccine S did not have acquire these two mutations during attenuation.
Conclusions/Learning Points: Attenuation failure may result in not only VZV related rash or herpes zoster but disseminated VZV infections leading to mortality.

PV0192 / #1656

PHARMACOVIGILANCE: A REVIEW OF SERIOUS ADVERSE EVENTS IN PAEDIATRIC VACCINE TRIALS IN AFRICA FROM 2000 TO 2015

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: The World Health Organization (WHO)'s defines severe adverse events (SAEs) as "any untoward medical occurrence that at any dose may result in death or requires inpatient hospitalization or prolongation of existing hospitalization, results in persistent or significant disability/incapacity or is life-threatening". SAEs are an important component of adverse events following immunization (AEFIs) usually monitored for ensuring the safety of vaccines. Scarce data exist on the occurrence of severe adverse events (SAEs) in paediatric vaccine trials.
Methods: A systematic review was performed. Severe Adverse events were tabulated and the Rates per thousand child days were calculated in each arm of the trial. SAE rate ratios were calculated and a meta-analysis was performed
Results: Out of a total of 6459 trials listed from the search, 30 were found suitable for analysis. There were 34560 children enrolled in the 30 studies, 21462 (62%) of them in the trial arm. A wide range in SAE rates was noted and thought largely to be due to the heterogeneity of the trials and the diverse geographical region. The classification and reporting of SAEs were not standardised. Larger studies were noted to have lower SAE rates. The pooled SAE rate in the control arm participants in the 30 studies was 0.11/1000 child days (95% CI 0.06-0.18).
Conclusions/Learning Points: Harmonized standard definitions and grading systems are key in the reporting of SAEs to allow monitoring of the safety of participants in clinical trials. The pooled rate from this review may serve as a reference for future paediatric vaccine trials in Africa.

PV0193 / #1226

POST-MARKETING ACTIVE SURVEILLANCE OF ADVERSE EVENTS FOLLOWING MEN B PEDIATRIC IMMUNIZATION (AEFIS) AND PROPHYLACTIC PARACETAMOL ADMINISTRATION: DATA FROM APULIA REGION (ITALY), 2019-2022

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: The perceived risk of adverse events is the most important threat for implementing successful vaccination programs, because it may cause hesitancy, delays or refusal of vaccination. Apulia is a large region in the South of Italy (4,000,000 inhabitants) where meningococcal B vaccine (Bexsero is offered free-of-charge to all newborns since 2014.
Methods: In order to better monitor the safety of vaccine the Apulian Regional Health Authority implemented an active surveillance program of adverse events following the first dose of meningococcal b immunization. The project was carried out in 12 vaccination clinics of the 6 Regional Districts since 2019 to 2022. With prior consent, children in the first year of life admitted to the vaccination centers adhering to the program for the first dose of the anti-MenB vaccine were enrolled. The parents of the children were given the "Post-vaccination diary" for reporting the adverse events that arose in the following 7 days and were phoned after this time. All reported AEFIs detected were included in the National Pharmacovigilance Network (RNF); the causality assessment algorithm was applied to the serious ones
Results: All reported AEFIs detected were included in the National Pharmacovigilance Network (RNF); the causality assessment algorithm was applied to the serious ones. 4362 children were enrolled; 4274/4362(98.0%) completed post-vaccination follow-up. 3283 AEFIs are registered with a reporting rate of 76.8x100 follow up. Only 23 AEFIs(reporting rate 0.5x100 follow up) were serious: 19 cases of hyperpyrexia, 3 cases of hypotonic-hyporesponsive episode and 1 case of seizure. All adverse events were resolved. The prophylactic paracetamol administration is associated with a significant reduction in these events ((OddsRatio 0.79; IC95:0.68–0.93; p<0.01)
Conclusions/Learning Points: The post-marketing safety profile in our study reinforces pre-licensure data and no emerging signals were detected

PV0194 / #721

IMPACT OF VACCINES ON STAPHYLOCOCCUS AUREUS COLONIZATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: Concerns regarding vaccine effects on microbial ecology have led to interest in the non-targeted effects of vaccinations.Our aim was to systematically review the literature related to the impact of vaccines on S.aureus carriage.
Methods: We conducted a systematic search of MEDLINE, Scopus and clinical trials.gov for studies that assessed vaccine effects on S. aureus carriage in children and adults using predefined inclusion and exclusion criteria. Generic inverse variance meta-analysis was done using random-effects models.
Results: Of 1,686 studies screened, 34 were eligible for inclusion, 22 were observational and 12 randomized controlled studies (RCTs). 88.2% (30/34) provided data on pneumococcal conjugate vaccines (PCV), 23.5% on influenza vaccines (8/34) and 6% on other vaccines (2/34). Most studies tested nasopharyngeal specimens (82.3%, 28/34). Among children aged more than 18-24 months, evidence suggested no effect of PCV on S. aureus colonization [2 RCTs, pooled OR 1.09 (95% CI 0.94-1.25), p 0.25; 7 observational studies, pooled OR: 1.02 (95% CI 0.83-1.25), p 0.86]. A transient increase in S. aureus carriage in PCV-vaccinated infants 9-15 months was shown [2 RCTs, pooled OR 1.11 (95% CI 1.00-1.23), p 0.06; 4 observational studies, pooled OR 1.64 (95% CI 1.00-2.68), p 0.05]. A reduction in S. aureus carriage was observed after influenza vaccination [4 observational studies; OR 0.85 (95% CI 0.78-0.94), p 0.0001]. Based on the GRADE criteria, the quality of evidence was considered low and very low.
Conclusions/Learning Points: Evidence did not suggest long-term effects of pneumococcal vaccinations on S. aureus nasopharyngeal carriage in children, however transient niche changes may occur in infants. Influenza vaccination was related to decreased rates of S. aureus carriage. Data regarding other vaccines is scarce. Further research and ongoing surveillance are needed to monitor colonization changes.

PV0195 / #1086

DETERMINING PRIOR DENGUE SEROSTATUS AMONG CHILDREN RECEIVING DENGVAXIA IN PHILIPPINES BY A NONSTRUCTURAL PROTEIN 1-BASED ENZYME-LINKED IMMUNOSORBENT ASSAY

E-Posters Viewing
E-POSTER VIEWING: AS03.E. VACCINE SAFETY (POST LICENSURE)

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Backgrounds: The four serotypes of dengue virus (DENV) cause the most important arboviral disease in humans. Dengvaxia, a chimeric yellow fever tetravalent dengue vaccine and the first licensed dengue vaccine, was recommended for DENV-seropositive individuals aged 9-45 years due to increased risk of hospitalization and severe dengue among DENV-seronegative recipients. While considerable efforts have been made to develop serological test to determine DENV serostatus for pre-vaccination screening, few studies focused on determining prior DENV serostatus among Dengvaxia recipients, including >830,000 children in Philippines, to facilitate assessing the safety and effectiveness of Dengvaxia in the post-licensure period.
Methods: We evaluated the performance of a DENV1-4 nonstructural protein 1 (NS1) IgG enzyme-linked immunosorbent assay (ELISA) using well documented control samples (n=371) of different flavivirus infections including those >20 years after DENV infection, and a yellow fever virus (YFV) NS1 IgG ELISA in 199 samples from the fever surveillance program in Philippines. RT-PCR and Panbio IgM were used to determine acute dengue.
Results: The DENV1-4 IgG ELISA had a sensitivity/specificity of 97.0/99.4% and can be used to determine prior DENV serostatus among Dengvaxia recipients (n=100) with or without acute dengue, up to 30 months after vaccination. The overall detection rate of anti-YFV NS1 IgG among Dengvaxia recipients was 40%, suggesting the difficulty of using it as a biomarker of Dengvaxia. Previous DENV-naïve children of Dengvaxia recipients (10/23) had a significantly higher rate of symptomatic DENV breakthrough infection than previous DENV-immune children (7/53) (p=0.004, Fisher's exact test).
Conclusions/Learning Points: Our DENV1-4 NS1 IgG ELISA and the algorithms developed can determine prior DENV serostatus among Dengvaxia recipients during both DENV breakthrough infection and non-dengue period to assess the long-term safety and effectiveness of Dengvaxia in the real world.

PV0196 / #355

IMPACT OF COVID 19 PANDEMIC ON PARENTS′ ADHERENCE, KNOWLEDGE AND ATTITUDES TOWARDS CHILDHOOD VACCINATION PROGRAM, RIYADH, SAUDI ARABIA

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Parents' knowledge, adherence and attitudes towards immunization can be affected by covid 19 pandemic. previous studies revealed good adherence, knowledge, and positive attitudes towards childhood immunization in Saudi Arabia before covid 19 pandemic.
Methods: A cross-sectional study was conducted during November 2022 in Riyadh, Saudi Arabia. convenient method of sampling was adopted. carents with children of 0-2 years old were invited to participate. Data was collected through face- to -face interview method using Arabic validated questionnaire to collect demographic data, education level, time of vaccination, adherence, knowledge about childhood vaccination program and attitudes of the parents. Informed consent was obtained from parents or companions to conduct adherence evaluation following immunization visit. A patient's information sheet was handed to the companion for introduction of the study. Descriptive statistics were used to describe all variables
Results: A total of 260 parents were participated. The mother was interviewed in 99 % of cases, Infant's ages ranged between 2-24 months (mean 10.2 months, standard deviation (SD) 8.1). 33 years and 41 years was the mean age of mothers and fathers respectively. Parents had good adherence to vaccination program reached up to (89%) on time without delay. Main reason for not-adhere to vaccination program was lack of education. poor knowledge was documented about the importance of administration of multiple doses of the same vaccine to child immunity (44.3 %), administration of multiple vaccines at the same time has no negative impacts on child immunity (50%).
Conclusions/Learning Points: No significant impact of covid 19 pandemic on parents' adherence, knowledge, and attitudes towards childhood vaccination program in Saudi Arabia, either positive or negative change in adherence were not reported after covid 19 pandemic.

PV0197 / #1723

PERCEPTIONS ABOUT MATERNAL VACCINES AMONG PREGNANT WOMEN AND HEALTH CARE PROVIDERS, AND FACTORS THAT INFLUENCE ACCEPTANCE: A CROSS-SECTIONAL STUDY IN BARCELONA, SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Maternal immunization is an excellent approach for preventing severe disease and mortality in young infants. However, despite proven benefits, coverage of maternal vaccines remain suboptimal. We aimed to understand the drivers that influence Tdap and Influenza maternal vaccines acceptance in pregnant women.
Methods: A web-based cross-sectional quantitative study was conducted in pregnant women attending ANC services at a referral hospital and primary care centres in Barcelona, Spain. Pregnant women of any maternal age and gestational age were invited to participate. The online survey instrument covered three key domains of vaccine hesitancy and acceptance: contextual, individual and group influences, and vaccine-specific issues.
Results: A total of 302 pregnant women were enrolled between June 2021 and March 2022. Most women (>80%) were aware of recommendation of maternal vaccines in pregnancy, and of the protection conferred to infants in early life. On perceptions towards vaccination in pregnancy, 84% of women considered maternal vaccines as safe and important for the baby, while 60% reported so for themselves. On factors influencing decisions on maternal vaccination, evidence on vaccine safety and a recommendation from a health care professional, particularly midwives and obstetricians, were recognized as the greatest facilitators for maternal vaccine uptake, while the fear of harming the foetus and not having been offered maternal vaccination by a health professional were the most significant barriers reported for rejecting vaccination.
Conclusions/Learning Points: Despite recognition among pregnant women of the benefits associated with maternal immunization, perceived risks for the infants and inadequate information about vaccines safety may hinder vaccine decisions. Health professionals are key drivers for maternal vaccination acceptance.

PV0198 / #303

INCREASED INFLUENZA VACCINATION COVERAGE IN IMMIGRANT CHILDREN AND AGE EFFECT MODIFICATION IN CANADA

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Influenza (flu) vaccination can prevent flu and reduce the risk of its complications and is recommended for almost all Canadians aged 6 months or older. The aim of the study was to determine the rate of flu vaccination in adolescents and age-related difference between immigrants and non-immigrants.
Methods: The analysis was based on data from 10,542 Canadian adolescents 12-19 years of age who participated in a national survey conducted in 2017-18. Each participant was asked if he/she had a flu shot during the past 12 months and was an immigrant or not. The rate of flu vaccination was calculated according to immigration status and covariates. All the point and variance estimates accounted for complex survey design including multiple stratification, clustering, and unequal selection probability.
Results: The overall rate of flu vaccination was 21.5% and the proportion of immigration was 15.4%. The rate of flu shot was higher in immigrants than in non-immigrants (25.5%% vs. 20.7%, $p<0.01$) and decreased with age (12-14 years: 24.7%; 15-17 years: 21.5%; 18-19 years:17.1%; $p<0.01$). The odds ratio for flu shot in association with immigration status was 1.37 (95% confidence interval: 1.17-1.61) after adjustment for age and sex. The difference in the flu shot rate between immigrants and non-immigrants was greater in the younger than older age groups and disappeared in the 18-19-year age group (12-14 years: 34.4% vs. 23.4%; 15-17 years: 28.1% vs. 20.3%; 18-19 years: 16.2% vs. 17.4%), and the age effect modification was statistically significant (Breslow-Day test for homogeneity of odds ratio: $p<0.01$).
Conclusions/Learning Points: The rate of flu vaccination was low in adolescents, especially for native Canadians, and the effect of immigration status on flu vaccination was only observed in children but not in young adults.

PV0199 / #2650

COVID-19 VACCINE ACCEPTANCE AMONG NORTH INDIAN PREGNANT WOMEN

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Background: The COVID-19 vaccination coverage for pregnant women has been lower than the general population in India and other developed countries. This study documented the vaccine acceptance, hesitance and knowledge, attitude and practices of pregnant women on COVID-19 vaccine and vaccination.
Methods: This cross-sectional study included 540 pregnant women attending an antenatal clinic.
Results: Majority (62.4%) of the participants were aged 18-25 years. 82.6% of the participants received two doses, 13% received one dose, 1.6% received one booster dose and 2.7% didn't receive any COVID-19 vaccine dose. Table-1 summarizes the profile, period and hesitancy-related information for the participants.

Table 1: Profile of vaccinated pregnant women and vaccine hesitancy status

Parameter	One dose (n=70)		Two doses (n=446)		2 primary + 1 booster dose (n=9)		Pooled (n=525)	
Vaccination before/during pregnancy	Before	During	Before	During	Before	During	Before	During
Vaccinated pregnant women, n (%)	22 (31.4)	48 (68.6)	168 (37.7)	278 (62.3)	4 (44.4)	5 (55.6)	194 (37)	331 (63)
Hesitancy for vaccination, n (%)	22 (31.4)	38 (54.3)	107 (24)	192 (43)	3 (33.3)	5 (55.6)	132 (25.1)	235 (44.8)
Concern about serious side effects, n (%)	21 (30)	48 (68.6)	157 (35.2)	262 (58.7)	3 (33.3)	5 (55.6)	181 (34.5)	315 (60)

The 15 unvaccinated participants cited safety concerns as the primary reason. Several factors influenced vaccine acceptance negatively (new vaccine, safety concerns, pregnancy complications and infection burden) and positively (counseling by healthcare provider). Among the unvaccinated and partially vaccinated participants, the concerns were: efficacy, safety and lack of information.

Conclusions/Learning Points: Although the COVID-19 vaccination status was high among these pregnant women, there was sizable vaccine hesitancy and concerns about vaccine safety. Counseling by the healthcare providers was the key factor for getting the vaccination by them.

PV0200 / #1589

CONFIDENCE TOWARDS VACCINATION DURING PREGNANCY VARIES WIDELY ACROSS THE EUROPEAN REGION

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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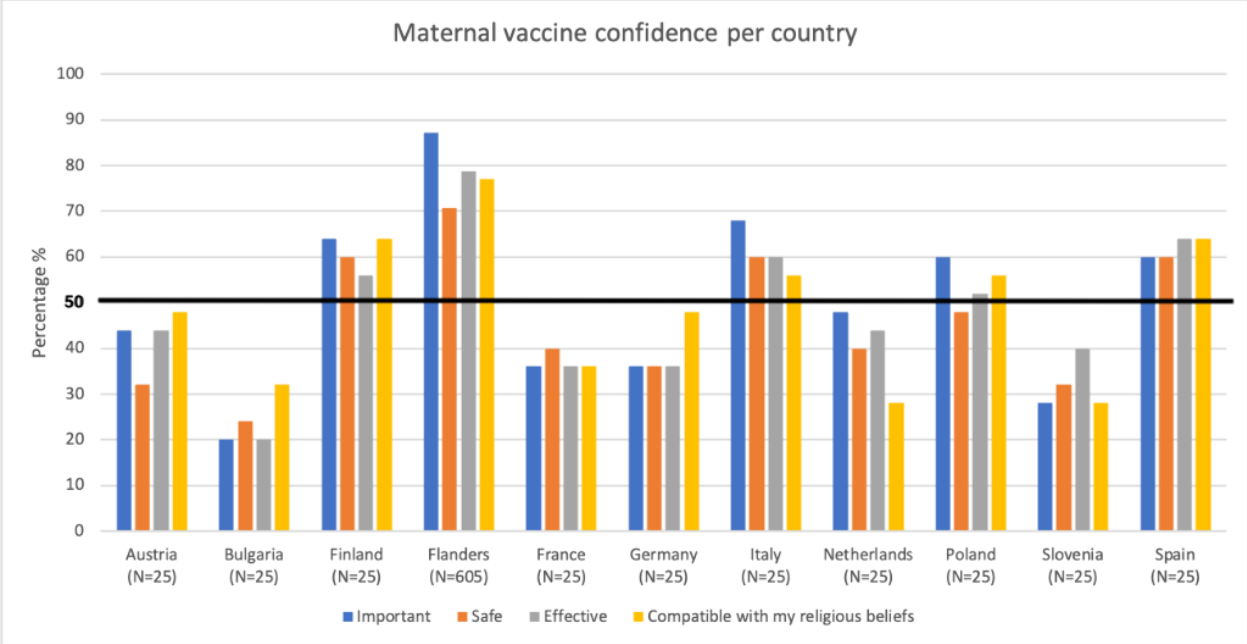
Backgrounds: Pregnant women and their offspring are at risk for infectious disease-related complications. To better protect this target group, the maternal vaccination strategy has been developed. Despite the proven benefit and the broad implementation of this vaccination strategy, there still exists a significant amount of hesitancy towards maternal vaccination policies. Our study compared maternal vaccine confidence in 11 European countries, including Flanders (Belgium).
Methods: A validated survey including questions on confidence towards maternal vaccination was spread via ORB International in 10 European countries (N=25/country) between March 29th and April 6th, 2022. Afterwards, surveys were distributed via well-baby clinics in Flanders (Belgium) between October 14th and 26th, 2022 (N=605). All the participants were either pregnant or gave birth in the last two years.
Results: In European countries like Austria, Bulgaria, France, Germany, the Netherlands and Slovenia, confidence in maternal vaccination is low (<50%), with the lowest confidence registered in Bulgaria, the only country included in the survey without a maternal vaccination program in place. Additionally, in Austria, France, Slovenia and the Netherlands, a WHO survey showed that the likelihood of health care practitioners (HCPs) recommending maternal influenza and/or COVID-19 vaccination is equal to or lower than 85%, which is lower than in other countries included in the survey (>85%) (https://health.ec.europa.eu/system/files/2022-11/2022_confidence_rep_en.pdf). In other regions like Flanders (Belgium), Finland, Italy and Spain, the belief that maternal vaccination is important, safe and effective is higher (respectively 64.0-87.1%; 60.0-70.7%; 56.0-78.7%). For Flanders (Belgium) is this in line with maternal vaccination coverage measured in 2020 (https://www.laatjevaccineren.be/vaccinatiegraadstudie).



Conclusions/Learning Points: Confidence in maternal vaccination varies widely across Europe. The implementation of clear-cut, scientifically-based maternal vaccination programs and vaccine training of HCPs could further increase the willingness of pregnant women to get vaccinated.

PV0201 / #788

DETERMINANTS OF HUMAN PAPILLOMAVIRUS VACCINE HESITANCY IN PEDIATRICS

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: The human papillomavirus (HPV) vaccine has the potential to protect against HPV-related cancers. Despite this, about 23% of parents across the United States are hesitant to vaccinate their child against HPV. Parental vaccine hesitancy (VH) is strongly associated with adolescents not receiving HPV vaccination. Validated measurements of vaccine-specific hesitancy are sparse in current literature. We aim to assess the impact of an educational video on parents' attitudes towards the HPV vaccine using a validated HPV vaccine hesitancy scale (VHS) at two university-associated pediatric clinics.
Methods: Inclusion criteria included parents of patients aged 9 to 17 who had not received their HPV vaccine. Participants completed an identical VHS prior to and directly after observing an educational video on the HPV vaccine. Mean VH scores were compared pre- and post-educational video. Responses were based on a 4-point Likert scale, with higher scores indicating greater hesitancy.
Results: 26 participants completed the VHS. Likelihood to vaccinate pre-intervention was 73.1% and post-intervention was 76.9%. The VH scores were compared by calculating the overall mean pre- and post-intervention score for the 9 questions and across each item. Out of a maximum of 45 points, the pre-intervention VH score was 20.2 and the post-intervention score was 19.3 (a difference of 0.9, p-value 0.233). VH scores across each item surveyed decreased post-intervention except for the statements regarding "how long the vaccine has been around to be sure it is safe" and "concerns for serious side effects."
Conclusions/Learning Points: Overall, our educational intervention increased likelihood to vaccinate with partial effectiveness in decreasing VH against HPV vaccine. The timing of post-intervention assessment may have impacted the study findings. Addressing HPV vaccine safety concerns among parents could help improve suboptimal HPV vaccination coverage.

PV0202 / #2630

VACCINATION AT A PORTUGUESE PRIMARY CARE FACILITY DURING 2022: INTERVENTIONS TO IMPROVE VACCINE COVERAGE

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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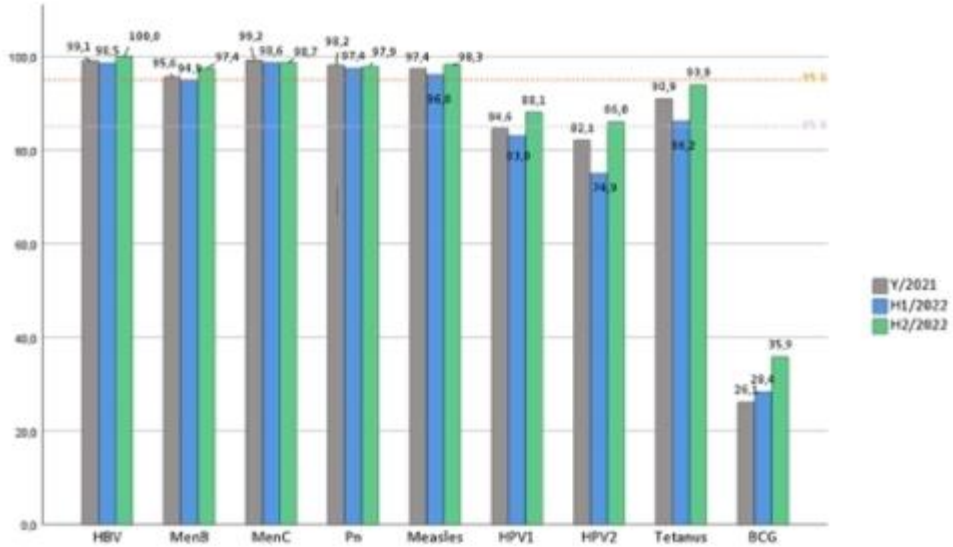
Background: Vaccination is a crucial measure for preventing disease at both populational and individual scope level, especially in paediatric patients. Primary care providers often play a vital role in improving and maintaining vaccine coverage (VC), which can be enhanced through specific organisational interventions.
Methods: We describe the National Vaccination Program's (PNV) coverage in a Primary Care Facility (PCF) in a Portuguese city. This PCF developed a vaccination task force which held periodical meetings and VC monitoring. Diverse strategies were established to optimise VC, including internal audits, professional training, telephonic invitations, opportunistic vaccination, and immediate rescheduling after missed appointments. We evaluated VC at the end of 2021 and each semester in 2022 (Y/2021, H1/2022 and H2/2022, respectively) using statistical analysis with SPSS v.29 and a $p<0,05$ was considered significant. PNV recommended levels of VC are 85% for HPV and 95% for remaining diseases. Except for tetanus, every vaccine's target population included only paediatric patients.
Results: Median VC in Y/2021, H1/2022 and H2/2022 was 96,50%, 95,47% and 97,65% respectively (excluding BCG, since target population includes eligible plus non-eligible individuals following national vaccination guidelines). Coverage for preventable diseases decreased from 2021 to H1/2022, followed by an increase during H2/2022. Median VC increased from 95,64% to 97,44% ($p=0,021$). Detailed results for each disease are presented on Table 1 and Graph

Disease	Measurement	Y/2021	H1/2022	H2/2022	VC change Y/2022 to H2/2022 (pp%)
HBV	Vaccinated individuals (n)	110	66	145	+0,90
	Target population (n)	111	67	145	
	VC (%)	**99,10**	**98,51**	**100**	
MenB	Vaccinated individuals (n)	263	260	418	+1,80
	Target population (n)	275	274	429	
	VC (%)	**95,64**	**94,89**	**97,44**	
MenC	Vaccinated individuals (n)	130	146	149	-0,56
	Target population (n)	131	148	151	
	VC (%)	**99,24**	**98,65**	**98,68**	
Pn	Vaccinated individuals (n)	270	267	274	-0,32
	Target population (n)	275	274	280	
	VC (%)	**98,18**	**97,45**	**97,86**	
Measles	Vaccinated individuals (n)	445	510	394	+0,88
	Target population (n)	457	531	401	
	VC (%)	**97,37**	**96,05**	**98,25**	
HPV1	Vaccinated individuals (n)	191	203	182	+3,55
	Target population (n)	225	243	204	
	VC (%)	**84,59**	**83,03**	**88,14**	
HPV2	Vaccinated individuals (n)	134	136	160	+3,93
	Target population (n)	161	181	186	
	VC (%)	**82,11**	**74,93**	**86,04**	
Tetanus	Vaccinated individuals (n)	1271	1030	1657	+3,01
	Target population (n)	1398	1195	1764	
	VC (%)	**90,92**	**86,19**	**93,93**	
BCG	Vaccinated individuals (n)	29	19	52	+9,73
	Target population (n)	111	67	145	
	VC (%)	**26,13**	**28,36**	**35,86**	
Median VC (excluding BCG)		**96,50%**	**95,47%**	**97,65%**	**+1,15 (p=0,036)**

Table 1: Vaccinated (n) and number of target individuals (n), and VC (%) for each target disease and respective change from previous time period (in pp%). HPV1 and HPV2 correspond to first and second dose, respectively. BCG target population includes eligible and non-eligible patients.



Graph 1: VC (%) for each time period and disease. Minimum recommended levels of VC in Portugal's PNV are 85% for HPV and 95% for every remaining disease.

1.

Conclusions/Learning Points: Overall, efforts implemented at the PCF resulted in favourable outcomes. However, it is challenging to determine the impact of each intervention, which limits our ability to assess their significance. Other factors, such as vaccine hesitancy and access to healthcare, may also contribute to challenges in achieving optimal VC.

PV0203 / #963

THE HPV VACCINATION DEFICIT IN GREECE IS INCREASING. IS THE EFFECTIVENESS OF THE ANNOUNCED CATCH-UP INITIATIVE CAPABLE TO ELIMINATE THE HPV VACCINATION DEFICIT IN GREECE?

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: During the COVID-19 pandemic, a significant reduction in the number of administered HPV doses was observed in Greece. To prevent future HPV burden increases, the National Immunization Committee (NIC) announced in 04/2022 a catch-up initiative to run until 12/2023. The study aims to assess the effectiveness of the running catch-up intervention.
Methods: A published calculator (Saxena CMRO 2022) seeded with local HPV vaccine sales data was utilized. During the pandemic and until April 2022, only girls were eligible for HPV vaccination, thus the dose deficit was only attributed to them. To exclude boys' post-April contribution, two scenarios were examined: 35% (conservative) and 50% (optimistic) of the observed HPV sales data were attributed to girls. Those scenarios were based on IQVIA estimations. The accumulated deficit was expressed as a function of the number of months of the last pre-pandemic year (e.g., 2019).
Results: The expected number of doses administered to girls in 2022 would be 14-34% lower than in 2021. The accumulated deficit at the end of 2022 is estimated at 5-7 months of vaccination of 2019. To clear the HPV deficit at the end of 2023, the administered doses should be increased by 69% and 154% compared to that of 2022, under the optimistic and conservative scenario, respectively. Expanding catch-up program duration by 1 or 2 years would reduce the annual required doses by 27% and 42%, respectively, compared to the announced catch-up duration.
Conclusions/Learning Points: Although a catch-up initiative is running, the HPV vaccination deficit is increasing. Under the observed effectiveness of the catch-up, the HPV deficit elimination is unlikely. Expanding catch-up duration and accompanying it with interventions to increase catch-up effectiveness is required to make HPV deficit elimination a realistic target.

PV0204 / #630

PARENTAL CONCERNS ABOUT CHILDHOOD VACCINATION IN RELATION TO AEFI

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: In the last decade, parental concerns about childhood vaccination have increased, and these concerns are often associated with vaccine hesitancy, a serious threat to public health. Hesitancy leads to vaccine rejection or delayed vaccine coverage. Concerns regarding adverse events following immunisation (AEFI) are the key driver of vaccine hesitancy. It is very important to understand parents' specific concerns to design bespoke strategies to address them. We used social media to identify these concerns; a recognised social listening method for tracking public concerns.
Methods: 108,482 Reddit comments about childhood immunisation and related AEFI were retrieved (January 2015-June 2020). We fine-tuned a COVID-Twitter-BERT V2 model for sentiment analysis. Topics of discussion were identified using BERtopic, which helps to organize a large collection of documents by thematically grouping them.
Results: Sentiment analysis identified neutral (n=71,672), negative (n=10,233), and positive (n=26,577) comments from the dataset. People expressed hesitancies either by asking questions or sharing personal and others' experiences in comments with neutral sentiments or rejecting with negative sentiments. Therefore, we selected comments with neutral or negative sentiments to extract the topics of discussion.

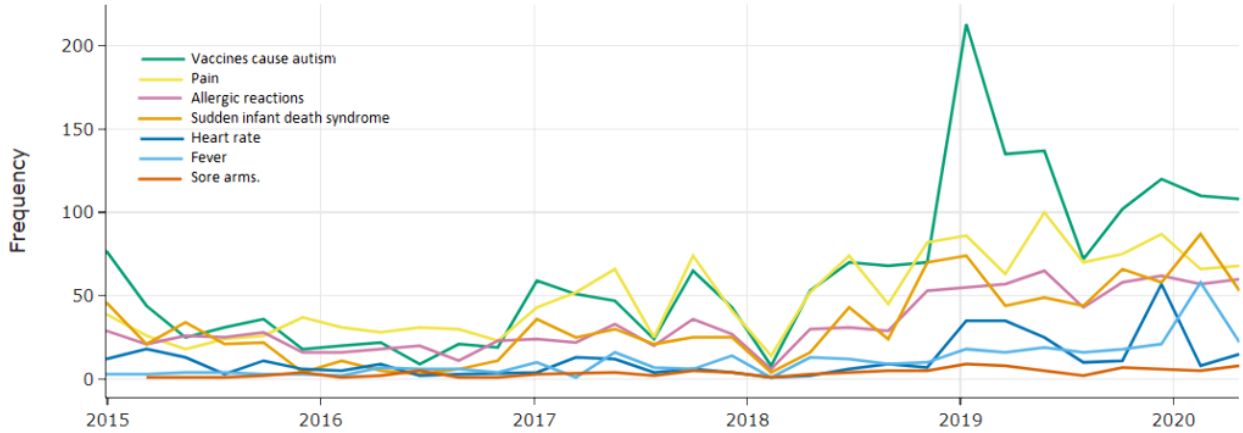

Figure 1. Parents' concerns about childhood vaccination The top concern identified was 'vaccines cause autism' with a higher frequency in 2015 2019, and 2020. Parents also frequently expressed hesitancies about vaccination in relation to 'sudden infant death syndrome'. Heart rate is another serious AEFI discussed in relation to childhood vaccination. Some common AEFIs (i.e., pain, allergic reactions, fever, and sore arms) were also identified.

Conclusions/Learning Points: Our findings highlight the top concerns that parents have about childhood vaccination and indicate which AEFI topics are more vulnerable to mis-/dis-information. Social media surveillance is a cost-effective and timely method to help inform targeted vaccine uptake strategies.

PV0205 / #1629

LOW VACINNATION COVERAGE OF PEDIATRIC PATIENTS WITH CHRONIC HEALTH CONDITIONS AGAINST SEASONAL INFLUENZA AND COVID-19 FOR THE WINTER PERIOD 2022-2023: AWARENESS IS NEEDED

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Our aim was to record the vaccination rates of pediatric patients with chronic health conditions (CHC) against seasonal influenza and COVID-19, as well as to determine factors associated with vaccination hesitancy.
Methods: A cross-sectional study was performed (and is ongoing). Children (6 months - 18 years) that visited either the Pediatric ER or the Pediatric Outpatient Clinic in Attikon Hospital (Athens, Greece) during 01/11/22 – 10/01/23 were eligible. Demographic and clinical characteristics (age, sex, underlying diseases, history of allergies), medication, and personal/family vaccination history were recorded.
Results: 270 children were enrolled: 142 (52.6%) girls, with a mean (SD) age of 8.94 years (5.0), and 203 (75.2%) with CHC (asthma, Inflammatory Bowel Disease-IBD, neurologic, rheumatologic). 54/203 (26.6%) CHC children were influenza vaccinated; influenza vaccination rate did not differ significantly between any of the chronic illness sub-categories (asthma 25%, IBD 58.8%, neurologic 21.2%, rheumatologic 25.4%) versus healthy controls (34.3%). 76/203 (37.4%) CHC children were COVID-19 vaccinated (asthma 41.7%, rheumatologic 38.6%); more children with IBD (64.7%, p=0.011) and less children with neurologic conditions (9.1%, p=0.014) were COVID-19 vaccinated versus healthy controls (35.9%). Influenza non-vaccination in CHC children was correlated with non-COVID-19 vaccination (p=0.002), non-influenza/COVID-19 vaccination of the father (p<0.001/p=0.029) and of the mother (p<0.001 for both), non-sibling influenza vaccination (p<0.001), and no past influenza vaccination (p<0.001). COVID-19 vaccination hesitancy in CHC children was correlated with younger age (p<0.001), absence of biologic agent medication (p=0.011), no influenza vaccination (p=0.002), non-COVID-19 vaccination of the father/mother/siblings (all p<0.001), and no past influenza vaccination (p<0.001). Younger age (p<0.001) and no past influenza vaccination (p=0.002) remained significant by multivariate analysis.
Conclusions/Learning Points: Influenza and COVID-19 vaccination seems to still rely on family perceptions, also for CHC children, underlying the need for intervention.

PV0206 / #138

AWARENESS AND ACCEPTABILITY OF PARENTS TOWARDS THE TYPHOID CONJUGATE VACCINE: A CROSS-SECTIONAL STUDY FROM PAKISTAN

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Extensively drug-resistant (XDR) Salmonella typhi was first reported in Pakistan in 2016 and cases have been rising at an exponential rate. Vaccination is one of the important public health measures to curb this problem. The typhoid conjugate vaccine (TCV) was introduced in Pakistan in 2019 to bolster the prevention of this disease. We aimed to evaluate the knowledge and level of acceptability regarding the vaccine among parents.
Methods: We conducted a monocentric cross-sectional retrospective study that included 290 parents of children admitted to the Pediatric Department of Mayo hospital (KEMU) Lahore, Pakistan, having at least one child aged between 9 months to 15 years, using consecutive sampling. We collected the data through interviews using a pre-designed questionnaire and a modified, validated tool–Parental Attitude to Childhood Vaccinations (PACV) and analyzed it using SPSS (v 26.0).
Results: Out of 290 participants, 204 (70.3%) were aware that a new typhoid vaccine (TCV) was recently introduced by the government. Eighty-two (40.2%) of these participants had received this information via mass media. Regarding the acceptability score, only 49 (16.9%) were hesitant toward TCV. One hundred and sixty-one (55.5%) participants had gotten their children vaccinated against typhoid. Out of the 129 (44.5%) participants with unvaccinated children, 92 (71.3%) were willing to get their children vaccinated, 18 (14%) were unsure regarding this decision and 19 (14.7%) were against getting their child vaccinated. 87 (54%) children had gotten their shot as part of government-sponsored door-to-door community campaigns.
Conclusions/Learning Points: Although the majority of our participants were aware and accepting of the TCV, 45.5% had not gotten their children vaccinated. Further high-powered & community-based studies are needed to identify the cause of this disparity.

PV0207 / #1313

MISSED OPPORTUNITIES FOR VACCINE EQUITY (MOVE): INCREASING CHILDHOOD VACCINATION THROUGH HOSPITAL-BASED CATCH-UP VACCINATIONS AND COMMUNITY OUTREACH IN INDIA: A PRE- AND POST-INTERVENTION ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: A missed opportunity for vaccination (MOV) occurs when a person eligible for vaccination attends a health facility and does not receive due vaccinations. Hospitalized children represent a vulnerable group who likely have risk factors for vaccine-preventable disease morbidity and mortality.
Methods: We conducted a prospective, pre-post intervention pilot study on MOV in hospitalized children aged 0-23 months in Chandigarh, India. Using a human-centered design (HCD) approach, an intervention was designed and implemented by key stakeholders. The intervention consisted of 4 components: disseminating vaccine information to healthcare staff, documenting children's vaccination status prominently on medical charts, strengthening linkages between outpatient immunization services and pediatric inpatients, and ensuring caregivers receive advice and referrals on due vaccinations at discharge. The proportion of MOV was measured and compared pre- and post-intervention.
Results: 640 children (256 pre-intervention 384 post-intervention) were enrolled in the study. On admission to hospital, 61.7% (158/256) and 64.1% (246/384) of children were under-vaccinated according to the Indian national schedule, pre- and post-intervention, respectively. During hospitalization, a significantly higher proportion of caregivers reported receiving vaccination advice ($p<.0001$) post-intervention (63.8%; 224/351) compared pre-intervention (14.4%; 34/237). Among under-vaccinated children followed through to discharge, the prevalence of MOV was significantly lower ($p<0.0001$) post-intervention (52.9%; 117/221) compared to pre-intervention (89%; 129/145).
Conclusions/Learning Points: We found a high proportion of MOV among hospitalized under-vaccinated children pre-intervention. Using a HCD approach in the design and implementation of an intervention that utilized existing healthcare resources and repurposing of hospital staff, we found that MOV can be significantly decreased post-intervention. Our findings suggest that simple, stakeholder-led approaches, if scaled up, can play a role in improving vaccine uptake.

PV0208 / #820

PARENTAL ATTITUDES, INTENTION AND BELIEFS TOWARDS CHILDHOOD VACCINATION IN THE NETHERLANDS AND A COMPARISON BETWEEN TWO POINTS IN TIME

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Vaccine uptake of the Dutch National Immunization Program (NIP) has slightly declined. The COVID-19 pandemic may have played a role. We assessed current parental attitudes, intention and beliefs towards vaccination and investigated how these may have changed.
Methods: In 2013 and 2022, parents with at least one child aged <3.5 years were invited to participate in online surveys on vaccination. Chi-square tests were used to compare parental attitudes (i.e. whether they think vaccinating their child(ren) according to the NIP is bad/good, (un)important and/or (un)necessary), participation within the NIP, intention and other psychosocial factors between 2013 and 2022.
Results: The 2022 survey was completed by 998 parents (response: 12.2%) and the 2013 survey by 797 parents (response: 37.1%). Preliminary results showed that in 2022 significantly larger proportions of parents felt that vaccinating their child(ren) according to the NIP is (very) bad (2013: 1.4%; 2022: 4.5%; p-value=0.0002), (very) unimportant (2013: 2.2%; 2022: 4.9%; p-value=0.003) and (very) unnecessary (2013: 3.3%; 2015: 5.9%; p-value=0.009) and did not participate in the NIP (2013: 2.6%; 2022: 5.4%; p-value=0.003). Similarly, in 2022 a significantly smaller proportion of parents intended to vaccinate their (youngest) child according to the NIP in the future (2013: 87.0%; 2022: 83.1%; p-value=0.03). Other factors, such as beliefs about vaccination and infectious diseases, trust and consideration, displayed similar
trends.

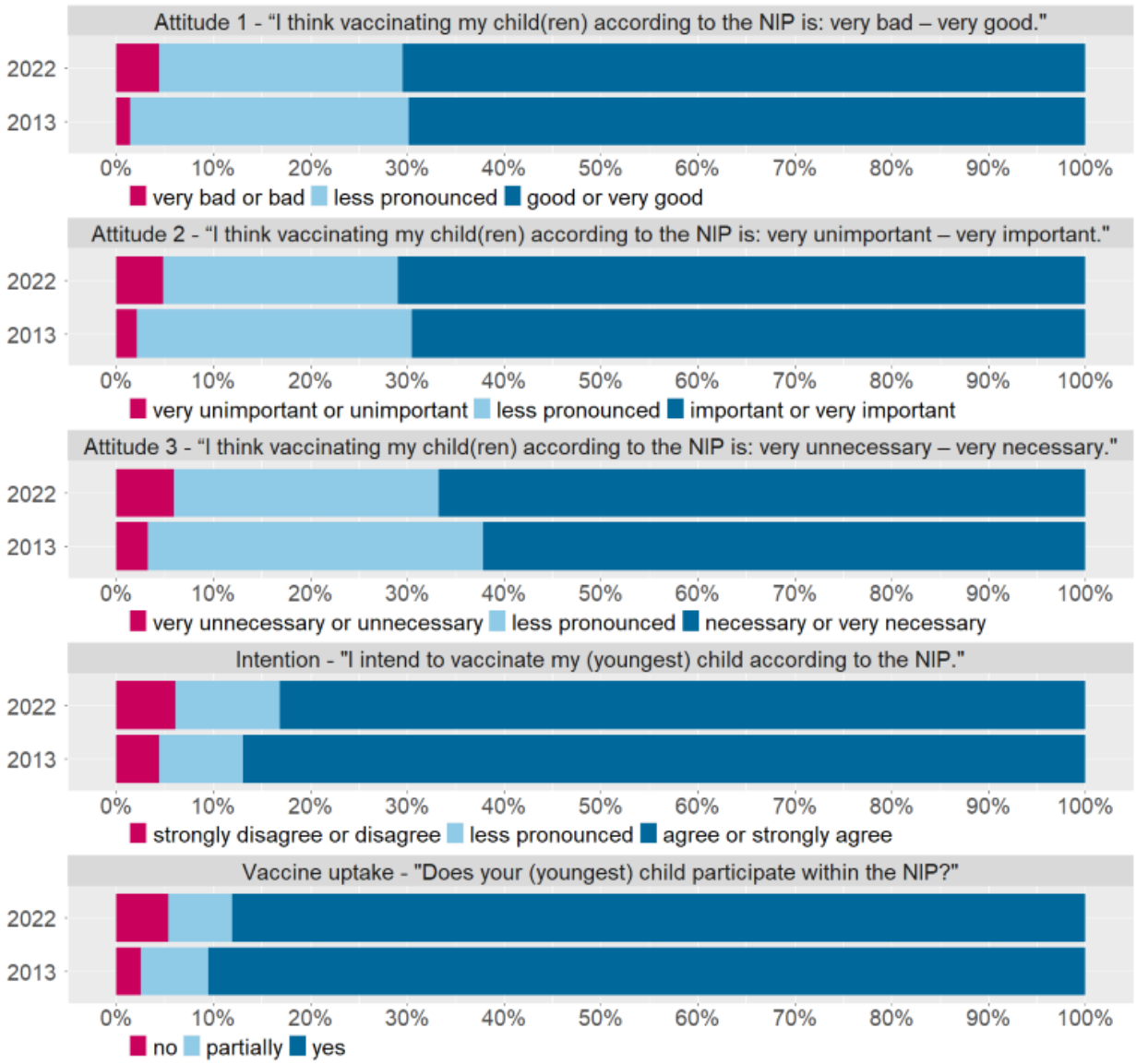

Figure 1. Attitudes, intention and vaccine uptake of parents with at least one child aged <3.5 years in 2013 and 2022. All psychosocial items, except vaccine uptake, were measured on a 7-point Likert scale with responses grouped as: 1-2 negative (rubine red), 3-5 less pronounced (light blue), 6-7 positive (dark blue).

Conclusions/Learning Points: This study showed that, although parental attitudes, intention and beliefs towards vaccination are still largely positive in 2022, there are indications that they have become slightly more negative. As attitudes, beliefs and intention are important prerequisites of vaccine uptake and the COVID-19 pandemic may have played a role, monitoring these factors is important. Researching possible causes could contribute to developing appropriate interventions to sustain high vaccine uptake.

PV0209 / #2569

THE EFFECTIVENESS OF CONVERSATIONAL AI SERVICES ON COVID-19 VACCINE CONFIDENCE AND ACCEPTANCE AMONGST PARENTS OF UNVACCINATED CHILDREN IN THAILAND, HONG KONG, AND SINGAPORE

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Background: Low COVID-19 vaccine uptake amongst children can be attributed to vaccine hesitancy (VH) and is a major obstacle in resumption to normalcy. With the overabundance of online and offline vaccine-related misinformation, digital interventions such as chatbot is a promising tool for providing accurate and timely information at scale. We evaluate the effectiveness of chatbot intervention in addressing VH amongst parents making vaccination decisions for their children, through increasing COVID-19 vaccine confidence and acceptance.
Methods: We conducted a multisite, parallel, randomised controlled trial (RCT) from February to June 2022 in Thailand (TH), Hong Kong (HK), and Singapore (SG). We randomly recruited parents of children who were unvaccinated or have delayed vaccination until governmental vaccine mandates. Participants were assigned to the control or intervention group with a 1:1 allocation ratio. The week-long intervention involved using vaccine chatbots covering topics like vaccine importance, safety, effectiveness, how to get vaccinated, tips before vaccination, and misinformation; chatbots were in English and the local languages and were hosted on Facebook Messenger (TH) and WhatsApp (HK, SG). Participants answered pre- and post-intervention surveys on COVID-19 vaccine confidence, acceptance, and vaccine-related misinformation.
Results: Out of 428 participants, 204 (TH: 69, HK: 90, SG:45) were assigned to the intervention. Regression models show mixed effects of the intervention. Compared to control, Thailand intervention group was more likely to have increase confidence in vaccines' importance [OR = 2.40 (95% CI: 1.34 to 4.32)], but Hong Kong intervention group was less likely to have increased vaccine acceptance [0.24 (0.17-0.34)].
Conclusions/Learning Points: Results of chatbot intervention effectiveness amongst parents are inconclusive and further studies are needed to better understand how digital interventions can address VH through increasing vaccine confidence and acceptance.

PV0210 / #607

VACCINATION IN PHARMACY: RESULTS OF PILOT PROJECT IN UKRAINE

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: COVID-19 pandemic was associated with decreasing of routine vaccination rates in Ukraine. In coordination with Ministry of Health, NITAG, NGO "Academy of Family Medicine of Ukraine" provided the pilot project "Vaccination in pharmacy" from Nov 2021-Jan 2022 in Kyiv as the first experience of engaging pharmacies in immunisation.The aim of the project was to clarify the patient's attitude and adherence to vaccination in pharmacies for further implementation.
Methods: The results of the project were analyzed retrospectively, using medical records and interviews of participants in 6 pharmacies of Kyiv city. The announcement of pilot project was launched on MoH official site and several mass media sources. The vaccination procedure has been provided due to Ukrainian regulations: signing informed consent, short clinical examination to exclude possible contraindications, vaccination and 15 min follow-up. Simultaneous vaccination was provided in one pharmacy where children were also eligible for immunization.
Results: Overall 1862 participants (59% female, 41% man) were engaged in the pilot project. Most of the patients (94%) got flu vaccine. In one pharmacy where all-aged patients had possibility to get shots a total number of 98 patients including 36 kids aged 1-18 yrs were vaccinated, 47 persons (48%) received more than 1 vaccine.The rate of return visits was 19% for 3 months, some of the patients invited their family members on the next visit to get shot. All doctors and pharmacists were satisfied with the project and wished to continue such practice. Among the patient there was any complaints on the vaccination and over 27% actively wished to get vaccination in pharmacy next year. No serious events have been observed during the project.
Conclusions/Learning Points: Vaccination in pharmacies will have development in Ukraine with consistently legislation changing.

PV0211 / #680

COMPARING PARENTAL VACCINE HESITANCY IN TWO NEIGHBOURING ASIAN COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Vaccine hesitancy is one of the major concerns for WHO in addressing transmissible and vaccine preventable diseases. Worldwide, high vaccine hesitancy rates have impeded the rollout of successful vaccination programs in the COVID-19 pandemic. Mistrust of the child's doctors had been identified as one of the major factors contributing to vaccine hesitancy. We aimed to compare the vaccine hesitancy rates in two Asian countries, Malaysia and Singapore and study the health beliefs of parents.
Methods: An online voluntary survey was carried out in both countries from November, 2021 until August, 2022.
Results: A total of 226 Malaysian parents (MPs) and 635 Singaporean parents (SPs) were surveyed. MPs were on average younger (38.0±8.8 vs 39.1±6.7) and had more children compared to SPs (2.4±1.8 vs 2.0±0.8). MPs were also less likely to have received the COVID-19 vaccine themselves (96% vs 99%) and were more vaccine hesitant (16.4% vs 5.8%). More MPs delayed vaccination for their children (26.5% vs 19.4%) and did not perceive vaccine preventable diseases as 'severe' compared to SPs (10.6% vs 4.9%). Twice as many MPs believed that it is better for children to acquire immunity through natural infections than vaccination. More MPs were concerned that vaccines may not actually prevent the disease (36.3% vs 27.2%). Overall, more MPs mistrust the information on vaccines (14.6% vs 6.6%), their children's doctors (4% vs 0.6%) and healthcare authorities (76.5% vs 23.5%) compared to SPs. All comparisons are statistically significant ($p < 0.01$)
Conclusions/Learning Points: Despite the proximity of these two countries and sharing many ethnographic similarities, parental vaccine hesitancy is more common in Malaysia than Singapore because of different healthcare beliefs. More public health campaigns can be done to increase parental trust

PV0212 / #263

INFLUENZA VACCINATION IN CHILDREN WITH PULMONARY DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Influenza is associated with considerable respiratory morbidity and mortality. Healthcare authorities recommend immunization of all children. The vaccination showed protection against Influenza triggered asthma attacks. Medical professionals caring for children with chronic lung disease should counsel parents on the importance of annual Influenza vaccination as part of supportive care.
We aimed to describe adherence to Influenza vaccination in respiratory patients and identify potential reasons for non-vaccination in this patient population.
Methods: The study included questionnaires reviewing personal experience and beliefs regarding Influenza vaccination, provided by parents of patients who visited the Pediatric Pulmonary Institute in Schneider Children's Medical Center with their children, between March- August 2021.

Results: Of 199 parents who completed our questionnaire, 117 (57.3%) vaccinated their children against Influenza during the recent year. Mean age was 6.9±4.5 years, demographic data were similar between the vaccinated and unvaccinated groups. Vaccination rates differed significantly comparing parents who received an explanation from their primary physician regarding the Influenza vaccine and those who didn't, 43.8% and 64.6% (p=0.004), and parents who received explanation from a pulmonary specialist and those who didn't, 77.3% vs. 51% (p=0.003). The primary physician's and the pulmonologist's recommendation to vaccinate both showed to be significantly effective (OR 0.2). Parents who believed in vaccine efficacy and safety were more likely to vaccinate their children (p<0.001). Factors significantly affecting the decision of the parents to have their child vaccinated were their knowledge, beliefs and conceptions about the vaccine.

Conclusions/Learning Points: Pediatric respiratory patients' Influenza vaccination rate was 57%. Major factors encouraging vaccination were proper parental knowledge and the recommendation of the primary physician\pulmonologist. This emphasizes the need for providing patients with information, by first explaining the vaccine's importance to doctors.

PV0213 / #1882

ROTAVIRUS IMMUNIZATION COVERAGE AND TIMING OF ADMINISTRATION: A REGIONAL PROSPECTIVE COHORT STUDY IN SOUTHERN ITALY

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Since fifteen years, two oral live attenuated Rotavirus vaccines (RVV) are available in Europe: a human monovalent vaccine (mRVV 2-doses) and a re-assortant human bovine pentavalent vaccine (pRVV 3-doses). In Italy, RVV is recommended and provided free of charge from 2018, however, the coverage is scattered and suboptimal.
Methods: The Vaccination Registry of Campania Region (Southern Italy) was used to retrospectively study the RVV coverage and its timing of administration in the entire pediatric cohort receiving vaccines scheduled in the first year of life between January 1, 2016 and December 31, 2020.
Results: Overall, 224.110 children were enrolled during the study period, 60.614 (27.0%) received a complete RVV schedule,15.271 (6.8%) an incomplete schedule and 148.225 (66.1%) were not vaccinated against RV. Immunization rate increased overtime, either for fully (1.15% in 2016 to 56.92% in 2020) or partially vaccinated children (0.14% in 2016 to 11.0% in 2020). pRVV was administered in 89.8% and mRVV schedule in 7.5%, data were missing for 2.7% of children. A higher proportion of children receiving mRVV completed the schedule compared to those receiving pRVV (91% vs 81%, $p<0.0001$). 76.6% received first RVV dose by 12 weeks of age and 18% between 12-15 weeks. mRVV schedule was completed within the recommended timing (24 weeks) according to product labels in 86.8% of children, compared to pRVV (32 weeks) in 93.7% ($p<0.00001$). 11.9% of children completed mRVV schedule between 24-32 weeks, a time interval indicated as possible by some Health Authorities.
Conclusions/Learning Points: Different RVV schedules are associated with a variable probability to complete the schedule and timely administering the doses. Although still far from the target, RVV coverage progressively increased in Campania, further efforts are needed to achieve this goal.

PV0214 / #2677

VACCINE HESITANCY IN BRAZILIAN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Background: Vaccine coverage has been dropping in Brazil since 2016. Vaccine hesitancy is the delay or refusal in completing the vaccination schedule, despite the availability of vaccines in health care services.
Methods: To identify vaccine hesitancy and reasons for non-vaccination in children born in 2017 and 2018, residing in urban areas of Brazilian capitals and the Federal District, we carried out a vaccine coverage survey in all Brazilian capital cities (27) of children born in 2017 and 2018 living in urban areas. The sample size was 31028. Data from the household interviews were recorded on a digital form that included questions about the decision not to vaccinate and the reasons for it, the importance of vaccines for the health of the child, fear of adverse reactions, the need for vaccines against “eliminated diseases”, and difficulty reaching a vaccination site.
Results: Vaccination coverage under 1 year old was lower in children of parents who said they were afraid of serious reactions (PR=0,95;CI:0,93-0,97), who decided not to give one or more vaccines (PR=0,71;CI:0,66-0,75), and who had difficulty taking their child to a vaccination site (PR=0,90;CI:0,87-0,92). Fear of serious vaccine reactions was higher in mothers younger than 35 years (PR=1,30;CI:1,24-1,37), with lower educational level (PR=1,45;CI:1,38-1,53), and when the child was the third or more (PR=0,86;CI:0,82-0,91). Fathers or caretakers in families with higher household consumption level reported greater need to maintain vaccination against controlled diseases (PR=1,07;CI:1,06-1,08), and those in lower household consumption level had the highest proportion of children brought to the vaccination site who were not vaccinated due operational issues (PR=0,82;CI:0,79-0,85).
Conclusions/Learning Points: Vaccine hesitancy is associated with decreased vaccine coverage in children.

PV0215 / #700

MODELING THE DEFICIT OF HPV VACCINATION IN ADOLESCENT GIRLS DURING THE COVID-19 PANDEMIC IN GERMANY

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: The COVID-19 pandemic led to significant disruption in health care services in Germany including reduced administration of routinely recommended HPV vaccines among adolescents. The time and effort required to catch up these missed doses is unclear. We modeled the estimated cumulative dose deficit and time to recover from this deficit in Germany.
Methods: HPV doses administered to adolescent girls in Germany prior to and during the COVID-19 pandemic, were estimated from a retrospective analysis between January 2018 and September 2022 using electronic medical records. A previously published model was then utilized to estimate the accumulated deficits (based on prior vaccine uptake) and time-to-recover from that deficit at different catch-up rates.
Results: Real-world data showed that the first dose uptake of HPV vaccines dropped annually by 25% on an average by the end of September 2022, compared to 2019 (pre pandemic uptake). The accumulated deficit as a % of total annual doses administered during the reference period (2019) was estimated to be around 63%. This deficit is projected to clear between September 2029 and January 2036, assuming annual catch-up rates of 10% and 5% respectively, in addition to 2019 uptake rates. Similarly, all dose uptake dropped by 20% annually by the end of September 2022 (relative to 2019), and the accumulated deficit was estimated to be around 53%. This deficit is projected to clear between September 2028 and January 2034, assuming annual catch-up rates of 10% and 5% respectively.
Conclusions/Learning Points: Administration rates of routine HPV vaccines decreased significantly among German adolescent girls during COVID-19 pandemic and continue to remain at a low level. To reduce vaccine preventable HPV related diseases, sustained efforts to vaccinate the missed cohorts will be needed over the next multiple years.

PV0216 / #450

PREVENTING THE NEXT PANDEMIC IN LEBANON

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: Lebanese non-government organisations (NGOs) and Primary Healthcare Centres (PHCs) have reported a fall in routine vaccination rates, some by over 50%. We investigated the reasons behind this decline.
Methods: 32 parents from the Old Saida UN Habitat Neighbourhood were selected via purposive sampling from a list of those whose children had fallen behind their routine vaccination schedule. These parents underwent semi-structured interviews with one of two interviewers while a focus group of 8 healthcare workers (HCWs) was also convened. The resultant transcripts underwent thematic analysis: they were coded into concepts, which were consolidated into themes, which are presented. The study was approved by the Ministry of Public Health.
Results: The most commonly identified barrier was cost. Vaccines themselves are free at PHCs but increasing numbers are charging ancillary fees such as a physician consultation fee due to the current economic crisis. These, as well as transport costs, are unaffordable to many. Additionally, PHCs often cannot stock all routine vaccinations simultaneously, necessitating parents to pay for multiple visits. Additionally, around half of the parents and some HCWs had a misconception that vaccines in private clinics were safer. The vast majority of participants described vaccines as safe and important, while two participants expressed doubts about their effectiveness. However, no parents listed vaccine-preventable diseases as an important health problem in their community, and half had spoken to people who believed vaccines to be ineffective and/or unimportant.
Conclusions/Learning Points: In summary, while economic barriers significantly contribute to vaccine hesitancy, they are exacerbated by misinformation, logistics barriers and an underestimation of the importance of vaccines. We argue that an integrated approach of risk communication and community engagement alongside targeted ‘Vaccine Drives’ is urgently needed to avert future outbreaks.

PV0217 / #976

VACCINATION OF UKRAINIAN REFUGEE CHILDREN AS AN INTERNATIONAL ISSUE

E-Posters Viewing
E-POSTER VIEWING: AS03.F. VACCINE HESITANCY

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Backgrounds: The Russia-Ukraine war has caused significant humanitarian crisis on the Ukraine territory and put Ukrainian citizens in search of safety across borders. According to the United Nation data, almost eight million Ukrainian refugees have been registered in European Union by January 3, 2023, and children constitute half of this number. According to the national open registry data, population immunization rates in Ukraine are insufficient, both for subjective (anti-vaccination beliefs) and objective (insufficient vaccine supply) reasons.
Methods: We performed an assessment of immunization status of children and parental attitudes towards vaccination in refugee families by running a dedicated electronic survey. A total of 92 Ukrainian families who fled to the European Union, United Kingdom, Israel, United States and Canada in 2022 responded to the questionnaire.
Results: Before emigration, only 81.5 % of children were fully vaccinated according to the Ukrainian immunization schedule, and less than half of children received some of the recommended vaccines not included into the regular national schedule (against rotavirus, varicella, pneumococcal infection, etc.). After emigration all children who remained in the countries of asylum completed all the vaccinations that were offered in those countries, including children from the families with negative parental attitude towards vaccines. Parental concerns of vaccine safety and efficacy did not change significantly. However, the fact that unvaccinated children have limited options to attend educational/daycare settings in a host country became the main reason to catch-up the necessary vaccinations. Simultaneously, up to 30 % of families who returned to Ukraine had refused vaccination for their children in the countries of refuge.
Conclusions/Learning Points: Anti-vaccination attitudes in Ukrainian families are a threat to the public health of asylum countries. A special vaccination program for refugee children should be developed.

PV0218 / #1673

SAFETY AND IMMUNOGENICITY AFTER TWO-DOSE BNT162B2 MRNA VACCINE IN CHILDREN AND ADOLESCENT LIVER TRANSPLANT RECIPIENTS

E-Posters Viewing
E-POSTER VIEWING: AS04.A. HOST-PATHOGEN INTERACTION

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Backgrounds: Solid organ transplant recipients may have suboptimal immune responses to COVID-19 vaccines. This study aimed to evaluate the safety and immunogenicity after 2 doses of the BNT162b2 mRNA vaccine in adolescent liver transplantation (LT) recipients.
Methods: Eighteen LT recipients who received two doses, at 3-week intervals, of the BNT162b2 vaccine were enrolled. Anti-RBD IgG was measured before, 3 weeks post-first dose, and 4 and 12 weeks after the second dose. The surrogate virus neutralization test (sVNT) and anti-nucleocapsid immunoglobulin (anti-N Ab) were evaluated at 4 and 12 weeks post-second dose. After each vaccination, adverse events (AEs) were recorded from days 0-7, and acute cellular rejection (ACR) was monitored for up to 3 months.
Results: The mean (SD) age of LT recipients was 14.9 (2.1) years, and 67% received calcineurin inhibitors/mycophenolate/corticosteroid regimens. The mean time since the transplant was 10.3 (4.8) years. At 3 weeks post-first dose, anti-RBD IgG was positive in 13 of 18 (72.2%) LT recipients with a median level of 244.7 AU/mL (IQR 13.9, 632.6). At 4 and 12 weeks after completion, 14/18 (77.8%) were positive for anti-RBD IgG, with median levels of 9,180 AU/mL (IQR 307.5, 19545.3) and 2,949.6 (IQR 415.4, 5992.9), respectively. All patients tested negative for anti-N Ab, indicating no COVID-19 infection after vaccination. At 4 weeks after the second dose, the median percentage of inhibition by neutralizing antibodies, as measured by the %sVNT, was 97.4% (IQR 16.3, 98.9), and slightly declined to 93.4% (IQR 19.9, 96.9) at 12 weeks after completion of vaccination. There were no serious AEs or ACR following each vaccination.
Conclusions/Learning Points: Although suboptimal immune responses were observed, the administration of two doses of BNT162b2 mRNA vaccine to pediatric LT recipients was found to be safe and immunogenic.

PV0219 / #1043

GUILLAIN BARRE

E-Posters Viewing
E-POSTER VIEWING: AS04.A. HOST-PATHOGEN INTERACTION

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Backgrounds: Guillain-Barré syndrome (GBS) is the most common form of acute polyradiculoneuritis (PRNA). It is a medical emergency in pediatrics that requires rapid diagnosis and immediate assessment of the severity criteria for the implementation of appropriate treatment.
Methods: Retrospective, descriptive study in 24 patients under the age of 18, who presented with GBS between September 2017 and July 2021 and hospitalized in the multipurpose pediatric intensive care unit of the Abderrahim EL Harouchi children's hospital in Casablanca.
Results: The average age was 7.91 years with extremes ranging from 18 months and 14 years, and a male predominance of 75%. After a prodromal event, most often infectious (80%) and a free interval of 12 days on average, 2 types of motor disorders begin: either hypo or arereflectic flaccid paralysis of the lower limbs (45.8%) or flaccid quadriplegia hypo or arereflectic (54.2%) During GBS, the most formidable complication is respiratory distress, it can occur at any time. In our study, respiratory impairment was observed in 70.8% of cases, in addition other signs of severity such as swallowing disorders (75%) and dysautonomic disorders (8.33%) were also observed. which justified care in the intensive care unit for all of our patients. The use of invasive ventilation was necessary in 76.5% of cases, and specific treatments based on immunoglobulins were administered in all our patients. Despite everything, the death rate remains high (25%) and is mainly due to complications related to hospitalization.
Conclusions/Learning Points: Guillain Barré syndrome is therefore a pediatric emergency that requires rapid diagnosis and immediate assessment of severity criteria for the implementation of appropriate treatment

PV0220 / #288

HIV INFECTION WITH RAPID PROGRESSION TO AIDS IN AN ADOLESCENT 16-YEAR-OLD MALE

E-Posters Viewing
E-POSTER VIEWING: AS04.A. HOST-PATHOGEN INTERACTION

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Title of Case: HIV infection with rapid progression to AIDS in an adolescent 16-year-old male
Background: Rapid progression from HIV primary infection to AIDS within 12 months to two years is reported in <1% of all patients. Younger age at seroconversion has been shown to be a protective factor of disease progression, whereas genetic predisposition, co-infection with other pathogens and different HIV-1 subtypes have been associated with rapid progression. Research is mainly focused on naturally HIV-resistant people to understand the mechanisms for disease control. Patients with rapid progression to AIDS within a few months have been published in adults, but not in adolescents to the best of our knowledge. We present a case of a 16-year-old male with progression from HIV primary infection to AIDS within a documented time interval of 16 weeks, considering the diagnostic gap of six weeks related to the fourth generation HIV tests.
Case Presentation Summary: A previously healthy 16-year-old male presented to emergency departement with fever, extensive apthous stomatits, dysphagia, and retrosternal pain during swallowing. Personal history yielded an episode of fever, pharyngitis and rash six weeks before. The patient reported regular unprotected sex with men. A negative fourth generation HIV test was documented 76 days before admission. Screening for sexually transmitted diseases yielded a positive fourth generation HIV test with a viral load of 41'900 copies/ml and a CD4+ count of 193/ul (16%). An oral swab yielded a positive PCR for herpes simplex virus 1 and Neisseria gonorrhea, and a positive culture for Candida albicans. Monkeypox was excluded resulting in a presumed AIDS defining diagnosis.
Learning Points/Discussion: This young patient did not show relevant risk for rapid HIV progression to AIDS as described in the current literature, making widely unknown factors for rapid progression likely.

PV0221 / #1076

DERMAL MACROPHAGES DIVIDE LABOR IN MYCOBACTERIAL INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS04.A. HOST-PATHOGEN INTERACTION

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Backgrounds: Dermal macrophages, which protect the host from colonizing and invading bacteria, originate from either primitive or definitive hematopoiesis, and are largely renewed by monocyte-derived macrophages. IRF8-deficiency is associated with developmental defects in myelogenesis and profound paucity of monocytes, leading to a specific susceptibility to mycobacteria, which exhibit an intracellular lifestyle in macrophages.
Methods: For this study we used murine models of IRF8 deficiency and a combination of fate-mapping, single-cell RNA sequencing and tissue microscopy.
Results: We demonstrate that homeostatic dermal macrophage density and subset distribution is not affected by the lack of monocytes, demonstrating profound plasticity in macrophage differentiation and maintenance. Furthermore, it uncovers distinct differentiation pathways that converge at a subset of immunologically non-reactive tissue resident macrophages. In contrast to the homeostatic situation, IRF8 deficiency leads to a severe defect in dermal macrophage density at the site of the mycobacterial infection, resulting from lacking recruitment of monocyte-derived macrophages. Further dissecting the role of macrophage density and renewal regulation in general, we discovered that recently immigrated macrophages are primed towards antibacterial immunity, while persistence in the dermal environment imprints a less inflammatory transcriptional profile upon macrophages. Turnover kinetics of different clusters reveal a time dependent priming of dermal macrophages, i.e. tissue persistence defines function, rather then origin. This situation uncovered a striking distribution of labor between long-term resident and recently recruited, monocyte-derived macrophages. Whereas recruited macrophages take up bacteria and produce anti-mycobacterial iNos, resident macrophages do no substantially contribute to these processes but initiate a tissue-remodeling program early in infection.
Conclusions/Learning Points: Tissue persistence defines dermal macrophage functions. Macrophage plasticity compensates for the lack of renewal in homeostasis, by a convergent differentiation towards resident macrophages, but clearance of mycobacterial infections relies on monocyte recruitment.

PV0222 / #62

THE IMPORTANCE OF THE MICROBIAL FLORA OF THE NASOPHARYNGEAL MUCOSA IN THE FORMATION OF IMMUNE RESPONSE OF INFECTIOUS MONONUCLEOSIS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS04.A. HOST-PATHOGEN INTERACTION

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Title of Case: The children with mononucleosis
Background: Infectious mononucleosis is one of the most common childhood diseases.
Case Presentation Summary: Objective: to determine the significance of the microbial flora of the nasal and oropharyngeal mucosa in the formation of immune response of children with infectious mononucleosis. Under the supervision were 184 children aged 3-9 years, patients with mononucleosis. First group (31 children) - Staphylococcus aureus was detected; second (33) - Streptococcus pyogenes in combination with Staphylococcus aureus; third group (60) - Streptococcus pyogenes; fourth (29) - E. Coli; fifth group (31) - Streptococcus pyogenes with E. Coli. The immune status was assessed by indicators of levels of lymphocytes $CD3^+$,$CD4^+$,$CD8^+$,$CD22^+$ and the content of interleukins 1β,4,TNFα.
Learning Points/Discussion: The acute period of the mononucleosis in children of 2,3,4 groups was characterized decrease in the relative amount of $CD3^+$,$CD4^+$,$CD8^+$. And more significant increase in blood $CD22^+$ content. The content of IL-1β and TNFα in all patients was higher than in healthy children. The IL-4 increased in children of the 1 and 5 groups. In the period of early convalescence in children of the 1 and 5 groups, the relative content of $CD3^+$,$CD4^+$,$CD8^+$cells approached the corresponding indices of the control group. This was not observed in children of the 2,3,4 groups. $CD22^+$ levels in all observation groups decreased by the convalescence period. The more significant decrease in the levels of IL-1β,TNFα are observed in 1 and 5 groups. In the 2,3,4 groups, proinflammatory interleukins remained high. The presence of streptococcus to the formation of cellular immunosuppression and a pronounced reaction of pro-inflammatory interleukins at the initial stage of the disease, which, leads to aggravation of clinical manifestations of the disease and contributes to the unfavorable course of the disease.

PV0223 / #1612

MICROBIOLOGICAL ETIOLOGY AND PULMONARY TOMOGRAPHIC FINDINGS IN CHILDREN WITH CANCER AND EPISODES OF PERSISTENT FEBRILE HIGH RISK NEUTROPENIA

E-Posters Viewing
E-POSTER VIEWING: AS04.B. HOST RESPONSE DIAGNOSTICS AND IMAGING

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Backgrounds: Febrile neutropenia(FN) a frequent complications of anti-neoplastic treatment. 1/3 of high risk(HR) episodes have persistence of fever after 96 hours of proper treatment. Chest-CT patterns of different microorganisms overlap. Multiple organisms cause pulmonary infections in immunocompromised hosts. The aim of this study was to compare chest-CT findings with the microbiological aetiologic causes in persistent high risk febrile neutropenia episodes.
Methods: 2016-2020, we enrroled children with cancer and FN. Physical examination, blood cultures, CRP, CBC, and risk stratification at admission. Daily monitoring. If remained febrile after 96 hours were included in the analysis. Chest-CT were performed. Subjects with persistent HRFN and abnormal chest CT were compared to controls. A blind investigator determined the cause of infection. Chest CT images were analyzed by two blind pediatric radiologists, and a third pediatric radiologist if necessary.
Results: 401episodes of HRFN, 176 of persistent HRFN, 50 with a chest CT, 36 withabnormal chest CT. In 31 of 36 episodes, the etiology could be determined (13 bacterial, 10 fungal and 8 viral), with 5 unknown origin. Subjects with persistent HRFN and an abnormal chest CT had longer hospital stays, longer days of fever, higher PICU admission and more use of oxygen, the length of antibiotics courses and antifungals was higher all statistically significant differences. Mechanical ventilation as well as deaths, showed no difference between both groups. Chest CT showed no statistically significant differences when findings were compared by etiology of episodes.
Conclusions/Learning Points: Abnormal chest CT result in patients with persistent HRFN determines worse clinical outcomes. Single center setting could determine biases, however, the period of observation is long. Previous studies have described the usefulness of CT scans in children with fever during episodes of FN, however, specific CT findings are scarce.

PV0224 / #1524

QUANTIFERON-CMV IN A PEDIATRIC TERTIARY CARE CENTRE: A USEFUL TOOL FOR TRICKY SITUATIONS

E-Posters Viewing
E-POSTER VIEWING: AS04.B. HOST RESPONSE DIAGNOSTICS AND IMAGING

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Backgrounds: Cell-mediated immunity (CD4+ and CD8+) is a key point to control cytomegalovirus (CMV) replication. Its evaluation by interferon gamma-release assay (IGRA) methods is a promising tool, but it has not been included yet in clinical practice algorithms due to lack of consistent data, especially in children. Our aim was to describe the use of QuantiFERON®-CMV in a tertiary pediatric hospital.
Methods: Retrospective, descriptive study of pediatric patients (≤18a) who underwent QuantiFERON®-CMV (QIAGEN®, Hilden, Germany) according to clinical criteria during 2022. QuantiFERON®-CMV uses specialized blood collection tube that are coated with peptides simulating CD8+-specific epitopes of CMV proteins, along with negative and positive control tubes. After incubation, INFg is measured in plasma. A result equal or greater than 0.2 IU/ml is considered reactive. Demographic and clinical data were collected from medical electronic history.
Results: Ten QuantiFERON®-CMV tests were performed in 9 patients (8 males, median age 11[IQR 5-13]y). Main underlying diseases were stem cell (5) and solid organ transplant (2 kidney, 1 heart). Two had previous CMV disease (1 retinitis, 1 pneumonitis). Main reasons for QuantiFERON®-CMV request were maintenance/withholding of treatment (6) and maintenace/withdrawal of prophylaxis (4). The result was reactive (7, median value 1.9 [IQR 0.415-3.395] IU/ml), non-reactive (2), indeterminate (1). QuantiFERON®-CMV results led to prophylaxis/treatment decisions in 9/10 (discontinuing or withholding if positive, maintaining if negative). No ulterior CMV-disease was observed.

Table 1. Patients' demographic and clinical characteristics, QuantiFERON-CMV request and influence in clinical decisions.

Patient	Age	Sex	Underlying disease	CMV history	QTF-CMV date	IFNg value (UI/mL)	QTF-CMV result	Reason for QTF-CMV request	QTF-CMV-guided decision	Ulterior CMV disease
1	18y	M	IEI	No	25/02/2022	0,11	Not reactive	Treatment initiation	No	No
2	13y	M	SCT (ALL-B)	Viremia	23/03/2022	0,45	Reactive	Prophylaxis withdraw	Yes (treatment withdraw)	No
3	8y	M	SCT (congenital dyskeratosis)	Viremia	06/04/2022	3,18	Reactive	Treatment initiation	Yes (treatment withhold)	No
4	13y	M	Kidney transplant	Viremia	13/06/2022	2,41	Reactive	Treatment withdraw (adverse effects)	Yes (treatment withdraw)	No
5	4y	M	SCT (talasemia major)	Viremia	06/07/2022	0,31	Reactive	Considering other therapies in refractory viremia	Yes (maintaining therapy)	No
6	17y	M	Kidney transplant	No	28/09/2022	4,04	Reactive	Prophylaxis withdraw (adverse effects)	Yes (prophylaxis withdraw)	No
4	13y	M	Kidney transplant	Viremia	11/10/2022	1,39	Reactive	Treatment withhold (adverse effects)	Yes (treatment withhold)	No
7	12y	F	SCT (STAT-1-GOF)	Disease (retinitis)	14/10/2022	33,9	Reactive	Prophylaxis initiation	No	No
8	2y	M	Heart trasplant	Viremia	28/10/2022	-0,01	Not reactive	Prophylaxis withdraw (adverse effects)	Yes (prophylaxis withdraw)	No
9	4mo	M	Childhood pneumonitis	Disease (pneumonitis)	02/12/2022	0,31	Reactive	Prophylaxis initiation	Yes (prophylaxis withhold)	No
10	10y	M	SCT (SAA)	Viremia	30/12/2022	0,01	Indeterminate	Treatment withdraw	Yes (maintaning therapy)	No

AAL, acute lymphoblastic leukemia; CMV, cytomegalovirus; F, female; IEI, inborn error of immunity; IFNg, interferon gamma; M, male; mo, months; QTF-CMV, QuantiFERON CMV; SAA; severe aplastic anemia; SCT, stem cell transplant, y, years.

Conclusions/Learning Points: QuantiFERON®-CMV was useful to make clinical decisions, in addition to other microbiological and clinical data, in controversial settings like low-grade persistent viremia or antiviral drug adverse effects in a selected cohort of immunosuppressed pediatric patients (mainly stem cell transplant patients). More studies are needed to define the predictive value of QuantiFERON®-CMV and to validate its use into clinical decision rules.

PV0225 / #1805

USEFULNESS OF PERIPHERAL BLOOD CULTURES IN CHILDREN WITH CANCER AND EPISODES OF FEVER AND NEUTROPENIA

E-Posters Viewing
E-POSTER VIEWING: AS04.B. HOST RESPONSE DIAGNOSTICS AND IMAGING

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Backgrounds: The initial collection of blood cultures (BC) is key for guiding antimicrobial therapy in children with febrile neutropenia (FN), of which more than 90% have central venous catheters (CVC). There is no consensus on the need for peripheral BC over central BCs in this population. The aim of this study was to determine the contribution of peripheral BC over central BC in the diagnosis of blood stream infections (BSI) in children withFN.
Methods: Descriptive study, including all episodes of FN enrolled prospectively in 6 hospitals in Santiago, Chile, between 2016 and 2020. Central and peripheral BC were drawn at admission. All episodes with at least one (+) BC were allocated to one of the following groups: 1) Congruent (+) BC, 2) Incongruent (+) BC, 3) Only CVC (+) BC, 4) Only peripheral (+) BC. The volume of the samples was recorded as a variable that could influence the % of positivity.
Results: The analysis included 241 episodes of FN with at least one(+) BC. The median age was 7.2 years, 49% were male, 84% had hematological cancer and 98% had episodes of high-risk FN. Of the total of 241 episodes, 135 (56%) had congruent (+) BC, 13 (5%) had incongruent (+) BC, 35 (15%) had only CVC (+) BC and 54 (24%) had only peripheral (+) BC. There were no significant differences in the volume of the samples between central and peripheral BCs.
Conclusions/Learning Points: The proportion of BSI detected only through peripheralBC was 24%, higher than previously reported. This difference was not due to sample volume. According to our results, we recommend to obtain peripheral as well CVC BC in children with FN.

PV0226 / #375

INVASIVE FUNGAL INFECTIONS IN CHILDREN WITH LEUKAEMIA IN A TERTIARY HOSPITAL IN OMAN, 8-YEAR REVIEW.

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Invasive fungal disease (IFD) is a common and serious consequence of leukaemia in children and the incidence of these infections increased due to chemotherapy. We present the epidemiology of IFD in a cohort of leukaemia patients from a tertiary reference institution in Oman.
Methods: A retrospective study was conducted of IFDs in pediatric patients with newly diagnosed or relapsed leukaemia, at Royal Hospital, Muscat, Oman. From 2010 to 2017, Patients data was evaluated retrospectively including the Epidemiology, clinical spectrum, risk factors,treatment and outcome were analysed.
Results: 198 children with leukemia were admitted and treated at Royal Hospital. In retrospect, IFI were defined as probable and proven in 53 % (17 patients) and 47% (15 patients) of the attacks. At 1.1:1, the male-to-female ratio was roughly equal. All of the children developed neutropenia, and majority developed thrombocytopenia. 65.6% of patients had radiological features of fungal infections. Positive fungal cultures were found in three patients' bronchoalveolar lavage (BAL), 37.5% of whom had positive blood cultures, and 3% of whom had positive urine cultures. In 3 patients, invasive aspergillosis caused pulmonary IFD, accounting for 9.3% of all infection sites. Candidaemia was found in 28% of IFD patients. The most common organism was Candida tropicalis (15.6%), followed by Candida prapsilosis (6.25%). Two patients were infected with two different fungi, while others were only infected with one. Majority of the patients (84%) had a central line and were receiving one or more antifungals during the infection episodes.
Conclusions/Learning Points: In children with leukemia, invasive fungal infection is common and serious, with high mortality and morbidity. This study emphasizes the difficulties of treating IFIs in leukemic patients, as well as the need for a therapeutic procedure for managing IFIs

PV0227 / #1277

RISK FACTORS FOR MORTALITY IN CHILDREN AND NEONATES WITH CANDIDEMIA IN SOUTH SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Candida bloodstream infections are the most frequent fungal invasive infections in children, with a high mortality, especially if antifungal treatment is delayed. The aim of our study was to analyze the main risk factors (RF) for mortality in children and neonates with diagnosis of candidemia.
Methods: Retrospective multicenter cross sectional study of children under ≤ 14 years-old and neonates with candidemia. Epidemiological, clinical, laboratory and outcomes variables were analyzed using the appropriate statistical tests.
Results: Five tertiary pediatric hospitals participated in the study and 204 patients were analyzed. Sixty-six percent were admitted in Pediatric and Neonatal Critical Care Units (PICU and NICU) and 17.6% in haemato-oncology departments. 30.9% were premature. C.parapsilosis was the most frequent specie isolated (46.6%), followed by C.albicans (35.3%). C.glabrata and C.krusei were isolated in 3% respectively. Liposomal amphotericin B was the most widely used initial antifungal (55.9%) followed by fluconazole (27.4%) and in 14.2% combined therapy was prescribed. Forty patients deceased in the study period (19.6%), 60% male and 35% premature. Mostly (87.5%) were admitted in Intensive Care Units. C.parapsilosis was also the most frequent isolated specie in this subgroup (52.5%). A logistic regression analysis was made to determine the RF for mortality. Recurrent candidemia in the following 30 days after diagnosis (OR 4.8, CI 95%: 1.55-14.79) and admission in PICU (OR: 4.829, CI: 1.82-12.79) were the only RF statistically associated with mortality.
Conclusions/Learning Points: - Candidemia continues having a high mortality in children with a 19% in our sample. - C.parapsilosis was globally the most frequent specie isolated in our study, as seen in other recent published studies. - Recurrent candidemia and admission in PICU were RF associated with mortality.

PV0228 / #1493

INVASIVE MOLD INFECTIONS IN CHRONIC GRANULOMATOUS DISEASE: A MULTICENTER RETROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Patients with chronic granulomatous disease (CGD) tend to face invasive fungal infections, which significantly cause mortality. In this multicenter study, we aimed to determine the characteristics of invasive mould infections in CGD cases.
Methods: All CGD patients followed up in Divisions of Pediatric Immunology of Marmara, Cerrahpaşa, and Çukurova University School of Medicine, Turkey between 1991 and 2022 were included. Demographic and clinical characteristics, primary antifungal prophylaxis regimen, and if seen, type, treatment, prognosis, and secondary prophylaxis regimen used for mould-associated invasive fungal infection (mIFI) were reviewed retrospectively.
Results: Between 1991 and 2022, 74 CGD patients diagnosed with the DihydroRhodamine (DHR) test were followed-up. Fifty-nine patients (79.7%) were male. Thirty-eight (51.3%) patients had autosomal recessive CGD. The median age at diagnosis was 45 (IQR25: 10.75- IQR75: 148.25) months. Allogeneic hematopoietic stem cell transplantation was performed in 10 patients. Forty mIFI episodes were detected in 38 of 74 patients. The first mIFI episode median age was 42 (IQR25: 26.25, IQR75: 166.50) months. The type of mIFI was proven in 14 (17 episodes), probable in 10, and possible in 13 patients. There was a significant difference in the development of mIFI between CGD patients who received (36.7%) and did not receive (85.7%) itraconazole prophylaxis (p=0.000). A total of 13 patients died, and 11 of them were due to mIFI. The median age of the 61 patients who are still living today is 180 months (IQR25: 105, IQR75: 245). The oldest living patient is now 45 years old.
Conclusions/Learning Points: Itraconazole prophylaxis is effective in preventing mIFI in cases of CGD. However, the development of mIFI in 1 out of every 3 CGD patients receiving itraconazole suggests that an antifungal agent with better mould activity should be considered.

PV0229 / #714

LIFEBUOYS FOR NEAR-DROWNING VICTIMS: LESSONS TO LEARN FROM TREATING SYSTEMIC SCEDOSPORIOSIS IN AN IMMUNOCOMPETENT PEDIATRIC PATIENT

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: LIFEBUOYS FOR NEAR-DROWNING VICTIMS: LESSONS TO LEARN FROM TREATING SYSTEMIC SCEDOSPORIOSIS IN AN IMMUNOCOMPETENT PEDIATRIC PATIENT
Background: Scedosporium apiospermum is an ubiquitous saprophytic fungus and relevant human pathogen with low susceptibility to antifungals causing pneumonia, sinusitis and invasive disease in near-drowning victims following contaminated water aspiration. Delayed and predominantly lethal central nervous system manifestations and septicemias also occur.
Case Presentation Summary: This report illustrates important lessons to learn in diagnosing and treating systemic Scedosporiosis in an allegedly fully recovered pediatric, immunocompetent near-drowning victim. Two months following the drowning emergency and resuscitation event, the critically ill and septic girl was transferred to our hospital with persistent pulmonary and sinus lesions, meningoencephalitis, intracerebral vasculitis including associated watershed strokes and abscesses, as well as septic osteomyelitis. Voriconazole for presumed Scedoporiosis was added immediately to the current broad antibiotic regimen. Biopsies of osteomyelitic lesions eventually led to culture identification of Scedosporium apiospermum. In due course Micafungin and Terbinafine were added to ensure broad antifungal coverage based on in vitro susceptibility testing. The patient’s state improved gradually. Voriconazole was chosen as the long-term single therapeutic agent. Maintenance therapy has been complicated by voriconazole autoinduction, toxic plasma levels and lack of validated tests to assess disease activity.
Learning Points/Discussion: We propose that early preventive treatment with the addition of voriconazole to the empiric antimicrobial regimen of near- drowning victims may help to prevent haematogenous or sinus spread of Scedosporium apiospermum and thus delayed manifestations of invasive disease. Clinicians should be aware of both the pathogen and the fatal consequences of systemic spread. Prompt isolation and susceptibility testing are key to establishing an effective antifungal treatment regimen. Better measures to guide effective long-term voriconazole treatment, as well as new antifungal medications are needed.

PV0230 / #2095

RARE OPPORTUNISTIC INFECTIONS IN PATIENT WITH HEMATOPOIETIC STEM CELL TRANSPLANT

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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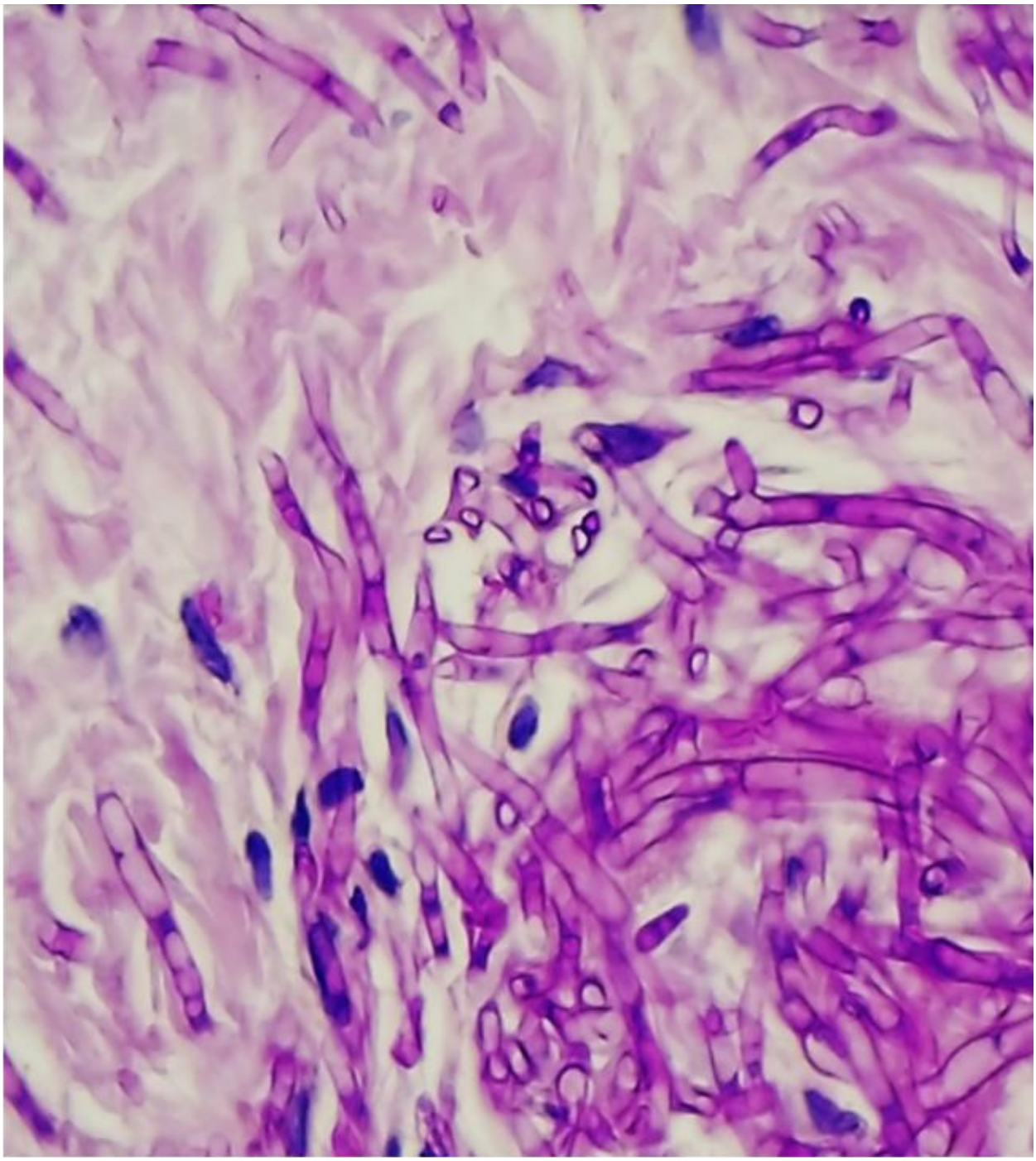
Title of Case: Rare opportunistic infections in patient with HSCT
Background: A 14-year-old boy who received allogenic HSCT, for acquired aplastic anemia after SARS-CoV-2 infection. Twoweeks before transplant, the patient was taken to a bronchoalveolar lavage due to the presence of pulmonarynodules in tomography with diagnosis of tuberculosis (positive PCR) and probable aspergillosis by positivegalactomannan, for which tetraconjugate and voriconazole treatment was started.
Case Presentation Summary: At day +10, patient presents fever, generalized indurated skin papules with a necrotic center, and increasednodules in chest tomography, therapy was changed to liposomal amphotericin B, blood culture isolates Fusariumspp. MRI shows compromised soft and skeletal tissue; furthermore, cutaneous biopsy confirms Fusarium byhistopathology. There was a decrease in acute phase reactants and neutrophil recovery from the day +18, butfever persisted. CMV reactivation positive viral load on day +27 treated with ganciclovir with subsequentimprovement. Later in day +47, the central nervous system was compromised, with subarachnoid hemorrhage anddissecting aneurysm of the middle cerebral artery, which required embolization.
Patient had persistent fever since diagnosis of fusariosis, susceptibility study with apparent low MIC´s tovoriconazole and amphotericin B based on other reports. Despite of it, it evolves towards disseminatedintravascular coagulation. On day + 60 presents severe abdominal pain, laparotomy shows intestinal perforation,and severe peritoneal bleeding. Shock refractory to treatment; the patient died on day +64 post-transplant.



Fusarium in skin biopsy. PAS X40

Learning Points/Discussion: HSCT patients may have rare opportunistic infections concomitantly as Fusarium and tuberculosis. Theinterpretation of antifungal susceptibility is difficult in these cases and clinical breakpoints are not clear. Despiteimprovements in reactants, neutrophil counts and decrease in skin lesions, the persistence of fever and the laterCNS compromise suggests that the fungal infection could not be controlled.

PV0231 / #487

PNEUMOCYSTIS PNEUMONIA IN INFANTS-A RED FLAG NOT ONLY FOR THE IMMUNODEFICIENCIES

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: Pneumocystis Pneumonia in infants-A red flag not only for the immunodeficiencies
Background: Pneumocystis jirovecii (Pj) is an opportunistic pathogen causing pneumocystis pneumonia (PCP), a life-threatening infection, mainly described in HIV infected patients and primary immunedeficiencies.Here we describe PCP in apparently immunocompetent infants affected by chronic diseases.
Case Presentation Summary: Between November 2021 and December 2022 we observed 5 infants with acute respiratory failure and positive Pj on naso-pharyngeal aspirates (NPA).For the detection of Pj was used Quantitative Real-Time Polymerase Chain Reaction (qRT-PCR).No seasonality was observed.The average age was 4 months, and the sex ratio (M/F) was 0.66. All patients presented respiratory virus coinfection.The most common viruses involved were Parainfluenza and Rhinovirus, detected in 60% of cases.The chest computed tomography (TC) imaging resulted consistent with PCP in all patients.The infants were studied for immunodeficiencies and HIV infection was excluded.The median of CD4/CD8 ratio was 1,8 and the total lymphocyte numbers was normal by age as well as the IgG levels (Table 1).All children received corticosteroid and curative treatment with trimethoprim/sulfamethoxazole.In consideration of the poor clinical condition and the little clinal improvement with the standard therapy, two patients were treated with Caspofungin.All patients needed oxygen (O2) supplementation and 3 children were admitted to pediatric intensive care unit (PICU). Four patients were diagnosed for chronic condition after PCP episode. One patient had already diagnosed with congenital cardiopathy at the time of PCP. After the discontinuation of therapy, the patients continued trimethoprim/sulfamethoxazole at prophylactic dosage.
Learning Points/Discussion: PCP is not only the prerogative of HIV infected or primary immunedeficient children.This infection should be also considered in other chronic conditions, such as, congenital heart and lung disorders.In these patients, criteria for evaluating prophylactic treatment of trimethoprim/sulfamethoxazole to prevent PCP are needed.

PV0232 / #1272

INVASIVE FUNGAL DISEASE IN A REFERRAL PEDIATRIC HOSPITAL: RISK FACTORS AND OUTCOMES IN THE ERA OF NEW ANTIFUNGAL AGENTS AND BETTER DIAGNOSTIC TOOLS.

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Invasive fungal disease (IFD) leads to high morbidity and mortality among immunosuppressed patients. Objective: describe the risk factors, causative pathogens, management, and impact on the survival of IFD in our center.
Methods: Observational retrospective study including patients ≤18y admitted at a tertiary paediatric center with an average of 400 cancer and HSCT patients/year from Jan-2021 to Dec-2022. IFD were defined according to EORTC criteria. Demographic, clinical, laboratory, pharmacological and radiological data were recorded.
Results: 13 patients were included (median age of 9.5, IQR 5.3-15.2). 38.5% (5) had a proven, 15.4% (2) probable and 46.2% (6) possible IFD. Table 1 summarizes the main characteristics of the included episodes. Acute leukemia was the most frequent underlying disease (8, 61.5%). 92.3% (12) of patients were receiving antifungal prophylaxis. Invasive pulmonary aspergillosis (5, 38.5%) was the most frequent infection and voriconazole was the most common treatment (6, 46.2%). Isavuconazole was used in four patients. In 100% of patients, TDM was performed. The overall curation rate was 69.2% (9). Three deaths occurred due to
IFD.

Table 1. *Characteristics of the included episodes*

Patient	Underlying disease	Prophylaxis	Max. C-reactive protein (mg/L)	Max. procalcitonin (ng/mL)	ANC	Final diagnosis	IFD treatment	Surgical treatment/biopsy	Radiological findings	Positive galactomannan	Outcome
1	Primary immunodeficiency (HSCT)	Posaconazole	59,4	N/A	<500/mcL	PROVEN IFD -> positive PCR and culture in CSF: ***Rasamsonia piperina***	Voriconazole	No	Brain CT, MRI: affection of CNS	No	Death due to IFD
2	Acute leukemia	Posaconazole	160,3	N/A	<500/mcL	PROBABLE IFD	Posaconazole	No	Lung CT: nodules with ground glass opacities	Yes (blood)	IFD complete remission
3	Acute leukemia	B-amphotericin	514.4	1,09	<500/mcL	PROVEN IFD -> positive culture in lung biopsy: ***Aspergillus flavus***	B-amphotericin + isavuconazole	Yes	Lung CT: nodules with ground glass opacities	Yes (blood)	Death due to IFD
4	Acute leukemia	B-amphotericin	58,6	0,35	<500/mcL	PROVEN IFD -> non-septate hyphae branching at right angles seen in lung biopsy (high suspicion of ***Mucor spp***)	Voriconazole	Yes	Lung CT: pulmonary nodule	No	IFD complete remission
5	Burkitt lymphoma	B-amphotericin	66,4	O,19	<500/mcL	PROVEN IFD -> septate hyphae branching at acute angles seen in lung biopsy (***Aspergillus spp.***)	Voriconazole	Yes	Lung CT: nodular ground glass opacities	No	IFD complete remission
6	Primary immunodeficiency (HSCT)	No	268,6	8,16	2200/mcL	PROBABLE IFD	B-amphotericin + isavuconazole	No	Lung CT: alveolar consolidation + pleural effusion	Yes (BAL)	IFD complete remission
7	Fanconi anemia (HSCT)	Isavuconazole + B-amphotericin	143,7	2,03	8800/mcL	PROVEN IFD -> positive culture and PCR in BAL: ***Aspergillus spp.***	Isavuconazole	No	Lung CT: nodules with ground glass opacities	Yes (blood)	Death due to IFD
8	Acute leukemia	Posaconazole	83,7	0,69	<500/mcL	POSSIBLE IFD	B amphotericin + Voriconazole	No	Lung CT: unspecific	No	IFD complete remission
9	Acute leukemia	Posaconazole	184,4	0,27	5300/mcL	POSSIBLE IFD	Posaconazole	Yes	Lung CT: unspecific	No	IFD complete remission
10	Acute leukemia	B-amphotericin	187	0,11	<500/mCL	POSSIBLE IFD	Voriconazole	No	Lung CT: nodules with ground glass opacities	No	Death non- IFD related
11	Acute leukemia	Posaconazole	0,8	N/A	1500/mcL	POSSIBLE IFD	B-amphotericin + isavuconazole	No	Lung CT: nodules with ground glass opacities	No	IFD complete remission
12	Bone marrow aplasia (HSCT)	Micafungine	138,6	9,24	4600/mcL	POSSIBLE IFD	Isavuconazole	Yes	Lung CT: nodules with ground glass opacities	No	Death non- IFD related
13	Acute leukemia	Voriconazole	101,2	N/A	<500/mcL	POSSIBLE IFD	Voriconazole	No	Lung CT: nodules with ground glass opacities	No	IFD in treatment

Conclusions/Learning Points: Acute leukemia remained as the main risk factor for IFD in our cohort. Although the number of admitted cancer/HSCT patients is increasing in our center, the incidence of IFD was low. Nevertheless, the majority occurred as breakthrough infections despite antifungal prophylaxis. Continuous reevaluation of patient risk factors, the use of new diagnostic tools together with the use of TDM and new antifungal agents may help to improve the outcomes of these patients.

PV0233 / #1275

RETROSPECTIVE STUDY OF CANDIDA INFECTIONS IN A TERTIARY CARE CENTER FROM INDIA

E-Posters Viewing
E-POSTER VIEWING: AS04.C. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Advanced healthcare facilities have improved the survival of preterm babies, critically ill and immune-compromised children. However, it has simultaneously increased the incidence of opportunistic infections like candidiasis.
Methods: This is a 3-year(January 2019 to December 2021) retrospective study from PICU and NICU of a tertiary care hospital. Data of culture proven candidiasis were analised Candida was identified by the BacT/ALERT 3D automated blood culture system, species identification was done with Vitek 2 YST identification card . Aims- 1)To identify most common candida species and its susceptibility pattern. 2)to study epidemiology, predisposing risk factors and final outcome
Results: Of 22 culture positive candida infections , 77.2 % were from PICU and 22.7% from NICU. 40% were isolated from blood, 40% from urine and 20% from other fluids. C.albicans and C.tropicalis were the most common isolates in NICU (40%) and PICU respectively and they were sensitive to fluconazole and other azoles, echinocandins. Predisposing factors were invasive lines (77.3%), prior antibiotic exposure (95%), surgical intervention (10%). 54.5% had bacterial co-infection with K.neumoniae . Overall mortality was 22.7 %. (20% of NICU ,23.5% PICU) . 80% of the mortality was observed in blood culture positive children.
Conclusions/Learning Points: Candida albicans and tropicalis are most common species isolated among candidemia cases in ICU ,All isolates were sensitive to fluconazole. Early diagnosis and treatment are crucial for survival outcomes . Regular antibiotic stewardship, restricted and judicious usage of invasive lines with prompt removal when not necessary can prevent these infections. Empirical therapy with fluconazole can be initiated when fungal infections are suspected.

PV0234 / #1257

NONTUBERCULOUS MYCOBACTERIAL INFECTIONS IN PAEDIATRIC ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANT RECIPIENTS

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Allogeneic hematopoietic stem cell transplant (HSCT) recipients experience an acquired cell-mediated immunodeficiency that leads to infectious complications which impact on procedure-related morbidity and mortality. Recent studies show a rising incidence of non-tuberculous mycobacterial (NTM) infections in these patients. However, limited paediatric data are available.
Methods: Retrospective study including all paediatric HSCT recipients (aged 0-18 years) with microbiologically confirmed NTM disease, between 2013 and 2022 in a tertiary paediatric hospital.
Results: A total of 331 HSCT were performed, identifying 5 patients (1.5%) with NTM infection. One patient had two different infections (Table). The median age at HSCT was 12 years (IQR 7.5-16.5 years). The median time to infection after HSCT was 7.3 months (IQR 3.5-11 months). There were two episodes of disseminated infection and four of pulmonary disease. All patients had active pulmonary graft-versus-host disease (GvHD) and carried a subcutaneous reservoir at the time of infection, but none developed central line-associated infections. Three patients had CD4+ counts <200/mm3, and one also neutropenia <500/mm3. Five infections were caused by Mycobacterium avium complex (MAC): 3 M. avium and 2 M. intracellulare; and one by M. abscessus. The latter occurred in a patient undergoing treatment for MAC infection. All MAC isolates were sensitive to clarithromycin. All patients received combined antimicrobial therapy. Four patients died at a median of 2 months after initial diagnosis (range, 2-9 months). NTM contributed to the death of two patients. The only patient still alive completed 14 months of antibiotic treatment without posterior
relapses.

Episode	Sex	Diagnosis	Type of HSCT	Age at HSCT (years)	NTM diagnosis					Initial treatment	Treatment duration (months)	Status
					Post-HSCT day	GvHD	CD4+ /µL	NTM species	NTM culture site			
1	M	AML	Haplo.	16	+105	aGvHD (gi) cGvHD (lung)	**114**	*M. avium*	BAL	Azi + Cipro	2	Died due to intestinal GvHD
2	F	IEI[1]	MUD	12	+330	cGvHD (lung)	210	*M. intracellulare*	BAL	Am + Clm + E + R	14	Recovered
3	F	IEI[2]	MUD	5	+195	aGvHD (skin, gi) cGvHD (lung)	410	*M. intracellulare*	BAL, skin	Am + Azi + E + R	2	Died due to bacterial pneumonia (*P. aeruginosa*)
4	F	MDS	MMUD	10	+240	cGvHD (lung)	**50**	*M. avium*	BAL, urine	Azi + Cipro + E	9	*Died due to multiple active pulmonary* infections *(Nocardia, adenovirus, Aspergillus fumigatus, M. abscessus, CMV*)
5					+480		NA[3]	*M.abscessus*	BAL	Lfx + Am + Azi	2	
6	M	T-ALL	MUD	17	+9	cGvHD (lung)	**30**	*M. avium*	BAL	Am + Azi + E + Lzd	2	Died due to multifactorial respiratory failure (GvHD, M. avium, probable invasive aspergillosis, pneumothorax)

[1] CTLA-4 haploinsufficiency

[2] MHC class II deficiency

[3] Not Available

aGvHD: acute graft vs host disease; Am: amikacin; AML: acute myeloid leukemia; Azi: azithromycin; BAL: bronchoalveolar lavage; cGvHD: chronic graft vs host disease; Cipro: ciprofloxacin; Clm: clarithromycin; E: ethambutol; gi: gastro-intestinal; haplo: haploidentical; HSCT: hematopoietic stem cell transplant; IEI: inborn error of immunity; Lfx: levofloxacin; Lzd: linezolid; MDS: myelodysplastic syndrome; MMUD: mismatched unrelated donor; MUD: matched unrelated donor; R: rifampin; T-ALL: T-cell acute lymphoblastic Leukaemia.

Conclusions/Learning Points: NTM infections are an infrequent but severe cause of morbidity and mortality after allogeneic HSCT, affecting mainly patients with compromised cell-mediated immunity and active pulmonary GvHD. The most common pathogens in our setting are members of the MAC.

PV0235 / #1046

INFANT WITH POST-INFECTIOUS BRONCHIOLITIS OBLITERANS AND INBORN ERROR OF IMMUNITY

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: INFANT WITH POST-INFECTIOUS BRONCHIOLITIS OBLITERANS AND INBORN ERROR OF IMMUNITY
Background: Infants with inborn errors of immunity may present with infections with severe outcomes early in their lives. We describe a case of an infant who developed postinfectious bronchiolitis obliterans secondary to adenovirus infection and was diagnosed with agammaglobulinemia and B-lymphocytes deficiency.
Case Presentation Summary: A 3-months old full-term male infant, with personal history of failure to thrive was referred to our Paediatric Department because of a 4-day history of fever and tachypnoea. Physical examination revealed hypoxia,tachypnoea but normal breathing sounds on auscultation. Chest X-ray showed bilateral diffuse infiltrations and respiratory PCR-panel-assay on nasopharyngeal swab revealed adenovirus and parainfluenza virus. He received oxygen,IV ceftriaxone,IV methylprednisolone but because of his clinical deterioration, he underwent invasive-mechanical ventilation for 14-days in the ICU. Chest CT-scan revealed diffuse bilateral ground-glass infiltrates,interstitial lung involvement and air-trapping, while multiple-breath washout test after 4 weeks course of bronchodilators and corticosteroids was indicative of persistent airway obstruction. Consequently,after 60 days of hospitalization,the patient was discharged with the diagnosis of post-infectious bronchiolitis obliterans. However, he was readmitted after 3 days with severe respiratory distress because of lower respiratory tract infection. Immunologic evaluation revealed extremely low-for-age values of IgG, IgM and IgA immunoglobins and almost absent number of B-lymphocytes with normal number of T-lymphocytes. However, genetic testing(whole-exome sequencing) for already known immunodeficiencies was negative. Following immunology review,he empirically started receiving intravenous IgG replacement therapy monthly and trimethoprim/sulfamethoxazole prophylaxis and he has shown improvement in growth and no other severe infections.
Learning Points/Discussion: This case highlights the importance of early identification of underlying immunological problems following a severe infection early in life. Immunological follow-up is required and further work up for possible yet not known immunological deficiencies.

PV0236 / #1160

DECREASED NEUTROPHIL SURVIVAL AND SEVERE STAPHYLOCOCCUS AUREUS INFECTION IN A PATIENT WITH X-LINKED INHIBITOR OF APOPTOSIS PROTEIN (XIAP) DEFICIENCY

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: DECREASED NEUTROPHIL SURVIVAL AND SEVERE STAPHYLOCOCCUS AUREUS INFECTION IN A PATIENT WITH X-LINKED INHIBITOR OF APOPTOSIS PROTEIN (XIAP) DEFICIENCY
Background: XIAP is an inhibitor of apoptosis in immune cells that blocks caspase-9, 3 and 7. XIAP deficiency is classified as a primary immunodeficiency, may cause hemophagocytic lymphohistiocytosis (HLH) and can be associated with S. aureus infections. In mice, XIAP deficiency results in increased TNF-α induced apoptosis in neutrophils, especially when primed with granulocyte macrophage colony-stimulating factor (GM-CSF), which normally improves neutrophil survival. XIAP deficient mice also show a higher bacterial burden after experimental infection.
Case Presentation Summary: A 15-year-old male presented with HLH and was diagnosed with XIAP deficiency. His HLH was treated with rituximab, dexamethasone and cyclosporine, which improved his clinical condition. He then developed bilateral arthritis of the knees diagnosed as XIAP deficiency associated inflammatory arthritis, for which he received intra-articular steroid injections. The bilateral arthritis deteriorated and septic arthritis was diagnosed due to S. aureus infection. The patient then developed severe sepsis and extensive soft tissue abscesses in both legs. After prolonged antibiotic therapy and surgical drainage the patient recovered. Comparing isolated neutrophils from our reconvalescent XIAP deficient patient and healthy controls, we performed apoptosis assays in the presence of TNF-α and/or GM-CSF. Both in unstimulated neutrophils and in neutrophils stimulated with TNF-α and/or GM-CSF, XIAP deficient neutrophils demonstrated enhanced apoptosis, compared to control neutrophils. Addition of apoptosis-inhibitor zVAD made XIAP deficient and control neutrophil survival identical.
Learning Points/Discussion: Concluding, we present a case of severe S. aureus infection in a patient with XIAP deficiency and show that XIAP deficiency results in decreased neutrophil survival compared to healthy controls. Increased neutrophil apoptosis during inflammation may contribute to decreased bacterial clearance.

PV0237 / #1514

THE HIGH BURDEN OF FUNGAL INFECTION WITHIN 3 MONTHS FOLLOWING PEDIATRIC LIVER TRANSPLANTATION: A 10-YEAR EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Fungal infections (FI) remain problematic following liver transplantation (LT). However, data regarding the incidence and risk factors for FI in the pediatric population are scarce. This study aimed to evaluate the incidence of FI, clinical outcomes, and associated risk factors in pediatric LT recipients during the early post-transplantation period.
Methods: We conducted a single-center retrospective study of 136 children who underwent LT between January 2010 and December 2019. Within 3 months following LT, data on clinical characteristics, incidence, types, and sites of FI, treatment, and outcomes (e.g., hospital stays, death) were systematically collected from medical records. Potential risk factors for developing FI and FI-related deaths were analyzed.
Results: Forty-two (31%) patients developed 43 episodes of FI. The median time to the occurrence of FI was 7.5 days (interquartile range [IQR] 4, 16). Among the 41 fungal isolates, Candida albicans was the most common isolate (56%), followed by C. tropicalis (39%). The most common site was intra-abdomen (78%). Significant predictors of FI were re-exploratory laparotomy (odds ratio [OR] 4.9, 95%confidence interval [CI] 1.8–13.3, p = 0.002) and postoperative bacterial infection (OR 3.0, 95%CI 1.1–7.9, p = 0.03). Two patients died with ongoing active FI, representing a case fatality rate of 5% attributable to FI. We found no significant correlation between the history of FI and mortality (OR 1.9, 95%CI 0.5–7.4, p = 0.4).
Conclusions/Learning Points: Almost one-third of pediatric LT recipients experienced FI in the early post-transplant period. C. albicans was the most prevalent causal organism, while the intra-abdomen was the most common FI site. This study highlighted the high burden of FI following pediatric LT and demonstrated that the technical complexity of the surgery and postoperative bacterial infection had a significant impact on FI.

PV0238 / #830

RECURRENT BRONCHOPULMONARY INFECTIONS LINKED WITH IMMUNE DYSREGULATION IN PATIENTS WITH ATAXIA-TELANGIECTASIA

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Ataxia-telangiectasia (A-T) is an autosomal recessive inborn error of immunity characterized by chromosomal instability resulting a syndromic immunodeficiency often including recurrent infections. The aim of this study was to evaluate potential associations between immunologic parameters and infectious disease susceptibility in children with A-T.
Methods: Retrospective study performed in a tertiary hospital in Spain. Medical records of A-T patients diagnosed with <18 years were reviewed focusing on infectious manifestations and immunologic evaluations.
Results: Twelve A-T patients were identified. First disease characteristic symptoms were present at a median age of 1.5 years (RIC 1.3-2) and a genetic diagnosis was established at a median age of 6.5 years (IQR 2-11). One patient was diagnosed by neonatal screening. Recurrent respiratory tract infections were observed in 5/12 patients. The immunological evaluation revealed defective lymphocyte production as 8/11 patients presented lymphopenia for their age, with median lymphocyte count 1329/µL (IQR 1077-1525). T lymphocytes were predominantly altered as 6/10 patients had low CD3+ counts (both CD4+ and CD8+) and low percentage of recent thymic emigrants (6/7). Also 5/10 patients presented with decreased B cell count, with median 234/µL (IQR 112-272). We found hypogammaglobulinemia, especially IgA with <15 mg/dL in 7/11 patients. All of them received antibiotic prophylaxis with cotrimoxazole and 8/12 intravenous immunoglobulin substitution. Severe complications include tumours (3/12), liver failure (2/12) and infections: bronchitis (4/12), pneumonia (3/12), otitis (2/12), gastroenteritis (1/12). We registered two deaths, one due to severe lung infections secondary to Mycobacterium abscessus and Fusarium spp. aged 20 and one due to hepatocellular-ca aged 22 years.
Conclusions/Learning Points: In our setting A-T often presents with T cell lymphopenia and decreased IgA production favouring potentially fatal respiratory infections. A close multidisciplinary follow-up remains essential as currently no curative treatment exist.

PV0239 / #1914

RETROSPECTIVE STUDY ON THE EFFICACY AND SAFETY OF OFF-LABEL ISAVUCONAZOLE AND POSACONAZOLE TREATMENTS, INCLUDING PROPHYLAXIS, IN A PEDIATRIC ONCO-HEMATOLOGICAL COHORT

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Invasive fungal infections (IFDs) are a significant problem in pediatric oncohematological patients. Prevention of IFDs through prophylactics and early treatment are crucial to reduce the severity of this event. Posaconazole and isavuconazole are important prophylactic and therapeutic options in managing IFDs.
Methods: This is a retrospective, monocentric study, including patients between 3 months and 21 years of age with oncohematological disease who received posaconazole and/or isavuconazole as prophylactic and/or therapeutic regimes between January 2017 and November 2021. The efficacy and safety of posaconazole in primary prophylaxis were evaluated by comparing the rate of IFD breakthrough and side effects between patients who underwent primary prophylaxis with posaconazole versus a control group prophylaxis with amphotericin B (Lamb). Clinical efficacy and side effects attributable to posaconazole and isavuconazole as therapeutic regimens were analyzed.
Results: Comparing the prophylactic use of posaconazole and Lamb, 40 and 37 patients were analyzed, respectively. IFI breakthrough rate was similar in the two populations (7.5 % posaconazole vs 10.8 % Lamb). Posaconazole was associated with a lower frequency of side effects than Lamb (10% posaconazole vs 62.2% Lamb). At therapeutic dosage, posaconazole was predominantly administered in combination with other antifungals (71.4%). By the 12th week of treatment, 71.4% of patients had a full clinical response, while the remaining 28.6% had a partial response. Side effects from using posaconazole were detected in 10% of the patients in prophylaxis and 28.6% receiving therapeutic dosage. Isavuconazole was used at therapeutic regimen, mainly in monotherapy (60%). A complete therapeutic response was observed in 70% of cases; 30% of cases experienced therapeutic failure. Side effects occurred in 20% of patients.
Conclusions/Learning Points: Both posaconazole and isavuconazole are well tolerated in the pediatric population and have shown promising prophylactic and therapeutic properties.

PV0240 / #1812

PREVALENCE OF EPSTEIN-BARR VIRUS REACTIVATION IN A LARGE COHORT OF ONCO-HEMATOLOGIC PAEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: This study aimed to evaluate the prevalence of EBV-infection in paediatric patients (pts) with Acute Leukemia after Hematopoietic Stem Cell Transplant (HSCT).
Methods: From October 2021 to October 2022, 667 patients referred to the Department of Hematology/Oncology at Bambino Gesù Children's Hospital-IRCCS with clinical information available and tested for EBV-DNAemia both as diagnosis of (re)-activation of EBV infection or active surveillance after HSCT, were selected.
Results: A total of 235/667(35.2%) pediatric onco-hematologic pts had at least one EBV positive blood sample. The prevalence of EBV infection was higher in those with Acute Lymphoblastic or Myeloid Leukemia (ALL or AML) (110/235, 46.8%) than in the other subtypes of malignancy (non-malignant haematology disorder [95/235, 40.4%], solid organ transplant [17/235, 7.2%] and lymphoma [13/235, 5.6%]). By focusing on pts with Acute Leukemia, 61/110 were males (55.5%) and 49/110 females (44.5%), with a median (IQR) EBV-DNAemia of 1219(321-4613) cp/mL at onset. Among those, 71/110 (64.5%) underwent a haploidentical-HSCT in 37/71(52.1%) pts, while 34/71(47.9%) pts received a matched unrelated donor HSCT. Graft versus Host Disease was reported in 9/71(12.7%) pts. The prevalence of EBV-infection was higher in pts with ALL-T or ALL-B (76/110, 69.1%), followed by pts with AML (33/110, 30%) and Acute Promyelocytic Leukemia (1/110, 0.1%). The median(IQR) ages at EBV onset and transplantation were 8.6(5.9-14.7) years and 9.0(5.7-13.9) years, respectively. The median(IQR) of duration of infection was 25(0-82.6) days. The median time from transplantation to onset of EBV infection was 115(50-476) days.
Conclusions/Learning Points: This study shows a high prevalence of EBV-infection in pts with Leukemia in our cohort. Monitoring EBV by viral load and defining time-window for screening and early diagnosis of EBV may play an important role for proper strategy of management of onco-hematologic patients.

PV0241 / #836

IMPACT OF THE COVID-19 PANDEMIC ON RATES OF CYTOMEGALOVIRUS TESTING AND DIAGNOSIS AMONG IMMUNOCOMPROMISED CHILDREN IN THE UNITED STATES

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Cytomegalovirus (CMV) is a latent virus that may result in severe complications and worsening prognosis among immunocompromised individuals. No studies have examined how the COVID-19 pandemic may have impacted CMV testing and diagnosis among immunocompromised children in the United States (US). This study aimed to evaluate changes in CMV testing and diagnosis rates among immunocompromised children (aged <1-11 years) during the COVID-19 pandemic in the US.
Methods: This was an observational retrospective cohort study utilizing HealthVerity claims data from December 2017-May 2022. A quasi-Poisson interrupted time series model accounting for seasonality was used to determine whether the underlying CMV testing and diagnosis trends were associated with COVID-19-related interruption time points. Three distinct time periods were defined: pre-COVID-19 pandemic, 06/01/2018-03/31/2020; pre-COVID-19 vaccine, 04/01/2020-12/31/2020; and post-COVID-19 vaccine, 01/01/2021-05/2022.
Results: Comparing the observed rates of CMV testing in the pre-COVID-19 vaccine and post-COVID-19 vaccine periods to the rate that would have been observed based on the trends observed in the pre-COVID-19 pandemic period (i.e., the counterfactual), the rate of CMV testing slightly decreased in the pre-COVID-19 vaccine (event rate ratio [ERR], 0.98; 95% confidence interval [CI], 0.964-0.995) and post-COVID-19 vaccine periods (ERR, 0.99, 95% CI, 0.979-0.992). The results were consistent for CMV diagnosis (Figure).
Conclusions/Learning Points: Declaration of COVID-19 as a pandemic and the initial EUA for a COVID-19 vaccine were both associated with a slight decrease in CMV testing and diagnosis rates among immunocompromised children.

PV0242 / #1780

PRIMARY IMUNNODEFICIENCIES AS A PREDISPOSING OR PROTECTIVE FACTOR FOR SEVERE COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: PRIMARY IMUNNODEFICIENCIES AS A PREDISPOSING OR PROTECTIVE FACTOR FOR SEVERE COVID-19
Background: Risk factors associated with severe disease and mortality from COVID-19 includes advancing age and comorbidities associated with direct or indirect suppression of the immune system. The consequences of SARS-CoV-2 infection in individuals with primary immunodeficiency remain uncertain (Adrian M., 2021). In the absence of larg and/or thorough data, it remains unclear whether PID is a predisposing or a protective factor for SARS-CoV-2 infection (Babaha, F., 2020). SARS-CoV-2 infection in children with PID and its complications have not yet been well described, the course of COVID-19 can range from mild illness to death (Meyts I, 2021).
Case Presentation Summary: Boy, 7 years old, was hospitalized on the 14th day of disease in severe condition. Chronic granulomatous disease was diagnosed at 4 years old. Final diagnosis verified as COVID-19, right-sided lower lobe pneumonia. He received oxygen, ceftriaxone, dexamethasone, sulfamethoxazole/trimethoprim, intraconazole. A 15-year-old girl was hospitalized on the 2nd day of disease in moderate condition. WHIM-syndrome was verified at 12 years old. Laboratory findings indicated leukopenia, neutropenia, increased levels of procalcitonin, CRP, D-dimer in serum. Final diagnosis verified as COVID-19, bronchitis. Treatment included oxygen, systemic steroids and topical steroid inhalation, cephalosporins of IV generation, intravenous administration of granulocyte colony-stimulating factor, and symptomatic therapy.
Learning Points/Discussion: The clinical case demonstrated the routine moderate and severe coronavirus disease COVID-19 with bronchitis or pneumonia in the children suffered from different primary imunnodeficiencies. The main treatment of both cases consists of support oxygen, cephalosporin antibacterial and short course systemic steroid therapy and treatment of PID. Clarification of the predisposing/protective role of primary immunodeficiencies on the severity COVID-19 is currently limited to a small number of observations and requires further accumulation of data.

PV0243 / #1193

FEVER OF UNKNOWN ORIGIN AFTER HSCT: SYSTEMIC MYCOBACTERIOSIS IN A PEDIATRIC PATIENT WITH MALIGNANT OSTEOPETROSIS

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: Fever of unknown origin after HSCT: systemic mycobacteriosis in a pediatric patient with malignant osteopetrosis
Background: Fever of unknown origin (FUO) is a frequent complication after Hematopoietic Stem Cell Transplantation (HSCT). Identifying the pathogen is essential for optimal treatment.
Case Presentation Summary: A girl three years of age with malignant osteopetrosis received HSCT from a matched unrelated donor. The patient suffered from acute GvHD grade III (skin/liver) and extensive chronic GvHD (gut/skin), treated with steroids, sirolimus and ruxolitinib.
Since d+359 after HSCT the patient experienced multiple episodes of FUO with elevated inflammatory markers, which intermittently responded to antibiotic treatment. Infectious work up remained non-informative. A central venous line was removed. Differentials as adrenal insufficiency and ongoing GvHD were treated accordingly but febrile episodes recurred after four to six weeks.
On d+420 multiple hypointense splenic lesions, suggestive of septic infiltrates, were detected by ultrasound. A PET-MRI showed active lesions in mediastinal lymph nodes and the spleen. As both sites were considered surgically inaccessible for biopsy, the patient received empirical antibiotic treatment (meropenem/ vancomycin) for four weeks. The patient thereafter remained afebrile, the splenic lesions showed signs of organization in ultrasound controls.
On d+554 new rapidly progressive splenic lesions became detectable. Infectious work-up was extended to mycobacteria. Acid-fast rods were detected microscopically in a direct blood smear, in the culture mycobacterium avium was isolated. The interferon-γ-test and the Mantoux test were both negative.
A tuberculostatic therapy according to antibiotic susceptibility pattern (ethambutol/ rifabutin/ clarithromycin) resulted in rapid regression of splenic lesions and solution of febrile episodes.
Learning Points/Discussion: We suggest to rule out mycobacterial infection in patients with intensive immunosuppression after HSCT in case of recurrent episodes of FUO, which do not respond to standard procedures.

PV0244 / #150

SYSTEMATIC LITERATURE REVIEW OF THE EFFICACY, EFFECTIVENESS, AND IMPACT OF PCV13 VERSUS VACCINE TYPE INVASIVE PNEUMOCOCCAL DISEASE IN CHILDREN WITH RISK CONDITIONS

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Routine vaccination with 13-valent pneumococcal conjugate vaccine (PCV) provided additional reduction of invasive pneumococcal disease (IPD) compared with 7-valent PCV. Previous systematic literature reviews (SLRs) have investigated PCV13 efficacy/effectiveness against IPD in healthy children and certain risk conditions (e.g., HIV). Here we summarize PCV13 efficacy/effectiveness/impact in paediatric patients with risk conditions.
Methods: A SLR based on Cochrane methods was conducted to determine the efficacy, effectiveness, and impact of PCV13 against vaccine type (VT) IPD/carriage in children <18 years with risk conditions. The searches were conducted in MEDLINE, Embase, the Cochrane Library (CENTRAL and CDSR) and conference abstracts from January 2000 to September 2022. Only English-language articles were included for extraction.
Results: Two studies reported PCV13 effectiveness on VT-IPD, one study reported PCV13 efficacy on reducing VT serotype acquisition, and three studies reported PCV13 impact on VT-IPD (Table). In transplant recipients ≤18 years who received 2-4 doses of PCV13 or PCV7 (3+1), the effectiveness against VT-IPD was 29.6%–83.8% (non-significant) compared with unvaccinated children. In a study in children with HIV aged 1-14 years, efficacy of PCV13 at preventing new acquisition of VT serotypes versus Hib controls was 30.5%. VT-IPD effectiveness was 91.0% (non-significant) in HIV-infected children ≥16 weeks who received PCV13 (2+1). The impact studies showed that PCV13 (2+1) significantly reduced the number of VT-IPD events in HIV children <2 years by 72% versus the pre-vaccine era (2005 to 2008). Relative risk of VT-IPD decreased in children with sickle cell disease after PCV13 (3+1) versus pre-vaccine era (Table). However, due to low event rates, most results were non-significant.
Conclusions/Learning Points: PCV13 reduced VT-IPD in children with underlying medical conditions that increased their risk to pneumococcal disease, but additional adequately powered studies are

needed.

Table. Efficacy, effectiveness, and impact of PCV13 against VT-IPD/carriage in children with underlying medical conditions

Author year, country (sample size)	Risk condition -	Vaccine, schedule (comparator)	Population	Result*
Vaccine efficacy against VT carriage– vaccine efficacy (95% CI)				
Makenga 2021, Tanzania (N=225)	HIV	PCV13, 3+0 (Hib)	Children infected with HIV aged 1-14 years	Reducing acquisition of all VT serotypes, 2 doses: 30.5% (-6.4 – 54.6%) Preventing new acquisition and clearing existing VT carriage: 31.5% (1.5 – 52.4%)
Vaccine effectiveness against VT IPD – vaccine effectiveness (95% CI)				
Olarte 2017, USA (N=629)	HSCT and solid organ transplant	PCV13 or PCV7, 3+1 (unvaccinated children)	Transplant recipients ≤18 yrs with IPD	2 doses: 47.0% (-442.7 – 94.9%) 3 doses: 29.6% (-674.2 – 93.6%) 4 doses: 83.8% (-44.1 – 98.2%)
Cohen 2017, South Africa (N=358)	HIV	PCV13, 2+1 (unvaccinated children)	Children with HIV aged ≥16 wks	91.0% (-35.5 to 100%)
Vaccine impact against VT IPD –% reduction in IPD events/visits (95% CI)				
Von Gottberg 2014, South Africa (N=24,552)	HIV	PCV13, 2+1 (pre-vaccine era; 2005-2008)	Children with HIV hospitalized for IPD	Aged <2 yrs in 2011: 35% (-3 – 60%) Aged <2 yrs in 2012: 72% (44 – 88%)
Nzenze 2017, South Africa (N=NR)	HIV	PCV13, 2+1 (PCV7 era; 2010)	Children ≤5 yrs with HIV	3 mths-2 yrs: 59.1% (-70.4 – 93%) 2-5 yrs: 49.9% (-97.1 – 89.2%)
Vaccine impact against VT IPD – relative risk (95% CI)				
Adamkiewicz 2021, USA (N=NR)	SCD	PCV13, 3+1 vs PCV7 period (2000-2009)	Aged 0-4 years with Hb SS	0.34 (0.15 to 0.72); p=0.004
		PCV13, 3+1 vs PCV7 era (2000-2009)	Aged 0-4 years with Hb SC	2.42 (0.26 to 63.81); p=0.490
		PCV13, 3+1 vs PCV7 era (2000-2009)	Aged 5-9 years with Hb SS	0.54 (0.18 to 1.53); p=0.247
		PCV13, 3+1 vs PCV7 era (2000-2009)	Aged 5-9 years with Hb SC	p=0.209
		PCV13, 3+1 vs pre-vaccine era (1994-1999)	Aged 0-4 years with Hb SS	0.12 (0.06 to 0.26); p<0.001
		PCV13, 3+1 vs pre-vaccine era (1994-1999)	Aged 0-4 years with Hb SC	0.11 (0.02 to 0.39); p<0.001
		PCV13, 3+1 vs pre-vaccine era (1994-1999)	Aged 5-9 years with Hb SS	0.20 (0.07 to 0.55); p=0.002

Abbreviations: CI, confidence interval; Hb, haemoglobin; Hib, haemophilus influenzae type b; HIV, human immunodeficiency virus; HSCT, haematopoietic stem-cell transplantation; IPD, invasive pneumococcal disease; NR, not reported; PCV, pneumococcal conjugate vaccine; SCD, sickle cell disease; VT, vaccine-type. *Presented for ≥2 doses

PV0245 / #510

IMMUNOGENICITY OF BNT162B2 AND CORONAVAC IN IMMUNOCOMPROMISED CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Patients with immune compromise are at a higher risk of developing a severe or prolonged disease course after SARS-CoV-2 infection. Immunogenicity data on immunocompromised children are scarce for BNT162b2, and not available for CoronaVac.
Methods: We studied the immunogenicity of BNT162b2 and CoronaVac among 64 pediatric chronic kidney disease patients and 39 patients with inborn errors of immunity (IEI, or primary immunodeficiencies, PID). Patients who received 1, 2, 3 or 4 doses were included. 0.5ml CoronaVac was given to patients of any age, 0.1ml BNT162b2 to those aged 5-11 years, and 0.3ml BNT162b2 to those aged 11+ years.
Results: Weaker binding and surrogate neutralization responses were found after 2 doses in IEI patients with humoral immunodeficiencies and kidney patients on immunosuppressives. BNT162b2 induced T cell responses against S protein, and CoronaVac against S, N and M proteins. Surrogate neutralization was further reduced against Omicron BA.1. T cell responses against Omicron BA.1 were maintained. A third dose increased antibody response. Infected patients who received vaccination had a hybrid antibody response, with higher Omicron BA.1 neutralization than those uninfected. A booster dose (dose 4) increased neutralization against wild-type and Omicron BA.1, BA.2, and BA.5.
Conclusions/Learning Points: Our results show CoronaVac and BNT162b2 are immunogenic in children and adolescents with immunocompromising conditions. Neutralization responses are poorer against Omicron subvariants, which are improved by dose 4.

PV0246 / #2516

HIGH-DOSE INTRAVENOUS IMMUNOGLOBULIN (IVIG) PROVOKED BARTONELLA HENSELAE INFECTION AFTER ONSET OF KAWASAKI DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: High-dose intravenous Immunoglobulin (IVIG) provoked Bartonella henselae infection after onset of Kawasaki Disease
Background: Cat Scratch Disease (CSD), most commonly affecting children and teenagers, is a self-limiting infectious disease characterized by lymphadenopathy caused by Bartonella henselae. A disseminated form of CSD occurs in immunosuppressed patients after solid organ transplantation and patients infected with human immunodeficiency virus. We present a case of disseminated CSD manifestation in a child with Kawasaki Disease after treatment of high-dose intravenous immunoglobulin.
Case Presentation Summary: A 6-year-old girl with a medical history of fever for 8 days, nonpurulent bilateral conjunctivitis, erythema of the abdomen, cervical lymphadenopathy, and diffuse erythema of oral mucosa was diagnosed with Kawasaki disease. Echocardiography revealed dilated left and right coronary arteries, 3 mm and 6 mm respectively. The patient received IVIG therapy (2g/kg), coupled with aspirin. Eighteen hours post IVIG therapy, general patient condition worsened, with reoccurrence of fever, diffuse myalgia, and severe abdominal pain. Abdomen ultrasonography showed an enlarged liver, and hypoechoic areas on the spleen. Further history revealed that the patient had been scratched on the left thumb by a cat prior to admission. Upon examination, a 2 mm erythematous nodule on the thumb was noted. Test for Bartonella henselae antibodies revealed elevated immunoglobulin G (IgG) 1024 (<64 negative) and immunoglobulin M (IgM) 160 (<20) level. The patient was treated with erythromycin.
Learning Points/Discussion: In this case, we see how high doses of IVIG during the treatment of

Kawasaki disease can induce disseminated CSD manifestation. Through antimicrobial therapy a

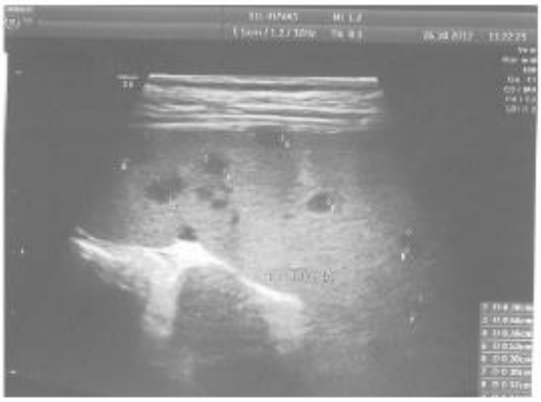

Figure 1. Multiple hypoechogenic areas within the spleen at diagnosis of CSD

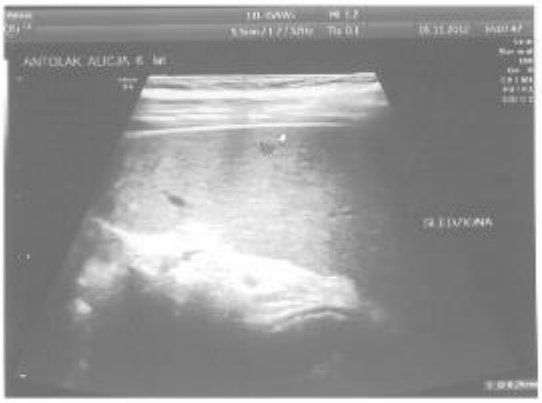

Figure 2. Spleen after 2 weeks treatment with erythomycin

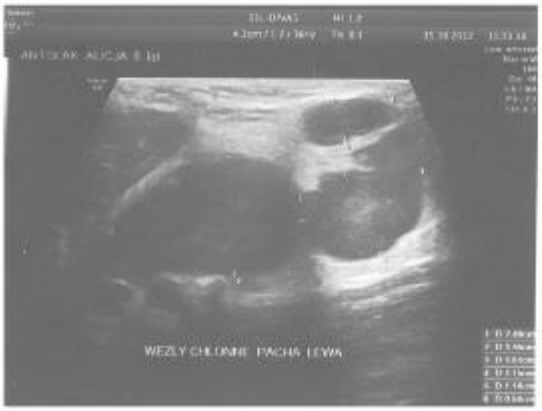

Figure 3 .Erlaged axillary lymph nodes at diagnosis of CSD

complete recovery was made.

PV0247 / #1649

NONTUBERCULOUS MYCOBACTERIA (NTM) IN ADOLESCENTS WITH COMMON VARIABLE IMMUNE DEFICIENCY (CVID): A CASE-SERIES

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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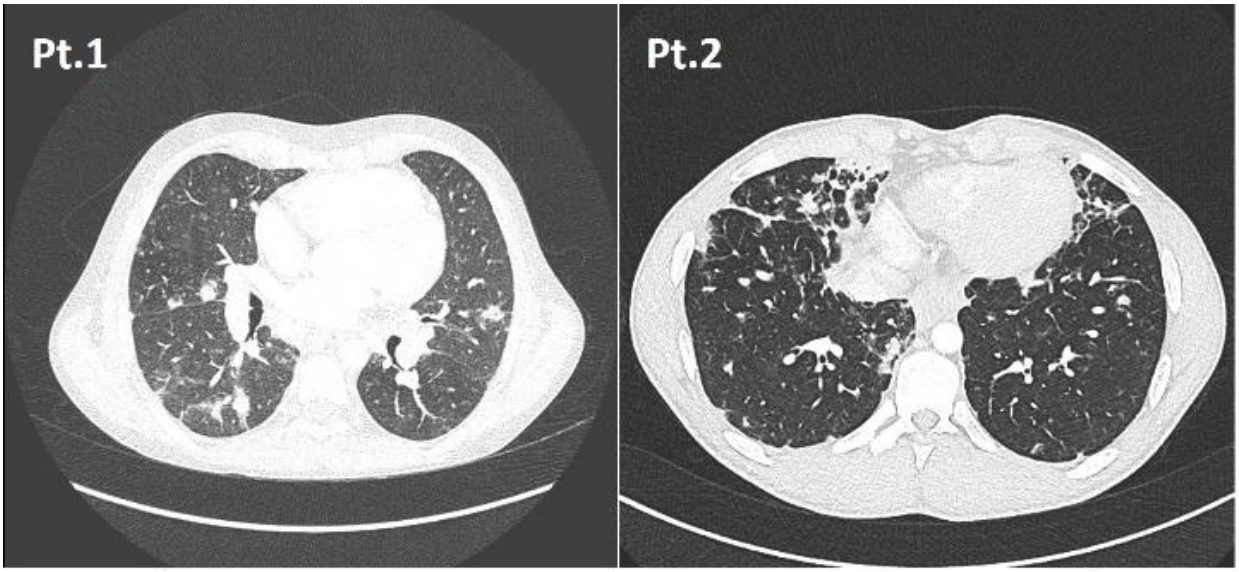
Title of Case: Nontuberculous Mycobacteria (NTM) in adolescents with Common Variable Immune Deficiency (CVID): a case-series
Background: Nontuberculous mycobacterium (NTM) cause various diseases such as skin infection, lymphadenitis, pulmonary infection and disseminated infection most commonly in young children and immunocompromised individuals. Here we describe NTM Lung Disease (NTM-LD) in male adolescents with Common Variable Immunodeficiency (CVID).
Case Presentation Summary: The average age was 14.5 years (range 12-17 years). The patients were receiving subcutaneous immunoglobulin replacement therapy. These patients were also already suffering from granulomatous-lymphocytic interstitial lung disease (GLILD). For this reason they received previously treatment with Rituximab. NTM infection was detected during investigations for respiratory symptoms and fever unresponsive to broad-spectrum antibiotic therapy. NTM were detected with Polymerase Chain Reaction (qRT-PCR) and culture test on bronchoalveolar lavage (BAL). In one patient was isolated Mycobacterium Chimaera and in the other Mycobacterium Kansasii. The other most common bacterial and viral infections typical in patients with CVID were excluded. The chest computed tomography (CT) imaging showed worsening of previous micronodular lesions. The patient received combined antibiotic therapy with Macrolides, Ethambutol and Rifampicin. The treatment lasted 1 year. The patients were under close clinical follow-up to monitoring adverse events and the treatment was discontinued after 1 year when we obtained three negative culture on sputum and improvement of chest CT.



	Pt1	Pt2
Sex	Male	Male
IEI	CVID	CVID
Hypogammaglobulinemia	Yes	Yes
IgEV Therapy	Yes	Yes
Splenomegaly	Yes	N
ITP	N	N
GLILD	Y	Y
NTM infection (years)	12	17
Atypical Mycobacteria	Kansasii	Chimaera
Therapy	Azithromycin Ethambutol Rifampicin	Clarithromycin Ethambutol Rifampicin
Duration of Therapy (months)	12	12
Chest CT Tubercolosis	Y	Y
Negative TB test (months)	12	12

Learning Points/Discussion: NTM infections are frequently difficult to be identified. Molecular techniques may support the diagnosis. Treatment requires extended course of combination antibiotic therapy supported by molecular, culture and antimycobacteriogram tests in order to assess the resistance profile. In patients with GLILD it is important to investigate this infection which may be subtle. In this kind of patients diagnosis of NTM-LD could be more complicated due to overlapping of chest CT images.

PV0248 / #485

TWO CASES OF SEVERE INFLUENZA INFECTION IN IMMUNOCOMPROMISED CHILDREN: THE IMPORTANCE OF TIMELY VACCINATION

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: Two cases of severe influenza infection in immunocompromised children: the importance of timely vaccination
Background: Immunocompromised children are at high risk of severe illness and complications from influenza infection.Timely flu immunization is recommended for all patients affected by primary or secondary immunodeficiencies.Often the vaccination is postponed on the basis of false contraindications.Here we describe two cases of immunocompromised children with complicated influenza A infection.
Case Presentation Summary: The Case 1 was a 9-year old boy affected by RAG1 deficiency who underwent a hematopoietic stem cell transplantation (HSCT) resulted in an incomplete donor chimerism with mild immunocompromission and autoimmunity.The Case 2 was a 11-year old boy with Chronic Granulomatous Disease (CGD).Both patients were unvaccited for medical reason (rhinitis the day of scheduled appointment).They presented at emergency department with fever and dry cough.The chest X-ray and the computed tomography (CT) of the first patient revealed bilateral basal pleural effusion and diffuse ground-glass opacities in both lungs.The CT-scan of the second patients showed an extensive area of consolidation on the left lobes.The nasopharyngeal swabs turned out positive for Influenza A, H1N1 in the first case and H3N2 in the latter case. Both were treated with intravenous wide spectrum antibiotics and with a 10-day course of oseltamivir. They also received a 5-day course of IVIG. The first patient was discharged after 7 days with chest X-ray negative for pleural effusion. The second child developed macrophage activation syndrome that required treatment with corticosteroid and anti-interleukin-1. The patient was discharged in well clinical condition after 30 days with improvement of consolidation at CT-scan.
Learning Points/Discussion: Poor timing of influenza vaccination could lead to severe complications in immunocompromised children. Early and effective vaccination campaigns outlining the real contraindications to flu vaccine are needed.

PV0249 / #958

EBV INFECTION IN KIDNEY TRANSPLANT PATIENTS: ANALYSIS OF AN ITALIAN PEDIATRIC COHORT OVER A 10- YEAR PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Pediatric solid organ transplant (SOT) recipients commonly have Epstein-Barr virus (EBV) DNAemia. EBV is related to post-transplant
lymphoproliferative disease (PTLD), a potentially fatal complication occurring in 1-20% of SOT.
Methods: All patients who underwent a renal transplant between 2011-2022 at Bambino Gesù Children's Hospital in Rome were enrolled in this study. A "persistent" EBV infection was defined as a blood viral load ≥ 5.000 cp/µl detected for ≥ 6 consecutive months. An "high" EBV viral load was defined as ≥100.000 cp/µl on blood.
Results: Of the 240 patients included, 97 (40.4%) developed a persistent EBV infection during follow-up. Among these 49 (20.4%) developed a high viral load. Primary infections evolved more frequently into persistent infections (p 0.002) and high EBV viraemia (p <0.000) than reactivations. Seropositive CMV recipients less frequently developed a high EBV viral load (p 0.043), probably because they did not experienced the predisposing effect of primary CMV infection on reactivation of other herpesviruses. Patients with high EBV viral load developed more frequently coinfections from BK virus (0.025). Rituximab has been used in 14 patients, resulting in a reduction of EBV viral load <5000 cp/µl in almost 80% of cases with an average time of 28,7 days. The cases of PTLD in the cohort were 9, of which 6 non-destructive PTLD and 3 malignant lymphomas. The incidence of malignant lymphomas significantly reduced compared to the previous decade in our hospital, suggesting the efficacy of pre-emptive strategies.
Conclusions/Learning Points: Prevention of PTLD remains a clinical challenge. Our study identified risk factors for persistent EBV infection and high EBV viral load. Further studies are needed to identify predictive markers of PTLD and to define the real effecacy of pre-emptive strategies.

PV0250 / #561

INFECTIOUS EVENTS IN CHILDREN WITH SICKLE CELL DISEASE HOSPITALIZED IN A SECONDARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Patients with sickle cell disease (SCD) have an increased risk of complications that require hospitalization.
Methods: Descriptive study of the children with SCD admitted in a secondary hospital between 2016 and 2022 focusing on their infectious susceptibility.
Results: 28 events of hospitalization were included. The median age at admission was 2,5 years. 22/28 (78,5%) were younger than 5 years old. The length of hospital stay was 5,9 ± 4,7 days. Acute vaso-occlusive crisis was the most common cause of hospitalization (50%) followed by viral infection, documented in 8/28 cases (28,6%). SARS-CoV-2 and adenovirus were the main virus detected. Next in frequency, 6/28 (21,4%) had fever of unknown origin. Osteomyelitis was seen in 5/28 (17,9%): two affecting the spinal bones, in one case also with sternal involvement; two the lower limb (foot and femur) and one the humerus. 4/28 (14,3%) had pneumonia or acute chest syndrome. Other infections seen were S.aureus bacteriemia, preseptal celullitis or streptococcal pharyngotonsillitis. 3 cases were transferred to a tertiary reference center due to lack of improvment with standard treatment. 22/28 (78,6%) received empiric antibiotic treatment, most of them with a third generation cephalosporin (cefotaxime) and one with amoxicillin/clavulanic acid. In suspected osteomyelitis, treatment was switched to a combination of cefotaxime and cloxacillin. The median duration of intravenous therapy was 4 days (range 1-14), and the total was 10 days, more prolonged when bone infection was documented (3 or 6 weeks). When discharged, treatment was continued with amoxicillin/clavulanic acid in 12/28 (42,9%) or cefuroxime.
Conclusions/Learning Points: Infections were reported in a significant proportion of the patients with SCD hospitalized in our setting. It is important to have a high index of suspicion for early identification and treatment.

PV0251 / #1809

ANTIBODY RESPONSES FOLLOWING COVID-19 VACCINATION IN PATIENTS WITH COMMON VARIABLE IMMUNODEFICIENCY

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Patients with primary antibody deficiencies are at risk in the current COVID-19 pandemic due to their impaired response to infection and vaccination. Given the lack of information on effectiveness of anti-SARS-CoV-2 vaccines in common variable immunodeficiency (CVID) patients, we seek to describe the immunogenicity of the COVID-19 vaccines in CVID patients.
Methods: Ten patients (15-60 years) with CVID were enrolled in this study according to ESID criteria. Seven patients were naïve to SARS-CoV-2 infections and received mRNA COVID-19 vaccine, with a schedule of two doses with 21 days apart. Blood samples were collected at least 7 days after the second dose. Three CVID patients, unvaccinated and non-infected with SARS-CoV-2 were also tested. Ten healthy donors similarly vaccinated and non-infected with SARS-CoV-2 were used as controls(HC). The EliA SARS-CoV-2-Sp1 IgG (Thermo Fisher S1 IgG) assay was used for the measurement of SARS-CoV-2 (Covid-19) IgG antibodies.
Results: Overall, both HC and CVID patients showed a detectable SARS-CoV-2 specific humoral after COVID-19 vaccination, with only the three unvaccinated CVID patients lacking anti- SARS-CoV-2 Abs. Of note, CVID patients showed a lower anti- SARS-CoV-2 titers compared to HC.
Conclusions/Learning Points: These results suggest that CVID patients can still benefit from vaccination. Thus, they should be encouraged to get vaccinated. Additional studies will be needed to further define the variability of humoral and cellular protective immune response after COVID-19 vaccination in immunocompromised patients.

PV0252 / #957

SEROPREVALENCE OF JAPANESE ENCEPHALITIS VIRUS IN KOREAN CHILDREN WITH SOLID ORGAN TRANSPLANTATION

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Japanese encephalitis virus (JEV) is the most common cause of encephalitis in the Asia-Pacific region, and vaccination against JEV in human is the best preventive strategy. Currently, booster vaccination is not recommended for pediatric solid organ transplant recipients (SOTRs) in JEV epidemic areas, but evidence of this recommendation is still lacking.
Methods: This study was conducted on children who underwent SOT at Severance Hospital in Seoul, from 2010 to 2021. The standard plaque reduction neutralization test (PRNT) method was used for the seroprotectivity (PRNT50 cut-off, 1:10). For comparison, serum samples from healthcare workers were used as a control.
Results: A total 22 pediatric SOTRs were enrolled. Liver transplantation was the most common (64%), followed by kidney transplantation (27%), and heart transplantation (9%). The median age at sample collection was 14.1 years (interquartile range [IQR], 12.7 to 15.7 years), and 10 children (45%) were male. 14 children (63%) received at least one dose of JEV vaccine after SOT. The median time from SOT to the last vaccination was 3.6 years (IQR, 1.8 to 9.0), and the median time from the last vaccination to sampling was 16.1 months (IQR, 3.5 to 27.3). The seropositive rate of pediatric SOTR group was 82%, which was lower than 90% of the control group, but there was no statistical significance (P=0.33). In the logistic regression analysis, there was no significant risk factor for poor seroprotectivity.
Conclusions/Learning Points: Seropositive rate of JEV in pediatric SOTRs is not lower than that in the healthy adults. There is a concern about the waning effect after vaccination in adults, so caution is needed in interpretation.

PV0253 / #1971

SEROPREVALENCE OF CYTOMEGALOVIRUS AND POTENTIAL ASSOCIATION WITH CHRONIC LUNG DISEASE IN ADOLESCENTS AND YOUNG ADULTS WITH PERINATALLY-ACQUIRED HIV.

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: There is an increasing burden of chronic non-AIDS co-morbidities in youth living with paHIV (YLWPaHIV), despite long-term suppression of HIV. Chronic lung disease (CLD), defined as persistent respiratory symptoms and airflow obstruction attributable to long-term inflammation, is observed in one third of children with paHIV. Rates of cytomegalovirus (CMV) seropositivity are high among children with paHIV, and this may be associated with increased immune activation and systemic inflammation, and potentially contribute to the pathogenesis of HIV-associated CLD.
Methods: Attendees of a tertiary service for YLWPaHIV with HIV viral suppression for >6 months were enrolled in The CHECKPOINT study. Participants completed a respiratory questionnaire, measured lung function by spirometry, CMV DNA in saliva by polymerase chain reaction and CMV-specific IgG was quantified by enzyme-linked immunosorbent assay.
Results: 73 individuals, median age 27 (IQR 25-30) years, 56% female, 73% black ethnicity with median age ART of initiation 7 (IQR 2-12) years and CD4 638 (IQR 497-795) count participated. 19/73 (26%) had an underlying respiratory condition such as bronchiectasis, asthma, history of lymphocytic interstitial pneumonia or tuberculosis. 40/73 (55%) demonstrated low forced vital capacity (<80% predicted) with a normal FEV1/FVC ratio in 67/73 (72%). 2/73 (3%) had detectable saliva CMV DNA and 66/73 (90%) were CMV seropositive. There were no statistically significant correlations between lung function, respiratory diagnosis and quantitative CMV-specific IgG.
Conclusions/Learning Points: Our findings suggest a pattern of restrictive lung disease in this population of YLWPaHIV, however unlike studies in low-income settings, this was not associated with levels of CMV-specific IgG despite high seroprevalence. Measurement of cellular immune activation and inflammation in this population alongside an ethnically-matched HIV-seronegative control group may help to elucidate the potential role of CMV in the pathogenesis of HIV-associated CLD.

PV0254 / #2238

SEROPREVALENCE OF CYTOMEGALOVIRUS AND ASSOCIATED IMMUNE-ACTIVATION AND INFLAMMATION IN ADOLESCENTS AND YOUNG ADULTS WITH PERINATALLY-ACQUIRED HIV.

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: There are increased risk factors for cardiovascular and chronic lung disease in youth living with perinatally-acquired HIV (YLWpaHIV) compared to their HIV-seronegative peers. This study aimed to explore the association between cytomegalovirus (CMV) seroprevalence with correlates of immune-activation and inflammation that may contribute to the increased risk factors for non-AIDS co-morbidities.
Methods: Asymptomatic YLWpaHIV on suppressive antiretroviral therapy for >6 months were recruited to the CHECKPOINT study. Spirometry, anthropometrics and blood pressure were recorded. Salivary CMV DNA was measured by PCR, with cell-associated CMV DNA by digital droplet PCR in total PBMCs. Biomarkers associated with cardiovascular and chronic lung disease were quantified from plasma using ELISA and Luminex.
Results: 48 YLWpaHIV, median age 23 (IQR 16-34) years, 42% female, 79% black African were recruited, 45 (94%) of whom were CMV seropositive. No CMV DNA was detected in saliva and only 1 individual had cell-associated CMV DNA (176.6 copies per million PBMCs). Blood pressure measurements did not differ between CMV-seropositive and seronegative participants, but BMI was higher (25.2, IQR 22.7-28.5 vs 23, IQR 19.1-26.9). CMV-seropositive individuals had non-significantly lower FEV_1 and FVC (<80%), and normal FEV_1/FVC ratio (>80%). There was a trend towards higher $CD4^+$ activation and immune-exhaustion markers (Ki67 and PD-1) in CMV-seropositive participants, and .higher inflammatory markers: CRP, VCAM-1, D-dimer, IL-6, and MPO; however IFN-g, and IL-6 were significantly higher ($p<0.05$).
Conclusions/Learning Points: There is a very high seroprevalence of CMV in this population of YLWpaHIV. It is difficult to determine an association between CMV co-infection driving immune-activation and inflammation, and subsequent increased risk factors for cardiovascular and chronic lung disease, without an ethnically-matched HIV-seronegative control group. Further work will include appropriate comparison populations and longitudinal observation to better understand this association.

PV0255 / #2149

POST-NATAL CMV INFECTION LEADING TO HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS IN A 1-MONTH-OLD BOY

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: POST-NATAL CMV INFECTION LEADING TO HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS IN A 1-MONTH-OLD BOY
Background: Hemophagocytic lymphohistiocytosis (HLH) is a rare, life-threatening hyperinflammatory syndrome. Frequently HLH is triggered by intracellular infections, but it can be associated to malignancies and autoinflammatory syndromes. Familial HLH (fHLH) is mostly caused by genetic defects of the lymphocyte cytotoxicity, but it can also be related to inborn errors of immunity, inflammation or even metabolism. HLH occurring in the first months of age is a clue to an underlying genetic defect.
Case Presentation Summary: 41-day old healthy male new-born, admitted with fever, rhinorrhoea, and irritability. Birth and past medical records were unremarkable. He was febrile and a micropapular rash was present over his trunk. He had bicytopenia (HGB 8.4g/dL; platelets 84 000/uL) and hepatosplenomegaly (AST and ALT, were 173UI/L and 200UI/L respectively). Ferritin levels 1340ug/L, fasting triglycerides 206 mg/dL and elevated serum soluble CD25 (25000 UI/mL), fulfilling 6/9 HLH criteria. CMV serologies showed positive IgG antibodies, negative CMV IgM and an elevated viral load. CNS imaging and ophthalmology observation were unremarkable. Postnatal infection was confirmed and he was started on ganciclovir, completing a 7-day total of IV treatment, with complete resolution, being discharged on valganciclovir (completing 10-week treatment and 2 negative serum viral loads, two weeks apart). NK citotoxicity and degranulation were normal and no variants were identified in the HLH-related genes.
Learning Points/Discussion: Most cases of HLH are triggered by viral infections, including CMV or EBV. In mild cases, a stepwise approach can help avoiding unnecessary harmful interventions. Functional and Genetic studies are crucial in identifying fHLH. This case highlights the importance of prompt recognition and treatment, leading to a better prognosis in the long run after identifying and treating the eventual trigger.

PV0256 / #1949

REFRACTORY MUCOSAL INFECTIONS IN A XLA PATIENT

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: Refractory mucosal infections in a XLA patient
Background: X-linked agammaglobulinemia is a rare pediatric primary immunodeficiency. There is a defect in Btk gene blocking maturation of precursor B cells in the bone marrow to mature circulating B-lymphocytes, leading to absent immunoglobulin isotypes in the serum. XLA patients are more vulnerable to invasive infections from encapsulated bacteria, enterovirus and Giardia.
Case Presentation Summary: Male child aged 4 years admitted with complicated pneumonia. He had recurrent otitis media since the age of 4 months and three episodes of otomastoiditis. Absent immunoglobulins and 0,1% of CD19 lymphocytes. XLA was diagnosed and confirmed by genetic study: mutation R64117 in exon 19 of the BTK gene. Treated with subcutaneous IgG, achieving stable serum levels over 800 mg/dl. He had recurrent conjunctivitis without serious infections. At the age of 11, presented persistent dyspeptic symptoms. Esophagogastroduodenoscopy revealed erosive pangastritis and histopathology chronic superficial gastritis with focal intestinal metaplasia associated with Helicobacter pylori (positive culture and RT-PCR) and presence of a mutation in the 23S rDNA gene associated with clarithromycin resistance. He started 14 days treatment with amoxicillin + metronidazole + PPI. 6 months later, EGD revealed persistence of H. pylori erosive gastritis. He underwent treatment with amoxicillin + levofloxacin + PPI. 3 months later, a positive breath test led to a new eradication with PPI + amoxicillin + metronidazol + rifabutin and concomitantly IgG 1 g/kg for 5 days. He maintained symptoms and persistence of H. pylori erosive gastritis in EGD and underwent rescue therapy with PPI + bismuth + metronidazole + tetracycline with success.
Learning Points/Discussion: Mucosal infections are very difficult to resolve in XLA patients even with adequate IgG replacement therapy. These patients lack mucosal antibodies, very important to control infection.

PV0257 / #770

GATA2 DEFICIENCY, A RARE TYPE OF PRIMARY IMMUNODEFICIENCY DISORDER IDENTIFIED IN AN INFANT WITH ABDOMINAL MYCOBACTERIUM INFECTION.

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: GATA2 DEFICIENCY, A RARE TYPE OF PRIMARY IMMUNODEFICIENCY DISORDER IDENTIFIED IN AN INFANT WITH ABDOMINAL MYCOBACTERIUM INFECTION.
Background: We present the case of an infant with GATA2 deficiency, an immune system condition which increases susceptibility to infections. The patient presented repeated acute febrile episodes, being diagnosed of Multisystem Inflammatory Syndrome associated with Covid-19 (MIS-C) and mesenteric adenitis by Mycobacterium avium.
Case Presentation Summary: A four-month-old female infant was admitted with a five-day episode of high fever and raised sepsis biomarkers. She was diagnosed of upper respiratory tract infection and Enterococcus faecalis sepsis. She was readmitted one month later due to a gastrointestinal condition and fever. Serological tests, IGRA and multiple microbiological investigations were undertaken, resulting all negative. She was diagnosed of MIS-C and started specific treatment successfully. At 6 months of age, she was admitted for third time due to recurrent fever. Abdominal ultrasound revealed large mesenteric adenopathies. Further studies were performed with mesenteric adenopathies fluorodeoxyglucose uptake in PET-CT as the only finding. Biopsy showed necrotizing granulomas and acid-fast bacilli. PCR for Mycobacterium Tuberculosis Complex was negative in the gastric juice aspiration sample. Mycobacterium avium was isolated in cultures, showing susceptibility to clarithromycin and ciprofloxacin, so treatment with this therapy was continued. Initial evaluation for immunodeficiency showed no pathological findings. Next generation sequencing testing was used to identify heterozygous GATA2 deficiency and interferon regulatory factor 7 pathogenic mutations (both inherited from mother).
Learning Points/Discussion: Recurrent fever in young infants is a warning sign for underlying disorders such as unusual infections, tumors, immunodeficiency or autoimmune and autoinflammatory diseases. GATA2 deficiency is a rare disorder of the immune system characterized by the susceptibility to develop major viral and bacterial infections (typically Mycobacterium avium complex), cytopenias, leukemia and myelodysplasia.

PV0258 / #724

ECTHYMA GANGRENOSUM: A KEY TO IMMUNITY

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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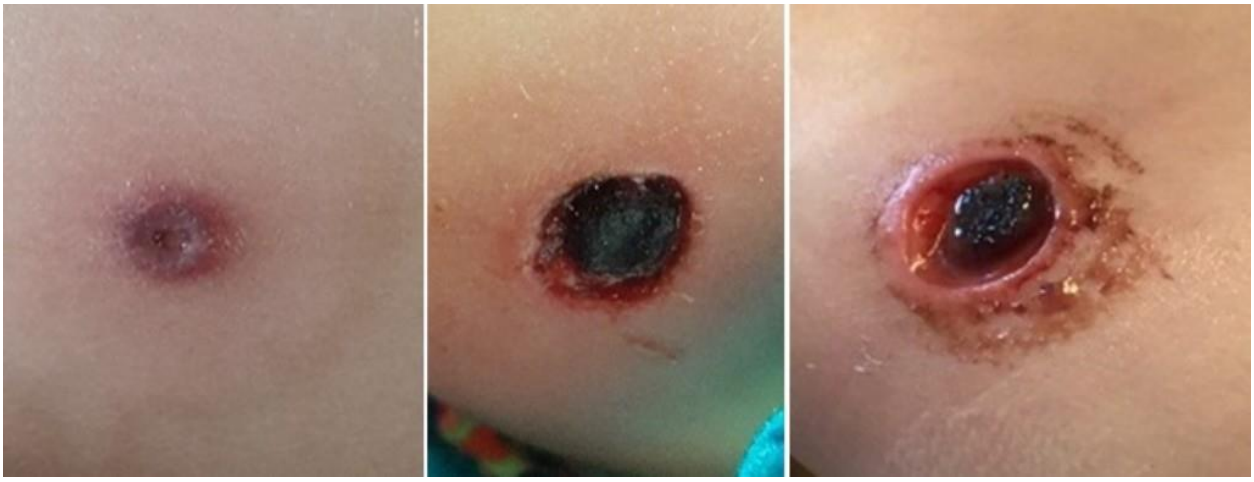
Title of Case: ECTHYMA GANGRENOSUM: A KEY TO IMMUNITY
Background: Ecthyma gangrenosum (EG) is a rare skin infection. Although not pathognomonic, it is classically associated with Pseudomonas aeruginosa. Despite some cases of EG being reported in healthy patients, it is most frequently described in the setting of bacteremia in immunocompromised patients. EG lesions can be single or multiple and usually begin as erythematous macules that rapidly progress to areas of induration, followed by pustules, and ultimately gangrenous ulcers surrounded by erythema. The disease has a high mortality rate.
Case Presentation Summary: A previously healthy 32-month-old girl presented to the emergency department with a 3-day history of fever associated with a non-traumatic lesion on her left thigh, despite antibiotic therapy with oral amoxicillin and clavulanic acid (AAC). The patient was well-appearing and hemodynamically stable. Examination revealed a necrotic lesion surrounded by erythema in her left thigh, small bruises in her legs and a right periorbital hematoma. Initial laboratory tests revealed anemia, thrombocytopenia, neutropenia and increased C-reactive protein. She was admitted for treatment with iv AAC. Due to persistence of fever and lack of wound improvement gentamicin was added. Upon dermatology consultation EG was diagnosed. Wound cultures isolated Pseudomonas aeruginosa. Blood cultures were negative. Abdominal ultrasound revealed slight hepatomegaly and spleen dimensions at the upper limit of normality. Quantitative immunoglobulin levels were normal. The blood smear later revealed the presence of blasts. The child was transferred to an oncology center, where a myelogram confirmed the diagnosis of B cell acute lymphoblastic leukemia and treatment was initiated.



Learning Points/Discussion: This case shows the critical importance of the identification of EG to start an early and directed antipseudomonal therapy and to prompt thorough investigation of possible underlying causes of immunosuppression.

PV0259 / #1678

AN ATYPICAL PRESENTATION OF VZV DISSEMINATED INFECTION ASSOCIATED WITH POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES) AND MULTISYSTEMIC INFLAMMATION IN A 17-YEAR-OLD IMMUNOCOMPROMISED PATIENT

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: AN ATYPICAL PRESENTATION OF VZV DISSEMINATED INFECTION ASSOCIATED WITH POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES) AND MULTISYSTEMIC INFLAMMATION IN A 17-YEAR-OLD IMMUNOCOMPROMISED PATIENT
Background: VZV disseminated infection in immunocompromised patients can have insidious onset and severe visceral involvement.
Case Presentation Summary: 17 year-old girl, with allogenic HSCT for LH 15 months before and hypertension. Acyclovir suspended 12 months after HSCT. She presented to ER with upper abdominal pain. Afebrile, SARS-CoV2 infection 2 months prior. Normal blood tests except for known leukopenia (WBC 3900/mmc) and thrombocytopenia (PTL <42000/mmc). Antihypertensive therapy not taken for vomit. Abdomen ultrasound and CT scan were negative. EGDS revealed mucosal lesion in distal oesophagus (biopsy collected). 48 hours later, seizures started. Brain CT scan and LP were normal;slowing of the EEG was detected. Angio-MRI revealed non-haemorrhagic PRES. At 96 hours hypertension worsened, fever and vesicular diffuse rash appeared, with vesicular liquid testing positive for VZV DNA; VZV-IgM positive, IgG negative. Subsequently she developed pancreatitis, with hyperlipasemia and radiological findings, hepatitis ,with severe hypertransaminasemia, cholestasis and elevated LDH. Blood tests revealed pancytopenia (PLT 15000 /mmc, Hb 7.9 g/dL andWBC 4000/mmc), CRP elevation (98 mg/dL), hyperferritinemia (4625 mcg/L), hypertriglyceridemia (211 mg/dL), elevated d-dimer (14665 mcg/L). Herpes virus lesions in oesophageal biopsy. EEG was compatible with encephalitis. Intravenous Acyclovir and Ig were administered for 10 and 5 days respectively, with gradual improvement until resolution.
Learning Points/Discussion: Our case is noteworthy due to a conjunction of factors not previously described in the literature: atypical young age, insidious paucisymptomatic presentation more than a year after HSCT and the association to PRES syndrome and multi-systemic inflammation. The overlapping of clinical manifestations with multifactorial aetiopathogenesis in immunocompromised hosts can make both diagnosis and management very challenging.

PV0260 / #573

OUTCOMES OF IMMUNOCOMPROMISED CHILDREN HOSPITALIZED FOR INFLUENZA, 2010-2021, THE CANADIAN IMMUNIZATION MONITORING PROGRAM ACTIVE (IMPACT)

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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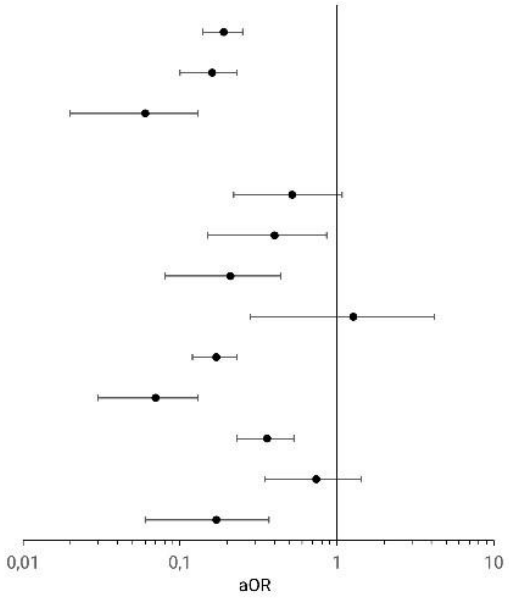
Backgrounds: This study aimed to evaluate immunocompromising conditions and specific subgroups of immunocompromise as risk factors for severe outcomes among children admitted for influenza.
Methods: We performed active surveillance for laboratory-confirmed influenza hospitalizations among children ≤16 years old at the 12 Canadian Immunization Monitoring Program Active hospitals, from 2010-11 to 2020-21. Logistic regression analyses were used to compare outcomes between immunocompromised and non-immunocompromised children, and for different subgroups of immunocompromise. The primary outcome was intensive care unit (ICU) admission; secondary outcomes were mechanical ventilation and death.
Results: Among 8982 children, 892 (9.9%) were immunocompromised; these patients were older (median 5.6 [IQR 3.1 - 10.0] vs 2.4 [1 -6] years, p<0.001) than non-immunocompromised children, had similar frequency of comorbidities excluding immunocompromise and/or malignancy (38% vs 40%, p=0.2), but fewer respiratory symptoms, such as respiratory distress (20% vs 42%, p<0.001).
In multivariable analyses, immunocompromise (adjusted odds ratio [aOR] 0.19, 95% CI 0.14–0.25) and its subcategories immunodeficiency (aOR 0.16, 95% CI 0.10–0.23), immunosuppression (aOR 0.17, 95% CI 0.12–0.23), chemotherapy (aOR 0.07, 95% CI 0.03–0.13) and solid organ transplantation (aOR 0.17, 95% CI 0.06–0.37) were associated with decreased probability of ICU admission in children admitted for influenza. Immunocompromise was also associated with decreased probability for mechanical ventilation (aOR 0.26, 95% CI 0.16–0.38) or death (aOR 0.22, 95% CI 0.03–0.72).

Multivariable logistic regression models for the association between ICU admission and immunocompromise or its subgroups

Characteristic	aOR*	95% CI*
Immunocompromised	0.19	0.14, 0.25
Immunodeficiency	0.16	0.10, 0.23
Haematological malignancies (active)	0.06	0.02, 0.13
Stem cell transplant	0.00	0.00, 0.00
Defects primarily in lymphocytes	0.52	0.22, 1.08
Defects primarily in neutrophiles	0.41	0.16, 0.89
Asplenia and complement deficiency	0.21	0.08, 0.44
Other immunodeficiency	1.27	0.28, 4.19
Immunosuppression	0.17	0.12, 0.23
Chemotherapy	0.07	0.03, 0.13
Immunosuppression other than chemotherapy	0.36	0.23, 0.53
Steroids, no other immunosuppression	0.74	0.35, 1.43
Solid organ transplant	0.17	0.06, 0.37

*adjusted for age (continuous), sex, influenza season, IMPACT center, presence of underlying chronic health conditions other than immunocompromise, influenza virus type



Conclusions/Learning Points: Immunocompromised children are overrepresented among hospitalizations for influenza, but have decreased probability of ICU admission, mechanical ventilation, and mortality following admission.

PV0261 / #1432

INCIDENCE OF INFECTIONS IN PEDIATRIC PATIENTS WHO RECEIVED BIOLOGICAL AND TARGETED SYNTHETIC DISEASE-MODIFYING ANTIRHEUMATIC DRUGS (BDMARDS), AT A REFERRAL CENTER IN CHILE.

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: bDMARDs have changed the physical and functional prognosis of patients with inflammatory diseases. Nevertheless, there is an increased risk of infections reported in the literature. This study aims to describe the incidence of mild infections (MI) and severe infections (SI) in pediatric patients using bDMARDs.
Methods: We conducted a retrospective cohort study of 128 pediatric patients with rheumatic diseases and inflammatory bowel disease (IBD), with 173 bDMARD treatment episodes; attended at a referral center in Chile between 2007-2019.
Results: 128 patients met the inclusion criteria, with 173 treatment episodes of bDMARDs. 76% were female. The primary underlying pathology was Juvenile Rheumatoid Arthritis (JIA) at 89.8% (115), followed by Vasculitis at 3.91% (5) and at IBD 3.12% (4). The most common bDMARDs were Adalimumab 43.9% (76) and Etanercept 22.5% (39). Upper respiratory tract infection (URTI) was the most common MI (66.6%, N=272), followed by lower respiratory tract infections (LRTI) (11.5%, N=47). The most common SI were gastrointestinal infections (36.1%, N=13), LRTI (22.2%, N=8) and skin infections (16.6%, N=6). The incidence rate of MI was 119.7 (CI 106-128) per 100 person-years, and the incidence rate of SI was 10.3 (CI 73.7-142.1) per 100 person-years. No cases of tuberculosis or hepatitis-B virus were observed. The median time of hospitalization was 2.92 (SD 19.8) days. There were no hospitalizations in intensive care units, deaths or need to suspend bDMARDs due to infections.
Conclusions/Learning Points: bDMARDs seem to have a good safety profile. The study provides valuable information to parents and caregivers regarding the risk of infections of patients starting bDMARDs.

PV0262 / #2207

DESCRIPTIVE ANALYSIS OF CASES OF NEUTROPENIC ENTEROCOLITIS IN A REFERENCE CENTER IN PEDIATRIC ONCOLOGY IN LATIN AMERICA.

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Neutropenic enterocolitis (NE) is a life-threatening form of inflammatory enterocolitis seen in neutropenic patients, mainly in the setting of exposure to cytotoxic chemotherapy. We aimed to describe NE episodes, with regard to NE presentation and evolution.
Methods: We designed a descriptive study, including all episodes of NE (abdominal symptoms, neutropenia (<500 neutrophils/mm^3) and tomography of the abdomen with bowel wall thickness) in pediatric cancer patients (up to 18 years old) treated at our service from 2017 to 2022.
Results: During the studied period, 195 episodes of NE were obtained, with a mean age of patients of 7.6 years. The majority had solid tumors, with 41.5%, and acute lymphocytic leukemia (ALL), 30.8% ($p<0.001$). Patients had abdominal pain as the main symptom, present in 90.8% of the episodes, followed by fever in 65.6%, diarrhea in 60.5%, abdominal distention in 42% and vomiting in 33.8%. In 64 episodes (32.8%) a microbial agent was isolated, with gram negative bacteria being the most common, in 62.5% (40/64) of cultures ($p<0.001$), with emphasis on E. coli, with 47.5% (19/40) ($p<0.001$). Klebsiella pneumoniae and Pseudomonas aeruginosa were isolated in 17.5%. Gram positive bacteria were isolated in 28.1% (18/64) episodes, S. viridans and Clostridioides difficile were more frequent with 33.3%. Six fungi (9.4%) were isolated, 5 (83.3%) Candida spp (2 C. krusei, 2 C. albicans and 1 C. tropicalis) and 1 Trichosporon asahii (16.7%). The mean fasting due to NEC was 10.4 days and hospital stay 24.8 days. The associated death rate was 9.7%.
Conclusions/Learning Points: NE should always be considered as a possible diagnosis in a cancer patient presenting with abdominal symptoms, neutropenia and exposure to cytotoxic chemotherapy. Early diagnosis is crucial to improve outcomes.

PV0263 / #1276

THE INCIDENCE AND RISK FACTORS FOR CMV REACTIVATION IN PEDIATRIC ALLOGENIC STEM CELL TRANSPLANT RECIPIENTS IN MUMBAI, INDIA

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Title of Case: The incidence and risk factors for CMV reactivation in pediatric allogenic stem cell transplant recipients in Mumbai, India
Background: There is paucity of data on CMV reactivation in India where nearly all donors and recipients are CMV IgG positive.
Case Presentation Summary: This retrospective study recruited all children who underwent allogenic HSCT between September 2020 and Sep 2022 to ascertain CMV reactivation in the first 100 days of transplant. CMV reactivation was defined as plasma viral load of >1000 copies per ml or that between 300-1000 copies/ ml if antiviral therapy was initiated. Details related to donor/ recipient CMV serostatus, indication and type of HSCT, conditioning regime, median time to CMV reactivation and outcome of graft were recorded. Thirty five children (18 males and 17 females) with ages ranging from 2-13 years (mean age 7 years) underwent allogenic HSCT in the study period. The indications for transplant were thalassemia major (22), cancer (8), aplastic anemia (3) and others (2). Seventeen patients underwent matched sibling donor (MSD), 16 underwent haplo identical transplants while 2 underwent matched unrelated donor transplants. All the donors and recipients were CMV IgG positive. CMV reactivation was seen in 23/35 patients (66%) at a mean of 26 days post-transplant. Three patients developed graft failure possibly due to CMV. The rates of CMV reactivation in Haplo identical transplants (75%) was higher than MSD (52%) albeit not statistically significant. Addition of cyclophosphamide in the conditioning regime for MSD transplants was associated with higher risk of CMV reactivation than without it (87% vs 33%; $p<0.05$)
Learning Points/Discussion: The high rates of CMV reactivation in our setting may warrant a change in conditioning regime and/or switch to preventive from pre emptive strategy.

PV0264 / #1031

SINGLE CENTER STUDY ON RISK FACTORS FOR POSITIVE BLOOD CULTURES IN PEDIATRIC ONCOLOGY PATIENTS IN BRASOV, CENTRAL ROMANIA

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Bloodstream infections in pediatric oncology patients are an important cause of morbidity, mortality, extended hospital stays and increased healthcare costs.
Methods: Retrospective observational study of 33 patients, under 18 years with a diagnosed malignancy, that were hospitalized between January 2019-December 2022 at the Children's Emergency Clinical Hospital Brasov, Romania. All patients had a subcutaneous port inserted before starting chemotherapy. Data were collected by evaluating patient electronic medical records. Aim of the study: to determine whether demographic data, parents' education, type of malignancy, a low absolute neutrophil count (ANC), lymphopenia and chemotherapy course are risk factors for positive blood cultures.
Results: 57.6% of the patients had at least one positive blood culture. The most frequent encountered organisms were: Coagulase-negative Staphylococci (33%), Candida spp. (30.9%), Pseudomonas aeruginosa (8.45%), Enterococcus spp. (5.63%) and Enterobacter cloacae (5.63%). 54,5% of the patients were male. The median age was 6.38 years. 60.6% come from rural areas. 45.5% of the parents of the studied patients did not finish high school. The most frequent diagnosed malignancies were acute lymphoblastic leukemia (60.6%), solid tumors (15.2%) and Hodgkin's lymphoma (12.1%). 46.9% of the patients had ANC<500/µl (NV:1800-8000/µl) and 40.6% had severe lymphopenia<500/µl (NV:1500-6500/µl) at time when blood cultures were collected. Statistical analyses showed that rural environment (p=0.01) and lower education levels of the parents (p<0, 01) were associated with a higher risk of positive blood cultures. All other studied variables didn't prove to be risk factors.
Conclusions/Learning Points: Risk factors for positive blood cultures in the studied pediatric patients are parents' education and rural environment. This data will increase our precautionary measures at these group of patients.

PV0265 / #1317

DOES THE VALUE OF ACUTE PHASE REACTANTS, NEUTROPHILS AND FEVER MODIFY ACCORDING TO THE HEMOCULTURE RESULT (POSITIVE/NEGATIVE) IN CHILDREN WITH MALIGNANCIES?

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Malignancies and chemotherapy modify blood parameters.
Methods: The study is an observational, descriptive, retrospective study enrolling - 314 hemoculture results of 33 children with cancer hospitalized at Children's Clinical Hospital of Brasov during 2019-2022. All children had a subcutaneous port and at least one hemoculture taken during the study time. The analysed data was collected evaluating the patients' electronic recorded files. The study evaluates the value of acute phase reactants (C-reactive protein-CRP, erythrocyte sedimentation rate-ESR, procalcitonin-PCT and fibrinogen), value of neutrophils(N) and value of fever in children with malignancies that have had positive hemoculture results compared to those with negative hemoculture results.
Results: Children included in the study had an average of 9 hemoculture (range=1-23 hemocultures). 245 hemocultures (78%) were negative and 69 positive (21.9%). Acute phase reactants studied: CRP was>1mg/dL in 65.2% (average 6.02mg/dL, median=2.27) children with positive hemocultures vs 48.1% (average 3.5 mg/dL, median=0.83) in children with negative hemocultures. ESR >10 mm/hr was 75.9% (average 47.5 mm/hr) in children with positive hemocultures and 72.4% (average=42.9 mm/hr) in children with negative hemoculture results. 54.6% (average 415 mg/dL) and 60.8% (average 399.7 mg/dL) presented normal value of fibrinogen in children with negative hemocultures vs negative hemocultures. Procalcitonin >2 ng/mL in 11.5% in positive hemocultures and 2.04% in negative hemocultures. 52.2% (average 2.230/uL) children had neutropenia while negative hemocultures and 49.2% normal value of neutrophils while positive hemocultures. Fever (>38degreesCelsius) was present in 69.5% children with positive hemocultures and 25.7% in children with negative hemocultures.
Conclusions/Learning Points: CRP and fever were modified in children with malignancies and positive blood cultures.

PV0266 / #758

LONG-TERM EVOLUTION IN LIVER DISEASE MARKERS AND IMMUNE AND LIPID PROFILES AFTER DIRECT-ACTING ANTIVIRALS (DAAS) IN PERINATALLY HIV/HCV-COINFECTED YOUTHS

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Data on direct-acting antivirals (DAAs) against HCV in adolescents or youths with perinatally acquired HIV are limited and with a relatively short observation period. This study aimed to analyse the long-term effect of DAAs in that population.
Methods: We performed a multicentre, longitudinal and observational study within the Spanish Cohort of HIV-infected children/adolescents (CoRISpe) and Cohort of perinatally HIV-infected patients transferred to Adult Units (CoRISpe-FARO). HIV/HCV-coinfected youths that received DAAs between 2015 and 2017 with successful sustained viral response (SVR) and with a subsequent follow-up of at least three years were included (n=24) and compared with perinatally HIV-monoinfected youths (n=19) never infected by HCV. Long-term evolution in liver disease severity and haematologic markers, lipid and immune profiles after SVR were assessed. Study times were the start date of DAAs treatment (baseline, T0) and one time-point each year after SVR (T1, T2, T3, T4 and T5 respectively).
Results: We observed global improvements in liver function data that persist over time (ALT, AST, γ-glutamyl transferase and Alkaline Phosphatase) and a favourable haematologic and immune outcome at the long-term including a constant augment in leukocytes, neutrophils, neutrophils to lymphocytes ratio and CD4/CD8 ratio over-time. Regarding the lipid profile, we found a significant increase in total cholesterol at 2-year follow-up (T2), total cholesterol/high-density lipoprotein (cholesterol/HDL) ratio at T4, triglycerides at T5 and a decrease in HDL and in low-density lipoprotein (LDL) over time in all patients but with marked higher levels in the subgroup receiving anti-HIV Protease Inhibitor-based regimens.
Conclusions/Learning Points: Comparisons of perinatally HIV/HCV-coinfected youths at 3-year follow-up after SVR and a control group of perinatally HIV-monoinfected youths showed no significant differences in most parameters analysed, suggesting a possible normalization in all parameters (Table

1).

Subject characteristics	Perinatally HIV/HCV-youths after SVR 3-year follow-up (n=24)	Perinatally HIV-monoinfected youths (n=19)	*p*
Sex (male) n. (%)	10 (41.7)	7 (36.8)	0.748
Age (years)	26.5 [24-30.75]	25 [22-30]	0.211
Time under ART (years)	23 [21-25]	21 [19-23]	0.096
Time under HIV-RNA suppression (years)	16 [10.5-19]	11 [9-17]	0.090
Nadir CD4 (cells/mm^3)	223 [183-352]	158 [78-327]	0.167
CD4 (cells/mm^3)	766 [574-1060]	796 [603-1000]	0.751
CD8 (cells/mm^3)	700 [546-1064]	763 [544-951]	0.862
Ratio CD4/CD8	0.97 [0.75-1.25]	1.04 [0.66-1.5]	0.812
Laboratory blood parameters			
ALT (U/L)	21 [17-23]	22 [18-35]	0.373
AST (U/L)	19.5 [16-29.75]	21.5 [19-28]	0.257
GGT (U/L)	15.5 [9.75-22.75]	33.5 [18-51]	**0.006**
Alkaline Phosphatase (U/L)	74 [61-85]	73 [58-106.5]	0.625
Leucocytes (cells/mm^3)	7120 [5927-8762]	7410 [5700-8990]	0.886
Lymphocytes (cells/mm^3)	2195 [1887-2940]	2210 [1900-2550]	0.937
Neutrophils (cells/mm^3)	3535 [3000-4712]	4000 [3350-5650]	0.302
NLR	1.68 [1.3-2.14]	1.97 [1.31-2.55]	0.395
Total cholesterol (mg/dL)	161 [146-200]	154 [140-176]	0.530
Triglycerides (mg/dL)	95.5 [52-167]	93 [65-143]	0.725
HDL (mg/dL)	49 [40-59]	49 [44-60]	0.861
LDL (mg/dL)	94 [80-118]	89 [69-115]	0.589
Total cholesterol/HDL	3.43 [2.76-4.36]	3.06 [2.49-4.35]	0.728
Glucose (mg/dL)	80 [67-90.6]	83 [74-90]	0.424
Bilirubine (mg/dL)	0.55 [0.29-0.64]	0.4 [0.25-0.69]	0.536
Creatinine (mg/dL)	0.81 [0.69-0.90]	0.69 [0.52-0.84]	**0.052**
Platelets (10^3/µl)	206 [181-251]	243 [216-264]	0.089
PLR	96.3 [61.8-116]	111 [92-128]	0.100
Haemoglobin (g/dL)	14.7 [13.9-15.7]	14.7 [12.3-15.6]	0.244
Haematocrit (%)	42.5 [40.6-46.8]	44.7 [37.9-46.3]	0.715
MCV (fL)	92.1 [86.4-95.3]	90.4 [88-95.3]	0.800

Abbreviations: SVR, sustained viral response; ART, combined antiretroviral therapy; ALT, Alanine Aminotransferase; AST, Aspartate Aminotransferase; GGT, γ-glutamyl transferase; NLR, neutrophils to lymphocytes ratio; HDL, high-density lipoprotein cholesterol; LDL, low-density lipoprotein cholesterol; PLR, platelets to lymphocytes ratio; MCV, median corpuscular volume. Values are show as median [IQR] for continuous variables or num (%) for categorical variables. Mann-Whitney test and Chi-square test were used for comparisons between continuous and categorical variables respectively.

PV0267 / #1145

MOLECULAR PATHOGEN TESTING FOR IDENTIFYING THE AETIOLOGY OF FEBRILE ILLNESS IN IMMUNOCOMPROMISED CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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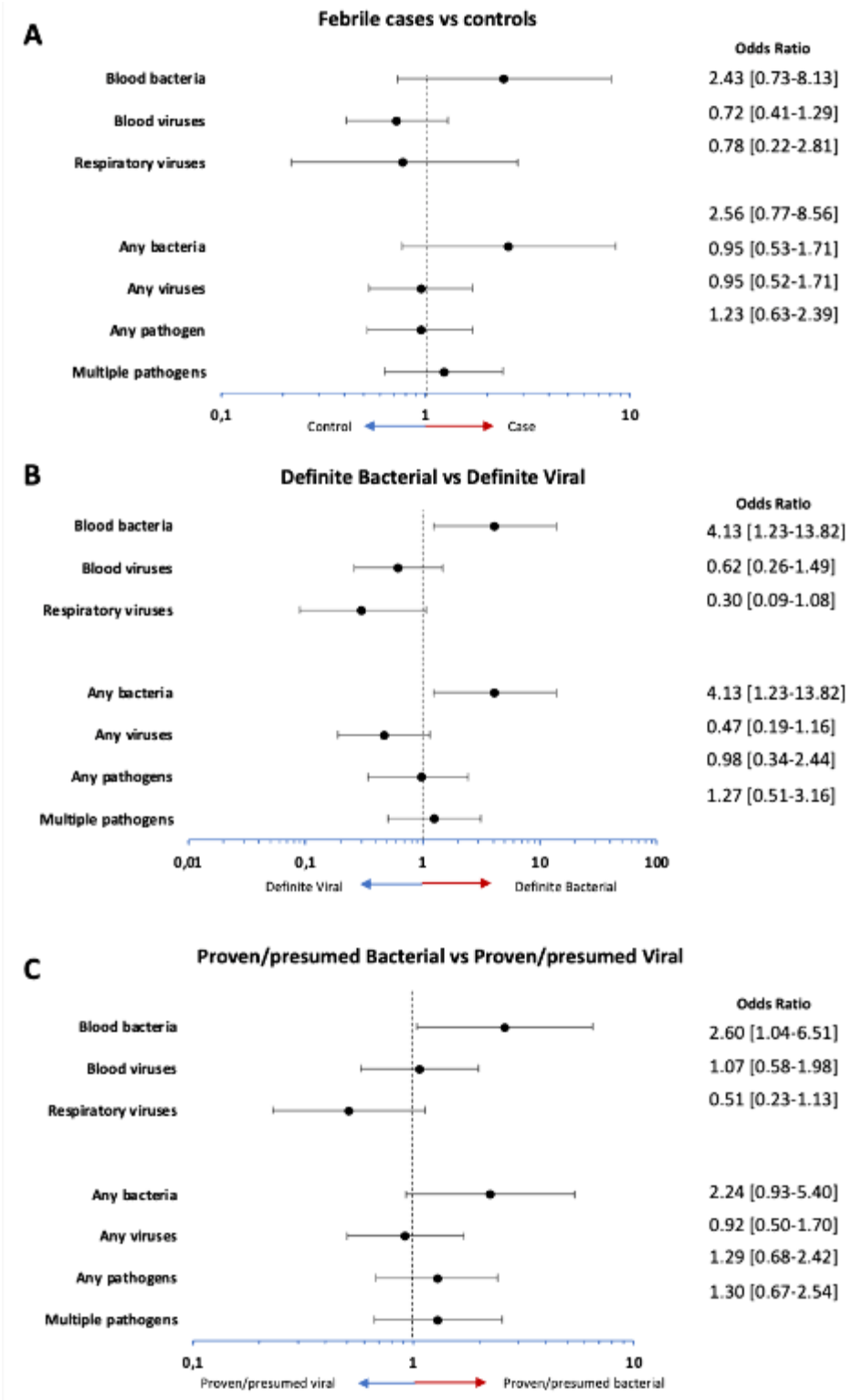
Backgrounds: Diagnosing febrile illness in immunocompromised children remains challenging. Infections can cause significant morbidity, but conventional diagnostics are often negative. Molecular pathogen testing might increase the yield of pathogen detection in this population, potentially improving management and outcome.
Methods: Immunocompromised febrile children recruited to the Personalised Risk assessment in Febrile illness to Optimised Real-life Management study (PERFORM) were evaluated using best practice local diagnostic approaches. Retrospectively, their diagnostics were complemented by additional centralized molecular tests (CMT) for 22 respiratory and 34 blood pathogens.
Results: 336 febrile episodes, of which 45 were definite bacterial (13.4%), 37 definite viral (11.0%) using conventional diagnostic approaches, 254 with uncertain or inflammatory aetiologies (75.6%), and 54 non-febrile controls. CMT subsequently detected pathogens in 201/336 febrile cases (59.8%) and 33/54 non-

febrile controls (61.1%). CMT detected E.cloacae, Enterobacterales16S, and K.pneumoniae more commonly in definite bacterial infections compared to definite viral. No pathogens were significantly more often detected in febrile cases versus controls, nor viruses more often detected in definite viral cases. Bacterial pathogens were more often detected in definite bacterial cases by CMT (OR 20.71 (95%CI 2.11-203.77)) (Figure 1). Viruses were detected in 46.7% of definite bacterial cases (N=21), and 57.4% of controls (N=31). Bacteria were detected in 10.8% of definite viral cases (N= 4), and 5.6% of controls (N=3). HHV7 was the most commonly detected pathogen across all phenotypes (33.6%,



N=113).

Conclusions/Learning Points: CMT frequently detected pathogens in febrile children and non-febrile controls. Except for certain gram-negative bacteria, no pathogens were more commonly detected in definite bacterial or viral cases. Viruses are detected in a significant proportion of patients with bacterial infection. Our data do not suggest CMT will ease the current diagnostic challenges regarding their clinical relevance in this population.

PV0268 / #1237

EPSTEIN-BARR VIRUS (EBV) DEFECTIVE GENOMES IN DIFFERENT CELL-TYPES ARE ASSOCIATED WITH EBV-RELATED MALIGNANCIES

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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Backgrounds: Epstein-Barr virus (EBV) is a common virus that infects over 95% of the global population. However, a small number of children develop chronic active EBV (CAEBV) disease, which is a rare and potentially fatal condition characterized by persistent high levels of EBV replication. CAEBV can develop into a lymphoproliferative disease involving T, NK, or less frequently B cells. A small number of defective EBV genomes have been found in East Asian and European patients with CAEBV and other EBV-related malignancies; these defective clones are lost following successful treatment.
Methods: To better understand when and where these deletions occur, we sequenced 27 EBV whole blood, B, T and NK cells fractions and tumours samples from 7 patients with CAEBV disease or EBV-related malignancies.
Results: We found EBV deletions in the genomes of 4/7 patients (patient A-D). The deletions were different in every patient but tend to cluster near late lytic genes (e.g. BLXF2 and LF3), Ori Lyt and the BART region of the viral genome, likely leading to a defective lytic cycle. The deletions were also different in different lymphocyte subsets within the same patient (Patient B, C and D). In patient A the initial defective EBV clone disappeared after chemotherapy. However, following treatment failure, another EBV clone emerged and became dominant just before the patient died.
Conclusions/Learning Points: These findings may be explained by the fact that the deletions are present in premalignant clones which occur when a particular subset of the patient's blood cells are infected with EBV. Progenitor lymphoid cells have been suggested to be the target cells, however our results showed that deletions might also occur later when progenitor lymphoid cells differentiate into B, T or NK cells.

PV0269 / #2268

PREDICTION OF ATTRIBUTABLE MORTALITY IN PEDIATRIC PATIENTS WITH CANCER ADMITTED TO THE INTENSIVE CARE UNIT FOR SUSPECTED INFECTION: A COMPREHENSIVE EVALUATION OF RISK SCORES

E-Posters Viewing
E-POSTER VIEWING: AS04.D. SEVERE/SYSTEMIC FUNGAL INFECTIONS

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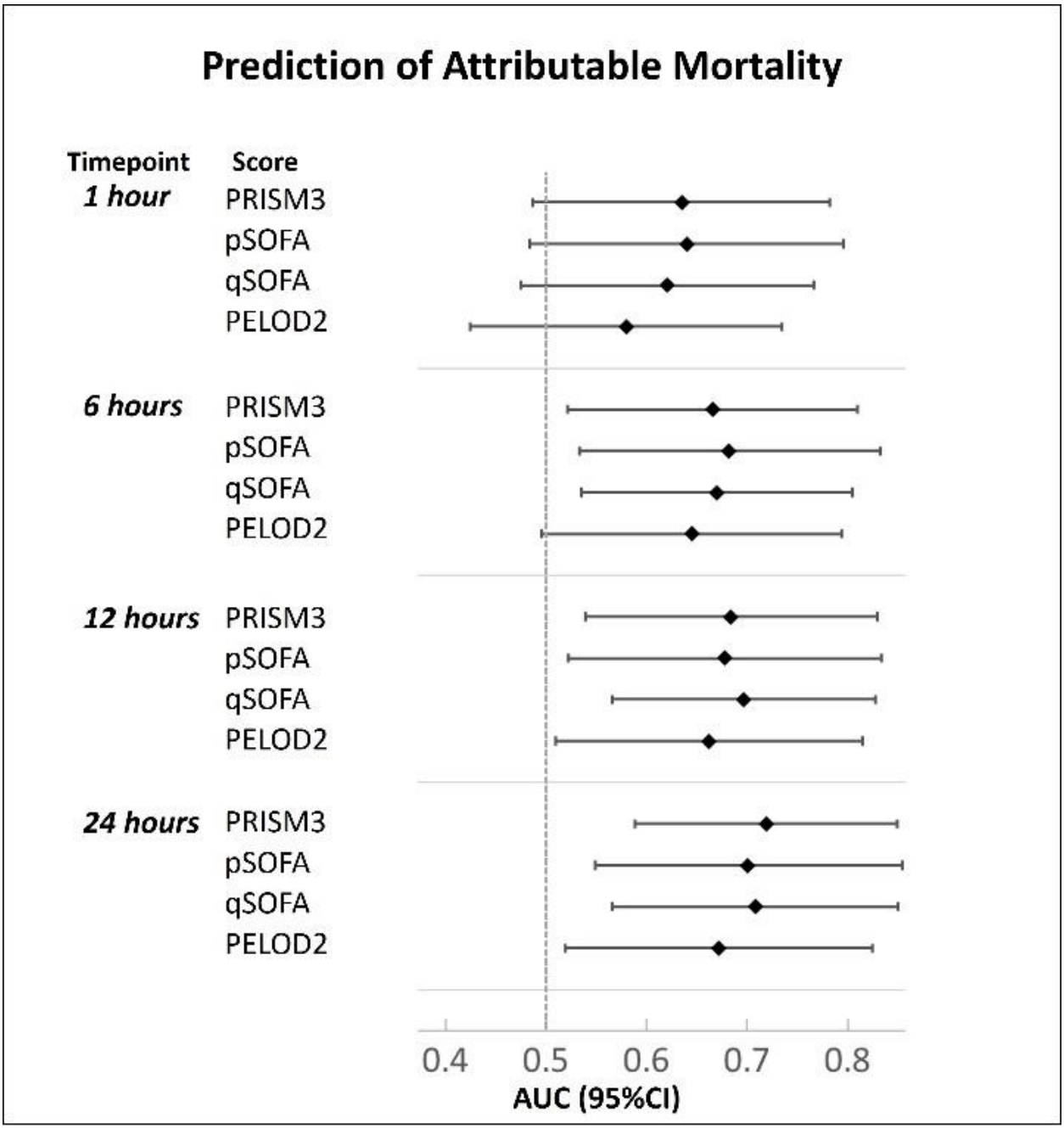
Backgrounds: Infection and associated sepsis are important causes of morbidity and death in children with cancer. Although pediatric sepsis risk prediction scores can identify children at high risk of pediatric intensive care unit (PICU) death, performance in immunocompromised children is unknown.
Methods: In this IRB-approved retrospective study, we evaluated 4 pediatric risk scores to predict attributable mortality in children (≤24 years) with cancer admitted to PICU at St. Jude Children's Research Hospital with suspected infection between 2013-2019. Attributable mortality comprised death with sepsis-associated organ dysfunction by ≤60 days or before ICU discharge. HSCT-recipients were excluded. Pediatric Risk of Mortality 3 (PRISM-3), Pediatric Sequential Organ Failure Assessment (pSOFA), Paediatric Logistic Organ Dysfunction 2 (PELOD-2), and Quick Pediatric Sequential Organ Failure Assessment (qSOFA) were calculated using worst values to date at 1, 6, 12 and 24 hours, and we compared area under the receiver operating characteristic curves. We also compared performance of each scores calculated excluding hematologic parameters.
Results: There were 207 episodes of ICU admission for suspected infection in 166 patients; 96 with hematological malignancy and 70 with solid tumors, median age 11.5 years (IQR 4.8-16.2). Attributable mortality was observed in 16 (7.7%) episodes. There was poor to moderate discrimination for all scores, especially early after ICU admission (Fig.1). Scores calculated excluding hematologic parameters did not improve
discrimination.



Conclusions/Learning Points: Attributable mortality was uncommon in children with cancer presenting to ICU with suspected infection at a pediatric comprehensive cancer center. Pediatric sepsis scores showed poor discrimination (all AUC<0.75), even at 24 hours after admission. More research is needed to identify factors that best predict outcomes in this uniquely vulnerable population.

PV0270 / #2296

NEONATAL TETANUS: AN OLD IMMUNOPREVENTABLE DISEASE. CASE REPORT.

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Neonatal Tetanus: an old immunopreventable disease
Background: Neonatal tetanus is a rare disease in developed countries but remains common in developing countries. It is an infection by Clostridium tetani which enters the body through a skin wound. The clinical manifestations can be variable, however if there is no detection and timely treatment, its course is lethal
Case Presentation Summary: Male patient, son of a a 20-year-old mother, pregnant without prenatal check-ups admitted on his first day of life, referred from rural area of Antioquia. 36 weeks late preterm. He was born by vaginal delivery attended by her grandmother on the bathroom floor of her home, the umbilical cord was cut with scissors after 10 minutes of delivery. At third day of life, the newborn had clinical deterioration, due to paleness, extreme rigidity, global increase in tone, block movement, apneas and bradycardia that required positive pressure ventilation as well as orotracheal intubation. It was considered a neonatal tetanus case confirmed by clinical endorsed by the technical committee of the national institute of health of Colombia, blood cultures for anaerobes were negative and hypocalcemia was ruled out. Metronidazole was started at 7.5mg/kg every 8 hours in addition to the cristaline penicillin and tetanus immunoglobulin 3000 intramuscular units as a single dose was indicated. HIV was ruled out by ELISA, Hepatitis B by negative surface antigen, and other infectious diseases like toxoplasma. Regarding central nervous system tests, he had a cerebrospinal fluid: D 1020 PH 8. 0 Leukocytes: protein 331 glucose 48, normal brain ultrasound and neonatal polygraphy abnormal for age, external dyssynchronism, excessive left rolandics and central epileptiform activity left parietal artery suggestive of regional cortical dysfunction.
Learning Points/Discussion: This is a case of clinical neonatal tetanus with an early detection and a favorable outcome.

PV0271 / #2709

TWO LOCALLY ACQUIRED PEDIATRIC MALARIA CASES; FIRST INDIGENOUS CASES REPORTED IN TÜRKİYE SINCE 2010

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Two locally acquired pediatric malaria cases; First indigenous cases reported in Türkiye since 2010
Background: Malaria is still a global public health problem considering the number of cases and mortality rates worldwide. In our country, the annual number of cases varies between 200-250 and all of these cases consist of patients with a history of travel to the endemic region. The last reported locally transmission in Türkiye was in 2010. Here, we report two indigenous cases of malaria with mixed infection of P. vivax and P. falciparum, who were infected with the same parasites documented with genetic analyzes.
Case Presentation Summary: CASE 1: A 9-year-old girl. She was admitted to the hospital in August 2022 for investigation due to intermittent high fever for about one month. P. falciparum and P. vivax mixed infection was detected by PCR and she developed hemophagocytic lymphohistiocytosis and multiorgan failure during follow-up. Artesunate and immunosuppressive treatment was started together but the patient died in the intensive care unit secondary to nosocomial Acinetobacter baumannii infection.
CASE 2: 4-year-old male patient. The patient, who resided in the Netherlands, was hospitalized in August 2022 for examination due to recurrent high fever and febrile convulsion that started one month after his arrival in Turkey for visiting relatives. The peripheral smear was compatible with malaria. PCR showed P. falciparum and P. vivax mixed infection and the patient was successfully treated with artemether, lumefantrine and primaquine.
As a result of detailed comparison of the DNA sequence analysis, it was determined that two patient were infected with same same isolates.
Learning Points/Discussion: In patients with compatible history and physical examination findings, malaria should be considered in the differential diagnosis even if there is no history of travel.

PV0272 / #428

BRUCELLOSIS WITH PERICARDIAL EFFUSION AND SPLENIC ABSCESS: AN UNUSUAL PRESENTATION.

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Brucellosis with pericardial effusion and splenic abscess: an unusual presentation
Background: Brucellosis is one of the most common zoonoses worldwide, remaining as a major public health problem in Mexico and worldwide. Due to Covid-19 pandemic, initial symptoms could imitate a SARS-CoV-2 infection, which represented a real challenge in reaching our final diagnosis.
Case Presentation Summary: A previously healthy, fully immunized 7-year-old boy from Mexico presented with a twenty-day of persistent fever, abdominal pain, and nocturnal diaphoresis; generalized pallor, non-purulent conjunctival injection, hepatosplenomegaly, and pain in the upper left quadrant, were founded, the remaining were unremarkable. Laboratory revealed anemia, thrombocytopenia, D-dimer, and ferritin levels elevated, CRP negative. Echocardiography revealed pericardial effusion. The initial diagnostic suspicion was MIS-C, treated with intravenous immunoglobulin and corticosteroids, with no favorable response, on re-examination, the mother reported occasional consumption of unpasteurized dairy products, a positive Rose Bengal (>1:1280) and 2ME (1:120) tests were found, and abdominal ultrasound and CT scan revealed multiple splenic abscesses of 8mm in diameter each. Doxycycline and gentamicin were initiated, with favorable response. After ten days of incubation, Brucella melitensis was identified using the MALDI-TOF and VITEK® 2 systems. Discharged after ten days of intravenous antibiotics with of doxycycline and rifampin for six weeks. During the six-month follow-up, the patient has remained asymptomatic and CT scan revealed complete resolution of the splenic abscesses and the pericardial effusion on echocardiography
Learning Points/Discussion: We present an unusual Brucellosis presentation, due to the SARS-CoV-2 pandemic, we must enhance the relevance of excluding other infectious causes, the screening of endemic pathogens, and the manifestations with low incidence, to give treatments on an individualized basis and close monitoring of patients, to prevent MIS-C overdiagnosis in patients with febrile syndrome and systemic inflammation.

PV0273 / #1448

TEN YEARS SURVEILLANCE MOTHER TO CHILD TRANSMISSION OF CHAGAS DISEASE IN ACONCAGUA VALLEY, CHILE

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Backgrounds: Chagas disease is caused by the protozoan Trypanosoma cruzi. Endemic to Latin America with various transmission mechanisms. In Chile, vector transmission is under control, but congenital transmission is still relevant. Our objective is to describe the results of the monitoring program for children exposed to Chagas disease in the Aconcagua Health Service, years 2013-2022, according to national guidelines.
Methods: Retrospective descriptive study using databases belonging to the congenital Chagas monitoring program of the Aconcagua Health Service, Chile
Results: A total of 82 children of women living with Chagas disease were found, 42 of them female (51%). Of these, 9 cases have not completed the study protocol because they are under 9 months of age; 11 cases were lost during follow-up (13.4%). The main maternal diagnostic category is indeterminate form, with 73 (89%) and only 1 case of dilated colon; 17 (20%) mothers had therapy before pregnancy. The grandmother had a history of Chagas disease in 17 (20%), but the status was unknown in the majority (n=52). 21 (25%) of the mothers are from the Aconcagua Valley, highlighting that 22 (27%) come from Bolivia. There is low adherence to the total number of samples scheduled according to guidelines (48%). Of the 62 patients who have completed follow-up, there were 6 cases of congenital transmission. None of the mothers received therapy before pregnancy; 1 of the cases presented involvement of the central nervous system, and 3 became negative after therapy (50%).
Conclusions/Learning Points: Congenital transmission of Chagas disease is a relevant problem in our region. There are difficulties in monitoring this group, consistent with the status of a neglected disease. Optimising follow-up is key to achieving disease control.

PV0274 / #1843

GEOGRAPHICALLY LOCATED AND TROPICAL INFECTION IN EUROPE DURING THE PANDEMIC. A PROSPECTIVELY RECRUITED COHORT THROUGH "DIAMONDS" CONSORTIUM

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: GEOGRAPHICALLY LOCATED AND TROPICAL INFECTION IN EUROPE DURING THE PANDEMIC. A PROSPECTIVELY RECRUITED COHORT THROUGH “DIAMONDS” CONSORTIUM

Background: Characterizing geographically located and tropical infections (GLTI) represents a challenge for researchers, they might gather few patients from their hospital and recruitment might be feasible a few months each year (for example, on summer holidays for tropical diseases in Europe). For that reason, this multicentric prospective cohort study aims to overcome these challenges with broad inclusion criteria, multicentric recruitment. Multicentric prospective cohort study in 11 European countries, plus Taiwan, Nepal, and Gambia. Children <18 years with fever or suspected infection attending EDs of DIAMONDS EU Project (https://www.diamonds2020.eu/) clinical network, between April 2020-December 2022 with geographically located and tropical infections were retrieved. Demographic, clinical and laboratory data were collected and analyzed.

Case Presentation Summary: 129 GLTI were included. The number of patients of each infection are detailed in (Figure 1). Most tuberculosis patients had lung disease and had a homogeneous distribution across the clinical sites. Zoonotic and vectorial diseases such as Hantavirus, Tick-borne encephalitis, or Lyme disease were more difficult to recruit as they appear in outbreaks and are more common in holiday periods due to travel, furthermore, they were unique to the following sites: Slovenia, Austria, Switzerland, Latvia, Germany, Spain and UK with most cases recruited in central Europe.

Figure 1

Infection	Number of patients (1,59% of the cohort)
Tuberculosis	28 (21,7%)
Hantavirus	29 (22,5%%)
Lyme Disease	29 (22,5%%)
Tick-Borne Encephalitis	29 (22,5%)
Malaria	6 (4,65%)
Hepatitis A	8 (6,20%)

Learning Points/Discussion: Conclusions: During the pandemic, Lyme disease, Tick-borne encephalitis and hantavirus were the most frequently detected GLTI .Recruiting a significant number of patients with GLTI is a challenge that can be overcome with multicentric and international studies.

PV0275 / #312

RISK FACTORS FOR DETERIORATION TO SEVERE STATE AFTER HOSPITALIZATION IN CHILDREN WITH DENGUE FEVER

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Backgrounds: Dengue infection is currently one of the most important mosquito-borne viral diseases in the tropical parts of the world. The study was done to identify risk factors in children associated with worsening to severe dengue after hospitalization and thus will require close monitoring and critical inpatient care.
Methods: A total of 200 dengue patients got admitted over 3 year period in the age group of 1 – 18 years in the Department of Pediatrics, Dayanand Medical College and Hospital, Ludhiana, India. Fifty five patients had features of Severe Dengue at admission were not included for analysis. Of the 145 patients with features of Dengue fever with warning signs at admission were included in the study. Of these 145 patients, 60 patients (41.3%) went on to develop features of Severe Dengue during hospital stay. Other 85 patients remained in the Dengue fever with warning signs group. Appropriate statistical methods were used to compare clinical and laboratory profile at admission of patients in the two group and identify risk factors for deterioration.
Results: Of the cases, 60% were > 10 years old, with 73% male. Typical manifestations of dengue like fever (98%), abdominal pain(62%) and vomiting(51%) were the most common presenting symptoms. Fever high grade, fast breathing, Ascites, Pleural effusion on X-ray and on ultrasound were risk factors significantly associated with deterioration to severe dengue after hospitalization. Higher mean haematocrit and SGPT levels, lower platelet counts were significantly more in patients who developed Severe Dengue fever. Overall mortality was 8 % in our study.
Conclusions/Learning Points: Identify individuals with risk factors of deterioration to severe dengue after hospitalization would alert clinicians for early interventions to reducing dengue related morbidity and mortality.

PV0276 / #2599

PEDIATRIC NURSES VIEWS AND PERCEPTION IN PROVIDING NURSING CARE FOR CHILDREN IN ISOLATION ROOMS: A QUALITATIVE APPROACH

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Background: Pediatric nurses have faced many challenges in providing high-quality nursing care for children in isolation rooms. Especially with emerging newly infectious diseases such as COVID-19 that sheds the light of the importance of exploring and describing this nurses experience. This phenomenon is under investigated in literature, and there is a dearth of studies that conducted in pediatric clinical area to investigate pediatric nurses experience in providing isolation nursing. The aim of this study was to understand pediatric nurses experience in providing nursing care for children in isolation rooms.
Methods: The study used a generic qualitative approach. This study employed purposive sampling to select 15 pediatric nurses in three different hospitals who were taking care of pediatric patients in isolation rooms. Data were collected through semi-structured interviews and were analyzed using the constant comparative procedure proposed by Strauss and Corbin.
Results: The analysis of the data revealed three major themes: (a) Communication with children was limited and distanced, (b) negative emotions and distress, and (c) concerns of safety.
Conclusions/Learning Points: Pediatric nurses encounter many challenges in caring for children in isolation rooms. Using isolation precautions and PPE seize the communication practices and impacts nursing care. The nurses found themselves socially distanced from children which increase their negative emotions that raised from their working in isolation rooms. However, nurses considering the issue of safety and the importance of balancing the care provided to children while avoiding the spread of infection by using isolation precautions. Therefore, health officials and specialists need to pay special attention to these pediatric nurses' challenges and needs to provide a competent and safe nursing care.

PV0277 / #1333

EXTENSIVELY DRUG RESISTANT SALMONELLA IN A RETURNING TRAVELLER FROM PAKISTAN TO IRELAND

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: EXTENSIVELY DRUG RESISTANT SALMONELLA IN A RETURNING TRAVELLER FROM PAKISTAN TO IRELAND
Background: Extensively drug resistant (XDR) Salmonella enterica first emerged in Pakistan in 2016, and constitutes a serious international public health threat. These isolates are resistant to third generation cephalosporins as well as fluoroquinolones, necessitating the use of potent and expensive antibiotics such as meropenem.
Case Presentation Summary: We present the case of a previously well 9-year-old girl who was admitted to a hospital in Ireland with XDR Salmonella typhi bacteraemia. Our patient initially presented with a 4 week history of intermittent bloody diarrhoea and fever after returning from Pakistan. She was assessed as having uncomplicated dysentery and was discharged home with supportive treatment only as per local guidelines. However, she was recalled to hospital 4 days later after her stool specimen came back PCR positive for Salmonella, Shigella and Campylobacter species. Upon representation, the patient was pyrexial with a temperature of 38.2 degrees, heart rate of 120bpm, blood pressure of 105/72 and sats of 100%. She was well-perfused with no neurological fallout, and her abdomen was soft. In consultation with microbiology and infectious diseases, she was admitted to hospital on meropenem 20mg/kg 8 hourly. Gentamicin was added after she remained pyrexial at 48 hours. Subsequently, her blood culture was positive for Salmonella species which was resistant to amoxicillin, trimethoprim, ciprofloxacin and ceftriaxone, and sensitive to meropenem. Repeat blood culture after 48 hours of treatment was negative and she made a gradual clinical recovery.
Learning Points/Discussion: In conclusion, XDR Salmonella enterica is a major therapeutic and public health challenge, and clinicians should be aware of this entity in returning travellers. Empiric treatment of high-risk individuals with carbapenems should be guided by microbiology and infectious diseases experts.

PV0278 / #444

POTENTIAL ANTIVIRAL EFFECT OF EXOPOLYSACCHARIDES PRODUCED BY LACTIC ACID BACTERIA AGAINST BROAD-SPECTRUM ROTAVIRUS INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Backgrounds: Rotavirus is recognized as the major causative agent for severe gastroenteritis in children under 5 years of age worldwide. However, the treatment is generally not focused directly on the virus, and there is no effective antiviral treatment available against rotavirus infection. Recently, there is a rising interest on probiotic exopolysaccharide (EPS) that have potential beneficial functions, such as antioxidant, anticancer, and anti-inflammatory effect. Here, the purpose of this study is to investigate the antiviral effect against rotavirus using EPS from Lactiplantibacillus plantarum LB 1020 strain (1020 EPS).
Methods: The antiviral effect of 1020 EPS was evaluated by virucidal activity tests against 10 rotavirus strains at in vitro level. In addition, in order to verify the preventive and therapeutic effects of 1020 EPS on rotavirus infection, rotavirus symptoms, viral shedding and histological changes of small intestine before and after viral infection were evaluated using a neonatal mouse model.
Results: Antiviral activity of 1020 EPS at in vitro level has been confirmed against broad-spectrum of human rotaviruses (G1P[8], G2P[4], G3P[8], G4P[6], G8P[8], G9P[8], G11P[25], G12P[6]), porcine rotavirus (G5P[7]), and bovine rotavirus (G6P[6]). In addition, 1020 EPS was found to have antiviral effect before and after rotavirus infection through alleviation of symptoms including diarrhea frequency and changes in the consistency of fecal, reduction of viral shedding and histological changes in the ileum similar to those of normal neonatal mice.
Conclusions/Learning Points: These results suggest that 1020 EPS can be applied as a potential agent for the prevention and treatment of broad-spectrum of rotavirus infections in both humans and human-animal reassortment.

PV0279 / #1987

MONKEYPOX MIMICKING CUTANEUS LEISHMANIA CASE

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: MONKEYPOX MIMICKING CUTANEUS LEISHMANIA CASE
Background: In May 2022, cases have been reported from 107 different countries around the world, and 89 of these countries are countries where no cases have been seen before. The Turkish Ministry of Health also published a guideline for clinicians regarding this increase in cases in October 2022. We will talk about a case who presented with vesicular and crusted lesions from the endemic region and was diagnosed with leishmania in the follow-up with the suspicion of monkeypox.
Case Presentation Summary: 6-year-old male presented with bullous painful lesions on his toes and soles for 2 weeks and a new onset of fever. There were vesicular pus-filled lesions on the soles and backs of both lower extremities and crusted crusty lesions on the anterior surface of the tibia. Laboratory examinations revealed that there was no leukocytosis and no cytopenia, C-reactive protein was 27.9 mg/L, and erythrocyte sedimentation rate was 55 mm/hour. Monkeypox PCR, which was studied from the lesion fluid, was negative, and leachian amastigotes were seen in the microscopy made from the lesion fluid. Because the lesions were more than 4, systemic meglumine antimonate treatment was given for 15 days.
Learning Points/Discussion: A multicountry outbreak of the monkeypox virus has gained global attention. As clinicians, it has emerged with this case that there is not always a clear diagnosis in patients who apply with skin lesions and that we should keep in mind different diagnoses with common features. It is possible that we will encounter leishmania cases in all geographical regions in our country in parallel with the ease of transportation between cities, the increase in travel, and the increase in migration to cities for various reasons.

PV0280 / #2034

PAEDIATRIC LEISHMANIASIS AMONG SYRIAN REFUGEES IN THE REPUBLIC OF CYPRUS, 2016-2020

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: PAEDIATRIC LEISHMANIASIS AMONG SYRIAN REFUGEES IN THE REPUBLIC OF CYPRUS, 2016-2020
Background: In Cyprus human cutaneous and visceral leishmaniasis(HCL, HVL) are caused by Leishmania donovani s.l. variants. Until now, no other Leishmania spp. is identified responsible for human disease, although HCL by Leishmania tropica is highly endemic in Turkey, Syria and other neighboring countries. Since the Syrian war massive flows of Syrian refugees are documented and an increase in HCL cases is reported from resettlement countries. Herein, we describe the first paediatric CL cases identified among Syrian refugees in the Republic of Cyprus (RoC).
Case Presentation Summary: Cases of Syrian children with HCL referred for evaluation at Archbishop Makarios Hospital, Nicosia were reviewed. Clinico-epidemiological data were collected and analysed. Skin lesion biopsies were obtained and processed for histopathological and molecular analysis to confirm clinical diagnosis. DNA from skin lesions or positive parasite cultures was extracted and used for PCR-based diagnosis (T2/B4) and Leishmania spp. identification (ITS, miniexon, k26). 19 HCL cases involving Syrian children were recorded. The majority of patients were boys. Median age of patients was 7 years(11 months to 16 years). Skin lesions were located mainly on uncovered skin areas (face, extremities). Most families followed the pathway from Syria to Turkey before entering the RoC. A 6-month median interval between onset of lesions and HCL diagnosis/treatment was reported. Leishmania isolation was successful in 11 cases and L.tropica was revealed as the causative agent.
Learning Points/Discussion: L.tropica, currently a non-endemic species, has emerged in the RoC. The presence of competent L.tropica vectors and suitable eco-environmental niche, generate concerns of autochthonous transmission to the local population. Increased awareness for early diagnosis and treatment may prove very effective in preventing disease spread.

PV0281 / #1057

A CASE OF COMPLICATED MALARIA IN AN ENDEMIC REGION

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: A CASE OF COMPLICATED MALARIA IN AN ENDEMIC REGION
Background: Malaria is a common disease in tropical countries and young children are at high risk for severe presentations. The clinical manifestations of malaria are variable and nonspecific. A high index of suspicion is necessary for this disease in endemic areas.
Case Presentation Summary: We present the case of a 5-year-old female child with no significant past medical history, who was evaluated in the emergency department of a tertiary Mozambican hospital due to fever, vomiting, and bloody diarrhea for 4 days. She had previously received oral ciprofloxacin treatment at a primary care facility with only partial improvement. On physical examination, the patient was ill-appearing, with sunken eyes and dry mucous membranes, pallor in the palms and soles, and abdominal distention. A rapid malaria test was positive. Laboratory results revealed severe anemia and thrombocytopenia (Hb 3.6g/dL, 42,000 platelets/uL), without leukocytosis or neutrophilia. The diagnosis of severe malaria, with severe anemia and thrombocytopenia, as well as acute gastroenteritis with moderate dehydration, was established. The patient received two blood transfusions, nine doses of intravenous artesunate, and eight days of intravenous ceftriaxone. The child had a good clinical and laboratory improvement and was discharged after 8 days of hospitalization.
Learning Points/Discussion: It is crucial to screen for malaria all febrile children in endemic regions, regardless of the accompanying symptoms. Early diagnosis is critical for prompt initiation of treatment and reduction of complications. Severe malaria is associated with higher morbimortality, and parenteral artesunate is the recommended treatment.

PV0282 / #1891

A CASE OF LEPTOSPIROSIS IN A CHILD WITH UNUSUAL CLINICAL MANIFESTATION

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: A CASE OF LEPTOSPIROSIS IN A CHILD WITH UNUSUAL CLINICAL MANIFESTATION
Background: Leptospirosis is a re-emerging zoonotic disease with a worldwide distribution, more prevalent in tropical areas. Transmittable from exposure to urine-contaminated soil or water from mostly rats. Acute leptospirosis is heterogeneous, ranging from a mild nonspecific febrile illness to a severe disease with organ dysfunction. Laboratory tests are non-specific, challenging the diagnosis.
Case Presentation Summary: We report a 2-year-old girl case, previously healthy, admitted with a 5-day fever, abdominal pain, asthenia and hepatomegaly without jaundice. She had a recent trip to Cuba. Laboratory findings revealed anemia (Hb 8.6 g/dL), leukocytosis (22,180/mm3), high C-reactive protein level (284.9 mg/L), ferritin 369.4 ng/mL, fibrinogen 6.7g/L and cito-cholestatic hepatitis (AST 80 U/L, ALT 297 U/L, total bilirubin 1.86 mg/dL, GGT 646 U/L, FA 542 U/L, INR 1.13, albumin 35.6g/L). The abdominal ultrasound showed biliary intrahepatic duct dilation. Empiric antibiotic with cefotaxime, gentamicin and metronidazole was initiated. She had serological evidence of recent Epstein Barr's infection (VCA IgG, IgM, EBNA, but negative viral load). Other viral infections and cultures were negative. The patient improved, with apyrexy at D1 and was discharged after 8 days. She completed 14 days of antibiotic. The diagnosis of leptospirosis was confirmed by detection of urine Leptospira DNA. The micro agglutination testing (MAT) was negative and was not repeated.
Learning Points/Discussion: Leptospirosis should be considered in all febrile patients particularly if history of exposure to freshwater, resident or travel to endemic areas. Our child developed symptomatic hepatitis, with evidence of simultaneous EBV and Leptospira infections. The role of each infection cannot be assured. Leptospirosis suspicion was based on the epidemiological context, along with the febrile illness, high inflammatory parameters and hepatitis, confirmed by urine Leptospira PCR.

PV0283 / #2633

SERIAL CASE OF PERTUSSIS IN AN INCOMPLETELY VACCINATED INFANT: AN IMPACT OF COVID-19 PANDEMIC IN DEVELOPING COUNTRY

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: SERIAL CASE OF PERTUSSIS IN AN INCOMPLETELY VACCINATED INFANT: AN IMPACT OF COVID-19 PANDEMIC IN DEVELOPING COUNTRY
Background: The COVID-19 pandemic has affected healthcare services and access globally, including vaccination coverage in children, contributing to the rising incidence of vaccine-preventable diseases (VPDs). Pertussis is an acute respiratory illness caused by Bordetella pertussis, one of the VPDs, showing a re-emergence in developing countries.
Case Presentation Summary: We reported a serial case of pertussis in an incompletely vaccinated infant. The first case was 12 months old boy referred to our hospital due to hyperleukocytosis. We found a history of recurrent cough since the age of 2,5 months old. Several kinds of antibiotics were given including beta-lactam antibiweret no macrolides had been prescribed. The second case was a COVID-19-positive 2 months old boy with difficulty breathing and a cough that was numerous and rapid. The suspicion towards pertussis was higher as there was no history of pertussis vaccination in the patient. Polymerase chain reaction (PCR) from the nasopharynx swab was positive for both cases of Bordetella pertussis. They were both given azithromycin and recovered completely after 7 days of administration. The last case was a 4-month-old boy who was hospitalized due to pneumonia. The third generation of cephalosporin for 5 days shows no significant clinical improvement with the cough being paroxysmal and rapid. He hasn’t received the last primer dose of pertussis vaccination. The patient's cough characteristics and age reinforced us to treat it as pertussis. Azithromycin was given and he entirely recovered after 7 days of administration.
Learning Points/Discussion: Unvaccinated or incompletely vaccinated infants younger than 12 months of age have the highest risk to be infected by pertussis. Herd immunity is needed to protect this group.

PV0284 / #577

TICK-BORNE LYMPHOADENOPATHY IN CHILDREN ADMITTED IN A TERTIARY HOSPITAL, PORTUGAL

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Tick-Borne Lymphoadenopathy
Background: TIck-Borne Lymphadenopathy (TIBOLA) is a tick-borne rickettsial disease oftenly caused by Rickettsia slovaca, which is transmitted by Dermacentor tick species. TIBOLA is characterized by an inoculation eschar at the tick bite site associated with a painful regional lymphadenopathy. We describe paediatric cases in which removed ticks were identified and screened by polymerase chain reaction for rickettsiae.
Case Presentation Summary: During spring/summer of 2022 three children, two boys and one girl, 8 and 7 years old, respectively, were admitted at the emergency department with an attached tick. The ticks were removed and sent to the National Reference Center for vector-borne diseases (INSA) to be identified and analysed. Two of the ticks removed were Rhipicephalus sanguineus and one was Dermacentor marginatus. All of the children were asymptomatic on admission. Physical examinations revealed an occipital eschar in the two boys. One of the boys, in which the tick was infected with R.slovaca, developed a cervical lymphadenopathy (boy 1). Later, the same boy developed an alopecia that remained after cure. The Rhipicephalus tick removed from the girl was not infected. Only boy 1 was treated with doxycycline. The serologic tests were positive in the boys.
Learning Points/Discussion: In the past years several rickettsiae species have been identified in Portugal. Important differences in clinical features and severity of the disease exist according to the rickettsiae. Since the serologic diagnostic does not detect antibodies until 10/14 days after the onset of illness and cannot identify the species of the rickettsiae, it becomes useful to remove the tick. This allows the identification of new rickettsiae species and register their epidemiology and geographical distribution.

PV0285 / #2119

INFANTILE VISCERAL LEISHMANIOSIS: DO WE EXPECT AN INCREASING TREND OVER TIME?

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Infantile visceral leishmaniosis: do we expect an increasing trend over time?
Background: Infantile visceral leishmaniosis (IVL) is a potentially fatal disease caused by Leishmania spp. parasites. It is moderately-to-highly endemic in Italy and southern Europe and still represents a diagnostic challenge for pediatricians.
Case Presentation Summary: We retrospectively collected IVL cases admitted to Regina Margherita Children's Hospital of Turin (referral centre of Piedmont and Aosta Valley regions) between 2018-2022; the aim of our research was to describe clinical and laboratory features at presentation, timing of treatment and outcomes. A total of 8 IVL cases (75% males) were collected, of which 5 diagnosed in the last year 2022 (62.5%); no IVL was diagnosed between 2020 and 2021. The mean age was 2.5 years. Persistent fever was the main symptom at hospital admission (6/8), followed by non-tender hepatosplenomegaly (8/8), trilinear cytopenia (7/8) and hypergammaglobulinemia (5/8); 3 patients developed hemophagocytic lymphohistiocytosis (HLH). Average time-to-diagnosis was 15 days and diagnosis was performed by microscopic detection (5/8) and PCR-DNA amplification (6/8) on bone marrow blood samples and/or by serologic tests (8/8). Liposomal amphotericin B treatment was administered after an average of 4.1 days from admission and 2 patients received immunosuppressive treatment for HLH. The average length of stay was 13.9 days. No death was recorded and all patients fully recovered.
Learning Points/Discussion: The unexpected increase in IVL cases during the last year raises concern about a possible role of climate change and suggests the enhancement of epidemiological surveillance in the future. High level of suspicion in case of persistent fever of unknown origin and signs/symptoms suggestive for IVL is essential, particularly in pediatric population. Having a better awareness of this disease, especially secondary life-threatening HLH, allows a prompt diagnosis and focused treatment.

PV0286 / #1857

TROPICAL FEVER WITH UNEXPECTED TWIST AND TURN

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Tropical Fever with Unexpected Twist and Turn
Background: Tropical fevers present with overlapping clinical features.A significant number of these patients also have one or more organ failures . The challenge lies in clinically diagnosing them at the time of presentation as they often present as undifferentiated fever and with overlapping signs and symptoms It is important to treat them early as delay in institution of specific therapy may lead to increased morbidity and mortality.
Case Presentation Summary: 16year female presented with 4 days high grade fever , maculopapular rashes , diagnosed as dengue fever Day 6 of illness ,developed hypotension , progressive pallor , icterus , managed as severe dengue . ..From day 7 to 12, continued to have high grade fever with worsening liver enzymes. Treated with multiple antibiotics . Referred to our hospital on day 15, with high grade fever. On admission child was pale , icteric . Liver palpable 5cm below RCM, . Child continued to have high grade fever , at admission Hb-8.6, TC-4100 .USG ABDOMEN - coarsened liver echotexture -, Gall bladder wall oedema, . 2D ECHO- normal. Investigated for infectious cause of fever- was negative (Blood , urine culture – no growth, , Leptospira IgM , Scrub typhus , Brucella IgM – negative) Continued to have high grade fever . Investigated further ,had hyperferritinemia (Serum FERRITIN 28349.0 ng/mL) hypertriglyceridemia(TRIGLYCERIDES - 537 mg/dl), hypofibrinogenemia (Fibrinogen -80.6 mg/dl),anaemia and cytopenia .Suspected to have HLH . BONE MARROW EXAMINATION:- Hemophagocytic lymphohistiocytsis .Started on IV Dexamethasone ,Improved clinically and gradual improvement in total counts and liver enzymes .
Learning Points/Discussion: HLH is rare but fatal complication of dengue leading to multiorgan dysfunction thereby increasing morbidity and mortality. Early suspicion and timely treatment are crucial for uneventful recovery

PV0287 / #2144

TICK-BORNE DISEASES IN CHILDREN: A RETROSPECTIVE ANALYSIS OF CASES FOLLOWED IN A TERTIARY CHILDREN'S HOSPITAL IN NORTHERN ITALY BETWEEN 2009 AND 2022

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Title of Case: Tick-borne Diseases in a tertiary children's hospital in Northern Italy.
Background: Considering the recent increase in tick-borne diseases in Europe, there is a clear need for studies to help highlight their prevalence in children. We know that the heterogeneity of surveillance across European countries remains challenging to accurately assess disease distribution, incidence, and trend over time.
Case Presentation Summary: AIMS: This study aimed to describe pediatric cases of tick-borne diseases retrospectively admitted to a tertiary children's hospital in Northern Italy between 2009 and 2022, with emphasis on exposure to tick bites, risk factors, epidemiological, clinical and laboratory data, and treatment of Lyme disease (LD) cases. MATERIALS AND METHODS: At the Infectious Diseases Clinic of Regina Margherita Children's Hospital in Turin, 64 patients were evaluated for a history of tick bite or suspected/diagnosed LD between January 2009 and December 2022. RESULTS: Patients with a history of tick bite or suspected/diagnosed LD increased in number over time (44,9% in 2021-2022). 78.1% reported previous tick bites, which occurred in 78% of cases between May and August. 68,8% presented risk factors for contact with ticks. Among the 44 diagnoses of LD, there was an increasing number of cases over time (52,3% in 2021-2022). Erythema migrans (EM) was the most common manifestation of LD (34/44; median incubation time: 13 days); we found 3 cases of neuroborreliosis and 5 cases of arthritis. According to guidelines, treatment resulted fully or partially adequate in 92.8% of EM cases and 100% of disseminated diseases.
Learning Points/Discussion: Our results are in line with the latest scientific evidence. It is essential to raise awareness of tick-borne diseases to promote early diagnosis and treatment and implement appropriate individual and environmental prevention measures in the general and pediatric population.

PV0288 / #360

DENGUE BURDEN OF DISEASE IN ARGENTINA: 10 YEARS EPIDEMIOLOGIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS05.A. ZOONOSIS, VECTOR-BORNE AND EMERGING INFECTIONS

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Backgrounds: Dengue is an important public health problem in Argentina as in other parts of the world. We aimed to review and update information on dengue disease burden in Argentina over a 10-year period that contributes to assessing future prevention strategies.
Methods: Retrospective 2011-2020 descriptive study, based on Argentina Ministry of Health secondary data. Main outcomes included dengue cases, incidence rates, hospitalizations, deaths and serotypes distribution, by season, age groups, and regions.
Results: 109,998 confirmed cases of dengue were reported between epidemiological weeks (EW) 31/2010 and 30/2020 (2010/11 and 2019/20 seasons). Seasonality stands out, prevailing during the summer and autumn. During the entire period, three main outbreaks (seasons 2012/13, 2015/16 and 2019/20), with increasing magnitude, were observed. The 2019/20 season showed the highest number of cases (58,731) and incidence rate (135 cases per 100,000 inhabitants). During these 10 years, the Northeast region had the highest number of cases and the highest incidence rate. The Centro region followed in number of cases, but the Northwest region had a higher incidence rate. In the 2019/20 season, for the first time, autochthonous cases were registered in the Cuyo region. The only region that did not register autochthonous cases was the South. Adolescents and young adults were the most affected. Hospitalizations and deaths were infrequent. Although all 4 serotypes circulated during the evaluated period, the predominant serotype in all regions and seasons was DEN-1 (78%).
Conclusions/Learning Points: Dengue has been expanding temporally and spatially throughout our national territory. While circulation of DEN-1 serotype widely predominated, the increasing co-circulation of other serotypes raises concerns regarding re-exposure and severity of future cases. Understanding epidemiological trends is key to defining public prevention and control policies.

PV0289 / #486

AN OBSERVATIONAL STUDY OF PATIENTS INVESTIGATED FOR MALARIA IN A PAEDIATRIC A&E

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Fever in the returned traveller is a diagnostic challenge, especially with changing epidemiology for diseases such as malaria. 1700 cases of imported malaria occur in the UK every year, 200 in children. Consequently, we audited the management of children investigated for malaria at our hospital.
Methods: Audit of medical notes for children <16 years who had malaria blood films processed at our District General Hospital, May 2018-December 2019. Audit standard was local 'fever in the returned traveller' guidelines. Reference W&C.NP.20.011.
Results: 188 patients were analysed, 113 boys and 75 girls, median age 4 years (interquartile range 1.75-8 years). Median stay abroad was 28 days (range 7-lifelong), and median time between return and presentation was 8 days (range 0-730 days). Three of 188 malarial blood films were positive. Children travelled to 35 countries, most commonly India (n=71, variable risk of malaria), Pakistan (n=24, low risk), and Sri Lanka (n=14, no risk). Overall, 52.9% received pre-travel vaccines, 36.2% antimalarials. Median WCC was 9.9, median CRP 20.3, median lactate 1.3. 10.1% of blood cultures were positive. 22.3% were admitted to the ward, 26.6% to the Paediatric Assessment Unit, the rest discharged home from the Emergency Department, and all survived. The most common final diagnoses were viral infection (n=30, 16.0%), gastroenteritis (n=29, 15.4%), URTI (n=29, 15.4%), tonsillitis (n=18, 9.6%), LRTI/pneumonia (n=15, 8.0%), UTI (n=10, 5.3%), salmonella/typhoid (n=7, 3.7%) and other diagnoses (including dengue, measles, TB) made in <6 patients (n=57, 30.3%).
Conclusions/Learning Points: In this study malaria was a very rare diagnosis. Many films were requested unnecessarily for patients returning from low- or no-risk areas. Interventions are underway for staff education and use of up-to-date epidemiological data for decision-making. Education around pre-travel vaccines and mosquito bite prevention continue to be needed for travellers.

PV0290 / #634

INTEGRATING THE VAR TRANSCRIPTOME WITH THE HOST AND CLINICAL MARKERS IN SEVERE PLASMODIUM FALCIPARUM MALARIA

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Severe and fatal malaria is believed to occur due to a combination of host and parasite factors. Var genes encode major parasite virulence factors which are exported to the surface of infected red cells, bind to host vascular endothelium and cause microvascular dysfunction. However, var genes are extremely polymorphic, making it challenging to determine precise relationships between their expression, pathophysiology, and clinical outcomes.
Methods: We developed a new method for accurate de novo assembly and quantification of var transcripts from RNA-Seq. We applied this to whole blood RNA-Seq from Gambian children with different clinical manifestations of malaria (cerebral malaria, n=4; hyperlactatemia, n=6; cerebral malaria plus hyperlactatemia, n=11; uncomplicated malaria, n =19). Differential gene expression analysis was performed to identify variation in parasite var gene expression between different clinical phenotypes. Regression models were used to relate var gene expression to clinical variables and to host gene expression.
Results: We observed minimal overlap in the var transcripts upregulated in the different severe phenotypes. We found cerebral malaria plus hyperlactatemia patients had significantly higher levels of global var gene expression relative to uncomplicated malaria patients, regardless of the binding phenotype encoded by the var transcript. Higher proportions of group A var gene expression was observed in severe malaria relative to uncomplicated malaria. Work is ongoing to identify relationships between var binding phenotypes and host gene expression and clinical variables.
Conclusions/Learning Points: The data indicates that differences in var gene expression are associated with differences in clinical phenotypes of malaria. Further analysis will provide new insights into the pathogenesis of severe malaria and how the var transcriptome influences the host response. These insights may guide future interventions to disrupt pathological interactions between malaria parasites and the host vascular endothelium.

PV0291 / #686

PAEDIATRIC LEPTOSPIROSIS IN THE SOUTHERNMOST AREAS OF JAPAN

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Leptospirosis is reported sporadically in Japan. However, it is endemic in the subtropical region of Okinawa and is especially common in Japan's southernmost area. We evaluated the characteristics of children diagnosed with leptospirosis in the Yaeyama Islands.
Methods: Medical records of patients aged <18 years, who were diagnosed with leptospirosis at Okinawa Prefectural Yaeyama Hospital between April 2014 and March 2020 were retrospectively reviewed. Data including symptoms, physical examination findings, blood test results, serogroups and serotypes of Leptospira, presence of Jarisch–Herxheimer reaction, history of freshwater exposure, and exposure area were extracted from the electronic medical records. Data on precipitation before exposure were obtained from the Japan Meteorological Agency.
Results: This study included 7 children, with a median age of 12 years (interquartile range [IQR], 11–17 years). Of these, 4 patients were exposed in the same river. Blood culture and polymerase chain reaction tests on blood or urine samples were used to diagnose 5 and 2 cases, respectively. Leptospira interrogans serovar Hebdomadis, L. interrogans serovar Australis, and L. kirschneri serovar Grippotyphosa were detected in 3, 2, and 1 patients, respectively, and 1 patient was not tested. Conjunctival congestion and generalized myalgia were observed in 7 and 5 patients, respectively. The median precipitation in the 2 weeks before exposure to freshwater and the median precipitation over the past 30 years were 46 mm (IQR, 26.5–63 mm) and 135.7 mm (IQR, 93.9–142.3 mm), respectively.
Conclusions/Learning Points: More than half of the cases of paediatric leptospirosis in the Yaeyama area were exposed in the same river. The amount of precipitation in the 14 days prior to exposure to freshwater was less than the average precipitation in the previous years.

PV0292 / #1559

ELIZABETHKINGIA MENINGOSEPTICA BRONCHOPNEUMONIA IN A CHILD WITH TYPHUS FEVER

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: ELIZABETHKINGIA MENINGOSEPTICA BRONCHOPNEUMONIA IN A CHILD WITH TYPHUS FEVER

Background: Elizabethkingia meningoseptica is an unusual, highly resistant, gram- negative bacillus. While E. meningoseptica-associated meningitis outbreaks have been well-documented in hospital neonatal wards and among immunocompromised adults, reports describing this microorganism in critically ill children are scarce. Hence we report this case in an apparently immunocompetent child having typhus fever

Case Presentation Summary: A 6 year old child was admitted with chief complaints of fever and cough for 15 days,vomiting for 3 days ,generalized weakness from 2 days and difficulty in breathing for 1 day.On examination child's general condition was sick.Her vitals were a pulse rate of 124/mt,peripheral pulses were weak but central pulses were well palpable,CFT of 3 seconds and BP-100/60,respiratory rate of 36/mt with subcostal retractions.On auscultation chest had bilateral crepitations.Child was provisionally managed as a case of tropical fever syndrome with compensated shock and respiratory distress.Child was started on inotropes and NIV support.Initial labs showed a Hb-9.2 gm/dl/,platelet count of 28000/dl,WBC-11400/dl,ESR-2. Inj Ceftrioxone and Azithromycin were started empirically.Tropical fever workup showed positive scrub serology.Gradually child started improving and was weaned off from NIV and ionotropes.But fever continued to trouble the child.On day 6 of hospitalization,blood cuture showed growth of Elizabethkingia meningoseptica.It was resistant to ceftrioxone and sensitive to ciprofloxacin with a MIC of 0.12.So injection ciprofloxacin was started.Child became afebrile over next 3 days and aws discharged on oral ciprofloxacin.

Learning Points/Discussion: Recognition of E. meningoseptica is of critical importance since conventional empirical treatment against gram-negative bacteria may result in unfavorable outcome given its unique antimicrobial susceptible pattern.

PV0293 / #290

SCRUB TYPHUS COINFECTION WITH ACUTE HEPATITIS A & E IN A CHILD WITH HEMOLYTIC ANEMIA

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: Scrub Typhus Coinfection With Acute Viral Hepatitis A & E In A Child With Hemolytic Anemia

Background: Acute viral hepatitis is a major public health problem worldwide. Hepatitis A virus (HAV) and Hepatitis E virus (HEV) are the most common cause of acute viral hepatitis that mainly affects the pediatric age group. Coinfections presents with overlapping clinical features of the causative diseases posing a huge diagnostic dilemma.We report a patient who presented to us with acute viral hepatitis and hemolysis and investigation revealed hepatitis A, E and scrub typhus coinfection.

Case Presentation Summary: A 7 year old girl was admitted for fever for 5 days ,15 days back,yellowish discoloration of eyes for 10 days,vomiting and pain abdomen for 10days,reduced urine output and swelling over body for 4 days prior to the admission.Fever was acute in onset and mod to high grade,got relieved with medication after 5 days.Once fever subsided child developed pain abdomen,vomiting and yellowish discoloration of eyes.Child weight was 28 kg(90th percentile) and height 116 cm(25-50th percentile).On examination child was fully conscious but not alert. with icterus and pallor present.Edema over eyes ,face and legs was present.Liver palpable 5 cm below rt costal margin.Work breathing was increased(48/mt).Initial labs showed a raised CRP-93.9,urea-28,creatinine-0.3,Na -130,TB-6.9,DB-6.1,OT-939,PT-370,TP-5.5,Alb-1.96,ceruloplasmin-17.9,ammonia-72,Hb-7.7,Hct-24.6,MCV-97.3,RDW-21.2,Plt-160 with giant platelets,INR-1.5,Ratio-1.4,anti HAV-13.5,Anti HEV-7.68,Lepto-0.73,Scrub-1.046,ANA titre-0.303(neg),G6PD-normal,B12-1236,LDH-485,Cal-7.5,Vit D=3.66,Dengue NS1-2.67,Dengue IgM-6.65,PCT-9.04,Heptoglobin- 4.1mg/dl(30-200),spot urine to creatinine ratio-0.5.Xray chest-rt pl effusion,usg abd-hepatosplenomegaly with ascites.

Learning Points/Discussion: Varied presentation and low index of suspicion and lack of widespread availability of economical diagnostic test for scrub typhus contributes to increased mortality in spite of availability of effective treatment.We emphasize to keep it as close differential in any sick child presenting with acute undifferentiated fever

PV0294 / #2101

CARDIAC ALTERATIONS IN CHILDREN WITH DENGUE INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Objective: describe the cardiac alterations in pediatric patients with dengue with warning signs and severe dengue at the Napoleón Franco Pareja Children's Hospital between June and September 2021.
Methods: retrospective descriptive observational study with children with a clinical diagnosis of dengue (WHO 2009). Random sampling was carried out, considering the prevalence of the event in the previous year. The results of clinical and paraclinical variables (cardiac biomarkers, electrocardiography and echocardiography) are shown in general and with comparisons between the groups of dengue with alarm signs (DSSA) and severe dengue (SD) and according to the state of co-infection with the CHIK virus.
Results: 93 individuals were included, 67.7% with DSSA, 32.3% with SD, 60% male, with a median age of 11 years. 16 had comorbidities, with no statistical differences between groups. The duration of symptoms on admission was 4 days. CHIK coinfection was detected in 20-25%, with 14-36% IgM/IgG/NS1 positivity vs 55-77% of dengue patients without coinfection. Most presented fever, abdominal pain, vomiting and headache. The clinical differences were given by the hemorrhagic manifestations, alteration of consciousness and signs of shock, more frequent in SD. The prevalence of electrocardiographic alterations was 10% and echocardiographic 26.8%. There were no differences in cardiac biomarkers (Troponin I, myoglobin, CK-BM and pro-BNP). Only one case of mortality attributed to severe dengue was presented.
Conclusions/Learning Points: the frequency of severe dengue is high, mortality is more likely in comorbidities. The myocardial compromise is low frequency but the sub diagnosis is high, which limits its study. Prospective studies are lacking in order to define the usefulness of cardiac markers and include interventions such as electrocardiography and echocardiography, which would make it possible to identify patients with a severe course.

PV0295 / #1033

EPIDEMIOLOGICAL CHARACTERISTICS CONGENITAL CHAGAS DISEASE IN A NON-ENDEMIC AREA

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Chagas disease (CD) is endemic in Latin America. With the increase of migratory flows, an increase of imported and congenital cases has been seen in Spain. In Catalonia, a systematic screening program was introduced in 2010 to detect the cases of Congenital Chagas Disease (CCD). We evaluated its results over the last five years (2016-2020).
Methods: Descriptive study including T.cruzi seropositive women and their children attended at the HSJD (January 2016 – December 2020). Diagnosis was confirmed by PCR at any age or when serology remained positive at nine months old. All families were interviewed to assess their degree of knowledge about CD, the impact of its diagnosis on health attitudes and pre-pregnancy treatment.
Results: We included 96 infected women (92,7% were from Bolivia; 36,5% had been treated before pregnancy). More than 3/4 of them know about CD transmission and treatment. None of treated mothers transmitted the infectiont while the transmission was of 14,1% among untreated. The congenital transmission rate (CTR) from 2016 to 2020 was 1,4%. Infected infants were all treated with benznidazole (PCR and serologies became negative in a 92,3% and 38,5% respectively). Non-infected children presented a negative PCR at first screening in a 98,2% and negative serology at a mean age of 8,2 months. Of 96 siblings, 80 (83,3%) were tested and 11 (13,8%) were positive. Having other children with Chagas was found to be a risk factor for CCD ($p < 0,05$).
Conclusions/Learning Points: Systematic screening of CCD is necessary in a non-endemic area. Prevalence and CTR in our sample are in accordance with other studies in non-endemic countries. The increase of treatment previous to pregnancy with a rising knowledge about CD could explain the reduction of CTR in our cohort.

PV0296 / #1360

A 4-YEAR-OLD CHILD WITH A 13 CM IN DIAMETER CEREBRAL HYDATID CYST

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: A 4-year-old Child with a 13 cm in diameter Cerebral Hydatid Cyst
Background: Echinococcosis is the most common cestad infection in the world, caused by Echinococcus granulosus and Echinococcus multilocularis. The infection is mostly localized to the lungs and liver. Here, we present a case with a giant cerebral hydatid cyst.
Case Presentation Summary: A 4-year-old previously healthy boy presented with abnormal gait and walking. Cranial magnetic resonance imaging (MRI) showed a cyst of 13 cm in diameter (Figure 1).

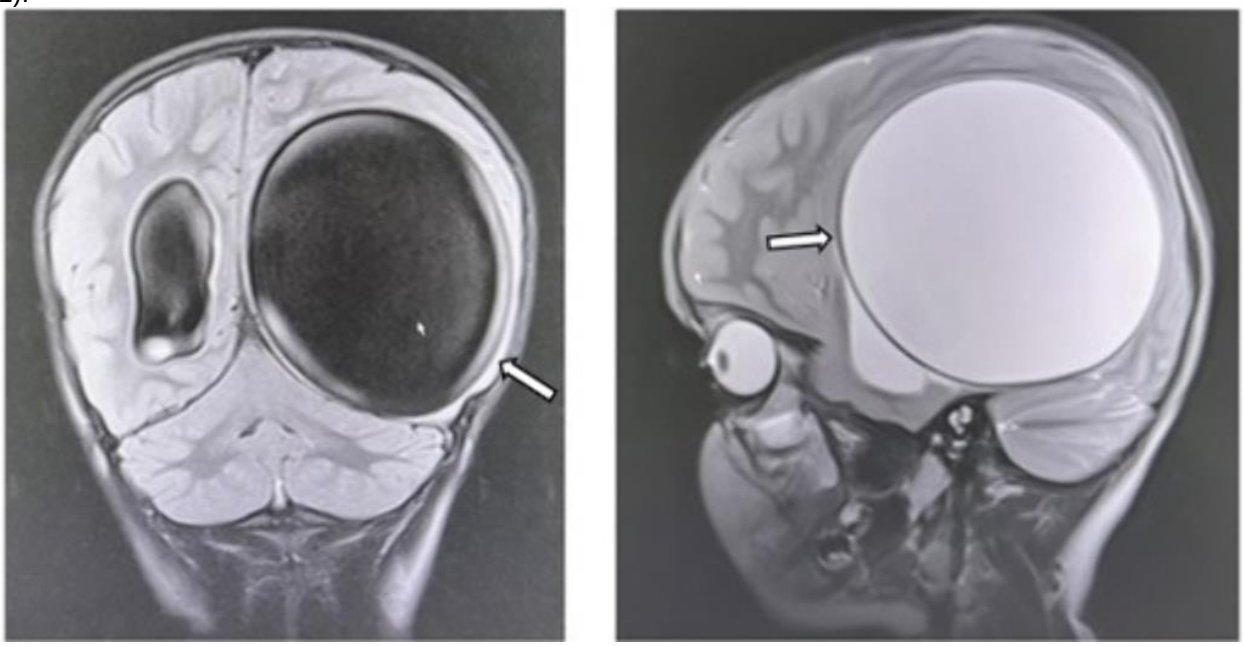

Figure 1. MRI sections showed a cyst 13 cm in diameter localized under the cortex in the left parietooccipital region A 13-cm cyst was enucleated successfully with no rupture. In his story, he had contact with cattle and dogs in the village. Oral albendazole treatment was started. The echinococcal indirect hemagglutination test was negative. An anechoic cystic lesion (10 mm) was detected in the liver by ultrasonography. He was evaluated for deep-organ involvement, however, no cysts were detected in other organs. The histopathological examination was compatible with a hydatic cyst.
Learning Points/Discussion: Although intracranial hydatid disease in children is rare, it should be considered among the differential diagnoses in patients with altered levels of consciousness, especially in highly endemic regions.

PV0297 / #1051

QUANTIFYING BETWEEN-PATIENT DIFFERENCES IN RATE OF RECOVERY FROM MALARIA

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Malaria causes >600,000 deaths annually (mainly in young children) and remains one of the most important infectious diseases affecting humanity. New adjunctive therapies (targeting the human host to promote recovery) may help reduce mortality and morbidity. The SCRIPT (Search for Correlates of Recovery in the Patient Transcriptome) Malaria Study (NCT05149157) is a prospective observational cohort study recruiting returning travellers with malaria in London NHS hospitals. The study's aim is to identify human genes whose expression correlates with rate of recovery. This approach may identify host mechanisms playing an important role in recovery and reveal novel targets for future adjunctive therapies.
Methods: Patients of all ages were recruited to the SCRIPT study at the earliest opportunity after malaria diagnosis. Markers of tissue, organ, or organ system dysfunction (bedside and laboratory test results and organ support requirements) were extracted from the clinical notes from presentation up to day 14 after diagnosis. Patient-specific trends in recovery (or deterioration) for these markers were modelled using all available data and methods adapted from population pharmacokinetics. Estimated trends for selected markers were integrated by Principal Component Analysis to calculate a patient-specific 'composite recovery score' (intended to reflect the 'overall recovery rate').
Results: The first forty patients recruited to the SCRIPT study were included in this preliminary analysis. There was extensive variation in estimated patient-specific recovery rates, both for the novel 'composite recovery score' and for individual markers of tissue, organ, and organ system dysfunction.
Conclusions/Learning Points: Quantifying between-patient differences in recovery rate is an important first step in identifying aspects of host biology playing an important role in recovery. The extensive variation between individuals may be leveraged to identify mechanistic correlates of faster or slower recovery.

PV0298 / #1388

OCULAR TOXOCARIASIS IN A PATIENT WITH RECURRENT TOXOPLASMA RETINITIS: CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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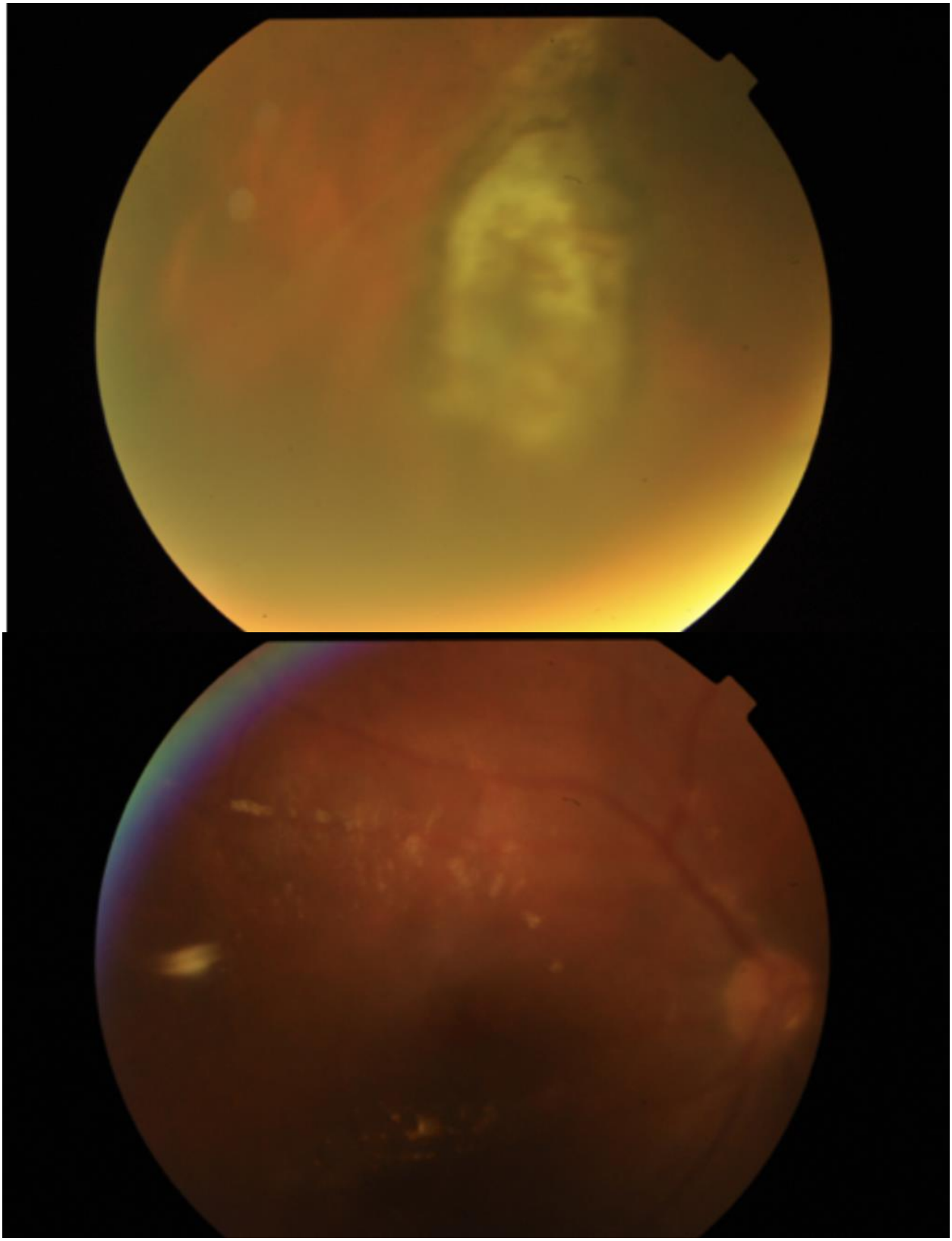
Title of Case: Ocular Toxocariasis in A Patient with Recurrent Toxoplasma Retinitis: Case Report
Background: Ocular toxocariasis is a parasitic disease caused by Toxocara canis and cati. The most common clinical forms are granuloma, endophthalmitis or uveitis-like appearance. Here we present a case with ocular toxocariasis which responsive to albendazole therapy.
Case Presentation Summary: A 17-year-old male patient admitted with pain and redness in his right eye for one week and he was diagnosed with acute posterior uveitis. It was learned that a granuloma was detected in the right retina after acute posterior uveitis when he was nine years-old. His vision was 5% in the right eye, but he did not continue to follow-up. The laboratory studies showed Anti-Toxoplasma IgM and IgG as positive, and Toxoplasma IgG avidity was high.The right bulbus oculi was smaller than the left in magnetic resonance imaging studies. Posterior uveitis due to toxoplasma was considered in the patient. Since sulfadiazine and pyrimethamine could not be obtained, trimethoprim/sulfamethoxazole and clindamycin combination was started. The serologic tests showed Toxocara canis IgG as positive, than albendazole treatment was started. Oral steroid was added to the treatment because uveitis findings progressed. Toxocara canis IgG from the vitreous fluid could not be performed, but Toxoplasma PCR was negative. No parasites were found in the histopathological examination of anterior capsule fluid and vitreous fluid. The patient's albendazole treatment was completed in 14 days. The patient is still on follow-up without any
complaint.



Learning Points/Discussion: Ocular toxocariasis is common in regions with poor hygiene conditions. Facilitating the access to serological diagnostic methods and appropriate tissue dyes will increase the probability of diagnosis.

PV0299 / #2279

EARLY CHILD DEVELOPMENT OF CHILDREN EXPOSED TO CMV VIRAEMIA IN UTERO IN A HIGH HIV PREVALENCE AREA

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Exposure to maternal CMV in utero may affect early child development (ECD), particularly in communities with a high HIV prevalence. We evaluated ECD among children born to mothers with compared to without CMV viraemia in the third trimester of pregnancy recruited to the SHINE trial in rural Zimbabwe.
Methods: We assessed ECD in a sub-study of children aged 24-months using the Malawi Developmental Assessment Tool (MDAT), assessing fine motor and cognition, gross motor, language and social development. Children were included in this sub-study if their mother had plasma tested for CMV by real-time quantitative PCR in the third trimester of pregnancy. Children living with HIV were excluded. We used generalised estimating equations to compare ECD scores, adjusted for maternal HIV, trial-related factors, and sociodemographics.
Results: 209 children were evaluated. 169 (81%) were born to mothers living with HIV. 49 (23%) of children had exposure to CMV viraemia at a median (IQR) 32 (31, 33) gestational weeks. Women with CMV viraemia in the third trimester were more likely to be living with HIV (88% vs. 79%; P=0.07). Mean total MDAT score was 91.0 (SD 9.4) in children with CMV exposure compared to 94.1 (8.8) in children without CMV exposure (adjusted mean difference -4.02, 95% CI -6.79, -1.25; P=0.004), driven mostly by differences in fine motor (-1.55, 95% CI -2.70, -0.40; P=0.009) and language scores (-1.69, 95% CI 2.86, -0.53; P=0.004). There was some evidence that social scores were lower (adjusted mean difference -0.60, 95%CI -1.29, 0.09; P=0.09) but no evidence for a difference in gross motor scores (-0.45, 95%CI -1.40, 0.50; P=0.35).
Conclusions/Learning Points: In the context of a high HIV prevalence community, exposure to CMV viraemia in utero may be one explanation for neurodevelopmental delay.

PV0300 / #1906

REPORT OF A NEONATAL TETANUS CASE IN SIERRA LEONE. THE IMPACT OF COVID-19 PANDEMIC ON MATERNAL AND NEONATAL TETANUS ELIMINATION.

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: Neonatal tetanus case in Sierra Leone.
Background: Neonatal tetanus remains a major cause of neonatal mortality in settings with high prevalence of non-vaccinated mothers, associating 80-100% of fatal outcomes without treatment. During major health emergencies, such as the 2014-2016 Ebola and the COVID-19 pandemics, some national immunization programs have been disrupted, causing an arise in preventable infectious diseases
Case Presentation Summary: A 16-day-old neonate born in a healthcare centre of a rural area in Sierra Leone was admitted at the hospital for stiffness. It was an uncontrolled, full term, first pregnancy; neither the mother nor the newborn had received immunizations. The newborn showed irritability, superficial breathing, inability to suck, trismus and opisthotonos, with proper eye movements and no seizures. Umbilical cord showed poor aspect. Patient was afebrile and anicteric. Brain ultrasound, complete blood count and urine analysis were normal. Due to clinical suspicion and absence of anti-tetanic serum, toxoid vaccination was administered both to the mother and to neonate. Patient also received empirical intravenous cefotaxime and metronidazole for 7 days, non-invasive respiratory support for 2 days and symptomatic treatment with paracetamol and diazepam for 3 weeks. Since the newborn was not able to breastfeed until the 7th day, feeding was initially through nasogastric tube. The patient experienced progressive improvement and was discharged after 25 days of admission. At 2-month follow-up visit, patient was completely recovered.
Learning Points/Discussion: Although there has been progress in maternal and neonatal tetanus elimination, in many sub-Saharan countries there is a low maternal and neonatal vaccination coverage and a high prevalence of unsafe deliveries. Once it has started, the most effective treatment for tetanus, anti-tetanic serum, is frequently unavailable in low-resource settings. In emergency contexts, it is critical to safeguard immunization programs.

PV0301 / #2094

PRIMARY BRAIN ECHINOCOCCAL CYST IN A 10-YEAR-OLD BOY: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: Primary brain echinococcal cyst in a 10-year-old boy: A case report
Background: Primary intracranial hydatid cyst is a rare entity, comprising about 1-2% of all hydatid cysts, mainly among children.
Case Presentation Summary: A case of a 10-year-old boy, livining in rural Greece, with primary intracranial hydatid cyst is presented. The patient was admitted complaining of nausea, vomiting and generalized fatigue. Neurological examination showed left hemianopsia and hemiparesis, while fundoscopy revealed bilateral papilledema. Blood tests were normal. Brain CT scan and MRI showed a well-defined unilocular cystic lesion in the right cerebellar hemisphere, with midline shift. A diagnosis of hydatid cyst was then presumed based on neuroradiological findings. Empiric chemotherapy with albendazole was initiated and surgical en bloc removal of the cyst was performed four days later, allowing the patient to recover without any complications. Histopathologic evaluation confirmed the diagnosis of hydatid cyst. Abdomen and chest CT scan excluded the presence of a primary hydatid cyst in more common sites. Antibodies against echinococcus were negative. The patient received an one-month course albendazole in total. Brain MRI performed 2 months later revealed no relapse. Antibodies against echinococcus remained negative 2 months later.
Learning Points/Discussion: Hydatid cyst is still an endemic manifestation in some rural areas worldwide, and it should be included in the differential diagnosis of children living in or coming from an endemic country who present with generally nonspecific clinical symptoms or symptoms of increased intracranial pressure. Complete blood count may be normal, while up to 50% of serological assays may be false negative. Early diagnosis mainly based on neuroradiological findings and clinical symptoms, and complete surgical removal of the intact cyst, combined with targeted antiparasitic chemotherapy are the main factors that determine a favourable outcome.

PV0302 / #1555

CHANGING TRENDS IN ANTIBIOGRAMS OF SALMONELLA ENTERICA IN PEDIATRIC POPULATION FROM A TERTIARY CARE CENTRE IN INDIA

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Enteric fever is a major public health problem in tropical countries. Antimicrobial resistance is a major issue in enteric fever management. This study evaluated microbial susceptibility patterns of Salmonella enterica serovar Typhi (S. Typhi) and S. Paratyphi obtained from blood culture in a tertiary care hospital in south India.
Methods: Retrospective study of children with positive blood culture for S. enterica serovar Typhi and serovar Paratyphi A strains isolated between November 2008 to December 2021. Antimicrobial susceptibility was as per corresponding CLSI guidelines for each year, Antimicrobial susceptibility by Kirby-Bauer disc diffusion method. MIC of ciprofloxacin was obtained by E-test, and azithromycin MIC was confirmed by agar dilution method
Results: A total of 933 cases of culture positive enteric fever were studied. Out of this, 721 were S. enterica serovar Typhi (77.3%) and 212 serovar Para typhi A strains (22.7%). All strains were susceptible to third-generation cephalosporins. The sensitivity of the salmonella isolates to first-line antityphoid drugs were 95.8%, 97.4%, and 97.9% to ampicillin, cotrimoxazole and chloramphenicol respectively. 4.7 % of salmonella were sensitive to ciprofloxacin. For s. paratyphi chloramphenicol, co-trimoxazole was sensitive 100% and 98.9% respectively. Two cases of azithromycin resistance were documented.
Conclusions/Learning Points: Resistance to nalidixic acid has been increasing. Third generation cephalosporins continue to remain susceptible. Thus, local antibiograms improve patient care. MICs for third-generation cephalosporins and susceptibility patterns must be monitored in view of its emerging resistance . .Isolates showed a high degree of susceptibility to ampicillin, co-trimoxazole and chloramphenicol. These antibiotics may once again be useful for the management of enteric fever .In view of a high prevalence, it is advisable to implement vaccination at an early age and also develop a bivalent vaccine.

PV0303 / #2643

A BOY WITH FEVER, ABDOMINAL PAIN AND LOSS OF WEIGHT - A CASE OF AMOEBIC LIVER ABSCESS

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: A BOY WITH FEVER, ABDOMINAL PAIN AND LOSS OF WEIGHT
Background: Amoebic liver abscesses (ALA) are the most common extra-intestinal manifestation of amoebic infections. High index of suspicion should exist in any child with fever, gastrointestinal symptoms, weight loss and travel to endemic countries in the past 6 months.
Case Presentation Summary: A previously well 4 year old boy presented to a Singaporean tertiary paediatric hospital with fever for 10 days, abdominal pain, loss of appetite and weight. He had visited suburban Eastern India 5 months prior, during which he played near a muddy river. Initial blood investigations showed leucocytosis, elevated C-reactive protein (156.6mg/L) and erythrocyte sedimentation rate (70mm/hr). He was commenced on intravenous ceftriaxone and metronidazole. Ultrasound abdomen showed a solitary hepatic abscess in the right hepatic lobe, measuring 2.7 by 2.3 by 2.5 centimetres, which was initially not amenable to drainage. However, despite one week of antibiotics, the abscess continued to enlarge and he underwent percutaneous drainage, yielding thick, fluid appearing like ‘anchovy paste’. Investigations supported ALA, with polymerase chain reaction (PCR) from both fluid aspirate and stool positive for Entamoeba histolytica, serum amoebic antibody titre elevated at 1:2560. Stool culture and microscopy was negative. Following 2 weeks of metronidazole, he received 1 week of paromomycin with resolution of liver abscess.
Learning Points/Discussion: Duration from exposure to onset of symptoms has been described to range from 8 to 20 weeks. Therefore, travel history should be explored extensively up to 20 weeks prior. PCR remains the gold standard to confirm amoebic infection. In scenarios where there is no abscess fluid sample available for testing, a single highly positive serology (≥1:320) can also be used to diagnose ALA in individuals staying in non-endemic country with travel to endemic areas.

PV0304 / #2489

IMPORTED TOXIGENIC C. DIPHTHERIAE IN POLYMICROBIAL SKIN INFECTIONS OF REFUGEES

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Background: Diphtheria is a potentially lethal upper respiratory tract infection with systemic illness through toxinaemia, mostly caused by toxigenic Corynebacterium diphtheriae (C. diphtheriae). Transmission and outbreaks in Europe are t mostly related to travel. From July 2022 an increase of imported toxigenic C. diphtheriae has been reported throughout Europe adding up to over 100 cases.
Methods: Between August – December 2023 we identified 25 individuals with skin infections by toxigenic C. diphtheriae. Additionally 2 individuals with non-toxigenic C. diphtheriae throat colonization were identified through screening of 154 contacts.
Results: All individuals were male. The majority was of younger age (mean, 24 years, range, 18-49 years). The majority were born in Afghanistan (15 persons) or Syria (11); one refugee was born in Morocco. Eighteen subjects (67%) were asked about their escape route – all of them had fled via Balkan states. Visually, the skin wounds appeared as partly punched-out, partly erosive lesions with erythematous margins. Clinical differentiation between Ecthyma simplex or wounds with evidence of C. diphtheriae was not possible In addition to C. diphtheria isolation, S. aureus and S. pyogenes were detected in 21 (84%), S. pyogenes in 3 (12%), and in one individual solely C. diphtheriae was detected. All 25 skin infections were colonized with diphtheria toxin-producing C. diphtheriae. Toxigenic C. diphtheriae from throat swabs was detected in 5 of the 25 individuals with cutaneous lesions. No systemic illnesses trough toxinaemia were observed in our cohort.
Conclusions/Learning Points: Particular attention should be paid to chronic erosive/ulcerative wounds in refugees and refugee reception centers. Proper microbiological investigations should be done to rule out cutaneous diphtheria, even if S. aureus or S. pyogenes have already been identified. Vaccinations against DTP should be given generously.

PV0305 / #2200

PLASMODIUM FALCIPARUM GENETIC DIVERSITY IN PRE- AND POST-TREATMENT ISOLATES FROM CHILDREN WITH ACUTE UNCOMPLICATED MALARIA IN SOUTH WEST, CAMEROON

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: The study of the genetic diversity within parasite population is essential for understanding the mechanism underlying malaria pathology and to determine parasite clones profile in an infection, for proper malaria control strategies. The objective of this study was to perform a molecular characterization of highly polymorphic genetic markers of P. falciparum, and to determine allelic distribution with their influencing factors valuable to investigate malaria transmission dynamics in Cameroon.
Methods: A total of 350 P. falciparum clinical isolates were characterized by genotyping block 2 of msp-1, block 3 of msp-2, and region II of glurp gene using nested PCR and DNA sequencing
Results: A total of 16 different MSP-1 were identified, including K1, MAD20 and RO33 allelic families . A peculiarity of this study is that RO33 revealed a monomorphic pattern among the Pfmsp-1 allelic type. A total of 27 different Pfmsp-2 genotypes,were recorded of which 15 belonged to the 3D7-type and 12 to the FC27 allelic families. The analysis of the MSP-1 and MSP-2 peptides reveals that the region of the alignment corresponding K1 polymorphism had the highest similarity in the MSP1and MSP2 clade followed by MAD20 with 93% to 100% homology. Therefore, population structure of P. falciparum isolates is identical to that of other areas in Africa, suggesting that vaccine developed with k1 and MAD20 of Pfmsp1 allelic variant could be protective for Africa children. The MOI was significantly higher ($P<0.05$) for Pfmsp-2 loci (3.82), as compare with Pfmsp-1 (2.51) and heterozygotes ranged from 0.55 for Pfmsp-1 to 0.96 for Pfmsp-2
Conclusions/Learning Points: High genetic diversity and allelic frequencies in Plasmodium falciparum isolates indicate a persisting high level of transmission. This study advocate for an intensification of the malaria control strategies in Cameroon.

PV0306 / #1644

EPIDEMIOLOGY OF ACUTE FEBRILE ILLNESS IN CHILDREN IN MANHIÇA, MOZAMBIQUE: 17 YEARS OF OUTPATIENT AND ADMISSION SURVEILLANCE DATA.

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Backgrounds: Fever is one of the most common symptoms leading to health care seeking. With the decline of malaria incidence and the introduction of routine rapid malaria diagnostic testing, non-malarial febrile illness (NMFI) calls for a better understanding of its epidemiology in order to improve its management. We aim to describe the historical changes of NMFI in Manhiça.
Methods: We performed a retrospective descriptive study of the paediatric visits in Manhiça District Hospital (MDH) and seven outpatient clinics during a 17 year-long period (2004 to 2020). Fever was defined as temperature ≥37.5ºC or reported fever in the previous 24 hours. Demographic, clinical and outcome data were routinely collected. Blood films were performed if a patient presented with fever, and blood cultures if severe criteria were fulfilled.
Results: During the study period, 1,164,688 children were seen as outpatients, 858,241/1,164,688 (73.69%) with fever. In MDH 41,485 children were admitted, and 38,353/41,485 (92.4%) had fever. Among admitted febrile patients, 17,199 (51.6%) were malarial febrile patients (MFP) and 15,551 (46.6%) were non-malarial febrile patients (NMFP). There was a higher frequency of HIV in NMFP (12.39%) versus MFP (2.88%), and a high frequency of moderate anaemia (14.54%) among NMFP. The antibiotic use was higher in NMFP than in MFP (94.7% vs 32.1%), and hospitalization longer than 5 days and mortality were also higher among NMFP compared with MFP (46.2% vs 18.6%, and 4.4% vs 1.7%, respectively). The distribution of diagnosis among NMFP was very imbalanced, with zoonosis, viral infections and urinary tract infections being unfrequently diagnosed, with less than 200 cases each (<0.5%).
Conclusions/Learning Points: NMFI remains a clinical challenge, with underdiagnosed diseases, over use of antimicrobials and poor outcome. Efforts are needed to improve its diagnosis, management and prognosis.

PV0307 / #1990

HAEMOPHAGOCYTIC SYNDROME ASSOCIATED WITH TYPHOID FEVER

E-Posters Viewing
E-POSTER VIEWING: AS05.B. TROPICAL/PARASITE INFECTIONS & TRAVEL MEDICINE

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Title of Case: HAEMOPHAGOCYTIC SYNDROME ASSOCIATED WITH TYPHOID FEVER
Background: Haemophagocytic lymphohistiocytosis (HLH) is based on an inappropriate immune system response. It has been associated with multiple triggers, including numerous infectious causes. Salmonella enterica is a rare cause, especially in our environment.
Case Presentation Summary: A 13-year-old patient from Pakistan presented with vomiting and diarrhoea one month after moving to Spain. On the 5th day of evolution, he developed fever, headache and dizziness. On arrival to the emergency room, blood work revealed microcytic and hypochromic anaemia with elevated acute phase reactants (APR). Given fever of unknown origin in an immigrant, Mantoux, serology and chest X-ray were performed, with no notable findings. He remained febrile despite intravenous cefotaxime, and pancytopenia, increased APR and hypertriglyceridaemia were observed. In addition, Salmonella enterica serotype Typhi was isolated in blood and stool cultures. HLH secondary to typhoid fever (TF) was suspected and the patient was referred to our centre. During the first few days the patient remained febrile and weak, thus intravenous dexamethasone was added with a good clinical response. The patient met 6/8 diagnostic criteria for HLH, and a genetic study was requested which ruled out primary HLH. He was discharged after 14 days of intravenous antibiotic therapy, with a corticosteroid tapering regimen.
Learning Points/Discussion: The association between HLH and TF, although rare, has been previously described. The difficulty lies in the similarity between advanced phase TF and HLH, both of which may present with persistent fever, hepatosplenomegaly, neurological symptoms or cytopenia. Differential diagnosis is important, especially in severe cases of HLH, which may require immunomodulatory drugs to reverse excessive activation of lymphocytes and macrophages.

PV0308 / #641

EXPLORING THE INITIAL HEALTH ASSESSMENT PROCESS FOR ASYLUM-SEEKING/REFUGEE CHILDREN ACROSS EUROPE - A QUALITATIVE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Backgrounds: In 2022, the number of migrants worldwide reached a record high, with 14.6% being children. Despite the availability of expert guidelines for the health assessment (HA) of migrant children in Europe, such as the consensus-based recommendations of the European Academy of Paediatrics, there remains, anecdotally, considerable variation in practice. This study aims to explore the current provision of services by European centres providing HA to migrant children and examine barriers and facilitators that affect the delivery of these services.
Methods: A purposive sampling method was utilized to identify potential participants from national and international expert networks. Clinicians working in services delivering HA to migrant minors across Europe were approached by email and invited to participate. Qualitative research was conducted using questionnaires and semi-structured interviews between July and August 2022. A content thematic analysis was held using the NVivo 12 software.
Results: Seventeen clinicians from eight European countries participated. The key themes approached were: service structure, features of the HA, and available resources. We identified a lack of standardization in the content and process of the HA, with significant variation in screening processes and approaches for both communicable and non-communicable diseases and mental health issues. There were common experiences regarding challenges to service delivery; in particular access to immunization, Psychiatry and Psychology services. Other common challenges were a lack of documentation, limited access to adequate funding and staff, and high patient mobility.
Conclusions/Learning Points: We need to optimise the standardisation of HA for this vulnerable population to support both best clinical practice and the development of the evidence base which underpins guidance to support this.

PV0309 / #405

"EVERYBODY'S SINGING FROM THE SAME SONGBOOK": STRATEGIES TO IMPROVE ACCESS TO CATCH-UP IMMUNISATIONS FOR HUMANITARIAN ARRIVALS ON THE GOLD COAST.

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Backgrounds: No one arriving as a refugee or asylum seeker to Australia will be up-to-date with vaccinations aligning with the Australian National Immunisation Program (NIP) Schedule. One-third of permanent humanitarian visa holders settled in Queensland live outside of the main local government areas. With international borders open again, it is important to understand the barriers faced by this vulnerable population in accessing their funded catch-up immunisations. The aim of this qualitative study was to understand the local issues faced by those community members who settle on the Gold Coast, as well as those faced by the refugee health service providers.
Methods: Semi-structured interviews with ten Gold Coast community members with a humanitarian arrival background, and ten Gold Coast refugee health service providers were organised to address vaccine acceptance, access, and uptake. Key themes were identified and coded using inductive thematic analysis.
Results: The key themes identified were a general sense of vaccine acceptance by community members, but ineffective use of interpreters and a deficiency in cultural competence by primary care. Vaccine providers were seeking more time, training and resources and there was a distinct gap in, and lack of financial incentive for, adult immunisations. Solutions were put forward with a focus on a consistent message with a centralised system, or a middle conduit between case managers and primary care (e.g., refugee health nurses).
Conclusions/Learning Points: Ensuring childhood immunisation rates reach their targets is vitally important in preventing outbreaks of vaccine-preventable diseases but there also needs to be geographically targeted strategies towards susceptible minority groups, including refugees and humanitarian arrivals. Ideally, these strategies would be consistent nation-wide and utilise a whole-of-practice approach with input from community members, practice nurses, medical practitioners, and multicultural organisation staff.

PV0310 / #2706

"SAY YES TO VACCINATIONS" – PRELIMINARY RESULTS OF UNICEF EDUCATIONAL PROJECT ON INCREASING AWARENESS OF UKRAINIAN MOTHERS RESIDING IN POLAND

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Background: According to the UNICEF data there are over 1.5 million registered refugees from Ukraine in Poland, 90% of them are women and children. The WHO data shows that in 2021 80% of children in Ukraine were fully vaccinated against polio and 87% - against measles. The main objective of the project is to increase the vaccination rate among Ukrainian children (6-60 months) residing in Poland. The first part was the online pilot study aimed at understanding barriers of Ukrainian mothers to vaccinating their children against polio and measles.
Methods: 187 refugees from Ukraine took part in the pilot survey (96.3% were women, at average age of 39.5 years, with one (51.1%) or two (34.4%) or more children (13.5%), 94.1% arrived in Poland after 24.02.2022). Participants indicated main barriers to the vaccination of children. Planned educational activities targeted at Ukrainian mothers will address obtained data. The project has funding from UNICEF (SBC office).
Results: Preliminary results show that the main source of vaccination information for Ukrainian mothers are doctors (16.1%) and media (13.9%). As the most important barriers, 64.3% to 75.3% mothers considered those related to approachability: long waiting time for appointments, lack of knowledge about where, when and against what to vaccinate a child. Followed by a language barrier (53.7%), awaiting return to Ukraine (53.6%), a lack of knowledge about the effects of vaccines (50.7%), on side effects (48.4%), high costs (47.7%), lack of health insurance (43.1%) and a concern about vaccines quality (41.9%). Almost one third indicated religious beliefs (27.1%).
Conclusions/Learning Points: The need for further research has been confirmed. Media, health care workers, NGOs and Orthodox church should be involved in educational campaign to encourage Ukrainian mothers to get their children vaccinated.

PV0311 / #1342

HUMAN FACE OF MEDICINE DURING THE HUMANITARIAN CRISIS

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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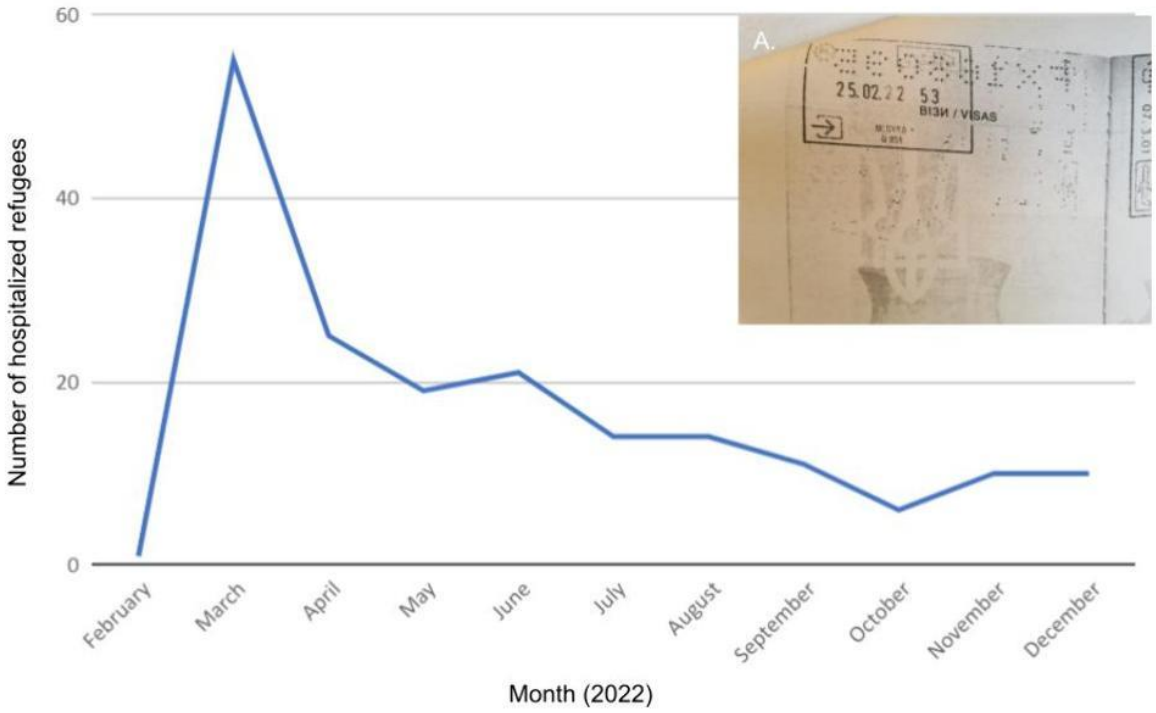
Backgrounds: With the Russian invasion of Ukraine, on February 24th 2022, the greatest humanitarian crisis in Europe since World War II began. Over 9 million people crossed the border from Ukraine to Poland. Around 3 million people were seeking asylum, and ~1.5 million stayed in Poland. Wroclaw, having already had numerous Ukrainian citizens, was one of the most picked destinations. It is estimated that 20-30% of the Wroclaw population is Ukrainian now. The aim of this study is to present the experience of our clinic connected with a huge migration wave from Ukraine to Wroclaw, Poland. Considering unsatisfying vaccine coverage in Ukraine, in our pediatric infectious disease clinic, we were preparing for the new infectious diseases' outbreaks, including these vaccine-preventable diseases. However, as there were no big refugee camps, no cases of measles or pertussis occurred. We took refugees to our homes, provided them with healthcare and vaccinations, and avoided new great epidemics that were the next real threat for all.
Methods: This is an epidemiological study.
Results: From 191 hospitalizations of Ukrainian refugees in our clinic in 2022 (Figure 1), the most common cause in the first weeks was COVID-19 with severe dehydration. In March (55 admissions), patients often came to our clinic directly from the train, after a few days of travel. Second often cause was HIV infection requiring continuation of ARV treatment or the prophylaxis for newborns.



Number of Ukrainian refugees hospitalized in the Department of Pediatric Infectious Diseases, Wroclaw Medical University, Wroclaw Poland in 2022.

A. A stamp in the passport of a Ukrainian refugee with the date of Polish border crossing.

Conclusions/Learning Points: We faced many challenges. Aside from health care provided, we had to engage in more forms of humanitarian aid, such as gathering basic needs products for refugees. Our experience is that dispersion and catch-up vaccination are necessary to avoid diseases outbreaks, while the human face of medicine helps people survive the trauma.

PV0312 / #309

INFECTIOUS DISEASES IN INTERNATIONALLY ADOPTED CHILDREN IN CROATIA (2012-2022)

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Backgrounds: Internationally adopted children (IAC) are at higher risk for infectious diseases. In the last five years, a higher number of IAC has been arriving to Croatia, exclusively from Democratic Republic of Congo. The aim of this study was to evaluate the prevalence of ID in IAC arriving to Croatia as well as compliance of attending phyisicians with the 2018 ECDC public health guidance on screening and vaccination for infectious diseases in newly arrived migrants within EU/EEA, including IAC.
Methods: We retrospectively examined hospital records including demographic data, clinical presentations, diagnostic tools, management and outcomes of all IAC who were admitted to University Hospital for Infectious Diseases “Dr Fran Mihaljević” from 2012 to 2022.
Results: We identified 49 IAC who arrived to Croatia from Democratic Republic of Congo from 2012 to 2022. Out of 49 examined IAC, 9/49 presented with fever due to uncomplicated malaria and 5/49 due to other diagnoses. There were no poor outcomes in children treated for malaria. Out of 35 IAC without fever, 21/35 had negative screening for infectious diseases. Out of other 14/35 the most prevelant ID were malaria and giardiasis whilst in 8/35 other diagnoses were made. Compliance with 2018 ECDC guidance was not recorded in 13/49 IAC, mostly missing chest X-ray and/or TST/IGRA.
Conclusions/Learning Points: Infectious diseases are common in Croatian IAC, diagnosed in 57% of examined Croatian children. The most prevalent infectious diseases in Croatian IAC are malaria and giardiasis. Compliance of attending physicians with the 2018 ECDC guidance is satisfactory, however, more focus should be placed on excluding active or latent tuberculosis infection.

PV0313 / #1047

EPIDEMIOLOGIC CHALLENGES AFTER INFLUX OF UKRAINIAN REFUGEE CHILDREN TO POLAND IN 2022.

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Backgrounds: Russia's invasion of Ukraine has caused a high influx of refugees to Poland. Since Feb 24, 2022, the number of Ukrainian refugees living in Krakow was 178000, resulting in the population of the city increasing to 957000. Most refugees are women and children. According to WHO data, in 2020 the rate of realization of the vaccination schedule in Ukraine was about 80%, and in some regions only 30-40%. In Poland, in the last few years, the rate of vaccination among children has decreased. This resulted in the risk of outbreaks of diseases which were previously controlled by vaccination.
Methods: A campaign of free diagnostic screening tests for Ukrainian refugees aged 0-18 years was conducted at Zeromski Specialist Hospital in Krakow. 826 children, comprising 420 boys and 406 girls, were examined. The medium age was 9 years 11 months.
Results: In total, there were 271 (32,8%) children with no anti-Hbs antibodies detected in their blood serum, although HBV vaccination is obligatory in Ukraine. Although vaccination certificates were not available, according to data provided by caregivers 719 (87%) children were vaccinated according to the Ukrainian vaccination schedule. Among the 719 children reported as fully vaccinated, 228 (31,7%) had no anti-Hbs antibodies although the standard hepatitis B vaccination provides protection in over 96%. Only one of all tested children had a positive Hbs antigen. HCV infection was also confirmed in one patient. None of the children were diagnosed with HIV infection.
Conclusions/Learning Points: In the new epidemiological situation, testing refugee children for HBV infection should be considered. Organizing vaccinations among refugees is a priority. It should also be necessary to organize the treatment of chronic hepatitis B in children.

PV0314 / #2577

LOW ENGLISH/FRENCH LANGUAGE SKILLS IS ASSOCIATED WITH FEAR OF COVID-19 AMONG SYRIAN REFUGEE PARENTS IN CANADA

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Background: The aim was to assess the association between English/French language skills and fear of COVID-19 among Syrian refugee parents in Ontario, Canada.
Methods: A total of 540 Syrian refugee parents who resettled in Canada were interviewed between March 2021, and March 2022. Fear of Covid-19 was measured using the Fear of COVID-19 scale (FCV-19S). Self-ratings of participants' official Canadian language (English or French) skills and the need for and availability of a language interpreter were collected. Multiple Linear regression analysis was performed to assess the relationships between language ability and need and availability of an interpreter and fear of COVID-19 after adjusting for several socio-demographic, immigration and health related factors.
Results: The mean (SD) score for the FCV-19S was 15.6 (6.02) and 15.4% of the participants were categorized as having high levels of FCV-19S. Results of the multiple linear regression analysis showed that low self-rated English/French language skills was significantly associated with increased FCV-19S scores (Adjβ=0.65, p= 0.047). When compared to participants who do not need an interpreter, those who needed an interpreter and were always provided with one were at reduced FCV-19S scores (Adjβ=-1.56, p= 0.061). In addition, findings indicated that low self-perceived socioeconomic status, longer years spent in Canada, living in a refugee camp and poor self-rated mental health contributed significantly to elevated levels of FCV-19S.
Conclusions/Learning Points: Targeted intervention and prevention strategies such as providing information in different languages for reducing the fear of COVID-19 should be considered for the Syrian refugee population in Canada.

PV0315 / #2587

HAVING A FAMILY DOCTOR IS ASSOCIATED WITH REDUCED COVID-19 VACCINE HESITANCY AMONG SYRIAN REFUGEE PARENTS IN CANADA

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Background: At the time of data collection for this survey, COVID-19 vaccines for children were not yet authorized. The aim of the study was to assess the hesitancy in Covid-19 vaccine among Syrian refugee mothers and fathers who resettled in Canada.
Methods: A total of 540 Syrian refugee parents (329 mothers and 211 fathers), who resettled in Ontario, Canada, were recruited between March 2021, and March 2022. Vaccine hesitancy was measured by the question “Are you going to take the vaccine for the Coronavirus-19 when it becomes available to you?”. Those who answered “No” or “don’t know” were classified as being hesitant, whereas those who answered “yes” or “Already took the vaccine” were classified as being non-hesitant. Multivariable logistic regression analysis was conducted to assess the association between having a family doctor and Covid-19 vaccine hesitancy after adjusting for several socio-demographic, immigration, and health related factors.
Results: 67% of the participants had more than 3 children and 15% were hesitant about taking the Covid-19 vaccine (17% and 13% among mothers and fathers respectively). Participants who reported not having a family doctor were 3.3 times at increased odds of being hesitant to have the Covid-19 vaccine compared to those without a family doctor (Odds Ratio=3.3, 95% Confidence Interval: 1.4-8.1). Lower education, arriving in Canada before 2016, poor mental health and having lived in a refugee camp were associated with increased Covid-19 vaccine hesitancy, whereas higher number of children and having a job were associated with reduced vaccine hesitancy.
Conclusions/Learning Points: Having a family doctor plays a major role in dispelling misinformation of COVID-19 vaccines and in promoting trust for vaccine acceptance among the refugee population in Canada.

PV0316 / #777

INFECTION SCREENING OUTCOMES FOR UNACCOMPANIED ASYLUM-SEEKING CHILDREN (UASC) IN A UK TERTIARY PAEDIATRIC CENTRE

E-Posters Viewing
E-POSTER VIEWING: AS05.C. REFUGEES AND MIGRANTS

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Backgrounds: There is an increasing number of unaccompanied asylum-seeking children (UASC) entering the UK. This vulnerable group has complex health needs including management of infections. The Royal College of Paediatrics and Child Health recommend screening UASC at risk of communicable infections. Common practice is to not screen individuals for tuberculosis (TB) if entering from a country of low prevalence (<40/100,000).
Methods: We retrospectively reviewed all UASC referred to our tertiary paediatric infectious diseases clinic between January 1st 2021 to December 31st 2022. Data was extracted from electronic medical records.
Results: A total of 65 USAC were referred to the clinic; 97% were male with a median age of 17.8 years (range 16-19 years). Median time from UK entry to infection screening was 11.5 months. One UASC was lost to follow up before screening. The commonest countries of origin include Sudan (18%), Iraq (15%), Iran (15%) and Afghanistan (11%). Twenty-five (39%) were diagnosed with latent TB, six of whom originated from, and travelled through countries with reportedly low TB prevalence. Four (6%) were diagnosed with hepatitis B infection, 4 (6%) with syphilis and no UASC were infected with hepatitis C or human-immunodeficiency-virus. One UASC from Sudan had targeted testing for symptomatic urinary Schistosomiasis, which was positive. Our clinic did not routinely test for parasites or sexually-transmitted infections other than syphilis.
Conclusions/Learning Points: Our clinic identify higher rates of tuberculosis compared with other UK tertiary paediatric centres such as London (39% vs 21%). Furthermore, we identified 6 individuals infected with TB who were classified as low risk. This highlights the high risk of contracting TB during the migration journey and the importance of screening all UASC for TB regardless of country of origin to ensure appropriate treatment is delivered.

PV0317 / #357

OPHTHALMIA NEONATORUM DUE TO N. GONORRHOEAE AND E. COLI – A NEW CHALLENGE IN A DEVELOPED COUNTRY

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

Luciana Abelha[1], Ana Isabel Sequeira[1], Inês Eiras[1], Licínia Lima[1], Joana Teixeira[2], Carla João Dias[1], Isabel Soro[1], Arnaldo Rego[1]
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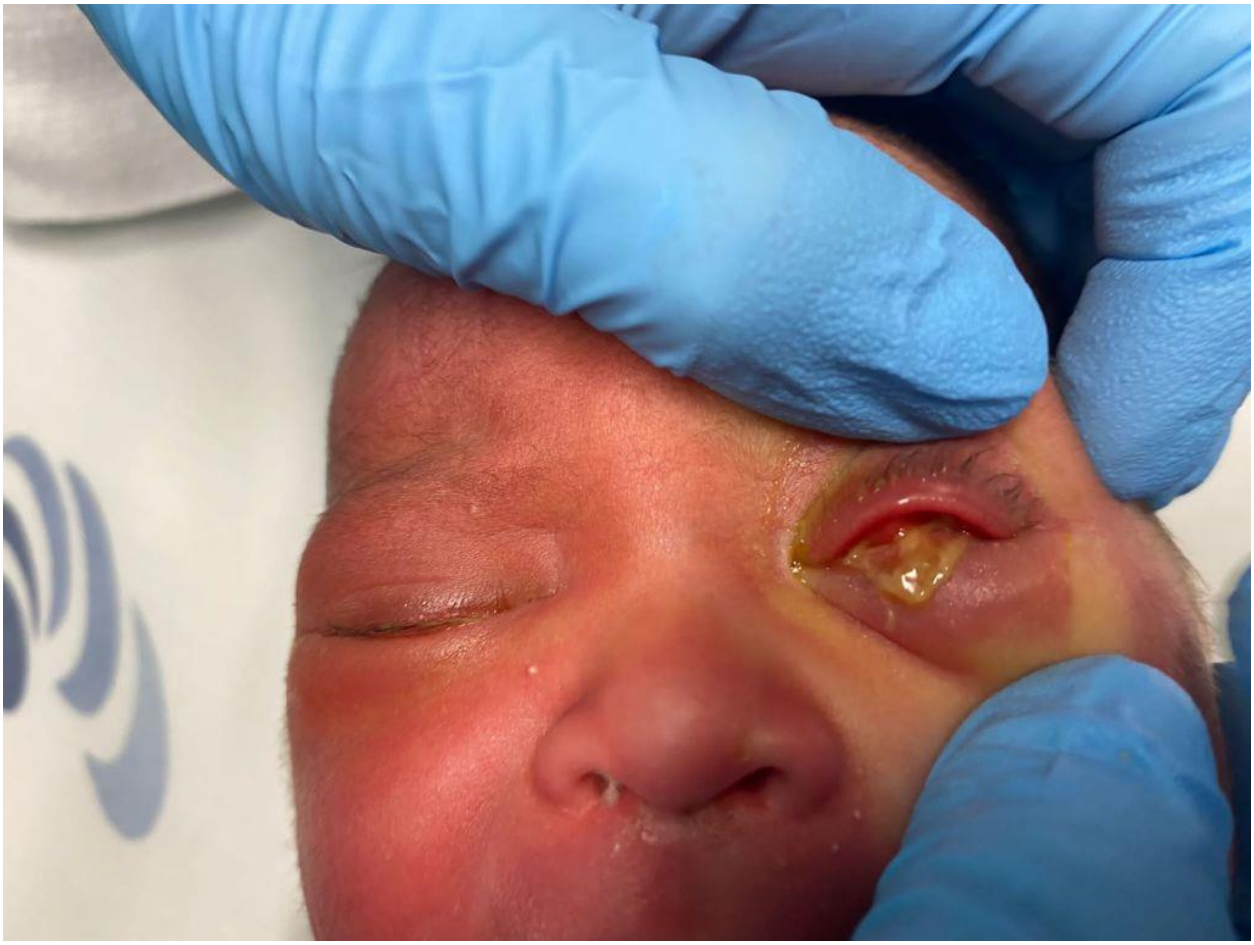
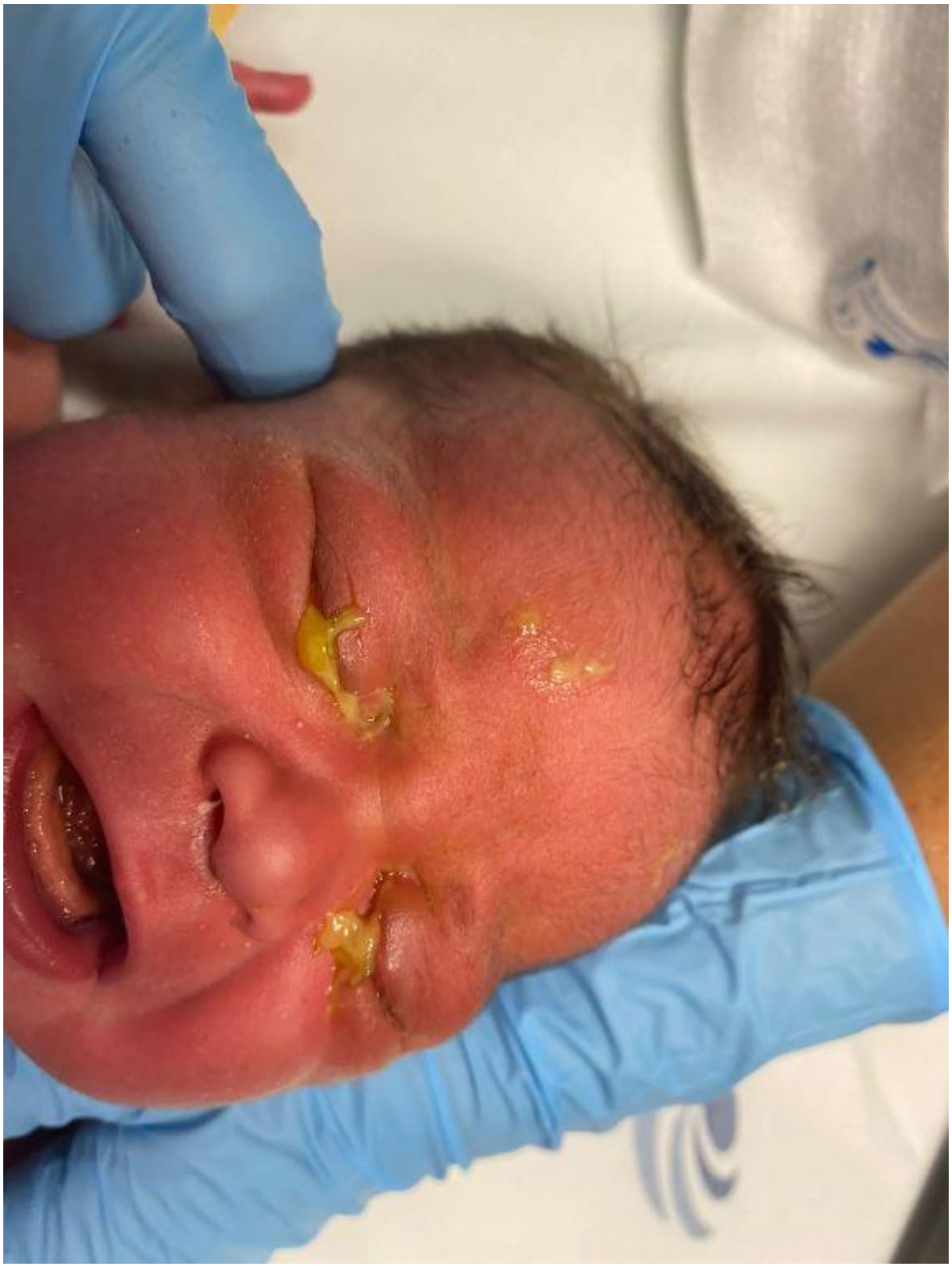
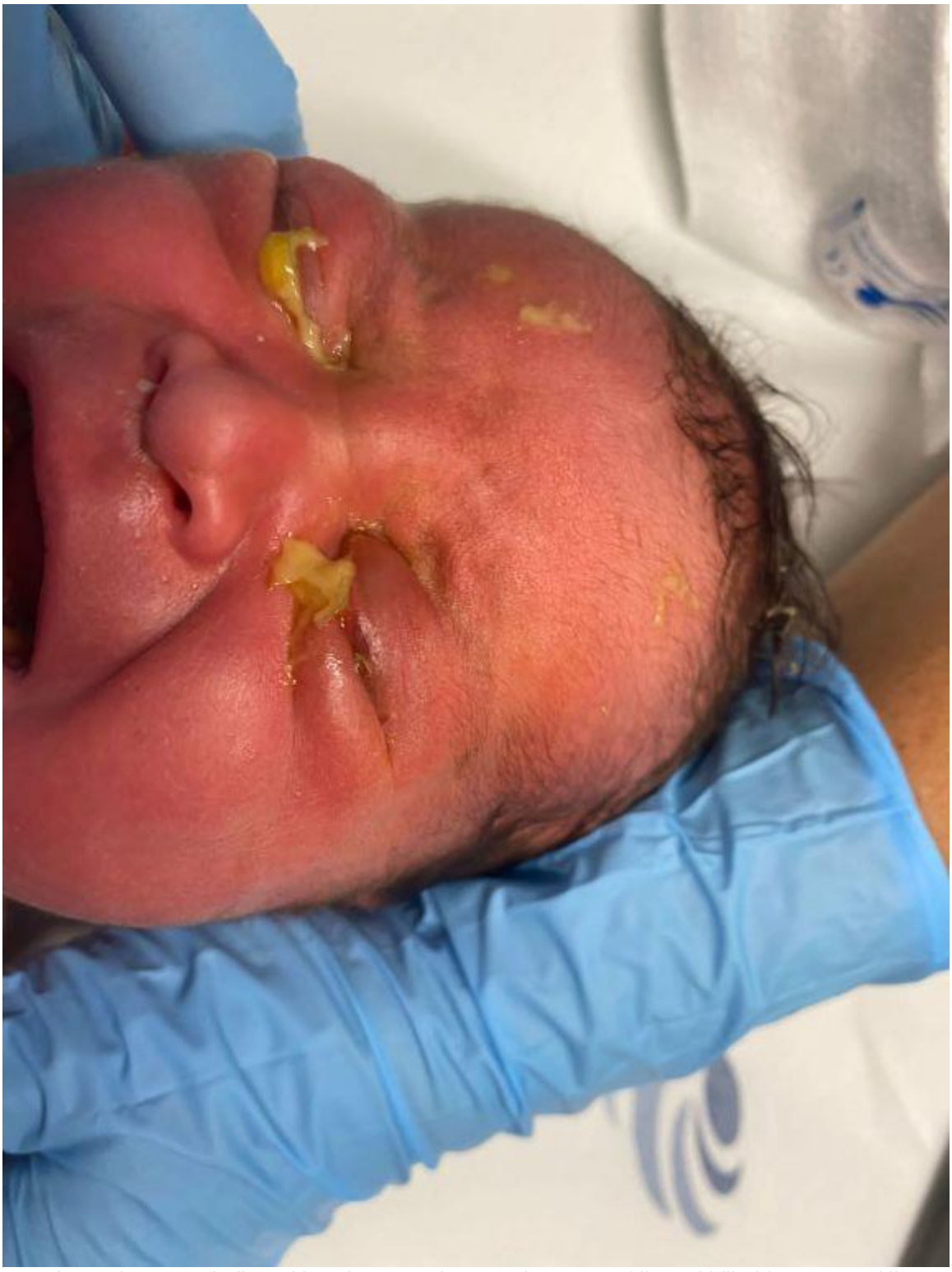
Backgrounds: Ophthalmia neonatorum is a conjunctivitis that occurs in the first 28 days of life, affecting 1-12% of neonates. Neisseria gonorrhoeae and Chlamydia trachomatis were the main causes; with the implementation of ocular antibiotic prophylaxis at birth, the incidence decreased, and bacteria such as Escherichia coli became common.
Methods: Newborn, with bilateral ocular mucopurulent exudate on second day of life, associated with conjunctival hyperemia and periorbital edema. Maternal history with no pathological antecedents; maternal serologies: negative; group B streptococcus negative at 36W+5d; prenatal ultrasounds: normal. Vacum delivery at 40weeks + 2days; artificial rupture of membranes lasting 5 hours; Apgar score: 10/10/10; no record of administration of ocular prophylaxis; Biometrics: weight 3985g, height: 49.1 cm, head circumference: 34.20
cm.







Results: Laboratory findings (day 2): C-reactive protein 1.26 mg/dl; total bilirubin: 16.5 mg/dl; remaining analytical study unchanged. On suspicion of N. gonorrhoeae, the treatment was started: a single IM dose of cefotaxime; eyes wash with saline solution, and topical Azithromycin + Oxytetracycline. Ocular swab was positive for N. gonorrhoeae and E. coli; On day 3 evaluation by Ophthalmology, showed no corneal lesions. For E.Coli proven early sepsis (CRP max 4.89 mg/dL), Ampicillin and Gentamicin were given for 7 days; The blood culture result became positive 5 days later, and cultural examination of the catheter tip

was positive for E.coli The newborn showed clinical and laboratory improvement; and after being discharged from the hospital, missed all the appointments.
Conclusions/Learning Points: Gonococcal infection is a rare cause of neonatal ophthalmia in developed countries due to the use of routine prophylaxis. Although there is no screening for Chlamydia or N. gonorrhea infection during pregnancy, prompt treatment of these and neonatal ocular antibiotic prophylaxis are important measures to avoid neonatal conjunctivitis.

PV0318 / #1016

CYTOMEGALOVIRUS ULCERATIVE ESOPHAGITIS ASSOCIATED WITH EOSINOPHILIC ESOPHAGITIS IN AN IMMUNOCOMPETENT INFANT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CYTOMEGALOVIRUS ULCERATIVE ESOPHAGITIS ASSOCIATED WITH EOSINOPHILIC ESOPHAGITIS IN AN IMMUNOCOMPETENT INFANT
Background: The mechanism for eosinophilic esophagitis (EoE) after acute infectious esophagitis is not known; however, the association between EoE and herpes simplex virus esophagitis has been reported. To our knowledge, EoE associated with CMV in an immunocompetent neonate has never been reported in relevant literature.
Case Presentation Summary: A 25 day-old female born term with poor weight gain and frequent postprandial spit-ups presented to the emergency department with a choking episode associated with cyanotic apnea. Physical exam, laboratory evaluation, and abdominal ultrasound showed no significant abnormalities. Her weight was 2.4% below birth weight. Upper gastrointestinal series demonstrated a dilated esophagus with decreased peristalsis concerning for early achalasia. Upper endoscopy showed esophageal erosions and mild bleeding in the distal esophagus (Fig 1a). The biopsy showed CMV esophagitis, confirmed by immunohistochemical staining. Head ultrasound and ophthalmic exam were negative for typical findings of CMV. Immunodeficiency work-up was negative. She was started on Valganciclovir and a proton pump inhibitor with clinical improvement. Two months later, the patient had worsening emesis after stopping Valganciclovir. Repeat upper endoscopy demonstrated furrows, edema, and friability with aphthous ulcers (Fig 1b). Her biopsy showed 75/42 eosinophils/hpf in the distal esophagus with negative CMV stain. The patient’s formula was switched to an amino acid formula with improvement of
symptoms.

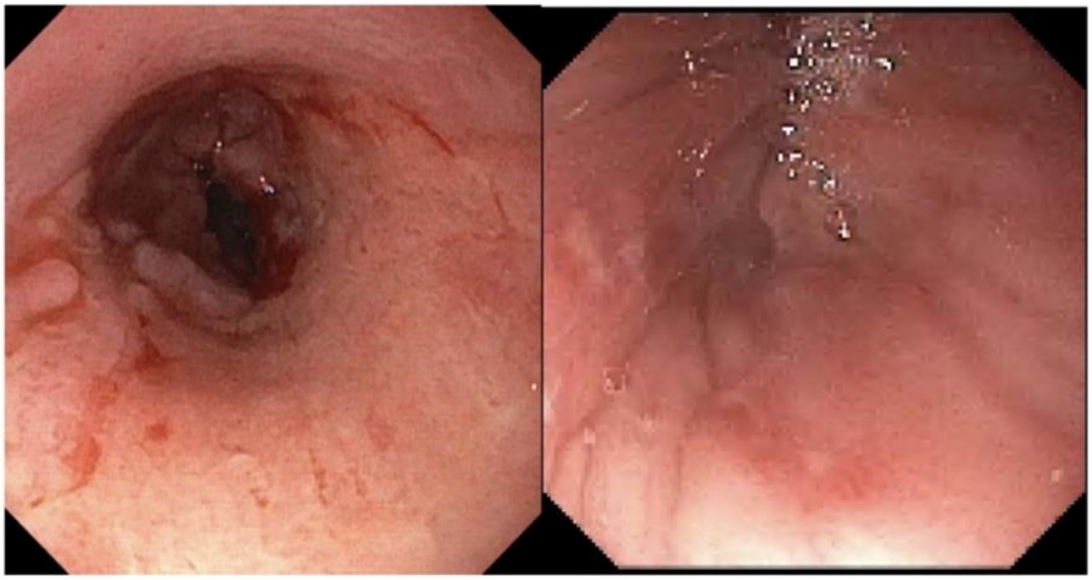

Fig. 1A: Esophagitis in distal esophagus

Fig 1B: Edema and linear furrows in distal esophagus

Learning Points/Discussion: Cytomegalovirus esophagitis is an unusual presentation of CMV infection among immunocompetent neonates that can potentially lead to development of eosinophilic esophagitis. Since upper endoscopy and biopsy are warranted to establish this diagnosis, a heightened index of suspicion especially among neonates who are failing to thrive and who do not respond to routine management of emesis is imperative for timely intervention to be initiated.

PV0319 / #1028

DOSING REGIME, SAFETY PROFILE AND DRUG LEVELS FOR INTRAVENOUS GANCICLOVIR AND ORAL VALGANCICLOVIR IN PRE-TERM INFANTS TREATED FOR CMV DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: To date, there is no data on the appropriate dosing regime and safety profile of Ganciclovir (GCV) or Valganciclovir (VALGCV) in the treatment of pre-term infants with cytomegalovirus (CMV) disease.
Methods: Pre-term infants with corrected gestational age <32 weeks and/or weight <1.8kg treated for CMV disease between 2016 and 2022 were included. Clinical data was collected including GCV or VALGCV dosage, safety profile and therapeutic drug monitoring.
Results: Twenty-three infants (57% male and 48% Asian ethnicity) with median corrected gestation of 31 weeks (IQR 26.6 - 36.1) and median weight of 922g (IQR 470 - 1692) at treatment initiation were included. Postnatally acquired CMV (pCMV) (74%) with symptomatic thrombocytopenia (71%) was the main reason for treatment; 6 infants were treated for congenital CMV. 92% of infants received intravenous (IV) GCV at 6mg/kg twice daily (BD), whilst 90% of infants with oral (PO) VALGCV received 16mg/kg BD. 48% infants had GCV levels during their course of treatment. The mean pre-dose GCV level was 2.3 and 2.7 in the 6mg/kg BD IV GCV and 16mg/kg BD PO VALGCV respectively (accepted range 0.5 - 1.0 mg/L). The 1 hour post-dose GCV level with 6mg/kg BD IV GCV had a mean of 7.7 (accepted range 7 - 9 mg/L). Six infants (26%) had no documented side effects within 28 days of treatment. 59% had 2 or more side effects with neutropenia (ANC <1.0 x 10^9/L) the most common (43%). However only two infants had their treatment interrupted (ANC <0.5 x

Characteristics	n, (%)
Male	13 (57)
Female	10 (43)
Asian	11 (48)
White	5 (22)
Other	2 (8)
Type of infection	
cCMV	6 (26)
pCMV	17 (74)
Gestation at point of treatment (wks)	
<32 weeks	15 (65)
Weight at point of treatment	
<1.8kg	23 (100)
Dosing	
IV GCV 6mg/kg BD	11 (92)
IV GCV 5mg/kg BD	1 (8)
PO VALGCV 16mg/kg BD	18 (90)
PO VALGCV 15mg/kg BD	1 (5)
PO VALGCV 14mg/kg BD	1 (5)
GCV drug levels	
Levels performed	11 (48)
Acceptable pre-dose levels	1 (14)
Acceptable 1 hour post-dose levels	2 (33)
Acceptable 2 hour post-dose levels	2 (66)
Dose change following level	2 (18)
Treatment side effects	
None	6 (23)
2 or more side effects	9 (39)
Neutropenia	10 (43)
Anaemia	9 (39)
Transaminitis	3 (13)

10^9/L).

Conclusions/Learning Points: Ganciclovir was generally well tolerated among pre-term and extremely low weight infants albeit with higher than accepted pre-dose levels. However more data is required for appropriate dosing and GCV drug levels in this unique patient population.

PV0320 / #1120

NEONATAL OMPHALITIS – TEN-YEAR EXPERIENCE AT A TERTIARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Omphalitis is a soft tissue infection involving the umbilicus and surrounding tissues. Although rare in developed countries, omphalitis significantly affects neonates with increased risk of systemic disease and mortality.
Methods: Retrospective study of neonates admitted at a tertiary hospital diagnosed with omphalitis between 2013-2022. demographics, clinical presentation, laboratory and microbiologic findings, treatment and outcomes are described.
Results: Thirty neonates were admitted, median age 9.5 days (interquartile range (IQR) 6-13.5). Two had risk factors for omphalitis (maternal infection). Purulent discharge from the umbilical stump was the most common finding (n=24), followed by erythema (n=20). One infant had fever. Median leucocyte count was 13.250 x 10^9/L (IQR 10.475-15.275), and C-reactive protein was 0.37 mg/dL (IQR 0.1-0-38). Cultures were collected in all neonates: site cultures in 90% (n=27), all positive, most commonly with methicillin-sensitive Staphylococcus aureus alone (40%, n=12) or in combination with other bacteria (16.7%, n=5) and Escherichia coli (16.7%, n=5); blood cultures in 97% (n=29) with positive results for Staphylococcus epidermidis (n=2) and Staphylococcus warneri (n=1); urine and cerebrospinal fluid cultures in 5 and 2 children, respectively. Flucloxacillin ± gentamicin was the most frequent therapeutic option. All neonates completed at least 7 days of antibiotics, for a median time of 5 days of intravenous therapy followed by oral therapy. Median time of hospitalization was 7 days, without complications or readmissions.
Conclusions/Learning Points: Neonates with omphalitis had mild disease, with 10% of bacteriemia and no further complications. Blood or site of infection cultures were collected in all children. Urine and cerebrospinal fluid cultures were collected in selected cases. They all had good outcomes, including those who started intravenous antibiotics and completed with oral therapy.

PV0321 / #2717

CONGENITAL SYPHILIS: PREVENTABLE, YET INCREASING?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CONGENITAL SYPHILIS: PREVENTABLE, YET INCREASING?
Background: Congenital Syphilis (CS), caused by the bacterium Treponema pallidum, is a vertically transmitted infection responsible for a wide range of clinical manifestations in infants. Early detection and treatment of maternal syphilis through prenatal care are pivotal in primary care efforts to control and prevent CS. In our Neonatal Intensive Care Unit (NICU), we have observed an increase in the number of cases of CS.
Case Presentation Summary: To investigate the trend, we analyzed the discharge papers of all newborns over the past 10 years with a diagnosis of CS. Our study group included 20 newborns, more than half (11) of them were born after 2020. 4 presented with severe forms of CS at birth, including very premature birth, sepsis with coagulopathy and meningitis. 1 of these newborns died. None of the mothers of these symptomatic newborns had been treated. 3 of these severe cases occurred after 2020. Other clinical findings were jaundice (11), followed by cholestatic hepatitis with hepatomegaly (3), mucocutaneous lesions (including 2 cases of pemphigus syphiliticus), splenomegaly (2) and ascites (1). Infants were treated with IV benzylpenicillin (according to guidelines), combined with gentamicin in severe cases. 14 of the 20 mothers were not adequately treated during the pregnancy, even though the diagnosis had been made in a timely manner.
Learning Points/Discussion: The emergence of more and more severe cases of CS in recent years may be related to failures in the follow-up of pregnant women, possibly resulting from the Covid-19 pandemic. Our findings highlight the importance of raising awareness among clinicians about the risks and consequences of CS. Early detection, treatment and notification to public health authorities are essential for preventing and managing this disease in newborns.

PV0322 / #1799

NEONATAL HERPETIC INFECTION – A RARE BUT CHALLENGING CONDITION

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Neonatal Herpetic Infection - a rare but challenging condition
Background: Herpetic infection during the neonatal period may have intrauterine, perinatal, or postnatal transmission. Despite its low incidence, morbidity and mortality are significant in newborns, with a high potential for long-term sequelae.
Case Presentation Summary: 11-day-old, full-term female newborn, with unremarkable prenatal history. Born by cesarean section, with adequate weight for her gestational age. Admitted to the emergency department due to cutaneous lesions scattered over her face, trunk and back with a two-day evolution, without fever, discomfort or itching. Objectively she presented five bullous meliceric lesions on the face, trunk, left armpit and back, with an erythematous halo and drainage of purulent content. The remaining exam was unremarkable. An initial analytical study, including blood and urine cultures, was negative. Due to the suspicion of impetigo, she was hospitalized with intravenous Flucloxacillin 100mg/kg/day. On the second day of hospitalization, the skin lesions worsened, presenting several confluent and ulcerated lesions on the face and trunk, with small satellite vesicles, highly suspicious of herpetic infection. A swab collection of exudates from the cutaneous lesions was performed. Lumbar puncture and serologic testing for herpes simplex virus (HSV) antibodies were negative. Empirical therapy with intravenous Acyclovir 60mg/kg/day was started, with posterior confirmation of skin infection by HSV-1. Gradual improvement was verified, with complete resolution after 14 days of Acyclovir. She was discharged with oral suppressive therapy with acyclovir and currently remains asymptomatic.
Learning Points/Discussion: Mucocutaneous disease accounts for 45% of neonatal HSV infection, and HSV-1 is the main responsible for isolated cutaneous involvement. Despite the absence of symptoms of systemic disease, it is mandatory to exclude multisystemic involvement, namely of the central nervous system. Timely treatment is essential for a favorable prognosis.

PV0323 / #882

CONGENITAL RUBELLA SYNDROME PRESENTING WITH BLUEBERRY MUFFIN BABY: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CONGENITAL RUBELLA SYNDROME PRESENTING WITH BLUEBERRY MUFFIN BABY: A CASE REPORT

Background: Blueberry muffin baby is a rare clinical presentation in newborn. It is characterized by the presence of widespread, maculopapular lesions of purple colour. The presence of skin lesions could be resulted from intrauterine viral infections.

Case Presentation Summary: A male infant with a birth weight of 2075 g, Apgar score 3/5/7, who was born in gestation week 36 by caesarean section from mother with G3P0A2. The first pregnancy was hydrocephalus baby and intrauterine fetal death around gestation week 22. The second pregnancy was spontaneous abortion around gestation week 17. Mother came to emergency room with premature rupture of membrane. Laboratory results of mother showed that HIV, HBsAg, RPR and TPHA were non-reactive. Immunoglobulin G (IgG) rubella, cytomegalovirus, and toxoplasma were reactive, and only IgM of toxoplasma was reactive. The baby had a “blueberry muffin appearance” with widespread purple papules (Figure 1) and macrocephaly. Laboratory results showed pancytopenia and increased procalcitonin. Blood culture result was negative. Serology testing showed congenital infection with rubella. The results of RPR and TPHA were negative. Brain CT scan examination showed non-obstructive hydrocephalus, colpocephaly, lateral periventricular oedema, multiple calcification, and suspected retinochoroiditis. Ophthalmic examination showed vitreous haziness, suspected chorioretinitis. The skin lesions gradually progressed over
time.

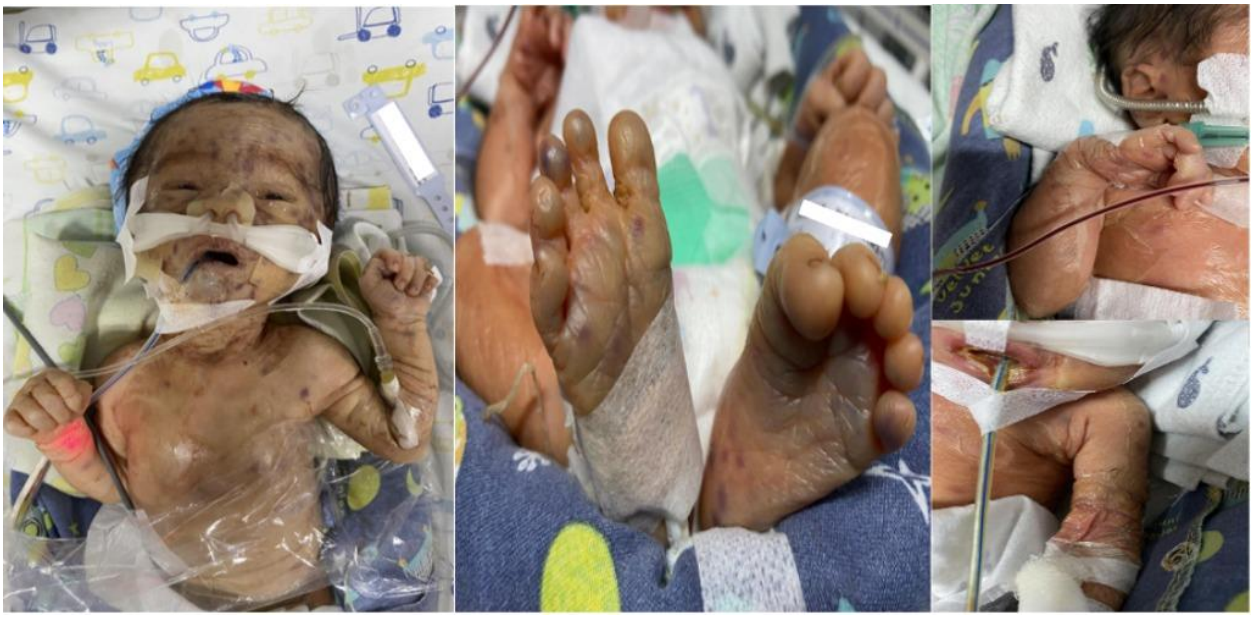

Figure 1. skin lesions

Learning Points/Discussion: Early detection and prompt treatment for newborn presenting with

blueberry muffin rashes and next antenatal counselling for mother, especially related to toxoplasmosis, rubella, cytomegalovirus, and herpes simplex (TORCH) infections should be emphasized.

PV0324 / #781

ASSOCIATION OF PERINATAL INFECTIONS AND LENTICULOSTRIATE VASCULOPATHY

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: ASSOCIATION OF PERINATAL INFECTIONS AND LENTICULOSTRIATE VASCULOPATHY
Background: Introduction Lenticulostriate vasculopathy (LSV) refers to the sonographic finding of increased echogenicity of the lenticulostriate vessels. The etiologies are various and sometimes there is no évident etiology identified. we report 04 cases of LSV lesions discovered at birth by CUS, performed systematically in view of the notion of maternal infection during pregnancy.
Case Presentation Summary: Cases report Maternal pathologies proven by specific serological tests performed during pregnancy: toxoplasmosis, CMV and Covid-19. The serological tests for the three patients born in the context of CMV and Covid-19 were posistives and the children presented a severe multi-visceral involvement. whereas in the context of toxoplasmosis, the newborn's serology was twice negative and the child presented with only moderate axial hypotonia and has not received specific treatment but he is still being followed in consultation. The two children with covid-19 died at 25 days of life in an array of multiorgan failure.
Learning Points/Discussion: LSV is currently described in newborns with congenital infection or with others etiologies. In our series, we find two cases of Covid -19 in its severe form like some authors. The association between LSV and Covid-19 is recently described but not well established. In our cases, the LSV appear to be associated with the severe forms of perinatal covid-19.

PV0325 / #869

MATERNAL URINARY TRACT INFECTION AND EARLY BRAIN LESIONS OF THE PREMATURE INFANT.

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Maternal urinary tract infection (MUTI) is considered as a potential risk factor of fetal infection. If the fetus is affected (via SRIF), brain damage can occur and leave long-term sequelae in the child born prematurely. Aim: Estimate the association between MUTI and early brain damage in premature babies.
Methods: -Case control study at the neonatal service of CHU Mustapha of Algiers from 01/12/2007 to 31/12/2012. -Population: 801 in born babies aged between 24 to 36 weeks +6 days. -Exam: 1-Histological study of the placenta 2-Cranial ultrasonography within the 72 hours of birth followed by weekly controls until the patients reached the term. 3-MRI after 40 weeks if the lesions persisted after the acquired term and, and if GA<32 weeks. 4-EEG :realized during the first week of life. -24 Risk factors studied, among them, MUTI. -The statistical method : bi-varied analysis, logistic regression. P < to 0.05 was significant.
Results: -In bi-varied analysis: OR=4,79 IC95 (1,71-13,78) $p<10^{-3}$ (S) -After logistic regression : OR^{a} =1,082 IC95 (0,306-3,832) p=0,902 (NS) MUTI is not an independent factor.
Conclusions/Learning Points: Several authors have found a deleterious correlation between maternal urinary tract infection and WMD in the premature infant. In our study, this link was not found. However, a more rigorous study with little bias is needed before ruling out this possible link.

PV0326 / #1841

CONGENITAL CMV INFECTION OR SOMETHING MORE…

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CONGENITAL CMV INFECTION OR SOMETHING MORE…
Background: Congenital Cytomegalovirus (CMV) infection is relatively common worldwide and is the leading cause of nonhereditary sensorineural hearing loss. It can also cause a variety of other symptoms such as neurodevelopmental delay or vision impairment, common to many other conditions.
Case Presentation Summary: A 4-year-old girl, with prenatal history of confirmed maternal CMV infection at 32 weeks of gestational age, with the remaining serologic tests normal. After birth, the newborn's CMV infection was confirmed by the detection of CMV in urine by PCR test. She was asymptomatic, her hearing screening was normal as well as transcranial ultrasound and blood work. She maintained regular follow-up since birth and with her growth some dysmorphic characteristics became more evident: hypertelorism, thin upper lip, shoulder asymmetry with the left nipple in a higher position and several coccygeal pits. She also presented a neurodevelopmental delay. A brain MRI scan showed areas of pachygyria with frontotemporoparietal and left insular polymicrogyria and bilateral subcortical T2-hypersignal, concordant with CMV infection sequelae. A lumbosacral MRI was normal. Genetic testing (array-CGH) revealed an interstitial deletion of 2.55 Mb in the 22q11.21 region, an alteration that is associated with DiGeorge syndrome. Currently, the girl maintains multidisciplinary follow-up and multiple therapies, including physical, occupational and speech therapies and hippotherapy and is showing satisfactory improvement.
Learning Points/Discussion: DiGeorge syndrome is a genetic disorder that results from 22q11.2 deletion. It has a wide spectrum of clinical manifestations, with neurodevelopmental delay, speech and hearing impairment being the most frequent. This case brings attention to the fact that many of the symptoms could be explained either by the genetic syndrome or the congenital CMV infection, which could have delayed the diagnosis and therefore genetic counseling.

PV0327 / #879

A SINGLE-CENTER RETROSPECTIVE OBSERVATIONAL STUDY OF CONGENITAL SYPHILIS IN A TERTIARY NICU IN CAMBODIA DURING 48 MONTHS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: During COVID-19 pandemic, there was a resurgence of congenital syphilis in Cambodia. In our center, the first case was reported in January 2021 in spite of its absence since 2005.
Methods: This retrospective study was conducted in Neonatal ICU in Calmette Hospital to determine the incidence of congenital syphilis (confirmed and possible case), the maternal treatment status, the newborn' clinical and laboratory findings and the compliance of follow-up. Paired serology (RPR and TPHA) were done in all cases. Case definition was based on CDC's recommendation. The data was collected for 2 years (Jan 2021 to December 2022). The study did not include stillbirths.
Results: A total of 53 neonates (31 males) with the diagnosis of congenital syphilis were included in the study. Preterm birth was reported in 58.5%, with mean duration of gestation of 36 weeks. Low birth weight was reported in 43.4% (means 2490g; range 1150-3800g). Only 12 mothers (22.6%) were treated during pregnancy: penicillin-regimen was used only in 58% of cases and none were completed by the time of birth. 18 infants were symptomatic (34%) and the most common features included pemphigus (44%), hepatomegaly (39%) and splenomegaly (22%). Anemia was observed in 6 neonates (33%) and thrombocytopenia 28%. 19/45 cases (35%) got elevated CRP at admission (means: 79mg/L; range 17-175). CSF was abnormal in one case. All neonates were treated immediately at birth, with Benzyl-penicillin for 10 days. Mortality rate was 2% (A preterm of 30WGA with birth asphyxia). Follow-up rate was 57% (at least 1 follow-up).
Conclusions/Learning Points: Congenital syphilis is a global burden. However, it is preventable. The mother-to-child transmission should be and can be prevented by early diagnosis and on-time, accurate treatment of the mother by proper regimen.

PV0328 / #2564

REGIONAL NEWBORN SCREENING FOR CONGENITAL CYTOMEGALOVIRUS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Background: Cytomegalovirus is the most common congenital infection, affecting 0.5-1% of all live births, and is the leading non-genetic cause of congenital sensorineural hearing loss and neurological damage. In Portugal, the estimated prevalence is approximately 1.05%. There is an emerging evidence-based consensus that a systematic approach based on universal newborn screening and timely treatment and appropriate follow-up services is feasible and can yield substantial net benefits for many affected children and families.
Methods: A narrative review based on relevant literature from the PubMed data search outlines current evidence on key aspects of a screening program for congenital cytomegalovirus (cCMV).
Results: A cCMV screening program is proposed to all newborns in the Autonomous Region of Madeira, in the first three weeks of life, using CMV DNA polymerase chain reaction on urine or saliva samples, allowing timely audiologic, neurologic and ophthalmologic assessment and intervention, as well as sensory and neurodevelopmental follow-up. The use of hearing devices, speech and language programs, and educational accommodations can ultimately improve developmental outcomes, increasing productivity and minimizing the health-care burden.
Conclusions/Learning Points: Current evidence regarding cCMV infection supports the need of an organized neonatal screening program, which may provide the opportunity to implement best practices regionally.

PV0329 / #1685

MATERNAL TOXOPLASMA SEROPREVALENCE RATES IN NORTHERN GREECE

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Toxoplasma gondii's importance for humans refers mainly to primary infection during pregnancy, resulting in abortion/stillbirth or congenital toxoplasmosis. This study aims to evaluate maternal Toxoplasma seroprevalence during pregnancy and correlate to congenital toxoplasmosis in Northern Greece.
Methods: This is a retrospective study conducted in two major tertiary-level public hospitals with maternity services from January 2019 to December 2020. Prenatal Toxoplasma serology (IgM and IgG antibodies) was evaluated in all pregnant women who gave birth to live neonates. Medical records of all these neonates were assessed for congenital toxoplasmosis.
Results: During the study period there were 6472 pregnant women with live births. Medical records were accessible for 4417 of them and 1803 had a documented prenatal screening for toxoplasma serology. Among those 1803 women, only 987 (55%) had performed toxoplasma serology during the first 10 weeks of pregnancy, and 151/987 (15%) were found seropositive. At the time of delivery, independently of the number of toxoplasma serology testing, 1465 (81%) women were found seronegative, 315 seropositive and 23 with toxoplasma infection based on serology (positive IgM and IgG). Among seronegative women, only 226 (15.4%) had repeated serology testing during pregnancy and none were found seropositive. Among 23 pregnant women with possible toxoplasma infection, further neonatal evaluation for congenital infection was recorded only in 13 (56.5%) neonates from whom 12 were found negative, and only 1 was diagnosed with congenital toxoplasmosis.
Conclusions/Learning Points: A significant number of seronegative women who are susceptible to toxoplasma infection do not repeat toxoplasma serology during their pregnancy. Moreover, further evaluation of the neonates of women with possible infection during pregnancy seems to be poor. All these can lead to undiagnosed asymptomatic neonates with congenital toxoplasmosis.

PV0330 / #2110

TWO YEAR BURDEN OF CONGENITAL CYTOMEGALOVIRUS INFECTION IN COMMERCIALLY- AND MEDICAID-INSURED PATIENTS IN THE UNITED STATES

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Congenital cytomegalovirus (cCMV) infection is the leading infectious cause of congenital birth defects. Approximately 20-25% of infants born with cCMV develop long-term health complications including hearing loss. Despite this, studies on the burden of cCMV are limited. We assessed the healthcare resource utilization (HRU) and cost burden among cCMV patients in the US using insurance claims data.
Methods: This retrospective study utilized IBM Watson Health MarketScan® Commercial Claims and Encounters and Multi-State Medicaid data from January 1, 2010 to December 31, 2019. Patients with a first diagnosis (index date) of cCMV (ICD-9: 771.1; ICD-10: P35.1) or CMV (ICD-9: 78.5; ICD-10: B25.x) within 1 month of birth were included in the cCMV cohort. Index date for non-cCMV controls was randomly selected from all medical claims within 1 month of birth. cCMV patients were matched 1:1 to controls. All patients were required to have ≥2 years of continuous health plan enrollment post-index; HRU and costs (US$2021) were summarized over the 2-year study period.
Results: 118 Commercial and 351 Medicaid matched pairs were included in the analyses. Mean ±SD (median) birth length of stay was 27.3 ±58.2 (7.0) days for Commercial cases (vs. 6.4 ±11.5 [6.4] days for controls; p<.001) and 26.6 ±39.9 (11.0) days for Medicaid cases (vs. 5.7 ±9.0 [3.0] days for controls; p<.0001), with mean birth admission costs of $195,630 ±760,256 (vs. $24,195 ±101,786; p=.025) and $57,182 ±160,996 (vs. $5,732 ±29,906; p<.0001), respectively. On average, cCMV patients had significantly higher study period HRU and costs compared to controls over 2 years (Table 1).
Conclusions/Learning Points: cCMV patients have substantial HRU and costs during the 2 years post-diagnosis. While the majority of patients did not require hospitalization, inpatient care contributed greatly to overall cost

burden.

Table 1. All-cause HRU and costs of cCMV in Commercially- and Medicaid-insured patients during the first- and second-year following index diagnosis

	Commercial (N = 118)				Medicaid (N = 351)			
	Year 1		Year 2		Year 1		Year 2	
	Cases	Controls	Cases	Controls	Cases	Controls	Cases	Controls
Any medical visits, n (%)	117 (99.2%)	117 (99.2%)	115 (97.5%)	115 (97.5%)	350 (99.7%)	348 (99.1%)	342 (97.4%)	344 (98.0%)
Number of visits[1], mean ±SD	30.7 ±26.2	14.1 ±8.7***	27.2 ±43.1	10.5 ±12.6***	28.8 ±28.9	15.2 ±19.2***	29.3 ±48.3	9.2 ±9.6***
Costs[1], mean ±SD	$24,574 ±60,905	$15,147 ±106,991	$28,174 ±111,061	$12,273 ±73,208	$14,231 ±48,425	$3,127 ±11,332***	$13,733 ±45,230	$1,528 ±4,242***
Inpatient admissions[2], n (%)	21 (17.8%)	7 (5.9%)**	14 (11.9%)	5 (4.2%)*	77 (21.9%)	29 (8.3%)***	48 (13.7%)	12 (3.4%)***
Number of visits[1], mean ±SD	1.3 ±0.7	1.3 ±0.8	2.2 ±2.4	2.4 ±2.2	1.8 ±1.4	1.3 ±0.8	2.0 ±1.3	1.3 ±0.6**
LOS in days[1], mean ±SD	11.5 ±13.1	21.4 ±49.7	9.8 ±12.8	39.2 ±55.7	18.8 ±29.6	11.4 ±20.5	16.5 ±25.8	4.9 ±3.5**
Costs[1], mean ±SD	$52,032 ±75,834	$168,207 ±425,825	$97,021 ±138,380	$210,294 ±289,275	$40,100 ±89,182	$14,076 ±27,588*	$44,366 ±79,101	$10,304 ±19,052**
Outpatient visits, n (%)	117 (99.2%)	117 (99.2%)	115 (97.5%)	113 (95.8%)	349 (99.4%)	348 (99.1%)	335 (95.4%)	340 (96.9%)
Number of visits[1], mean ±SD	31.7 ±26.2	15.0 ±9.0***	26.1 ±41.3	10.0 ±11.8***	25.9 ±27.7	13.0 ±18.8***	27.8 ±46.9	7.4 ±9.1***
Costs[1], mean ±SD	$15,287 ±30,594	$5,099 ±5,682***	$15,348 ±56,674	$2,962 ±8,406*	$4,558 ±8,977	$1,509 ±3,129***	$6,969 ±20,590	$827 ±1,291***
ED visits, n (%)	42 (35.6%)	26 (22.0%)*	46 (39.0%)	48 (40.7%)	249 (70.9%)	222 (63.2%)*	234 (66.7%)	206 (58.7%)*
Number of visits[1], mean ±SD	2.2 ±1.8	2.0 ±1.8	2.2 ±1.7	1.6 ±1.2	3.1 ±2.3	3.2 ±2.8	3.0 ±2.9	2.7 ±2.4
Costs[1], mean ±SD	$1,416 ±1,942	$1,803 ±3,127	$1,759 ±2,378	$982 ±1,617	$858 ±1,759	$642 ±796	$894 ±2,307	$546 ±716*
Pharmacy costs[1], mean ±SD	$3,338 ±9,553	$277 ±1,333***	$1,140 ±5,469	$659 ±3,508	$2,388 ±4,889	$385 ±1,641***	$1,878 ±5,762	$371 ±2,029***

ED, emergency department; HRU, healthcare resource utilization; LOS, length of stay; SD, standard deviation.
For cases vs. controls pairwise comparisons: *denotes a p-value of <0.05; **denotes a p-value of <0.01; ***denotes a p-value of <0.001.
[1] all HRU and costs were summarized only among patients with that type of HRU during the first or second year following index diagnosis date;
[2] inpatient admissions excluded the birth admission.

PV0331 / #899

STREPTOCOCCUS AGALACTIAE ARTHRITIS PRESENTING AS PSEUDO PARALYSIS IN AN INFANT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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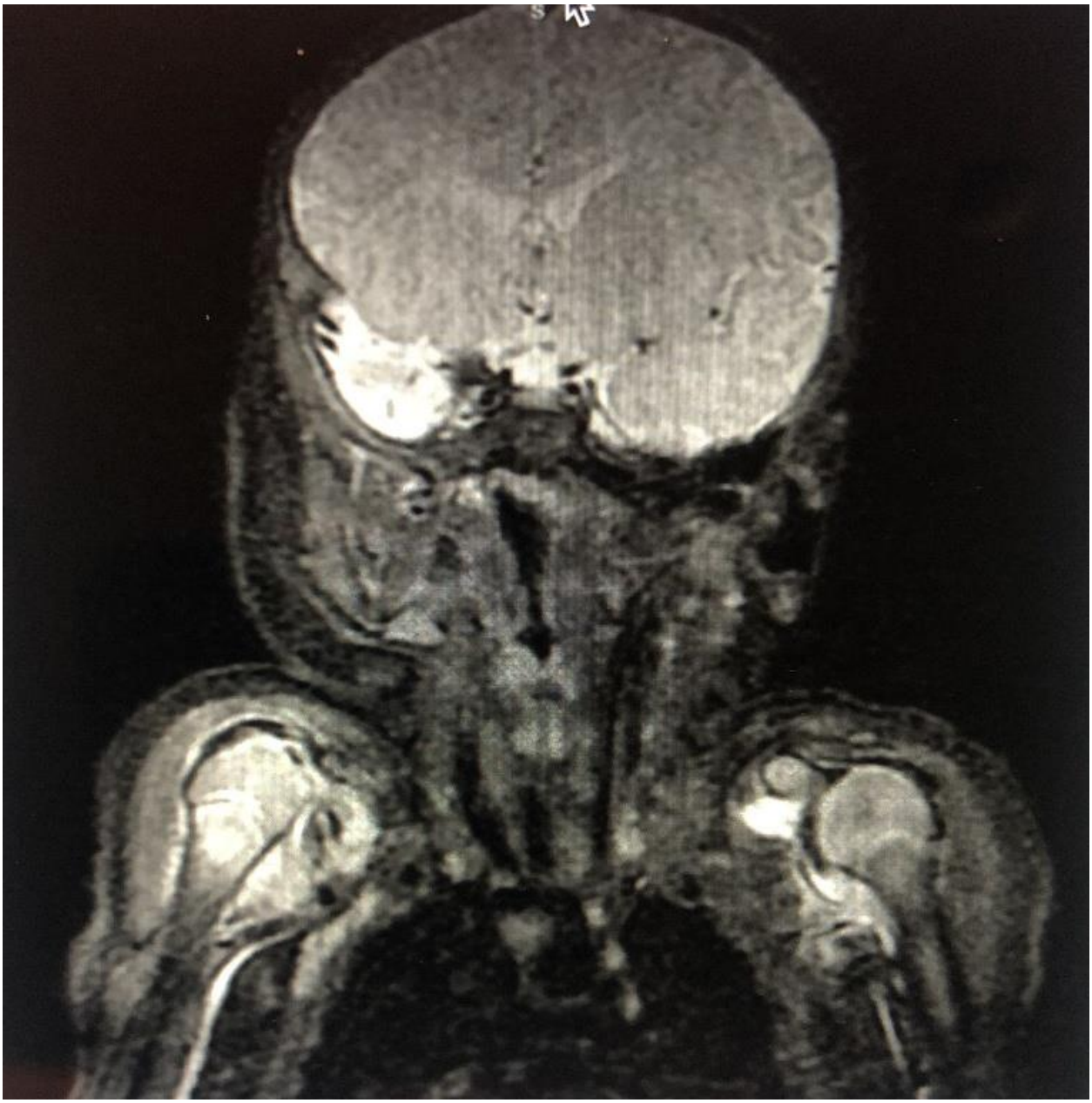
Title of Case: STREPTOCOCCUS AGALACTIAE ARTHRITIS PRESENTING AS PSEUDO PARALYSIS IN AN INFANT
Background: Streptococcus agalactiae (GBS) is a common pathogen of neonatal sepsis. However, it is rarely implicated in infantile septic arthritis presenting as pseudoparalysis in the absence of fever.
Case Presentation Summary: A 6-week-old term male with unremarkable prenatal history presented with an apparent late-onset Erb's palsy (weakness of deltoid and infraspinatus muscles). The paralysis was noted shortly after lip frenulectomy for ankyloglossia. Six days later, decreased movement was also noted in the left arm. The mother denied any fevers but the baby was noted to be fussier than baseline. On physical examination, the right arm was preferentially abducted and internally rotated with normal muscle bulk, tone, and deep tendon reflexes. Movement was maintained distally in the hand. Right Moro reflex was absent. Shoulder radiograph did not show any abnormality. MRI showed abnormal enhancement compatible with bilateral shoulder joint effusion (Figure). Laboratory showed leukocytosis of 14k (neutrophil 53%), thrombocytosis of 724,000, ESR 66 mm/hr, and CRP of 6.7 mg/dL. Blood culture was positive for GBS prompting antibiotics. He underwent bilateral shoulder debridement. Intraoperative findings showed pustular debris in bilateral shoulders worse on the left. The right shoulder culture demonstrated GBS susceptible to ampicillin. Recurring right shoulder effusion necessitated repeat debridement. Subsequent radiologic studies demonstrated secondary right proximal humerus pathologic fracture. He was sent home on intravenous ceftriaxone. He completed 6 weeks of intravenous antibiotic with excellent recovery. The range of motion of bilateral shoulders was restored back to baseline. There were some residual lucencies on the right proximal humerus which would need long-term surveillance.



Learning Points/Discussion: Infantile septic arthritis can present as afebrile pseudoparalysis. GBS is an important pathogen in infantile septic arthritis presenting with pseudoparalysis.

PV0332 / #1674

HIDDEN BEHIND A (PALE) MASK

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Hidden behind a (pale) mask
Background: Early detection and treatment of STDs in pregnant women prevents complications to both mother and baby. Improving awareness on sexual and reproductive health requires healthcare to provide universal counseling and implement strategic initiatives targeting all groups of women.
Case Presentation Summary: A 29-year-old pregnant woman, G3P3, despite social precarity completed prenatal care without abnormal findings. At 39-weeks', she gave birth to a female baby, who at 2-month-old was referred to our pediatric emergency for severe anemia. Upon admission, she was extremely pale, had a grade 3 systolic heart murmur and an enlarged liver expanded towards the right iliac fossa. Laboratory work-up revealed Hb 4.2g/dL, platelet count of 96.000cells/mL, high alkaline phosphatase and hypoalbuminemia. Abdominal ultrasound, describing a multinodular enlarged liver and splenomegaly, prompted a suspicion of hepatoblastoma. There was a multidisciplinary decision to initiate treatment with a transfusion of packed red blood cells. As the investigation went through, serological work-up revealed a RPR titre of 1:1024, positive TPHA and IgM anti-treponemal antibody. Tests performed on cerebrospinal fluid were negative, but the x-rays showed syphilitic periosteitis. Positive anti-EBNA IgG and anti-VCA IgM were found and cardiac evaluation diagnosed a dilated right ventricle due to patent foramen ovale with left-right shunt. Treatment consisted on a 10-day course of benzylpenicillin and the mother was also diagnosed and treated. Now, at 8-months-old, the infant has a good psychomotor development and no sequelae, however her social conditions remain unaltered.
Learning Points/Discussion: Congenital syphilis, a preventable infection, has recently increased in medium to high income countries. Clinicians must provide counseling and be aware of risk factors. In this case of late presentation, maternal infection occured after a complete prenatal screening, nevertheless clinical cognizant and timely approachment permitted a favourable prognosis.

PV0333 / #1682

IF IT LOOKS LIKE A DUCK, THAN IT PROBABLY IS A DUCK

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: If it looks like a duck, than it probably is a duck
Background: HIV infection renders lesser reliability of serological markers in pregnant women, depending on the degree of immunosuppression. Greater attention should be given to pregnant migrants, especially when coming from regions with high prevalence of SCORTCH diseases, for the impact on mother-to-child transmission can be mitigated.
Case Presentation Summary: A 30-year-old woman, G1P1, from Guinea-Bissau, was diagnosed with HIV-1 during the first trimester of pregnancy, initiating ART at 21-weeks'. CD4 count was 1531 cells/mm3 (80.2%) and viral load was 337861 copies/mL. During prenatal care, there was a suspicion of toxoplasmosis, however serological markers did not seem accurate, so this patient started spyromicin after 21-weeks' until delivery. At 39-weeks, with less than 30 copies/mL viral load, she gave birth to a female baby, whose laboratory work-up revealed positive anti-Toxoplasma IgM and IgG (avidity 82.3%) and positive DNA in the peripheral blood. Placental tissue was considered not viable and the spinal fluid was negative for Toxoplasma gondii. The infant was treated with sulfadiazine, pyrimethamine and folic acid. Throughout multidisciplinary follow-up, she was also diagnosed with chorioretinitis of the right eye and started oral prednisolone. Nowadays, she completed a full-year treatment and already has a negative Toxoplasma gondii's work-up; yet, the ophthalmologist suspects of a vision acuity 20/200 in the right eye.
Learning Points/Discussion: Although evidence is limited, the risk of vertical transmission of Toxoplasma gondii among HIV-1 infected women is low and has been associated with maternal immunosuppression and elevated viral load. In this case, it is uncertain whether reinfection or reactivation occurred; nonetheless, a high clinical concern is needed for timely diagnosis and proper approachment, especially before patients with acquired immunodeficiency and social precarity.

PV0334 / #1007

A SHOULDER TO CRY ON: CLINICAL CASE REPORT ABOUT A NEONATAL OSTEOMYELITIS WITH REVIEW OF LITERATURE

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: A SHOULDER TO CRY ON: CLINICAL CASE REPORT ABOUT A NEONATAL OSTEOMYELITIS WITH REVIEW OF LITERATURE
Background: Osteomyelitis and surrounding tissues infections are rare in neonatal population, but we must think about them in case of impaired mobility. A prompt recourse to ultrasound or MRI can help.
Case Presentation Summary: A 8-days newborn presents impaired arm mobility, focal tenderness and pain, any other sign of infection. Diagnosis is made by clinical features, elevation in inflammatory markers (RCP, ESR, WBC) and charateristic imaging abnormalities. The ultrasound imaging helps in diagnosis and treatment, i.e. infiltrations.The most common pathogens are bacteria. The mother was a carrier of S. aureus. The iv antibiotical therapy is based on the age of the child and the epidemiology of the surrounding community. It lasts from 4 to 6 weeks, released by positioning central venous catheters.

Years	Agent	Treatment
< 1 mo	SGB Gram-negatives (Salmonella spp) MSSA (significant systemic manifestations)	Third/fourth-generation cephalosporine (Cefotaxime) combined with Vancomycin (augmented risk of MR if newborns are ammitted >7 days in neonatal ICU or newborn from a woman carrier of SA); Tobramicin alternatively.
1 mo- 2 yrs	SA Streptococcus pneumoniae Kingella kingae (mild symptoms, less complications) Haemophlius influenzae B	Ceftriaxone/cefotaxime, Oxacillin/Nafcillin and Vancomycin. Life-threatening infection: Vancomycin and Oxacillin/Nafcillin. Non life-threatening infection and <10% of the community SA isolates are MR: Oxacillin/Nafcillin or Cefazolin. If >10% of the community SA isolates are MR: Vancomycin.
> 2 yrs	SA K. kingae	Vancomycin or Clindamycin. Additional coverage with Cefazolin for K. kingae or if the antimicrobial response is insufficient.

Learning Points/Discussion: If undiagnosed, long-term sequelae can occur and should be avoided: abnormal bone growth, pathological fractures or avascular necrosis. It is essential a 1 year-long, or more, clinical and radiological follow-up.

PV0335 / #999

CONGENITAL SYPHILIS ON THE RISE - REVIEW OF THE LAST FIVE YEARS OF A REFERRAL HOSPITAL IN PORTUGAL

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CONGENITAL SYPHILIS ON THE RISE - REVIEW OF THE LAST FIVE YEARS OF A REFERRAL HOSPITAL IN PORTUGAL
Background: The resurgence of syphilis and subsequent risk for newborns has been described worldwide. The last annual European epidemiological-report on congenital syphilis (CS) showed an increasing number of notified cases, being the highest 2019 rate increase in Portugal (three-fold). We conducted a retrospective study including children exposed to Treponema pallidum in utero and/or congenitally infected, between 2018-2022, followed-up in our hospital. We collected sociodemographic data, maternal VDRL and newborn/child titers, co-infections, birth records, treatment during pregnancy, clinical features, treatment, and follow-up.
Case Presentation Summary: We present 9 cases of suspected CS; 9 mothers and 7 newborns had positive VDRL titers. Maternal characteristics were: 37.5%(3) young mothers (≤25y), 71.4%(5) basic educational levels, 57.1%(4) unemployed, 22.2%(2) foreign origin (1-Guinean, 1-Brazilian), 11.1%(1) co-infected with human immunodeficiency virus, 22.2%(2) drug abuse. Prenatal care coverage was provided in 77.8%(7) of the mothers, with only 33.3%(3) adequately treated. Maternal syphilis was classified: 55.6%(5) early, 33.3%(3) late, 11.1%(1) undetermined. The newborns were classified: 22.2%(2) highly probable and 77.8%(7) possible. There were two cases of symptomatic CS and one of them being neurosyphilis. All patients were treated with penicillin, and are healthy post-treatment; 22.2%(2) were lost to follow-
up.

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
Year	2018	2018	2019	2019	2020	2021	2022	2022	2022
Birth hospital	Inborn	Outborn	Inborn	Inborn	Outborn	Outborn	Inborn	Outborn	Outborn
Maternal age (y)	40	30	23	34	35	25	21	36	28
Level of education	Primary school	9th grade	12th grade	9th grade	9th grade	Unknown	12th grade	9th grade	Unknown
Origin	Portuguese	Portuguese	Portuguese	Portuguese	Portuguese	Portuguese	Brazilian	Guinean	Portuguese
Risk factors	No	No	No	Institutionalized siblings	Institutionalized siblings, drug and alcohol abuse	No	No	Drug abuse, illegal immigrant	No
Prenatal care	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Co-infections	No	No	No	No	No	No	No	HIV	No
Classification of maternal syphilis	Undetermined	Late	Early	Late	Late	Early	Early	Early	Early
Treatment in pregnancy	No	No	Yes, inadequate	No	No	Yes, adequate	Yes, adequate	Yes, inadequate	Yes, adequate
Gestational age (w)	38	40	40	40	37	38	40	36	36
Birth weight (g)	3390	3690	2790	3150	2780	2905	3435	2510	2490
Presenting symptoms	No	No	No	No	No	Fever, poor weight gain, rash, jaundice, anemia, bone radiological abnormalities	No	Suspected epileptic crisis (non confirmed)	Pulmonary hypertension, anemia, tromcytopenia, hepatosplenomegaly, liver function abnormalities
Long-bone radiographs	Normal	Normal	Normal	Normal	Unknown	Abnormal	Unknown	Normal	Normal
Maternal VDRL	1/1	1/64	1/16	1/1	1/1	1/512	1/64	1/32	1/128
Children VDRL	Negative	1/2	1/2	Unknown	Negative	1/32	1/1	1/8	1/32
Age at diagnosis (y)	Birth	4	Birth	Birth	Birth	Birth	Birth	Birth	Birth
Penicillin treatment (d)	10	10	10	10	Unknown	21	10	10	20
Outcome	Unknown	Healthy	Healthy	Healthy	Unknown	Healthy	Healthy	Healthy	Healthy

Table 1. Clinical details of the cases

Learning Points/Discussion: Although CS is a preventable disease, it remains a major health problem worldwide, and its increment reflects a prenatal care deficiency. CS still compounds a significant impact and prevention should target specific maternal risk profiles. Changes in global population demographics and distribution, reflected on the increasing birth rates among foreign mothers in Portugal, disrupts the close prenatal surveillance, possibly amounting to greater congenital infections. Additional data are needed to ascertain factors associated with CS prevention failure.

PV0336 / #1154

THE CHALLENGES OF MANAGEMENT IN NEONATAL VARICELLA IN CAMBODIA WITH A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Challenges in management of neonatal varicella in Cambodia with a case report
Background: Neonatal varicella is uncommon and associated with high mortality rate up to 30%. The diagnosis is based on the characteristic appearance of skin lesions in an infant born to a mother exposed to VZV and confirmed by detection of PCR. We are reporting one case of neonatal varicella treated by oral acyclovir with good evolution.
Case Presentation Summary: A 15-day old boy, born at term, weighed 2600g, good apgar score, to mother with symptoms of varicella 3 days prior to delivery, was admitted for fever and skin lesion appeared 7 days prior. Because of unavailable prophylactic immunoglobulin, he was isolated from his mother. On arrival, he had fever to 38,5 ^{o}c, weight 2500g, SpO_2 95% in room air, generalized vesicular skin lesion with some crusting and irritability. The blood result showed the white blood cells 22 G/L, PNN 12 G/L, hemoglobin 13,5g/dl, platelet 331G/L, C-RP: 1,3mg/L and ASAT 102 UI/L. The blood culture and CSF were not negative. Oral acyclovir 25mg/kg/8h was immediately commenced (the intravenous acyclovir is unavailable in our country) and associated with broad intravenous antibiotics (Cloxacillin and C3G). After 10 days of treatment, he was discharged with good improvement.
Learning Points/Discussion: According to CDC, the varicella immunoglobulin should be recommended in neonatal varicella. The key treatement is intravenous acyclovir (20mg/kg/8h) that must be started as soon as possible after the onset of symptoms. In case of fever, the broad intravenous antibiotics must be added. For M.TOD et al. the biodisponibility of oral acyclovir is good with dose 28mg/kg/8h. However, the management of neonatal varicella is still a challenge for cliniciens especially in low-resource settings.

PV0337 / #2005

MELANOMA MIMIC ACUTE MASTOIDITIS IN A 10-MONTH-OLD FEMALE CHILD

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Melanoma mimic Acute Mastoiditis in a 10-Month-Old Female Child
Background: Foetal metastases are rare. Melanoma is the most common neoplasm with transplacental transmission to the foetus with very poor prognosis
Case Presentation Summary: We present a rare case of transplacental-transmitted maternal melanoma to the placenta and foetus during the pregnancy of a 34-year-old woman. She was diagnosed with a melanoma at the age of 25, for which she was treated with chemotherapy. During her pregnancy, she presented with a recurrence of the disease and died 3 months after delivery. The 10-month-old female child presented with a recurrent retroauricular oedema on the left side, as in acute mastoiditis. A trephination of mastoid apophysis followed. Multiple fragments of dark-coloured tissue were sent for histological examination, and the immunophenotype showed a melanocytic tumour in the mastoid. A full radiological assessment showed no sign of metastasis. The child remained without treatment. Complete remission of bone metastatic lesion has been confirmed by follow-up; now, the child is 4 years old, alive, and without evidence of disease.
Learning Points/Discussion: Melanoma most frequently involves the placenta or the foetus.Our report represents the tenth case of maternal transplacental-transmitted melanoma to the foetus and the second case of metastatic lesion on the mastoid reported in the literature till date. In this paper, we have reported the fourth case of spontaneous regression of metastatic melanoma transferred from the mother to the foetus.The mechanism of spontaneous regression of cancer is still under investigation: operative trauma, infection, and immunologic factors have been reported.The pathophysiology of transplacental spread of melanoma is unknown. Factors involved can be the high vascularity of the placenta, placental production of angiogenic and vascular endothelial growth factors, and impaired fetal immune response

PV0338 / #515

HERPES SIMPLEX VIRUS DISEASE IN NEONATES AND INFANCY: COMPARISON BETWEEN NATIONAL SURVEILLANCE DATA AND STATEWIDE EVALUATION OF LABORATORY AND CLINICAL RECORDS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Herpes simplex virus (HSV) disease in infancy is not a mandatory notifiable condition in Australia despite severe morbidity and mortality. Australian surveillance relies on voluntary prospective reporting of cases to the Australian Paediatric Surveillance Unit (APSU)by clinicans. We sought to evaluate the epidemiology, disease characteristics and outcomes of HSV disease in infancy in the Australian states of Queensland (QLD) and Western Australia (WA) using statewide laboratory and clinical data and complementary national surveillance data collected via the APSU.
Methods: Positive HSV 1 and 2 PCR results were obtained from state-wide public pathology providers in QLD and WA for infants aged 0-3 months from 2007-2017. Clinical data were obtained from patient records. These cases were then compared to cases collected via APSU surveillance for these states.
Results: Ninety-four cases of neonatal HSV disease (70 QLD; 24 WA) were identified from laboratory datasets, compared to 36 cases (26 QLD; 10 WA) reported to the APSU during the study period. Twenty-eight cases were common to both datasets, (7/28 skin eye mouth (SEM) disease, 13/28 central nervous system (CNS) disease and 8/28 disseminated disease).Of the 66 laboratory cases not reported to the APSU, the majority (57/66) had SEM disease, with 5/66 CNS disease and 4/66 disseminated disease. Eight cases reported to the APSU were not captured by laboratory datasets (5 SEM disease, 1 CNS disease, 2 disseminated disease).Surveillance cases had a higher case-fatality rate (13.9%) compared to laboratory cases (7.4%) Neurological sequelae at discharge were comparable between the groups (8.3% APSU vs 7.4% laboratory).
Conclusions/Learning Points: Active surveillance captured approximately one third of the cases of hospitalised HSV disease, mostly severe disease. Increased case ascertainment would be achieved with a combination of laboratory identified cases to existing clinician reports.

PV0339 / #1901

RECURRENT NAIL INFECTIONS, ANONYCHIA AND DEVELOPMENT DELAY: A NEW SYNDROME?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Recurrent nail infections, anonychia and development delay: a new syndrome?
Background: Nail disorders in children can have multiple causes. Congenital nail diseases are a heterogeneous group, which can occur isolated or included in genetic syndromes. Anonychia/hyponychia is characterized by complete absence of nails or presence of rudimentary nails.
Case Presentation Summary: Two siblings, a 22 months-old girl and an 11-year-old boy, presented since the first year of life with nail dystrophy and recurrent nail infections, leading to spontaneous nail expulsion. No other alterations were reported in skin or other ectodermal derivatives, such as hair, teeth and sweat glands. No significant dysmorphisms were identified. Both had multiple recurrent nail infections along the years, with isolation of Candida and S. aureus and response to antibiotics and antifungals. No history of other recurrent infections.The mother had sparse eyebrows and mild learning difficulties, without nail dystrophy.No other known similar cases in family, since mother was adopted. Both sibling evolved with psychomotor development delay, which led to further genetic workup, with the diagnosis of 15q13.3 microdeletion syndrome, an autosomal dominant disease, associated with intellectual disability, speech delay, seizures, autism and behavior alterations. This deletion was inherited from the mother. No signs of autism or seizures were found. Immune study showed no immunodeficiency, with normal CH50 and TH17 cells.
Learning Points/Discussion: Although differential diagnosis of nail dystrophy is wide, congenital isolated anonychia is a rare condition.Despite 15q13.3 microdeletion syndrome justifies development delay, it can not explain the nail dystrophy in the siblings.Until now there is no known association between these two entities.Is nail disease an atypical manifestation of 15q13.3 microdeletion syndrome or is there a second genetic alteration that explains the nail dystrophy? Further investigation is needed. We bring this case to discussion.

PV0340 / #2719

CONGENITAL CYTOMEGALOVIRUS INFECTION: AN OLD PROBLEM STILL UNSOLVED – TWO CASE REPORTS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Congenital cytomegalovirus infection: an old problem still unsolved – two case reports
Background: Cytomegalovirus(CMV) is a leading agent of congenital infection. Yet, universal screening in pregnancy is not recommended due to constraints in serologic interpretation and a lack of evidence for any therapeutic approach. A wide range of clinical manifestations can lead to severe outcomes, regardless of antiviral treatment, as illustrated by the two following cases.
Case Presentation Summary: Case 1:Prenatal diagnosis of hydrops fetalis with ventriculomegaly, leading to termination of pregnancy at 27 weeks and 6 days. At preconception and 2nd trimester, maternal CMV serostatus was IgG positive/IgM negative. The newborn had positive urine CMV DNA, with a blood viral load of 348.319 copies/mL. Aggressive measures were undertaken in the context of anasarca and multiple-organ dysfunction. Ganciclovir was initiated on day 4, but a fatal outcome occurred on day 6. The autopsy revealed cytomegalic inclusions in multiple organs. Case 2:Late-onset fetal growth restriction, with elective cesarean section at 38 weeks and 4 days. Maternal CMV serostatus was unknown. The newborn was small for gestational age, presented with petechial rash immediately after birth and had severe thrombocytopenia. Urine CMV DNA was positive, with a blood viral load of 330 copies/mL. Brain imaging revealed extensive cerebral bilateral hemorrhagic and ischemic lesions. Ganciclovir was initiated on day 2, followed by valganciclovir. Discharge on day 25. Currently, at 5 months old, he shows motor development delay, microcephaly and severe neutropenia, demanding temporary interruption of valganciclovir.
Learning Points/Discussion: These two cases exemplify the potential severity of a congenital infection in which postnatal diagnosis and treatment are often insufficient to improve outcomes. More awareness of congenital CMV is needed, as primary prevention is essential for reducing the disease burden of this condition.

PV0341 / #1625

SIMULTANEOUS PERIPARTUM ENTEROVIRUS INFECTION IN TWIN PAIRS, COMMON CAUSATIVE AGENT OF A RARE COINCIDENCE

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Simultaneous peripartum enterovirus infection in twin pairs, common causative agent of a rare coincidence
Background: Enterovirus infection manifesting as aseptic meningitis is a common cause of fever in the neonatal period. Several mechanisms for transmission of enteroviruses from caregivers to neonates have been described in the literature. One of the proposed mechanisms is vertical or horizontal transmission through the mother. Concurrent infections in twin pairs may point to the mother as the source of enterovirus. Simultaneous infections of twins during the neonatal period is rare and usually known only as case reports.
Case Presentation Summary: We described the clinical presentation and outcome of enterovirus peripartum infection detected by positive polymerase chain in cerebrospinal fluid in four pairs of dichorionic diamniotic twins, three of whom were delivered by cesarean section and all as late preterm or early term deliveries. Infection occurred between 8 and 33 days of age. All neonates had mild course of illness and recovered with no sequela.
Learning Points/Discussion: The delayed onset of symptom development after birth rules out intrapartum infection, and the mild course of the disease may be explained by late prenatal maternal infection when neonates have acquired sufficient amounts of protective maternal specific antibodies via the placenta. It is assumed that the neonates were colonized with enterovirus either by the vertical route from the mother during passage through the birth canal or by the horizontal route during maternal care and that breakthrough infection occurred later in these colonized neonates. Conclusion: Enteroviruses may be an important colonizer of the maternal genital tract and may cause neonatal infection that can mimic other maternally transmitted infections. Future

PV0342 / #2679

NATURAL HISTORY OF POSTNATAL HUMAN CYTOMEGALOVIRUS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Background: Postnatal cytomegalovirus (HCMV) infection is well characterized in preterm infants, where it can lead to severe symptomatic infection. We analyzed the rate and route of transmission of postnatal HCMV infections in full-term babies during the first year of life.
Methods: A cohort of 120 HCMV seropositive mothers and their 122 newborns were tested after delivery for HCMV DNA shedding in different bodily fluids. Postnatal HCMV infection was defined as the detection of $>2.5\times10^2$ HCMV-DNA copies/mL in infants' saliva swabs. Maternal neutralizing antibody serum titer, HCMV specific T-cell response, and HCMV glycoprotein B (gB) IgG on breastmilk were analyzed.
Results: HCMV shedding was detected in 67 of 120 mothers (55.8%), and 20 of 122 infants (16.4%) developed HCMV infection within the first three months of life. Six additional infants were infected during the first year, for a postnatal infection rate of 21.3%. Viral shedding was more frequent in breastmilk than saliva, urine and vaginal secretions, and the mothers of infected infants showed higher levels of HCMV-DNA in milk. No association was found between the antibody levels in serum or milk and maternal viral shedding, whereas a slightly lower frequency of HCMV-specific $CD4^+$ T-cells with long-term memory phenotype was observed in women with HCM-DNA-positive milk.
Conclusions/Learning Points: About one out of five infants develop HCMV infection within the first year of life. Breastmilk appears the major route of transmission of the infection, maternal saliva have a minor role whereas the role of vaginal secretions is negligible.

PV0343 / #1881

EXPLORING THE USE OF THE CYTOMEGALOVIRUS INTERFERON GAMMA RELEASE ASSAY IN CONGENITAL CYTOMEGALOVIRUS INFECTION.

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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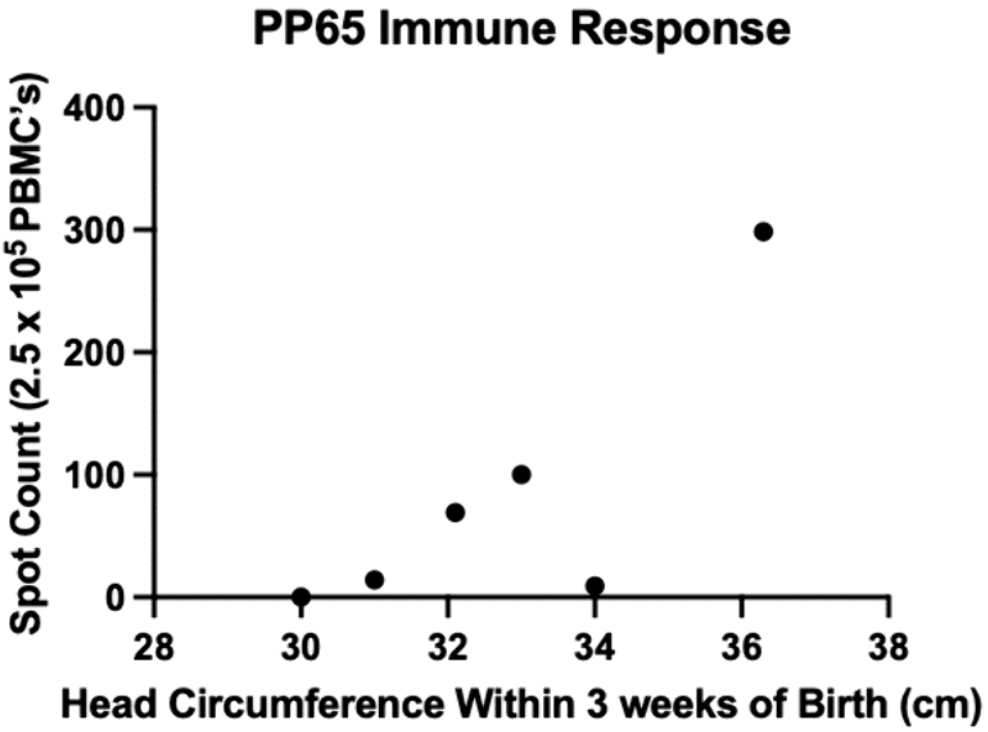
Backgrounds: Cytomegalovirus (CMV)-specific interferon gamma release assays may be a useful tool to monitor the development of CMV-specific immune responses to control CMV in infants with congenital infection, and could potentially help determine appropriate duration of antiviral treatment.
Methods: Infants with confirmed congenital CMV (cCMV) infection and at least one valid T-spot CMV ELISPOT assay during the first 9 months of life were included. The cellular responses to CMV antigens Immediate Early 1 (IE-1) and phosphoprotein 65 (pp65) were quantified and analysed alongside clinical data.
Results: 13 infants (69% male) with median gestational age 37 (37-39) weeks were included. The median birth weight and head circumference were 2575g (2160-3100) and 33cm (30.5-35). 8/13 (61.5%) had intrauterine growth restriction (IUGR), 7/13 (53.8%) had sensorineural hearing loss (SNHL), and 11/13 (84.6%) had an abnormal brain MRI. The average ELISPOT spot counts between 0-3 months and 4-6 months of life were 52.2 and 112.1 (IE-1) and 82.9 and 271.7 (pp65) standardized units/25x10^4 PBMCs. IE-1 ELISPOT results for infants with assays performed during the first 2 months of life showed a positive correlation between lymphocyte, neutrophil, and platelet counts at diagnosis (P=0.0480, 0.0427, 0.0411, R^2=0.4048, 0.4201, 0.4249). PP65 ELISPOT results taken between 0-1 months of life had a positive correlation to infants' head circumference (P=0.049, R^2=0.6615, n=6) (Figure 1).



Conclusions/Learning Points: Our small study demonstrates the potential use of CMV ELISPOT in this population. There is a suggestion that CMV-specific immune responses increase with age over the first 6 months of life, however further longitudinal analysis of this cohort and CMV-uninfected control infants is required. Our results infer that the infants with the most severe microcephaly had the lowest CMV-specific responses.

PV0344 / #897

RAOULTELLA PLANTICOLA UTI PRESENTING AS HYPERBILIRUBINEMIA IN A 3-DAY-OLD INFANT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Raoultella planticola UTI presenting as hyperbilirubinemia in a 3-day-old infant
Background: Raoultella planticola is a Gram-negative, aerobic, nonmotile bacterium that is ubiquitous in the environment usually implicated in opportunistic infection. There have been very few reported cases of Raoultella planticola infection in the pediatric population. Most of these reports have been in cases of neonatal septicemia.
Case Presentation Summary: A 3-day-old term, non-circumcised, male infant presented with jaundice and scleral icterus. Maternal prenatal course was unremarkable. Initial total bilirubin was 16.2 mg/dL on presentation. Transcutaneous phototherapy was initiated the day following presentation. Despite maximal outpatient phototherapy, the baby's bilirubin peaked to 25 mg/dL at 6 days of life that prompted admission. Sepsis work up was initiated despite absence of fever and other symptoms because of the baby's age. His laboratory work up were all reassuring except for bagged urine analysis that showed 3+ leukocyte esterase and significant leukocyturia which eventually grew Gram-negative rods. This warranted repeat catheterized urine collection. He was empirically started on ampicillin and gentamicin. His blood culture was negative. Both bagged and catheterized urine samples grew >100,000 CFU/mL of Raoultella planticola resistant to ampicillin. He was switched to cefazolin per susceptibility profile and his hyperbilirubinemia started to trend down. Repeat urine culture was negative after 5 days of cefazolin. The patient completed 14 days total therapy with oral cephalexin. Renal ultrasound and VCUG were normal.

Learning Points/Discussion: Neonatal UTI can present as recalcitrant hyperbilirubinemia. Raoultella planticola is a rare organism that is normally found in the environment but may be a bona fide etiologic agent in neonatal UTI.

PV0345 / #2592

RECRUITMENT, MANAGEMENT AND FOLLOW UP OF HIV- EXPOSED INFANTS AT A COMMUNITY HOSPITAL IN ECUADOR.

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Background: Timely identification and follow-up of perinatally exposed infants to HIV is essential to prevent vertical transmission. As of 2020 in Ecuador, the prevalence of HIV in pregnant women was 0.25% and the vertical transmission rate was 2.8%. We aim to describe the process of recruitment, management and follow-up of perinatal HIV-exposed patients at a community hospital at the second largest health zone with reported infections.
Methods: Retrospective chart review of mother/child pairs under follow-up from first prenatal consult up to 18 month visit at a community hospital in Quevedo from January 2018 to December 2022.
Results: Of 130 mother/child pairs, the median for gestational week of recruitment was 13.5 weeks [IQR 10-18]. The median age of mothers was 24 years [IQR 21-30]. Of them, 54 (41%) were unaware of their infection, 46 (34.4%) had a viral load >1000 copies/ml at diagnosis, 126 (96.9%) completed > 5 prenatal consultations, 1 (0.5%) declined antiretroviral treatment. At delivery, 18 (13.9%) mothers maintained a viral load > 1000 copies/ml, 128 (98.5%) underwent caesarean section, all received intravenous zidovudine. In neonates, 21 (16.2%) received triple therapy with AZT + 3TC + NVP for 6 weeks, 8 (6.2%) AZT for 6 weeks, and 101 (77.7%) AZT for 4 weeks. All babies completed their medication, 2(1.5%) had detectable viral load at 1 month. Up to 18 months, none received breastfeeding, 127 (97.7%) completed at least 14 consultations, 3 (2.3%) changed address. Overall, 4/127(3.1%) infants were identified as infected by serology.
Conclusions/Learning Points: Despite antiretroviral treatment in the mother, 34% had > 1000 copies/ml at the time of delivery. Universal HIV testing, earlier recruitment during pregnancy, adherence to ARV treatment in mothers and avoiding loss of follow-up in infants represent opportunities for intervention.

PV0346 / #1470

CURRENT EPIDEMIOLOGY CLINICAL CHARACTERISTICS OF NEONATAL HERPES SIMPLEX INFECTION IN ISRAEL

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Neonatal herpes simplex virus (NHSV) infection, although rare, is related to high rates of morbidity and mortality. The reported incidence of NHSV from several countries around the world varies widely between 1.6 and 60/100,000 live births. Previous data regarding NHSV Israeli epidemiology is limited, and reported an incidence rate of 8.4/100,000 live births. In the current study we aimed to expand our database to a nationwide level.
Methods: We included all Israeli neonates, born between 2015-2022, diagnosed with NHSV infection, causing any form of morbidity (localized to skin, eye and mouth (SEM)/ central nervous system (CNS) disease/ disseminated disease) and documented the clinical presentation, laboratory and imaging findings, treatment and long-term complications.
Results: To date we have received data from 15 out of the 22 Israeli paediatric wards medical centres, and 68 neonates have been included in the study. The mean incidence of NHSV was 7.5/100,000 live births. 50/68 (73.5%) were male, 65/68 (95.6%) were term newborns, with the majority born by vaginal delivery (88.2%). Mean age at diagnosis was 14±6.7 days, 34/50 (68%) of males went through ritual circumcision 7.65±4.5 days, on average, before clinical presentation. Intrapartum maternal fever was reported in 3 mothers and 1 mother had active genital herpetic lesions during labor. HSV1 was much more common than HSV2 as the detectable infectious agent (64/68, 94.1%); 52/68 (76.5%) presented with SEM disease, 19/68 (27.9%) were admitted to intensive care units, 5/68 (7.4%) experienced neurological deficits and 4/68 (5.9%) died.
Conclusions/Learning Points: SEM disease is the most common morbidity of postnatal NHSV infection, the incidence of HSV1 infection is higher than that of HSV2, and the majority of treated neonates did not suffer from long term complications.

PV0347 / #1395

CONGENITAL CYTOMEGALOVIRUS PRESENTS DIFFERENTLY IN PRETERM INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Congenital cytomegalovirus (cCMV) is the most common congenital viral infection in the world. It is symptomatic in 10-15% of infected infants and is associated with sensorineural hearing loss and neurodevelopmental abnormalities. In the UK, the incidence of cCMV is higher in preterm infants, who have been shown to frequently have poor outcomes. However, clinical manifestations of cCMV in neonates born before 32 weeks gestation have not been explored.
Methods: Infants with cCMV born before 32 weeks gestation were identified through targeted screening on admission to neonatal intensive care units or referred to tertiary paediatric infectious diseases services between February 2015 and October 2022. We performed a retrospective analysis of their electronic patient records to describe clinical, laboratory and imaging manifestations of cCMV.
Results: We identified 14 infants (median gestation 27+5, median birth weight 952.5g). All were symptomatic and received treatment. Head circumference below the third centile was documented in 73% (8/11). 79% (11/14) required red cell transfusion at a median age of three days. All infants with documented platelet counts (13/13) had thrombocytopenia (<150,000/microL) with a median onset of 10 days of age. 62% (8/13) required platelet transfusion. Serum viral loads were recorded in nine patients and peaked at the median age of nine days. 78% (8/9) had germinal matrix or grade 2 intraventricular haemorrhages on cranial ultrasound. 21% (3/14) had periventricular calcifications. MRI brain was abnormal for gestation in 80% (8/10) of infants.
Conclusions/Learning Points: In contrast to term infants, cCMV in preterms mainly presents with symptomatic disease, difficult to distinguish from other manifestations of prematurity (emphasizing the importance of targeted screening). These include microcephaly, severe thrombocytopenia, anaemia, intraventricular haemorrhages on cranial ultrasound and abnormal brain MRI findings.

PV0348 / #591

CONGENITAL SYPHILIS IN BRAZIL – THE CLINICAL MANIFESTATIONS AND SEQUELAE

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Congenital syphilis in Brazil – The clinical manifestations and sequelae
Background: In Brazil, the congenital syphilis (CS) is an important public health problem, with high prevalence and morbidity, mainly in socioeconomical vulnerable population. Children with CS must be followed for two years.
Case Presentation Summary: Objective: Describe the follow up and findings in a cohort study of CS in Rio de Janeiro. Methods: Prospective cohort study of infants born with CS, we excluded infants with metabolic diseases or congenital malformations (not related to CS) and infants treated after one year of age. The follow up was:monthly in the first 6 months of age, bimonthly in the subsequent 6 months, and every 3 months in their second year of life. They must have two non-reactive non-venereal test and one venereal test performed after 18 months of life. They also must have at least evaluations with a neurologist, ophtalmologist and audiologist. Results: 70 infants were followed up. Their median age at enrollment was 2 months, 51% were girls, 79% were asymptomatic at birth, 97% were treated in the maternity. During their antenatal care, 96% had antenatal care, 42% initiated the antenatal care after the first trimester of pregnancy, and 97% of their mothers performed at least one syphilis serology test during the antenatal care. Among the 70 children, 8 (11%) presented at least one abnormality in the follow up: neurology – 3 had delayed neurodevelopment exam, 4 had abnormalities in the ophthalmology evaluation (strabismus, retina and iris coloboma, increased pigmentation around maculae, and increased vascularization), one child presented with abnormal PEATE.
Learning Points/Discussion: Although most of the children with CS were born asymptomatic, they still presented several abnormalities during their follow up.

PV0349 / #1239

BUILDING A CONGENITAL INFECTIONS REFERENCE CENTER IN RIO DE JANEIRO, BRAZIL

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: In Rio de Janeiro, the second largest city in Brazil, there was no reference center for congenital infections (CI). We intend to describe the implementation of such a center at Instituto de Puericultura e Pediatria Martagão Gesteira – Universidade Federal do Rio de Janeiro (IPPMG-UFRJ).
Methods: At IPPMG-UFRJ, In the CI Unit, infectious diseases specialists for pregnant women and children work together, patients were referenced from primary health units. This service plays a leading role in this Unit, receiving children to be screened and treated. The other services that are included in this Unit are: audiology, ophthalmology, neurology, neurodevelopment, and radiology. A specific electronic medical record was created for both women and children putting together all respective data providing a dataset for research initiatives.
Results: Since April, 2022 we followed 140 women living with HIV: their average age was 26 years; 41 were antiretroviral naïve, and 11 were infected through vertical transmission. 85/121 had viral load undetectable at 34 weeks of gestation. We also followed up 46 HIV exposed but uninfected infants, and 4 were HIV infected. Ninety-one pregnant women were followed with Toxoplasma gondii infection: in 10 amniocentesis was performed; in one PCR was positive for T. gondii. We followed 28 children in utero exposed to T. gondii, six of them were infected (4 chorioretinitis, 4 CNS abnormalities, and two with IgM/PCR reactive). We also followed 4 pregnant women and three neonates with cytomegalovirus infection, and two pregnant women living with HTLV-1 virus.
Conclusions/Learning Points: We believe that is important to build reference centers projected to deal with complex and multidisciplinary care required diseases as CI. It may be an excellent platform to support research, including clinical trials.

PV0350 / #2656

EARLY – ONSET NEONATAL INFECTION IN PREGNANCIES WITH PRELABOR RUPTURE OF MEMBRANES IN GENERAL HOSPITAL, KUMANOVO

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Background: Perinatal infections are one of the main causes of early neonatal morbidity and mortality. PROM is condition linked to early–onset of neonatal infection. PROM refers to the rupture of the chorioamniotic membranes prior to onset of labor and prior to onset of clinically-apparent labor contractions. PROM can occur at any gestational age, before or after 37 weeks of gestation.
Methods: We performed a descriptive analysis of 72 pregnant women presenting to Department of Obstetrics in General Hospital Kumanovo from 01 January 2022 till 31 December 2022 with PROM who gave birth to single newborns within 72 hours after PROM. The data we used was collected from the newborn medical history. Data included gestational age at birth, gestational weight at birth, 1 and 5 minute APGAR score, interval from PROM to delivery and early neonatal infections morbidity.
Results: The analysis included 72 pregnant women with PROM and their newborns. The majority were aged between 20 and 30 years old (63,8%), primiparous (50,4%), unemployed (90,2%), completed secondary level of education (93,05%), newborns with EONI (15,2%), preterm newborns (5,5%), SGA (11,1%).
Conclusions/Learning Points: The rate of EONI in pregnancies complications attributed to PROM is still a major challenge in our department and city. Risk factors for developing EONI in pregnancies associated with PROM are: PROM–delivery interval, SGA, preterm newborn, maternal colonization and low APGAR score. Further steps to be undertaken include revision and improvement of antenatal care and prophylactic use of AB in PROM.

PV0351 / #1499

A NEONATAL CASE OF DEEP NECK AND MEDIASTINAL ABSCESSES CAUSED BY ROTHIA MUCILAGINOSA

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: A NEONATAL CASE OF DEEP NECK AND MEDIASTINAL ABSCESSES CAUSED BY ROTHIA MUCILAGINOSA
Background: Rothia mucilaginosa, which commonly found in the oral cavity, is a coagulase-negative gram-positive coccus and rarely causes bacteraemia and endocarditis in immunocompromised patients. Usually, vancomycin is recommended as empiric therapy. In neonates, cases of non-postoperative mediastinal abscesses are rarely seen, with only four cases were previously reported.
Case Presentation Summary: An eight-day-old infant presented to our emergency department with breathlessness, decrease in suckling activity, and fever. Physical examination revealed he had stridor, and the computed tomography scan showed airway compression because of right deep neck and mediastinal abscesses. The patient was intubated, and abscess drainage was performed. Gram stain of abscess aspirates showed clustered gram-positive cocci, thus intravenous vancomycin was initiated. Subsequently, Rothia mucilaginosa and Streptococcus mitis/oralis were detected. The antibiotic was changed to oral clindamycin on day 32 of hospitalization, and he was discharged. When the patient was 54 days old, the discharge of pus ceased, and clindamycin was discontinued. However, when the patient was 9 months old, the right cervical abscess recurred. Blood tests showed a normal immune response, and fistulography revealed the presence of a right pyriform sinus fistula. It was removed by surgery when the patient was 11 months. After the surgery, recurrence of the abscess was not observed.
Learning Points/Discussion: The bacteria originating in a neonate's oral cavity are generally gram-positive; infections caused by some species such as R. mucilaginosa necessitate vancomycin therapy. Paediatricians should consider mediastinal abscesses when treating neonates with fever and stridor. Additionally, confronting to rare infectious diseases in neonates, it is crucial to investigate the cause of infection; not only immunity but also congenital structures.

PV0352 / #572

CONGENITAL STAPHYLOCOCCAL SCALDED SKIN SYNDROME (SSSS) IN A PRETERM INFANT: WHAT DO YOU NEED TO KNOWN

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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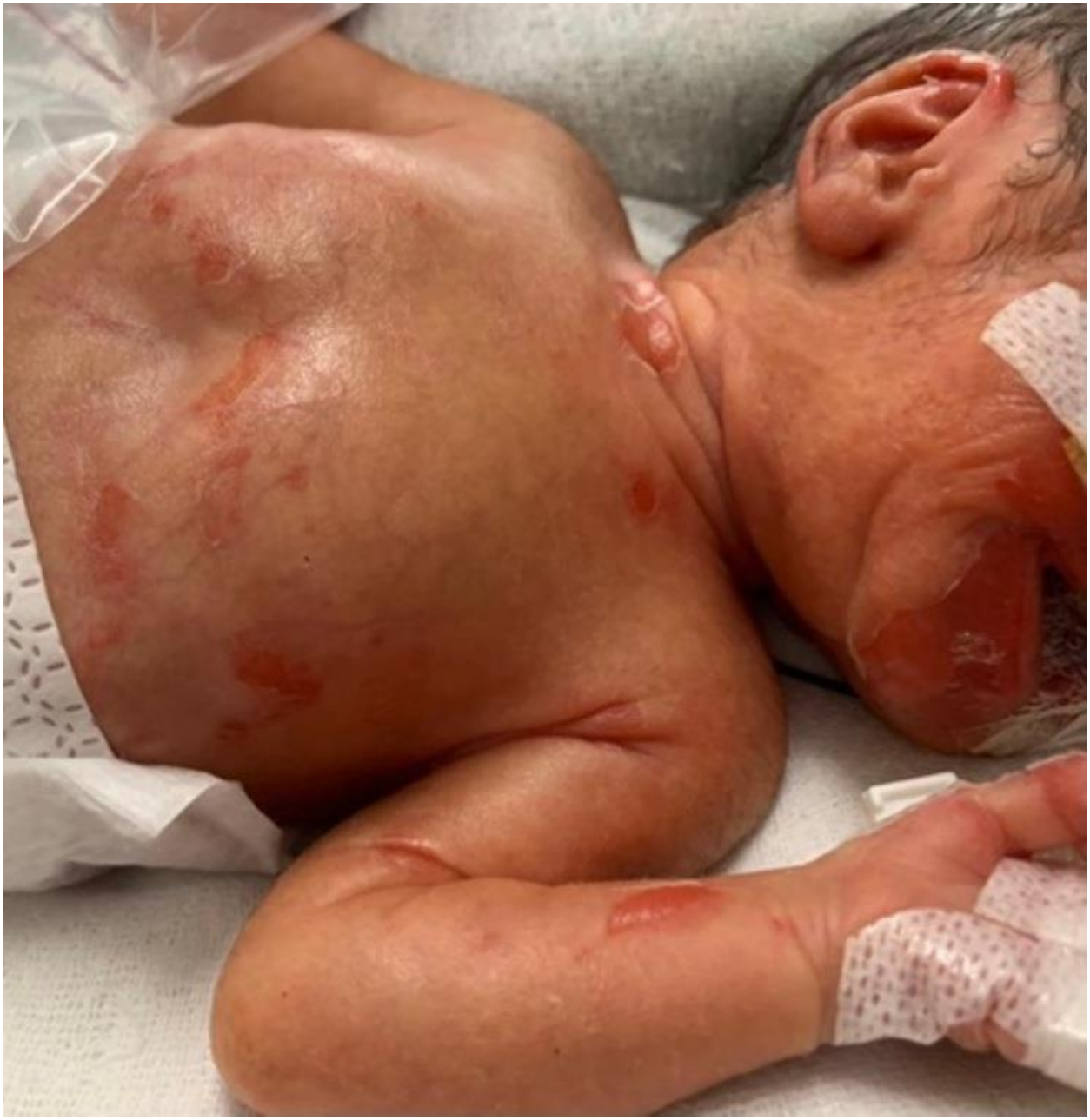
Title of Case: CONGENITAL STAPHYLOCOCCAL SCALDED SKIN SYNDROME (SSSS) IN A PRETERM INFANT: WHAT DO YOU NEED TO KNOWN
Background: SSSS is a condition of the skin characterized by blistering and epidermal peeling. It could be life-threatening in extremely preterm.The aim is to describe a case of congenital-SSSS in a preterm infant within the first 24 hrs.of life.
Case Presentation Summary: Preterm neonate, 29-weeks of gestation, whose mother presents 24 hrs. of rupture of membranes and chorioamnionitis. A 1,227g infant was delivered vaginally. Intubated for surfactant administration, admitted to NICU, and started on ampicillin-gentamicin. Laboratory examinations at 12 hrs. showed leukopenia (4580/µl) and C-reactive protein elevation (58 mg/L). At 17 hrs. of life diffuse erythroderma and perioral blisters develop, followed by bullous lesions on palms and soles, upper chest and lower neck. The bullae subsequently ruptured leaving erythematous and denuded areas of the skin (positive Nicolsky sign). Clinical diagnosis of SSSS was made, and IV oxacilin-vancomicyn was added. Blood and wound culture were positive to methicillin-sensitive S.aureus. HSV1-2 PCR on blood and skin, Varicella-Zoster PCR of skin and Treponemal test were all negative. No new lesions appeared after starting antibiotics. On day 3 of life, epithelialization began and was complete on the seventh day. The infant died 9 days after birth because of S.aureus pneumonia and respiratory failure.



Learning Points/Discussion: Congenital SSSS has been reported in few cases in preterm infants. Diagnosis is based on clinical findings, histology and isolation of S.aureus. Differential diagnosis includes: toxic epidermal necrolysis, epidermolysis bullosa, neonatal pemphigus, bullous mastocytosis, and infectious diseases like bullous impetigo, congenital syphilis or herpes. It is important an early clinical suspicion and antibiotic therapy because it´s a serious and occasionally fatal disease in neonates, with risk of nosocomial spread.

PV0353 / #1433

OPTIMIZING CONGENITAL CMV (CCMV) DETECTION BY POOL TESTING IN SALIVA SAMPLES: LABORATORY VALIDATION OF A RAPID DIAGNOSTIC MOLECULAR TEST.

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Universal cCMV screening is increasingly recommended. Saliva is an easy-to-get sample for CMV testing and some rapid molecular diagnostic techniques have shown high sensitivity-specificity in newborns. Our aim was to correlate the performance of a rapid molecular CMV test with CMV-PCR detection in saliva pools from newborns under a cCMV universal screening strategy.
Methods: From September 2022, saliva swabs were prospectively collected from newborns <21 days old at Hospital Barros-Luco, Santiago, Chile and tested by Alethia-LAMP-CMV assay in pools of 5 samples. In positive pools, the samples were tested individually with both, Alethia-LAMP-CMV assay and saliva CMV-PCR. A subset of negative pools and their individual samples were also studied with both techniques. Positive cases were confirmed by urine CMV-PCR.
Results: Eight-hundred ninety eight out of 1231 (73%) newborns were included in the study; 180 pools were screened. All but one pool were negative. The positive pool was verified by saliva PCR, and the positive individual sample was identified by both techniques and confirmed by positive urine CMV-PCR (Cycle threshold in saliva PCR was 31.3). A subset of 17 negative pools (85 samples) were studied by saliva PCR, obtaining a 100% of concordance. No false-positive results were observed. In an additional subset of 42 newborns with cCMV risk factors, the pool testing, individual Alethia-LAMP-CMV assay, and urine PCR were negative. The prevalence of cCMV was 0.1%.
Conclusions/Learning Points: CMV pool-testing by a rapid molecular test in saliva was feasible to perform in newborns under a universal screening . A high concordance was observed in negative samples and also in the positive cCMV-case. This strategy could be a new and more cost-effective alternative for cCMV neonatal screening specially in low-prevalence settings.

PV0354 / #1784

SYSTEMIC BEVACIZUMAB AS ADJUVANT THERAPY FOR RECURRENT RESPIRATORY PAPILLOMATOSIS IN CHILDREN: A SERIES OF FOUR CASES

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Systemic bevacizumab as adjuvant therapy for recurrent respiratory papillomatosis in children: a series of four cases
Background: Recurrent respiratory papillomatosis (RRP) is a rare disease form caused by human papillomavirus (HPV) characterized by recurrent papilloma growth at the epithelial mucosa in the respiratory tract. It represents the most common benign neoplasm of the larynx and central airways, but it significantly impacts the quality of life and is potentially fatal. We describe our experience with systemic bevacizumab (Avastin®), a humanized anti-VEGF monoclonal antibody, as adjuvant management of RRP.
Case Presentation Summary: Four patients with RPP that used bevacizumab as therapy in 2021-2022 were included. The majority were boys (75%), and the age range varied from 2-5 years old. All presented with laryngeal stridor, dysphonia, and dyspnea at diagnosis. In three patients, at least five surgical removals were necessary before adjuvant therapy – a single child required just one surgery, but the lesions were extended to the esophagus. Papillomas were identified in the trachea in 75% of the cases, all requiring tracheostomy. Children received a 5 mg/kg starting dose that increased to 10 mg/kg cycles every 4 weeks, with good tolerance and no adverse events. Half of the patients had no lesions at bronchoscopies after the third dose, and the remaining improved after the fourth cycle. The esophageal papilloma disappeared after five doses. Tracheostomy decannulation was achieved in 50% of the cases. Two patients finished ten cycles in one year, and the other two were treated for six months. No recurrences were detected until January 2023.
Learning Points/Discussion: Bevacizumab is a promising treatment for RRP, as it might reduce surgical procedures and lead to prolonged remission. Further studies are necessary to define efficacy and safety of this drug.

PV0355 / #625

TRANSAMINASEMIA DUE TO CONGENITAL CYTOMEGALOVIRUS INFECTION (CCMV): EXPERIENCE FROM A TERTIARY REFERRAL CENTER FOR CONGENITAL INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Congenital Cytomegalovirus infection (cCMV), the most common congenital infection in the developed world, presents with various clinical features. Transaminasemia due to cCMV, although self-limiting, defines one as symptomatic, thus guiding the therapeutic decision. We aimed to estimate the prevalence of transaminasemia affecting the cCMV infants followed-up by our center, as well as to reveal possible related risk factors.
Methods: A retrospective observational study was performed. Neonates/infants with confirmed cCMV that were followed-up at the Pediatric Infectious Disease Unit of “Attikon” University Hospital (Athens, Greece) during the last decade (06/2012 – 01/2023), and for which hepatic enzyme values were available at diagnosis (before treatment initiation), were eligible. Transaminasemia was defined as AST>80 IU/ml +/- conjugated hyperbilirubinemia (>2mg/dl). Demographic, somatometric, and clinical characteristics [sex, gestational age, birth weight, head circumference, trimester of cCMV diagnosis, maternal therapy, presence of sensorineural hearing loss (SNHL), thrombocytopenia, neutropenia, abnormal brain ultrasound/MRI findings] were recorded.
Results: 66 cCMV babies were included, 28/66 (42.4%) male. Transaminasemia occurred in 8/66 babies (12.1%), and was the only clinical sign that led to cCMV diagnosis for one baby. Median (range) age at transaminasemia diagnosis was 5 days (0-108), median (range) AST was 109.5 IU/ml (84-315), and median (range) direct bilirubin was 0.6 mg/dl (0.13-5.02). Transaminasemia affected 8/52 (15.4%) of the symptomatic and 2/7 (28.6%) of the severe symptomatic babies. By univariate analysis, transaminasemia was correlated with the presence of SNHL at birth (p=0.04), and thrombocytopenia (p=0.012). All of our transaminasemia cases were self-limiting.
Conclusions/Learning Points: According to our results, cCMV transaminasemia is relatively frequent, affecting >1/10 babies, and also related to factors stating illness severity (SNHL, thrombocytopenia). Future multicenter studies are required, in order to confirm/extend those results.

PV0356 / #1032

ESCHERICIA COLI MENINGITIS AND PACHYMENINGITIS IN A NEWBORN :TREATMENT CHALLANGES

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: ESCHERICIA COLI MENINGITIS AND PACHYMENINGITIS IN A NEWBORN :TREATMENT CHALLANGES

Background: Escherichia coli is a frequent cause of early onset sepsis among infants . Over the past decades, ampicillin and gentamicin/ESC are the empirical antibiotics for early-onset infection in neonates the majority of the neonatal intensive care units in Albania. However, most of the E. coli isolates remained susceptible to aminoglycosides and extended spectrum cephalosporins (ESC).Currently, extended-spectrum β-lactamases (ESBLs) are becoming an increasingly important cause of resistance to aminoglycosides and ESC in E. coli.

Case Presentation Summary: In this case report, we describe the history of a moderately preterm boy born after preterm prolonged rupture of membranes. The mother had urinary tract infections during pregnancy.Imediately after birth he was given first-line therapy for prevention of early onset sepsis. The 5^{th} day of life the clinical situation deteriorated , he developed seizures, high grade fever . The treatment was changed to cover suspected meningitis. Culture showed growth of E. coli in cerebrospinal fluide,but unable to detect the strain and the sequence type. Antibiotics were adapted.The MRI resulted left temporal subdural Pachymeningitis(Fig.1,2) .His clinical condition improved the first 3 days ,but the laboratory tests delayed and were back to normal rates only after a 6 week course of different antibiotics adopted according to antibiogram. The boy left the hospital in good condition, but in need of close follow up of his neurological and physical development .

Learning Points/Discussion: Our case confirms the emergence of E. coli as a problem not only in adults but also in neonates. Establishing an early diagnosis by care providers along with prompt deliverance of effective treatment would result in a better outcome.

PV0357 / #511

PSEUDOPARALYSIS OF PARROT- FORGOTTEN PAST? FOXING PRESENT?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Pseudoparalysis of Parrot, known yet missed presentation of congenital syphilis.
Background: Vertical transmission of Treponema Pallidum can result in congenital syphilis- a multisystem disease with protean manifestations. Universal antenatal screening, effective penicillin therapy & lack of clinical awareness ,experience of new generation pediatricians have made congenital syphilis a rarely considered differential diagnosis in recent era. Last decade has seen global re-emergence of congenital syphilis for various reasons. The presentation of congenital syphilis can be masquerading many infective & non infective conditions posing diagnostic challenge.
Case Presentation Summary: Master "A", 3 month old male infant was referred for inability to move & pain on handling of both upper limbs since 4days Pediatric Hematology ,neurology & orthopedic expert consult & investigations were inconclusive. This 38weeker 3,6kg BW boy was growing well without any concerns. Mother had negative VDRL at 12 weeks of gestation. Physical examination- afebrile, responsive, alert infant with stable vitals and normal growth & development. Pallor, enlarged axillary & right trochlear lymph node, hepatosplenomegaly notable. Hypotonic severe weakness of both upper limbs, hyporeflexia and non localized tenderness was only neuro deficit. Hb- 9, normocytic-chromic anemia, TWBC-15620/cmm, P-23, L71. E 1, M5, platelets-3,93L/cmm, MRI neck & spine - cervical, axillary lymph nodes, bilateral mastoid fluid. normal CSF & Bone marrow reports. Serum & CSF VDRL & TPHA were positive as were both parents. Child recovered with IV Penicillin therapy over 10days.
Learning Points/Discussion: Pseudoparalysis of Parrot is a well knownyet uncommon presentation of early onset congenital syphilis. Syphilis is now a less seen & clinically considered infection in infants, particularly with effective universal Antenatal screening & easy penicillin therapy. Syphilis acquired in late pregnancy can be missed and carries high vertical transmission risk to affect young infants & a diagnostic c dilemma for pediatricians.

PV0358 / #880

CONGENITAL TOXOPLMOSIS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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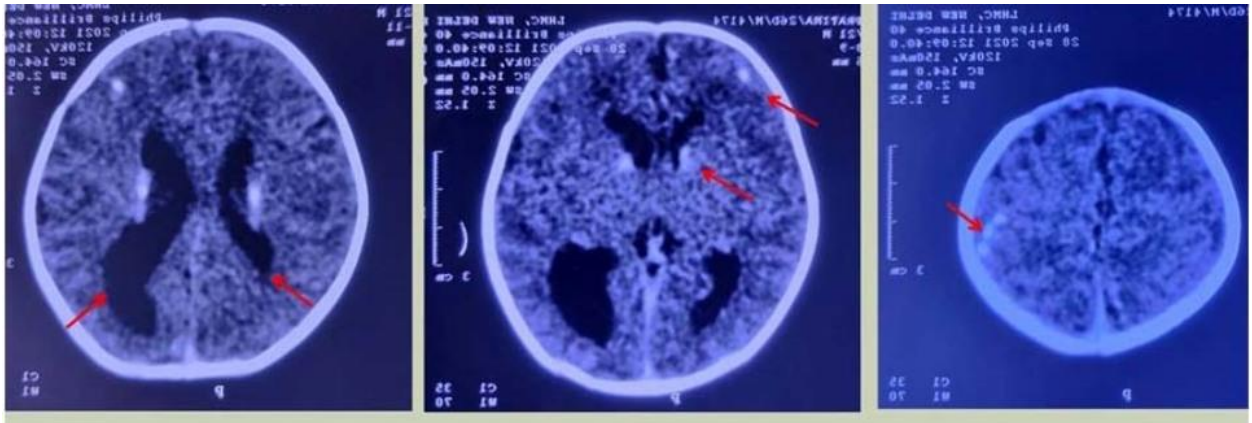
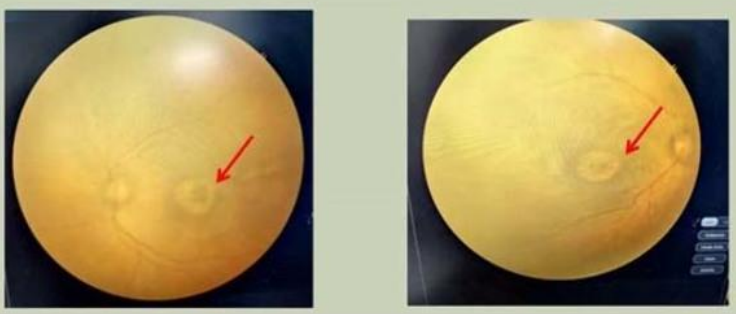
Title of Case: CONGENITAL TOXOPLMOSIS: A CASE REPORT
Background: Severity of Congenital Toxoplasmosis may vary from fetal demise to post-natal asymptomatic course to severe eye and CNS involvement. We present a case of congenital toxoplasmosis in one of the surviving twin.
Case Presentation Summary: A 34+2 week, 1600 gm, SGA, male, IVF conceived, Twin A of DADC twins was delivered by Cesarean Section (Indication: abnormal Doppler). Mother was 25 years Primi with uneventful pregnancy (Toxoplasma screen during infertility work up was negative). At 30 weeks of pregnancy demise of one of the twin was detected. Baby was admitted for prematurity, low birth weight and respiratory distress. Liver was palpable 3cm and spleen 1 cm below costal margin. On D11 of life there was clinical worsening with increase in hepatosplenomegaly. CSF: 51 cell/cubic mm (95% lymphocytes), normal biochemistry. Blood and CSF culture were sterile. Liver function and kidney function tests were normal. Toxoplasma serology was IgM positive. CSF PCR was also positive. Mothers Toxoplasma IgG and IgM was positive. Eye examination revealed focal chorioretinitis. CT head showed enlarged lateral ventricles and multiple calcifications (Fig). Baby was started on Sulfadiazine, Pyrimethamine and Folinic acid. One weak latter baby developed neutropenia which did not respond to increase in dose of Folinic Acid and required cessation of treatment for 2 weeks. Baby has now completed one year of anti-Toxoplasma treatment and is well.



CECT brain: B/l lateral ventricles enlarged (left> right) with grossly normal 4th ventricle, multiple chunky calcifications in cortical , subcortical and periventricular region in bilateral cerebral hemisphere with ventriculomegaly. Findings are consistent with congenital toxoplasmosis.

- Ophthalmology evaluation after 2weeks of treatment- no active lesion, b/l macular scarring present.



Learning Points/Discussion: Toxoplasma surveillance should be performed in all trimesters of pregnancy to reduce mother to child transmission. Close monitoring for medication toxicity, therapeutic response and disease recurrence is critical. Neutropenia is known side effect and mostly due to Pyrimethamine. It is preferable to use first line treatment as it is the only treatment that has been shown to be effective.

PV0359 / #48

ONLINE CME EFFECTIVELY IMPROVES PEDIATRICIANS CLINICAL KNOWLEDGE AND CONFIDENCE RELATED TO CYTOMEGALOVIRUS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: We sought to determine if an online continuing medical education (CME) series could improve the clinical knowledge and confidence of pediatricians related to cytomegalovirus (CMV).
Methods: 2 online, 30-minute panel discussions, with educational effects assessed for matched learners completing all pre/post questions. The McNemar's test assessed differences from pre to post ($P < .05$ are statistically significant). The activities launched in March and April, 2022, and data were collected for 3 months for each activity.
Results: Overall, 40%-46% ($P < .01$) of pediatricians demonstrated improvements Activity 1 (N=84) 27% improved at recognizing the burden of CMV ($P < .01$; 57% need additional education) 23% improved at selecting CMV acquisition risk reduction strategies ($P < .01$; 40% need additional education) 15% improved at identifying complications of congenital CMV ($P < .01$; 38% need additional education) 48% increased confidence at educating pregnant women about CMV risk reduction ($P < .01$), with an average confidence shift of +87% among those who improved Activity 2 (N=107) 21% improved at recognizing the lifecycle of CMV ($P < .05$; 38% need additional education) 16% improved at selecting factors associated with CMV seropositivity ($P < .05$; 36% need additional education) 14% improved at identifying common complications of CMV at birth ($P < .01$; 36% need additional education) 45% increased confidence at understanding of the role of CMV serostatus in pregnant patients ($P < .01$), with an average confidence shift of +69% among those who improved
Conclusions/Learning Points: This study demonstrates the success of an online, serial learning initiative at improving clinical knowledge and confidence of pediatricians related to CMV. Continued gaps were identified for future education.

PV0360 / #1721

MATERNAL CYTOMEGALOVIRUS REINFECTION AND VIRAEMIA DURING PREGNANCY AMONG WOMEN LIVING WITH HIV

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Congenital CMV (cCMV) is a leading cause of childhood neurodevelopmental complications and is more common in children born to women living with HIV (WLWH), even with effective antiretroviral therapy. Most cCMV occurs in children of women who were already CMV-seropositive before pregnancy. Reinfection with different CMV strains during pregnancy is associated with cCMV in HIV-negative women, but has not been characterized among WLWH.
Methods: To investigate CMV reinfection in CMV-seropositive pregnant WLWH from a prospective Canadian cohort, we used a strain-specific ELISA able to detect antibodies targeting glycoproteins gH and gB from 2 CMV strains (4 epitopes), comparing plasma from the first and third trimester of pregnancy. An antibody response targeting a new epitope in the third trimester not found in the first trimester was defined as reinfection. Maternal CMV viremia was quantified by plasma qPCR in each trimester, and cCMV was defined by positive saliva or blood qPCR within 3 weeks of life.
Results: Among 6 children with cCMV, at least 2(33%) of their mothers had reinfection during pregnancy. In contrast, none of the 24 mothers of children without cCMV tested so far had reinfection during pregnancy, even though 14 had CMV viremia. Notably, in the first trimester, 6/15(40%) WLWH with detectable viremia had antibodies to >2 epitopes versus 0% in non-viremic WLWH. Also, the strain-specific responses in non-viremic WLWH were solely restricted to gB epitopes.
Conclusions/Learning Points: CMV reinfection during pregnancy appears common among WLWH with cCMV-affected infants. Although reinfection was not found to be associated with CMV viremia, frequent responses to multiple CMV epitopes at baseline limit the ability to detect reinfection by strain-specific ELISA. As such, the development of more sensitive methods to detect CMV reinfection is needed.

PV0361 / #580

ANTENATAL CONGENITAL INFECTIOUS SCREENING, CAN WE ALWAYS TRUST THE RESULT?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: ANTENATAL CONGENITAL INFECTIOUS SCREENING, CAN WE ALWAYS TRUST THE RESULT?
Background: Congenital syphilis is an emergent public health problem. Early diagnosis can be difficult due to its varied and unpredictable manifestations.
Case Presentation Summary: A 3-month-old female infant was referred to our institution due to severe hemolytic anemia and hepatitis. Family history and Pregnancy were unremarkable,with a negative third trimester non treponemal test. Apart from pallor, the mother denied fever,jaundice,bleeding,failure to thrive,or prostration. On admission the infant had a clear nasal discharge and hepatosplenomegaly. Blood work revealed nonimmune hemolytic anemia (Hb 4.4g/dL, reticulocytes 11%, total bilirubin 0,67mg/dL, LDH 508U/L, haptoglobin 158 mg/dL, negative coombs test) and thrombocytopenia (103.000/uL), mildly elevated C reactive protein (23mg/L), and schizocytes on morphology. Syphilis screening revealed a positive non-treponemal RPR test of 1:4 (maternal titer 1:8), but due to a high index of suspicion another sample was analyzed with a RPR titre of 1:1024. The infant's anti-treponemal IgM antibody was positive and the infant and maternal's TPHA tests were both reactive, supporting the diagnosis of congenital syphilis. Polymerase chain reaction test for Treponema pallidum was negative on infant's nasal secretions, blood and CSF. Furthermore, at Day 1 of treatment she developed thoracic vesicular lesions with shedding palmoplantar erythema and long simple x-ray showed bilateral periosteal reaction along the tibial diaphysis. Other infections and hemolytic anemia causes were excluded. The patient completed a 10-day-course of intravenous penicillin G, with a decrease in RPR titer and clinical improvement. Parents also received treatment.
Learning Points/Discussion: Negativity of prenatal screening or postnatal low titers should not exclude the diagnosis of congenital syphilis. Pursuing the diagnosis when there is a high index of suspicion by repeat testing is essential to provide treatment and prevent long-term complications.

PV0362 / #1696

CONGENITAL TOXOPLASMOSIS – RETROSPECTIVE STUDY OF 15 YEARS IN A TERTIARY CENTER

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Congenital toxoplasmosis (CT) can cause disabling disease in the fetus or long-term sequelae, despite being mostly subclinical at birth, and is an important cause of chorioretinitis. Data on postnatal treatment are controversial and there is a lack of universal guidelines.
Methods: Retrospective study of newborns with suspected CT followed in the Neonatology Unit of a tertiary hospital between January 2007 and December 2021. Data were collected through patients' electronic clinical records.
Results: A total of 71 patients with suspected CT were included. During pregnancy 90.1% of the mothers underwent therapy and amniocentesis was performed in 52.1% and identified one positive PCR for T.Gondii. Most newborns were asymptomatic with normal laboratory work-up, ophthalmological and hearing screening. There was one case of hyperproteinorrachia and none had typical findings on neuroimaging. Fifty-seven patients started treatment: 42 spiramycin (74%) and 15 pyrimethamine, sulfadiazine and folic acid (P+S+FA); adverse effects were found in 11 cases and the most frequent was neutropenia. Three cases of CT were confirmed by serologies, corresponding to 4.2% of suspected cases and a prevalence of 0.4 per 10,000 births. All had normal clinical and laboratory exams and started treatment with P+S+FA fulfilling 12 months of therapy. During follow-up, none developed any long-term sequelae and all had normal psychomotor development.
Conclusions/Learning Points: The low incidence of CT in our study may be related to the decline in the prevalence of toxoplasmosis, as well as the effectiveness of measures to prevent primary infection in pregnancy and a well-established program of neonatal screening. In the future, new studies are needed to determine the effectiveness of postnatal treatment for asymptomatic cases in reducing the development of late sequelae.

PV0363 / #1403

CONGENITAL TOXOPLASMOSIS IN AN INFANT OF AN IMMUNE MOTHER

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CONGENITAL TOXOPLASMOSIS IN AN INFANT OF AN IMMUNE MOTHER
Background: Congenital toxoplasmosis has high mortality, high morbidity and can be avoided through primary prophylaxis for pregnant women such as hygiene habits and avoiding consumption of raw meat. This report aims to describe a case of congenital toxoplasmosis in a newborn with an immunocompetent mother previously immune to this condition.
Case Presentation Summary: 35 years old woman, 4th pregnancy, with gestational diabetes in need of insulin treatment. Serology of the last pregnancy and collected at first and third quarter of current pregnancy showing IgG + and IgM - for toxoplasmosis. Cesarean section was indicated due to acute fetal distress. Female preterm newborn, 33 weeks, adequate for gestational age, apgar 9/10. Eye screening was performed into the newborn, with an absent red eye reflex bilaterally and heel prick test showing IgM + for toxoplasmosis. After, a new serology test confirming the finding with IgM and IgG +. Treatment was initiated with Sulfadiazine, Pyrimethamine, Folinic acid and Prednisolone. Initially, the eye physical exam showed bilateral chorioretinitis. One month later, both eyes presented a large scar on the posterior pole with vitreous beam and pale optic nerve. Ocular US was performed with diameters below normal limits in both eyes. Left eye Membrane echo was suggestive of retinal detachment. Brain TC in the 3rd month showed bilateral calcifications in the cerebral parenchyma.
Learning Points/Discussion: Despite being a rare event, vertical transmission of toxoplasmosis can occur in immunocompetent pregnant women who are previously immune, probably to maternal disease reactivation or new infection with different strains of T. gondii. This makes it necessary to review the concept of immunity in toxoplasmosis during pregnancy and expand the guidelines for prenatal prevention.

PV0364 / #1426

CYTOMEGALOVIRUS INFECTION AND NEWBORNS: DIAGNOSIS OF CONGENITAL INFECTION USING SALIVA

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Cytomegalovirus (CMV) is the most frequent cause of congenital infection. CMV can be tested in both urine and saliva. Even though saliva testing is more accessible, a higher number of false positives (FP) has been described.
Methods: We conducted a retrospective study of all the saliva and urine polymerase chain reaction (PCR) tests performed in newborns to detect CMV, between July 2016 and November 2022. Our goal was to calculate de positive (PPV) and negative (NPV) predictive values of CMV testing in saliva at a peripheral hospital.
Results: 316 newborns underwent both saliva and urine CMV testing. 9 were positive in at least 1 of the tests, 1 was exclusively positive in urine, 4 were positive in saliva and 4 in both tests. Significant differences were found between the viral load of FP and true positives (TP). (p=0.029) Our PPV was 50% and NPV was 99.7% using urine testing as the gold-standard.
Conclusions/Learning Points: In our study, the NPV of saliva testing excludes, most of the times, CMV infection. FP in urine are associated to contamination of saliva samples with breastmilk and genital tract secretions or non-sterile urine samples. The viral load value could be used to distinguish FP from TP. However, viral-shedding is yet not fully understood and highly variable. This variation could be explained by the timing of infection (maternal primary infection, reinfection and reactivation) or strain variation. Therefore, false negatives can be found in urine and saliva. Congenital CMV infection can be diagnosed using saliva and urine samples, but a confirmatory test is needed. In the future, a deeper understanding of viral-shedding might simplify the process of congenital CMV infection diagnosis.

PV0365 / #1167

URINARY TRACT INFECTIONS IN NEONATES IN COMPARISON WITH OLDER CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Urinary tract infections (UTIs) in neonates have not been studied extensively and therefore neonates are not included in common guidelines. In this study we investigated the differences of UTIs in neonates as compared to older children.
Methods: Neonates (0-28 days old) hospitalized for UTI over a 13-year period (January 2008 – December 2020) were compared with children older than 29 days hospitalized for UTI at the same period. Comparative univariate analysis among groups and logistic regression models for pathogen prediction in each group were performed.
Results: The study included 98 neonates (median age, 15 days) and 777 children > 29 days (median age, 0.6 years). Neonatal UTIs were all first episodes, 43.8% were nosocomial and 36.7% presented with non-suggestive of UTI symptoms. Compared to older children, neonates had higher male-to-female ratio (81.6% vs 44.4%, p<0.0001), less commonly vesicoureteral reflux (VUR) (13.3% vs 23.9%, p=0.023) and more frequently non-E. coli pathogens (61.2% vs 33.1%, p<0.0001), especially neonates born with Caesarian section compared to those born with vaginal delivery (58.2% vs 41.8%, p=0.01). UTIs due to Klebsiella spp were more prevalent in neonates (42.8% vs 10,4%, p<0.0001). The only predictive variable of non-E. coli pathogens in neonates was the type of delivery whereas in older children non-E. coli pathogens were associated mostly with male gender, urinary tract abnormalities and previous exposure to antibiotics.
Conclusions/Learning Points: Neonatal UTIs differ from UTIs in older children in terms of uropathogens' profile, clinical presentation and risk factors and are mainly associated with perinatal factors. These findings may contribute to formulation of guidelines for the neonatal period and the very early infancy.

PV0366 / #2475

CONGENITAL SYPHILIS IN SWITZERLAND: A FOLLOW-UP STUDY

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Background: We previously reported a re-emergence of syphilis from 2006–2009 with detection of congenital syphilis in Switzerland. This study aimed to reassess the incidence of children with exposure to maternal syphilis during pregnancy and congenital syphilis in a following 10-year period in the canton of Zurich, the epidemic hotspot for syphilis in Switzerland.
Methods: Children were identified both by reviewing medical records at the four major neonatal and paediatric hospitals providing acute care in the canton of Zurich and by the serologic database of the syphilis reference laboratory. Inclusion criteria for children were (a) date of birth from 2010–2019, (b) place of birth in canton of Zurich, (c) evaluation for syphilis due to positive syphilis pregnancy screening, and (d) age <1 year. Results were compared with epidemiological data provided by the Federal Office of Public Health (FOPH).
Results: We identified and evaluated 17 children after potential exposure to maternal syphilis. Residual antibodies of a past infection were found in 11 mothers. Six children were identified as having had real exposure to asymptomatic maternal syphilis. The distribution of the cases followed a similar pattern as confirmed syphilis cases in women of childbearing age reported to the FOPH. No case of congenital syphilis was observed.
Conclusions/Learning Points: In contrast to the rise in syphilis infections, this study identified no case of congenital syphilis in the canton of Zurich, Switzerland, from 2010–2019. Syphilis pregnancy screening prevented congenital syphilis by diagnosing and allowing adequate treatment of asymptomatic maternal syphilis.

PV0367 / #640

PREVENTING VERTICAL HEPATITIS B TRANSMISSION: A FIVE-YEAR OVERVIEW OF A UK FAMILY HEPATITIS CLINIC

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: The WHO estimate 3.5% of the population live with hepatitis B (HBV); migrants to Europe being disproportionately affected. UK infant HBV vaccination begins from 8 weeks, with birth dose limited to infants born to women living with HBV (WLHBV). High risk infants (prematurity, high maternal viral load) also receive HBV immunoglobulin (HBIG). The Family Clinic follows up infants and WLHBV working towards WHO goals of combating viral hepatitis by 2030.
Methods: A single centre electronic note review of outcomes for infants born to WLHBV (2016-2020).
Results: 271 infants, 140 (52%) female, 71% born to first generation migrants (0.3% UK-born mothers, 28% unrecorded) born to WLHBV were referred. 216 (80%) attended follow-up with a vertical transmission rate of 0%. 22 (8%) WLHBV received third trimester tenofovir disoproxil fumerate (TDF); median viral load (VL) at initiation 125,416,376 DNA c/ml- one having birth VL. 31 (11%) infants received HBIG; 10 (32%) were lost to follow-up, compared to 46 (19%) low risk infants. 246 (90%) had birth dose vaccination documented and 210 (77%) received at least 4 doses. 227 (83%) infants had serology by 24 months; 209 (92%) HBsAb >100 and 167 (73%) >1000. 7.3% (20) required repeat serology due to persistent maternal core antibodies at median 16 months.
Conclusions/Learning Points: Prevention of vertical transmission of HBV was universal in those attending although higher risk infants were more likely to be lost to follow up (32% versus 19%). HBV serological protection was comparable with national data from 2021 (77% > 4 doses, 77% HBsAb >100). Service improvements in birth VL for mothers on TDF, enhanced engagement for high risk infants and serology moving to 22 months are subsequently being instituted.

PV0368 / #1938

NEONATAL STAPHYLOCOCCAL SCALDED SKIN SYNDROME – A DIAGNOSIS TO KEEP IN MIND

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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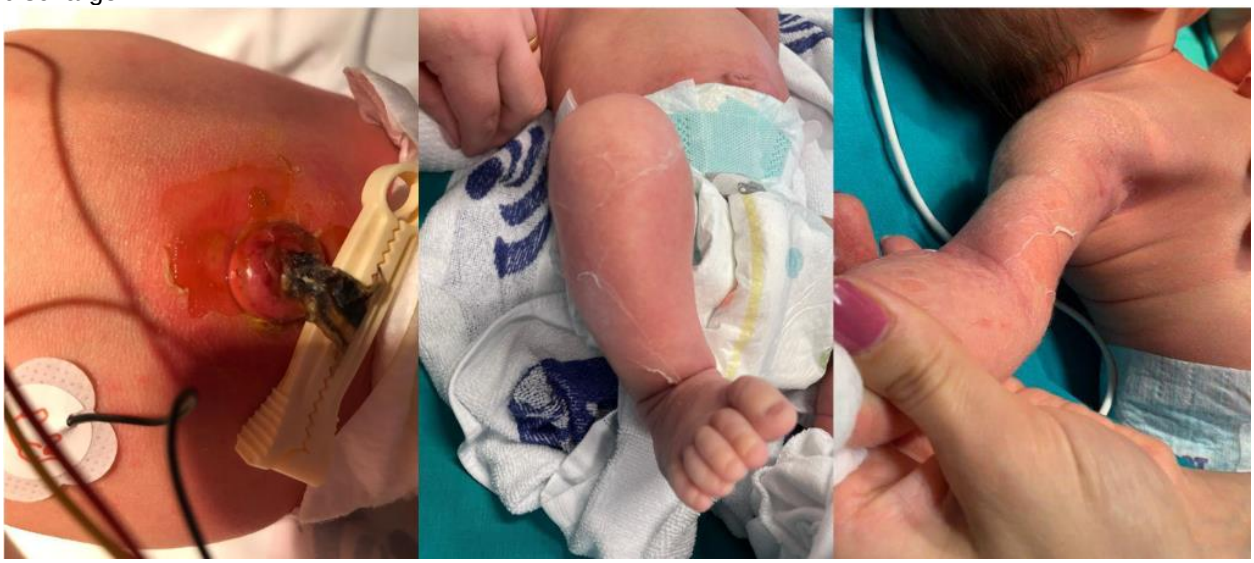
Title of Case: Neonatal Staphylococcal Scalded Skin Syndrome – a diagnosis to keep in mind
Background: Staphylococcal-scalded skin syndrome (SSSS) is a rare but potentially life-threatening exfoliative skin infection, primarily seen in young children. A high index of suspicion is essential for an accurate diagnosis and to initiate prompt treatment.
Case Presentation Summary: A full term caesarean-delivered newborn male presented at day 3 of life with exuberant purulent drainage from the umbilical stump associated with periumbilical erythema and minor cutaneous desquamation. Laboratory evaluation was unremarkable. A diagnosis of omphalitis was made and the patient was started on empiric antibiotic treatment with flucloxacillin plus gentamicin and admitted to the neonatology unit. At day 7 of life, the patient presented with new erythematous and desquamative lesions in the perioral, axillary and limbs regions. There was no fever or mucous membranes involvement. Blood pressure remained adequate. A presumptive diagnosis of SSSS was made. Identification of a Staphylococcus aureus was made in the umbilical stump's purulent discharge. Blood cultures were sterile. The patient underwent a 10-day antibiotic course with resolution of the skin lesions at
discharge.



Learning Points/Discussion: This clinical case illustrates a typical SSSS case with omphalitis as the starting point. If promptly recognized and treated, the majority of cases will have a benign clinical evolution. Antibiotic therapy, pain control, adequate hydration and skin care constitute the cornerstone of treatment.

PV0369 / #1997

NEONATAL HERPES SIMPLEX MENINGOENCEPHALITIS IN A 22 DAYS OLD INFANT WITH FEVER

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Neonatal herpes simplex meningoencephalitis in a 22 days old infant with fever
Background: Herpes simplex virus (HSV),can cause serious disease in the neonatal period, with high mortality and long term morbidity.Neonatal herpes simplex infection can have three types of clinical manifestations.One form of is the CNS involvement, with or without skin lesions.
Case Presentation Summary: We present the case of a 22 days old, male patient, admitted to the hospital for low grade fever, loss of appetite and inconsolable cry, with onset a few hours prior to admission.The infant was alert, with normotensive anterior fontanelle.Born at term, via spontaneous delivery, breastfed,3rd child of a 25 years old female,with no genital lesions present at birth.Blood tests at admission were in normal ranges,with no inflammatory syndrome,negative rapid tests for Covid-19 and flu.We performed a lombar puncture.CSF was xanthochromic, hypertensive, with pleyocitosis 280 cells/mm3 and positive PCR Panel for HSV2.During hospitalization,the infant developed vesicular rash in multiple skin regions and multiple tonic-clonic generalized seizures.EEG examination showed lesional slow waves in posterior right deviations and cerebal MRI showed multiple bilateral lesions.The patient received treatment with intravenous Acyclovir for 24 days and multiple antiepileptic drugs.Under this treatment seizures ceased,skin lesions gradually improved, and he was discharged from hospital after 24 days with subsequent pediatric and infectious disease follow-up.
Learning Points/Discussion: Fast diagnosis and treatment can influence the outcome in neonatal herpes encephalitis. In 85% of the cases transmission occurs intrapartum and the majority of women do not report a history of lesions suggestive of genital herpes.Workup protocols for febrile neonates include lombar puncture, that was of great importance in our case. Evaluation for HSV infections in febrile neonates should be considered,especially in the presence of suggestive symptoms or risk factors.

PV0370 / #1449

A NEONATE WITH VESICULO-BULLOUS LESIONS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: A NEONATE WITH VESICULO BULLOUS LEISON
Background: Congenital syphilis occurs when Treponema pallidum is transmitted from untreated pregnant woman to her fetus. According to the WHO, approximately 661,000 cases of congenital syphilis occur globally, ranking second in leading infectious cause of stillbirths . There has been a global shortage of benzathine penicillin G (BPG), the only recommended treatment for syphilis in pregnant women leading to difficulty in management of effected mothers and neonates.
Case Presentation Summary: A 28 day old boy, was brought with fever and rhinnorrhoea for 3 days and fast breathing for 1 day. Mother complaints of generalized, non-erythematous, vesiculo-bullous lesions since 10^{th} day of life which have now crusted. Antenatal history revealed that he was born to a 20 year old G2A1 mother at 37 weeks gestation who had a single antenatal visit and was screened for HIV and Hepatitis B. Baby was pale, dehydrated and had generalised excoriated papules .His was febrile, tachypneic and tachycardic. Systemic examination revealed coarse crepitations and hepatosplemegaly. Lab parameters revealed severe anemia, thrombocytopenia and leukocytosis. His LFTs were deranged and blood gas showed metabolic acidosis. He was mechanically ventilated and initially treated in line of late onset neonatal sepsis . The mother's VDRLwas reactive .On further evaluation of the baby,VDRL titre was 1:64.His USG cranium was normal ,CSF count was 5 WBCs/microL ,protein was 170 mg/dL and CSF VDRL was reactive.With a diagnosis of congenital syphilis,Inj Crystalline Peniciilin was planned but Inj Cefotaxime was adminitrated for total of 14 days ,improved and discharged after 20 days.
Learning Points/Discussion: Congenital syphilis has a potential to cause substantial morbidity in a neonate. Global shortages of penicillin has created a treatment dilemma especially in pediatric population where studies with alternate antibiotics are scarce.

PV0371 / #939

RISK FACTORS ASSOCIATED WITH SEVERE NEUTROPENIA IN INFANTS WITH CONGENITAL CYTOMEGALOVIRUS INFECTION TREATED WITH GANCICLOVIR/VALGANCICLOVIR

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Neutropenia is a common adverse event associated with ganciclovir and valganciclovir treatment in infants with congenital cytomegalovirus infection (cCMV). Severe neutropenia, often leads to treatment discontinuation, as it puts the patient at risk of invasive bacterial infection.
Methods: A multicenter retrospective study was performed within the European cCMVnet registry, including patients from Spain, Greece, Italy and Portugal. Severe neutropenia during antiviral treatment was defined as an absolute neutrophil count (ANC) below 500 cells/mm^3. Management with antiviral treatment was according to national and international guidelines. Maternal demographic and clinical data as well as somatometric, clinical and laboratory infant data were extracted from the cCMVnet registry. The prevalence of risk factors (clinical and laboratory) between infants with and without neutropenia was compared and logistic regression analysis was applied with neutropenia as the dependent variable.

Results: 517 infants with cCMV who received antivirals since 2011 were included. Most infants were treated with oral valganciclovir alone (280; 54.2%), while 29 received IV ganciclovir and 208 combination of both. Overall, 95 infants (18.4%) presented with severe neutropenia. Severe neutropenia was associated with gestational age at birth ($p<0.001$), birthweight (BW) ($p<0.001$), birth head circumference ($p<0.001$), BW <1500 grs ($p<0.001$) and ANC at birth ($p=0.001$). Severe neutropenia was not associated with gestational age at maternal CMV infection, abnormalities in cranial ultrasonography, occurrence of SNHL at birth, blood CMV viral load at birth. Ganciclovir treatment for >14 days, prematurity (GA <36 weeks) and lower pre-treatment ANC were strongly associated with the development of neutropenia.
Conclusions/Learning Points: Development of severe neutropenia during antiviral treatment was associated with ganciclovir treatment for more than 14 days, prematurity and low baseline neutrophil count. Identifying risk factors will enable better parental anticipatory guidance.

PV0372 / #551

CONGENITAL ENTEROVIRUS INFECTION TRIGGERING HAEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS AND SUBSEQUENT AUTOIMMUNE NEUTROPAENIA

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Congenital enterovirus infection triggering haemophagocytic lymphohistiocytosis and subsequent autoimmune neutropenia
Background: Haemophagocytic lymphohistiocytosis (HLH) is a rare, severe, and potentially fatal systemic inflammatory syndrome. Congential infections should be considered in the differential diagnosis of secondary HLH in the newborn period, such as enterovirus infection, which can trigger an overwhelming systemic inflammatory state in infants. Furthermore, enterovirus is known to cause transient neutropaenia in healthy children whereas other infectious aetiologies have also been implicated in the pathogenesis of autoimmune neutropenia.
Case Presentation Summary: We describe two patients with secondary HLH presenting in the first week of life triggered by congenital enterovirus infection. Both patients were profoundly unwell requiring PICU admission with severe coagulopathy and multiorgan dysfunction. Enterovirus was isolated from multiple bodily fluids in both patients. Investigations for primary inborn errors of immunity predisposing to HLH were negative. Both mums had contact with family members or were themselves unwell with fever, rash, and gastrointestinal symptoms perinatally. After spontaneous clinical and biochemical improvement, both infants were noted to be neutropaenic in follow-up despite normal neutrophil counts in the acute phase of illness. One patient was found to be positive for anti-granulocyte antibodies (HNA1a) hypothesised to have caused autoimmune neutropaenia.
Learning Points/Discussion: It is essential to differentiate between primary (familial/congenital) forms of HLH and secondary forms triggered by infections such as enterovirus. The two patients exemplify the importance of a detailed perinatal history leading to a broad congenital infections screen, as the spectrum of congenital infections causing HLH features are overlapping and often indistinguishable from one another. Once the acute phase of illness has resolved, persistent neutropaenia should prompt consideration of autoimmune neutropaenia as it is often linked to infection in infancy with subsequent aberrant autoantibody formation.

PV0373 / #2461

THE HUMAN HERPESVIRUS 6 (HHV-6) INFECTION IN NEONATAL PERIOD: POSTNATAL INFECTION OR INHERITED CHROMOSOMALLY INTEGRATED HHV6 (ICIHHV-6)?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: The Human HerpesVirus 6 (HHV-6) infection in neonatal period
Background: HHV-6 causes “roseola infantum” in infants aged between 6 to 24 months. Its most common route for transmission is saliva. Congenital HHV-6 infection occurs in 1% of births, but transplacental transmission accounts only for 14% of them. In fact, HHV-6 genome can integrate into the host germline chromatin and be transmitted in a Mendelian fashion. The 86% of HHV6 congenital infections is associated with inherited chromosomally integrated HHV-6 (iciHHV-6).
Case Presentation Summary: A.F was born full-term without complications. Twelve days after birth, he developed high fever (38.5°), axial hypotonia and diaper rash. A diagnostic work-up and empiric antibiotic therapy was started. Blood, urine and liquor culture did not reveal any bacteria. Afterwards, the patient developed exanthema characterized by small and erythematous papules on the trunk, face and arms. In the meantime, virological examinations detected 335.449 copies/ml of HHV6-DNA on blood sample. After few days the baby was discharged in good clinical conditions. Three months later, the viral load was low (< 500 copies/ml), excluding the presence of iciHHV-6 in patient’s genome.
Learning Points/Discussion: IciHHV-6 subjects can be identified by their persistently high viral load (>1 copy of genomic HHV6 DNA/leukocyte), unlike what occurs in postnatal or transplacental infections. Recognizing iciHHV-6 status would allow to avoid misdiagnosis of active HHV-6 infection and consequently unnecessary antiviral treatment. It also would prevent exposure to drugs involved in virus reactivation in iciHHV-6 carriers, associated with drug-induced hypersensitivity syndrome/drug reaction with eosinophilia and systemic symptoms. In this case we underline the importance to make virologic examinations in all patients with a suspected sepsis, and in case of documented HHV6 infection, to control the viral load trend, in order to exclude iciHHV-6.

PV0374 / #733

FOLLOW-UP OF NEWBORN FROM HBV POSITIVE MOTHERS IN A SECONDARY LEVEL NEONATAL UNIT FROM 2018 TO 2021

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: FOLLOW-UP OF NEWBORNS FROM HBV POSITIVE MOTHERS IN A SECONDARY LEVEL NEONATAL UNIT FROM 2018 TO 2021
Background: Despite the continue improving of prevention, HBV infection remains an important infectious problem worldwide. Considering pediatric age, the introduction of specific vaccination in first infancy has drastically decreased the prevalence of HBV infection, and most of pediatric HBV positive patients are due to mother to fetal transmission. In a four-year period, from 2018 to 2021, we collected data of newborns from HBV positive mothers followed in the Pediatric Infectious Diseases Outpatient Unit of the Hospital of Magenta.
Case Presentation Summary: From 2018 to 2021, 11 patients were born from HBV positive mothers (0.2% of all newborns in our neonatal unit). All these patients were treated within the first 12 hours of life with a first dose of anti-HBV vaccine and an intramuscular injection of specific immunoglobulin. Vaginal delivery and breast feeding weren't contraindicated in any patient. Follow-up was characterized by two blood tests looking for HBsAg and HBeAg: the first at 6-7 months of life (to early detect possible congenitally infected children) and a last at 12-15 months of life. None of the 11 patients resulted positive (all patients completed the follow-up).
Learning Points/Discussion: During the study period, none of the newborns from HBV positive mothers resulted infected at the end of the follow-up. Early newborn immunization and vaccination, when correctly applied, is able to drastically reduce rate of vertical transmission, even if in the literature is described that approximately 10% of these newborns can acquire HBV infection.

PV0375 / #904

CASE SERIES: DISSEMINATED HSV INFECTION IN INFANTS ASSOCIATED WITH POSTNATAL ONSET OF MATERNAL HSV SYMPTOMS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: DISSEMINATED HSV INFECTION IN INFANTS ASSOCIATED WITH POSTNATAL ONSET OF MATERNAL HSV SYMPTOMS
Background: Neonatal Herpes Simplex Virus (HSV) is a dangerous condition with a rising incidence. Management of maternal HSV infection during pregnancy and at birth is incorporated into national guidelines but management of mother-infant pairs presenting postnatally is not. This represents an important population in whom potentially devastating neonatal HSV may be missed.
Case Presentation Summary: We report 5 mother-infant pairs presenting post-delivery with symptoms due to HSV. Data was gathered regarding pregnancy, delivery, maternal and neonatal symptoms and microbiology results. Timelines were created with points of potential intervention, which could have improved outcome had earlier action been taken. Symptomatic mothers presented on day 1-6 after delivery. 3 infants died of disseminated HSV, 1 infant survived with long term ophthalmological complications, and 1 infant remains well. All 3 who died had had opportunities for earlier initiation of acyclovir. All infants were tested after the reported maternal symptoms and after they had developed symptoms. Multiple timepoints were identified when earlier recognition may have resulted in earlier infant HSV
treatment.

Figure 1: Overview of all reported cases included in the series
Abbreviations - HSV (Herpes Simplex Virus), ACV (Aciclovir), CSF (Cerebrospinal Fluid), IV (Intravenous), D* - Day * postpartum

Case	Pregnancy	Delivery	Maternal symptoms	First maternal confirmation of HSV	Neonatal symptoms and outcome	Neonatal confirmation	Relation of neonatal testing prior to maternal testing/neonatal symptoms
1	No history of herpetic lesions P0 Antenatal scans normal 40+0	Emergency C-section Nil herpetic lesions at delivery	D2 - post-op paralytic ileus, caecal dilation and ascites – not considered HSV symptoms D6 - Herpetic genital lesions	D7 HSV PCR positive blood	D1 - Pyrexia and jaundice D5 - Seizures D6 - Disseminated HSV Outcome: D36 - death	D6 - HSV positive saliva swabs	Tested before maternal results came back Tested after neonatal symptoms
2	Nil history of herpetic lesions P0 Antenatal scans normal PET – on atenolol 40+0	Forceps Nil herpetic lesions at delivery	D3 Genital lesions – Not considered HSV symptoms	D10 - HSV DNA positive blood	D4 - "Snuffly" D6 - Poor feeding, lethargic, D10 - Disseminated HSV Outcome: D11 - Death due to PEA arrest	D18 - Blood HSV detected, result only available after death	Tested before maternal results came back Tested after neonatal symptoms
3	Nil history of herpetic lesions P0 Antenatal scans normal 40+5	Emergency C-Section Nil herpetic lesions at delivery	Postpartum fever – Not considered HSV symptoms	D9 - Positive HSV DNA blood	D9 - Pyrexia, poor feeding, O2 requirement Outcome: D10 - Death	D9 - Positive CSF for HSV	Tested before maternal results came back Tested after neonatal symptoms
4	Nil history of herpetic lesions Antenatal scans normal Previous maternal genital herpes 40+0	Forceps Nil herpetic lesions at delivery	D6 - Outbreak of lesions	Mother reported symptoms and volunteered history of genital herpes to clinician	D4 - Spot on scalp D6 - Sought medical attention, clinically well, no fever Outcome: Normal development at 12 month follow-up On ACV as needed	Blood, CSF, skin & eye swabs: all HSV	Tested after neonatal symptoms
5	Nil history of herpetic lesions Antenatal scans normal 40+0	Ventouse Nil herpetic lesions at delivery	Maternal Disseminated HSV disease- unwell few days postpartum and admitted to ITU	D10 - HSV diagnosed	D4 - Respiratory distress, ventilated and IV antibiotics D5 - 1 abnormal movement so IV ACV commenced D8 - CSF neg, ACV stopped, deterioration D10 - ACV restarted, deteriorated and transferred to regional liver unit but survived without liver transplant Outcome: Survived - significant ophthalmic involvement. Normal development Remains on prophylactic oral and topical eye valaciclovir	HSV Blood PCR	Tested initially before maternal results came back as CSF neg no blood por Tested again after neonatal symptoms and maternal result CSF still neg Blood PCR positive

Learning Points/Discussion: Early postnatal presentation of mothers with symptomatic herpetic infection should alert clinicians to the possibility of neonatal HSV infection, as these women were likely to have been viraemic at delivery and therefore at very high risk for transplacental and/or birth canal transmission of HSV. Without waiting for maternal results their infants should be urgently assessed, investigated for HSV and treatment commenced until confirmatory results are available. Ideally this should happen before the infant develops any systemic symptoms as once the infants are unwell the

outcomes from disseminated HSV are very poor. National guidance should include the management of this serious postnatal presentation of HSV.

PV0376 / #983

NEONATAL INVASIVE GROUP B STREPTOCOCCAL DISEASE AND LONG-TERM RISK OF PSYCHIATRIC DISORDERS. A POPULATION-BASED COHORT STUDY IN DENMARK.

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: The risk of psychiatric disorders up to adolescents after neonatal invasive group B Streptococcus disease (iGBS), particularly iGBS sepsis, is poorly understood.
Methods: We conducted a population-based cohort study based on health care data from 1997 to 2018 in Denmark. Exposed children had a hospital-diagnosed iGBS (sepsis or meningitis) during the first 89 days of life. A general population comparison cohort was randomly sampled and matched 10:1 by sex, child year of birth, and gestational age to the exposed cohort. Psychiatric disorders were defined by International Classification of Diseases, Tenth Revision codes (ICD-10-codes). The cumulative risk (CR) of psychiatric disorders was calculated by treating death as a competing event. Cox proportional hazards regression was used to compute hazard ratios (HRs) and, as a measure of relative risks, associated 95% confidence intervals (CIs).
Results: 1432 children were identified with iGBS: 1264 with sepsis and 168 with meningitis. The overall CR (0–22 years) of any psychiatric disorder was 22.6% (95%CI 19.4–25.9) in children with iGBS and 19.4% (95% CI 18–20.8) in the comparison cohort. The overall CR of any psychiatric disorder was 24.6% (95%CI 16.1–34) for $iGBS_{meningitis}$ and 22.2% (95%CI 18.8–25.8) for $iGBS_{sepsis}$. The overall adjusted hazard ratio for any psychiatric disorder was 1.42 (95%CI 1.22–1.66). We observed an increased risk of neurotic disorders (HR 1.74 (95%CI 1.34–2.26)), mental developmental disorders (HR 1.32 (95%CI 1.02–1.71)) and emotional disturbances (HR 1.48 (95%CI 1.19–1.83)).
Conclusions/Learning Points: Invasive group B Streptococcus disease, both meningitis and sepsis, was associated with a higher risk of psychiatric disorder in later childhood.

PV0377 / #1772

CHORIOAMNIONITIS WITH FUNISITIS AND CHORIONIC VASCULITIS: THE IMPORTANCE OF THE HEMATOLOGICAL PROFILE AT BIRTH IN PRETERM INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: In the setting of acute intrauterine inflammation or infection, funisitis and chorionic vasculitis are the histological hallmarks of fetal compromise. The aim of this study was to evaluate changes in the hematological profile at birth of preterm infants with funisitis/chorionic vasculitis, that could be used as early markers of inflammation/infection.
Methods: Retrospective analysis of a cohort of preterm infants (gestational age [GA] <30 weeks) admitted to a level III NICU, from 2008 to 2022. The exclusion criteria were: outborn infants, TORCH infections, major congenital anomalies or absent placental histology. Maternal, perinatal, and hematological data were compared, according to the presence or absence of acute funisitis/chorionic vasculitis. Univariate, multivariate, and Receiver Operating Characteristic (ROC) analysis were performed using SPSS® v.28. A p-value <0.05 was considered statistically significant.
Results: A total of 113 neonates were included, 27 (23.9%) of which had funisitis/chorionic vasculitis. The univariate analysis showed that these neonates had a higher GA (28 weeks vs 27.5 weeks, p=0.036), a higher prevalence of prolonged rupture of membranes (40.7% vs 12.7%, p=0.002), and a lower prevalence of pre-eclampsia/eclampsia (0% vs 25.6%, p=0.004). The logistic regression (adjusted for GA, prolonged rupture of membranes and maternal pre-eclampsia/eclampsia), revealed an association between funisitis/chorionic vasculitis and a higher mean absolute leukocyte, neutrophile, eosinophile, lymphocyte and immature granulocyte counts, and a lower platelet-to-lymphocyte ratio (Table 1). The cut-off values of these parameters, for a specificity over 80%, are presented in Table 1.

	*OR**	*95% Confidence Interval*	*p*	*AUC***	*p*	*Cut-off values (specificity = 80%)*
Leucocytes ($x10^9/L$)	1.1	1.1 – 1.2	0.029	0.710	0.001	10.05
Neutrophils ($x10^9/L$)	1.2	1.1 – 1.4	0.011	0.720	0.001	3.46
Lymphocytes ($x10^9/L$)	1.3	1.1 – 1.7	0.02	0.738	<0.0001	5.14
Eosinophils ($x10^9/L$)	42.5	3.4 – 52.9	0.004	0.770	<0.0005	0.18
Immature Granulocytes ($x10^9/L$)	16.5	1.7 – 15.9	0.016	0.739	0.009	0.13
Platelet-to-Lymphocyte ratio	0.96	0.9 – 0.99	0.005	0.732	<0.0001	31.0

Table 1: *Multivariate analysis by logistic regression and **ROC analysis of the hematological profile. AUC – area under the curve, OR – odds ratio

Conclusions/Learning Points: The hematological profile of preterm infants with funisitis/chorionic vasculitis revealed important changes, the most significant being an increased eosinophil and immature granulocyte counts. This study suggests that these parameters can be used as early markers of intrauterine inflammation/infection.

PV0378 / #2062

THE ROLE OF IGRA TEST IN THE DIAGNOSIS OF CONGENITAL TOXOPLASMOSIS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: The role of IGRA test in the diagnosis of congenital toxoplasmosis
Background: Congenital Toxoplasmosis (CT) is asymptomatic at birth in 85% of cases and the diagnosis is based on positive IgM and/or and IgA antibodies, persistence of IgG antibodies up to one year or their increase in the first months and the early detection of synthesized neonatal antibodies through a comparative mother-infant Western blot (WB). In infected infants, Interferon release assay (IGRA) may be used to evidence lymphocytes activation and secretion of interferon gamma, following in vitro stimulation with T. gondii antigens.
Case Presentation Summary: Since 2000 we enrolled 162 patients with CT and 3,000 in utero exposed ones. We performed IGRA test in 16 asymptomatic patients with suspected CT because of not reassuring IgG decay or IgM/IgA doubtful results with not definite results at WB. Moreover, we performed the test in 10 patients diagnosed with asymptomatic CT infection in previous years because of not reassuring IgG decay.
Learning Points/Discussion: One patient in the first group presented positive IGRA test so that he promptly started specific therapy and now is 14 months old and persists asymptomatic. The others had negative IGRA test and resulted with negative IgG at one year of age. In the second group all the patients presented a negative IGRA test so that the diagnosis was definitely excluded and follow-up stopped.
Conclusions: IGRA test is useful in selected cases for early diagnosis of CT in asymptomatic infants. Moreover, it could be useful in previously suspected diagnosis to confirm or not the infection and decide if continue or not the specific follow-up.

PV0379 / #2065

THE UNEXPECTED HSV

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: The unexpected HSV
Background: Neonatal Herpes Simplex (HSV) is a rare but severe infection with increased mortality and morbidity. It is subdivided to : 1. Disease of skin, eyes, and mouth. 2. Central nervous system disease. 3. Disseminated infection. The risk of maternal neonatal transmission is highest in primary infection.
Case Presentation Summary: A 2-weeks-old term boy was treated with intravenous (IV) antibiotics for suspected sepsis. While on treatment, he developed a vesicular rash on hands and feet. At that time, it was felt that it was likely HSV rash, so IV acyclovir was started and appropriate investigations were sent. However, due to the lack of maternal clinical history of herpes and clinical improvement,IV acyclovir was stopped. The baby was discharged. Later that day neonatal eye swabs for HSV came back positive. The child was readmitted. It was challenging to convince parents of the need for prolonged acyclovir treatment despite negative maternal history of herpes. From a detailed history, it was noted that mum had developed a new onset genital rash on day 17 postpartum but this had been diagnosed as an allergic reaction. Initial maternal genital swabs showed low HSV levels ” uncertain significance”, so both maternal and neonatal swabs were re-rounded and were positive for HSV-1. Maternal antenatal booking bloods were revisited and showed HSV IgG Positive. Lumbar puncture (LP) was repeated and was negative for HSV-1, along with no neurological concerns. The baby received 14 days of IV acyclovir followed by six months of oral prophylaxis.
Learning Points/Discussion: The diagnosis was difficult since the initial swabs were negative and negative maternal history of herpes infection. High clinical suspicion is essential to prompt detection of nonspecific symptoms of HSV to prevent delay in treatment.

PV0380 / #256

MOTHER-TO-CHILD TRANSMISSION OF CHAGAS DISEASE IN PRETERM TRIPLETS: TREATMENT MONITORING.

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Mother-to-child transmission of Chagas disease in preterm triplets: treatment monitoring.
Background: Chagas disease is a worldwide disease. Mother-to-child transmission of T.Cruzi parasite is the main route of infection in non-endemic areas. Previous studies report lower Benznidazole (BZN) plasma concentrations in children than adults. This has not been studied in preterm infants.
Case Presentation Summary: Preterm triplets (27 weeks) with congenital Chagas disease diagnosed by positive parasitemia by T.Cruzi DNA qPCR. The first newborn showed myocarditis, hyaline membrane disease (HMD) and died at 6 days of life. The second suffered HMD, and the third one showed anasarca, anemia and hepatomegaly at birth. Treatment: BZN 5 mg/kg/day for 30 days was administered by nasogastric tube diluted in milk due to patient's critical condition. BNZ dosages at steady state in blood were performed 5 times by mass spectrometry. Therapeutic response was monitored by qPCR. In the 2nd newborn, clinical condition improved, qPCR was negative at the end of treatment. BZN concentrations were between 0.3-0.7mg/L. At 4th month of follow up, qPCR turned into positive result. A second course of BNZ was prescribed and one concentration was tested resulting 3.6mg/L. qPCR remained negative during 3 months follow-up. Regarding 3rd newborn, first 3 BZN dosages were between 2.1-2.5mg/L and in 2 were 0.1 and 04mg/L. Persistent positive qPCR was observed. A second course of BZN was prescribed. BZN concentrations were taken 4 times and resulted between 0.2-1.8 mg/L. qPCR remained negative during 7 months follow-up. No related adverse events of BNZ were reported.
Learning Points/Discussion: This is the first report of therapeutic evaluation by BNZ dosing in extreme preterm infants. Close therapeutic drug monitoring and qPCR parasitemia allowed early detection treatment failure related to low concentration of BNZ.

PV0381 / #1310

SIGNIFICANCE OF PRO-INFLAMMATORY BIOMARKERS IN NEWBORN WITH INFECTIOUS-INFLAMMATORY DISEASES IN DYNAMICS OF THE EARLY NEONATAL PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Congenital infections are the 3rd leading cause of death in neonatology. The study of methods for confirming infection is an urgent problem of our time.
Methods: 49 children of the early neonatal period were examined. Patients were divided into 3 groups: Gr1 - bacterial sepsis (n=15), Gr2 - congenital infection, unspecified (n=14), Gr3 - RDS (n=20). Analysis of clinical and laboratory data was on the 1st and 3-5rd days of life. The sensitivity (Se) and specificity (Sp) of pro-inflammatory biomarkers (CRP, PCT, IL-6) were determined.
Results: Gestational age and weight did not affect the levels of pro-inflammatory markers. IL -6 (pg/ml) levels in Gr1 – 247 (137–421) (Me (25%–75%)), Gr2 – 139 (102–226), Gr3 – 66 (39–104) (H=17.4, p<0.001, p1-3<0.001, p2-3=0.043). On day 1, the groups showed differences in CRP (H=14.6, p<0.001, p1-3<0.001) and PCT (H=10.7, p=0.005, p1-3=0.003). On days 3–5, IL-6 had no differences (Gr1 - 16 (12–46), Gr2 - 52 (0.8-102), Gr3 - 9 (0.8-19) pg/ml, H=3.33, p=0.189). An increased level of CRP (mg/l) was noted in patients Gr1 compared with children Gr2, Gr3 (8.6 (5.3–9.0), 5.2 (3.6–6.5) and 2.8 (1.6–5 ,1), H=15.9, p<0.001), there were no statistically significant differences among Gr1 and Gr2 (p=0.180). The PCT (ng/ml) was 14.3 (9.4–17.3) in Gr1, 4.0 (2.4–6.3) in Gr2, and Gr3 1.1 (0.8–3.1) (H=33.0, p<0.001, p1-3<0.001, p2-3=0.048, p1-2<0.001). Sensitivity and specificity of markers on 1st day (Se; Sp): IL-6 (81%; 69%), CRP (50%; 83%), PCT (43%; 85%). 3-5rd day: IL-6 (50%; 94%), CRP (86%; 83%), PCT (93%; 85%).
Conclusions/Learning Points: On the 1st day, the most reliable marker is IL-6, on the 3-5rd day – PCT.

PV0382 / #1125

UREAPLASMA IN NEONATES – CAN WE IMPROVE OUR TESTING?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Ureaplasma detection in neonates is associated with afebrile pneumonia and chronic lung disease but testing recommendations vary and incidence is uncertain. We aimed to analyse current testing practices in the Neonatal Unit in NHS Tayside, Scotland, with regards to Ureaplasma detection to establish if consistency in testing practices can be improved. This was relevant both for the Neonatal Unit as well as the Medical Microbiology Laboratory.
Methods: Our work involved a laboratory search from 2017 - 2022 to establish the overall number of endotracheal aspirate (ETA) specimens tested via culture method in the Neonatal Unit, the number of specimens tested for Ureaplasma, the number of positive Ureaplasma tests and whether any other pathogens were isolated. The data was collected on an Excel spreadsheet, analysed and discussed with experts from both the Laboratory and the Neonatal Unit, in order to improve the management of lung disease in neonates.
Results: Overall, 114 ETA specimens were received by the Laboratory from 48 neonates in the Neonatal Unit, during 2017-2022. Of the forty specimens tested for Ureaplasma on culture, 11 specimens tested positive (4 for Ureaplasma species and 7 for U. urealyticum). Thirty-one of the 48 neonates had at least one specimens tested for Ureaplasma. Of these, 10 specimens were positive (3 Ureaplasma species and 7 Ureaplama urealyticum). In six specimens, Ureaplasma was isolated alongside other pathogens (Pantoea sp; E. coli; S. aureus; H. influenzae; Citrobacter freundii and Acinetobacter baumanii).
Conclusions/Learning Points: Our results indicate that testing of all specimens from the Neonatal Unit might be beneficial, as approximately 1 in 3 neonates tested positive for Ureaplasma.

PV0383 / #1478

INCIDENTAL FINDING OF TRICHOMONAS VAGINALIS IN A PRETERM NEONATE: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Incidental Finding of Trichomonas Vaginalis in a Preterm Neonate: A Case Report
Background: Trichomonas vaginalis (TV) is a common risk factor for preterm labor; however, perinatal transmission of TV is a rare phenomenon. We present a case report of incidental TV infection in a preterm infant at 2 months of age.
Case Presentation Summary: A 22-year-old woman, para 2 gravida 3 with gestational hypertension and chronic placental abruption delivered a female infant, estimated gestational age of 25 weeks, at home. The infant was transferred to the neonatal intensive care unit and the mother was admitted to the obstetrics unit. The infant's mother had a normal urine analysis (UA) without any signs of TV on day of delivery and a negative nucleic acid amplification testing for TV three months prior to delivery. During admission, at approximately 2 months of age, the infant developed signs of sepsis. Methicillin-resistant Staphylococcus aureus was isolated from a blood culture. Repeat blood culture grew Enterococcus faecalis. In pursuit of a source of E. faecalis, UA and culture were obtained. The urine microscopy revealed 10 white blood cells, 4 red blood cells and 1+ Trichomonas. Repeat testing confirmed the presence of trichomonas and the infant received a 5-day course of metronidazole to treat perinatal TV urethritis in addition to treatment for gram-positive sepsis.
Learning Points/Discussion: The prevalence of TV in preterm infants is unknown. TV can survive for several weeks in a neonate following delivery and has been associated with severe complications, such as brain abscess. Nucleic acid amplification for TV should be considered as some studies indicate it is more sensitive than UA. Further studies are needed to understand the best diagnostic approach and significance of TV infection in neonates.

PV0384 / #982

EXPERIENCE OF PROLONGED ANTIVIRAL CHEMOTHERAPY FOR PERINATAL HERPES SIMPLEX INFECTION TYPE 2: EFFECTIVENESS, SAFETY, PROBLEMS – A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: EXPERIENCE OF LONG-TERM ANTIVIRAL CHEMOTHERAPY FOR PERINATAL HERPES SIMPLEX INFECTION TYPE 2
Background: Herpes simplex virus (HSV) infection type 1+2 has several routes of transmission including a vertical one. In newborns who develop neonatal herpes administration of prolonged suppressive antiviral therapy should be considered to reduce the rate of recurrence, and tolerability of such therapies is an issue of special concern.
Case Presentation Summary: An 8-year-old male has a history of intranatal HSV-2 transmission due to the erroneous obstetric tactics which resulted into neonatal herpes infection. Due to frequent HSV-2 infection relapses, the child received continuous oral treatment with acyclovir until the age of three years, and then valacyclovir until now. Clinical and laboratory monitoring of treatment tolerability was continuously performed, with no abnormalities revealed. The absence of recognized specific laboratory criteria for treatment cessation caused several unauthorized parental attempts to cancel the medications, which resulted into recurrent severe herpetic keratoconjunctivitis, with further resumption of antivirals. Also, persistent parental search for alternative treatments caused unjustified management with immune modulators, human intravenous immunoglobulin and vitamin supplementation in different medical settings. In 2022, the family fled the war in Ukraine to Germany, being at risk of premature discontinuation of antiviral treatment, which risk, however, was avoided. Currently a one year relapse-free period was reached for the first time in eight years.
Learning Points/Discussion: For perinatal HSV type 1-2 infection, establishing of virological/immunological criteria for treatment efficacy and discontinuation is necessary. Physician-patient communication issues along with availability of an array of non-evidence-based information interferes with rational therapy and decrease the effectiveness of patient management. Long-term use of acyclovir/valacyclovir is believed to be generally safe and effective, therefore may be preferred over short-term courses used only for suppressing HSV exacerbations.

PV0385 / #502

EARLY NEURODEVELOPMENTAL MILESTONES AND CONGENITAL ZIKA SYNDROME

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: The phenotype of the Congenital Zika Virus Syndrome is still being delineated and among the clinical consequences of CZS are severe language impairment and a high frequency of sleep disorders. The aim of the present study is to answer the question if, after three years of follow-up is possible to make some predictions about what might be expected as they get older regarding to sleep quality and language development.
Methods: This study was approved by the Ethics Committee under protocol 1.743.023. composed by 39 boys and 44 girls, of a well-characterized sample of children with clinical and laboratory diagnosis of CZS, ages ranging from 2 to 36 months. The assessment consisted of children subdivided into groups: 2 to 6 months (N=4), 7 to 12 months (N=18), 12 to 18 months (N=22), 19 to 24 months (N=22), 25 to 30 months (N=19), 31 to 36 months (N=20). The language development was assessed by means of the Early Language Milestone Scale (ELM Scale) and the quality of sleep assessed by the Brief Childhood Sleep Questionnaire (BQSI).
Results: The results showed that independent of age, 100% of the children presented auditory expressive and auditory receptive language skills below the expected and 96% presented scores of visual skills below the expected, showing a severe impairment in all groups without significant difference. When we compared the sleep parameters, we observed that a sleep latency greater than acceptable was found in all groups. The only difference in the sleep parameters was a decrease in both nighttime sleep time and total sleep time between the 13-18 and 25-30 age groups.
Conclusions/Learning Points: Most children should remain with skills that would be expected in children from 2 to 3 months of age.

PV0386 / #281

REPLICATION PROPERTIES AND IMMUNOMODULATORY EFFECTS OF HUMAN CYTOMEGALOVIRUS INFECTION IMPACT THE CLINICAL PRESENTATION IN CONGENITAL PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: REPLICATION PROPERTIES AND IMMUNOMODULATORY EFFECTS OF HUMAN CYTOMEGALOVIRUS INFECTION IMPACT THE CLINICAL PRESENTATION IN CONGENITAL PATIENTS
Background: Human cytomegalovirus (HCMV) is the leading cause of congenital infections resulting in severe
morbidity and mortality among newborns worldwide. Although both the host's and the virus' genetic backgrounds contribute to the outcome of infections, significant gaps remain in our understanding of the exact mechanisms that determine disease severity.
Case Presentation Summary: In this study, we sought to identify a correlation between the virological features of different
HCMV strains with the clinical and pathological features of congenitally infected newborns, therefore proposing new possible prognostic factors. We present five newborns with congenital cytomegalovirus infection,
whose clinical phenotype during fetal, neonatal, and follow-up period is correlated with in-vitro growth properties, immunomodulatory abilities and genome variability of HCMV strains isolated from organic samples (urine) of the patients.
Learning Points/Discussion: The five patients described in this case series displayed a heterogeneous clinical
phenotype and different virus replication properties, immunomodulatory abilities, and genetic polymorphisms. Interestingly, we observed that an attenuate viral replication in-vitro influences the immunomodulatory abilities of HCMV, leading to more severe congenital infections and long-term sequelae. Conversely, infection with viruses characterized by aggressive replicative behavior in-vitro resulted in asymptomatic patients' phenotypes.
Overall, this case series suggests the hypothesis that genetic variability and differences in the replicative behavior of HCMV strains result in clinical phenotypes of different severity, most likely due to different immunomodulatory properties of the virus.

PV0387 / #710

.TIMING OF HIV ACQUISITION, ANTIRETROVIRAL THERAPY USE, AND ADVERSE INFANT OUTCOMES AMONG WOMEN LIVING WITH HIV IN SOUTHERN BRAZIL: 2008-2018

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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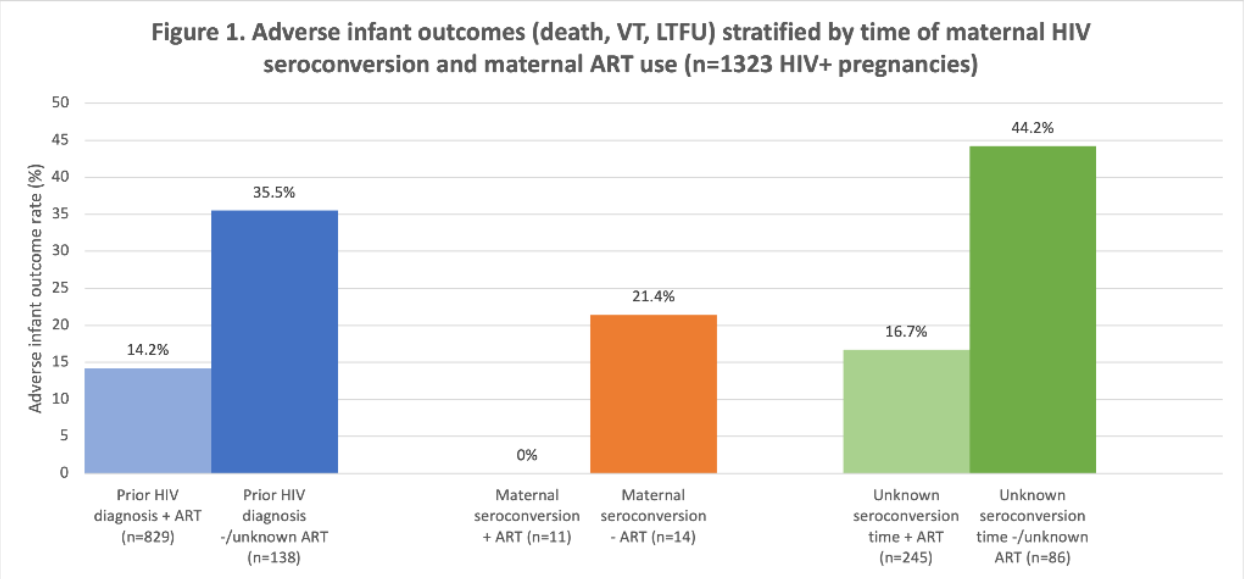
Backgrounds: Southern Brazil has the highest countrywide prevalence of HIV in pregnancy. The contribution of primary HIV infection during pregnancy to adverse infant outcomes [AIO: death, vertical transmission (VT), lost-to-follow-up (LTFU)] is unknown.
Methods: We analyzed data from a retrospective cohort of pregnant women living with HIV (WLH) delivering at an urban tertiary hospital in southern Brazil from 01/2008-12/2018.
Results: 1,323 pregnancies of WLH resulted in 1,348 births including 54 stillbirths/early infant deaths (4.0%). Twenty-five of 1,294 surviving infants (1.9%) were HIV infected; 174 (13.4%) were LTFU before determination of HIV status. Twenty-five women (1.9%) HIV seroconverted during pregnancy (SDP), 967 (73.1%) had pre-pregnancy HIV diagnoses (PPD), 331 (25.0%) had unknown HIV seroconversion time (UST). AIO occurred in 3/25 (12.0%) pregnancies with SDP, 167/967 (17.3%) with PPD and 79/331 (23.9%) with UST (p=0.020). VT rates were 4.0% (1/25) in SDP, 1.1% (11/967) in PPD and 3.9% (13/331) in UST (p=0.007). Antiretrovirals (ART) were used in 1,085 (82.0%) pregnancies; AIO occurred in 14.7% (159/1,085) of pregnancies with ART use versus 37.8% (90/238) without/unknown ART (p<0.001). Among women with PPD, AIO occurred in 14.2% (118/829) of pregnancies with ART use versus 35.5% (49/138) without/unknown ART (p<0.001); in women with UST, AIO occurred in 16.7% (41/245) of pregnancies with ART use versus 44.2% (38/86) without/unknown ART (p<0.001); among SDP, AIO occurred in 0% (0/11) cases of ART use versus 21.4% (3/14) cases without/unknown ART (p=0.102). SDP (aRR:0.45,95%CI:0.16-1.27) and UST (aRR:1.10,95%CI:0.87-1.39) were not associated with increased AIO risk. No/unknown ART use (aRR:1.98,95%CI:1.43-2.73) and detectable maternal viral load >50 copies/ml (aRR:1.52,95%CI:1.14-2.03) increased AIO
risk.



Conclusions/Learning Points: Although seroconversion in pregnancy is traditionally associated with VT, absent ART use is the major risk factor for AIO, not timing of maternal infection.

PV0388 / #1647

MISSED OPPORTUNITIES FOR PRENATAL TREATMENT FOR SYPHILIS IN GREECE OVER THE LAST DECADE. CALL FOR ACTION

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: A rise in congenital syphilis (CS) incidence in Europe has been recorded and COVID-19 pandemic seems to contribute in this trend. The study's aim was primarily to evaluate the epidemiological and clinical features of CS in the Greater Athens area in the last decade and secondarily to investigate the impact COVID19 pandemic might had on this trend.
Methods: We retrospectively reviewed all neonatal cases with positive VDRL or Tr Pallidum IgM (EIA) in serum or CSF diagnosed at the reference center for STDs in Athens "A. Syggros" between 01/2012 – 01/2022. Maternal syphilis serology at birth was also recorded. Neonatal/maternal demographic/clinical data derived from the 5 referring hospitals' records were analysed. Serology reactivity and congenital syphilis' rate before and after COVID19 pandemic was compared.
Results: In total, 204 neonates were tested for CS and 36/204 (20.8%) had probable/confirmed CS. Mean GA of probable/confirmed CS cases was 36. 9 wks (SD 4.56). Mean maternal age was 30.14 years (SD 6.02). Among 14/36 neonates with complete medical history 5 were symptomatic (13.9%). All probable/confirmed CS cases were treated (mean penicillin dose number 18.64,SD 9.73). The majority (66.7%) of mothers with syphilis detection during pregnancy were Greek; interestingly only 3/15 (8.3%) receive treatment. Over the period 2017-2022, 53% of the tested high-risk mothers were positive versus 46,5% in the previous 5 years. The increase was similar in neonates; 67,6% were considered probable/confirmed during 2017-2022 versus 32,4% during the previous 5 years(p=0.056).
Conclusions/Learning Points: Although prenatal screening for CS is mandatory in Greece, our first results clearly highlight the problem of undiagnosed and thus untreated maternal infection cases, leading to congenital disease. In this study, COVID-19 does note seem to affect the epidemiology of CS in our area.

PV0389 / #132

NEWBORN EXPOSED TO THE MONKEYPOX VIRUS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Newborn exposed to the monkeypox virus: a case report
Background: The cases of monkeypox in pregnant women reported in the literature are sparse. For this reason, little is known about the best protocol for monitoring exposed newborns. Here, we report the follow-up of a newborn whose mother developed monkeypox lesions 11 days before delivery.
Case Presentation Summary: A 37-week and 3-day pregnant woman presented with papular lesions on the right upper limb, evolving to a pustule. Eleven days after, she was admitted to the maternity hospital because of spontaneous rupture ofthe amniotic membranes and uterine contractions. The infant was born asymptomatic, without skin or mucosal lesions. After delivery, the binomial was separated and breastfeeding was contraindicated. The newborn was kept hospitalized despite being asymptomatic for clinical follow-up. Oropharyngeal swab samples were collected to perform PCR for themonkeypox virus every 3 days until 21 days of age. All newborn examinations were negative and the newborn showed no symptoms of monkeypox. In the breast milk analysis, the monkeypox virus was undetectablein PCR. Due to the lack of standardization of the examination for samples of breast milk, the negative result could not exclude the presence of the virus in the sample.
Learning Points/Discussion: The World Health Organization recommends close monitoring of newborns exposed to the monkeypox virus to assess the evidence of possible exposure or congenital or perinatal infection. Here, we performed an individualized discussion of the case with state and national agencies that guided the newborn's surveillance for 21 days and serial nasopharyngeal swab examinations every 3 days until postpartum day 21. However, no such recommendation has been documented in literature to date.

PV0390 / #2002

CONGENITAL CYTOMEGALOVIRUS: WHAT'S OUR OUTCOME?

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Fetal/congenital cytomegalovirus (CMV) infection is the leading infectious cause of central nervous system sequelae. Our aim was to characterize the congenital CMV infection population in our hospital.
Methods: Retrospective descriptive analysis of all confirmed congenital CMV infections, detected by PCR CMV DNA from urine specimen, from 2009 to 2020. Patients were classified at birth as asymptomatic, mild, moderate or severe disease, according to 2017 ESPID consensus. Outcome of congenital CMV infection was assessed by 2-year follow-up of the infected cohort.
Results: The analysis included 18 newborns with confirmed congenital CMV infection. Testing for CMV at birth was prompted in all newborns by documented seroconversion in maternal serology; in 3 of them, there were characteristics findings in prenatal scans that elicited maternal serology. At birth, we reported 12 (66.7%) asymptomatic patients, none with mild and moderate disease and 6 (33.3%) with severe disease – all with central nervous system neuroimaging findings, 2 with hepatitis and 1 with chorioretinitis. The mother had the infection during the first trimester of pregnancy in 5 (83.3%) of the severe cases. Valganciclovir therapy was given in 4 (66.7%) of the severe cases, within the first month of life. In the 2-year follow-up, we have 5 (27.8%) cases with sequelae: 1 cerebral palsy and bilateral sensorineural hearing loss; 1 cerebral palsy with chronic hepatitis; 1 delayed psychomotor development; 2 unilateral sensorineural hearing loss.
Conclusions/Learning Points: CMV infection had severe course in one-third of the identified cases and caused neurologic impairment and hearing loss in about one-fourth. Although there is no universal screening, in our tertiary center we receive all severe cases with positive maternal serology and fetal neuroimaging abnormalities, which can explain the higher proportion of symptomatic infections.

PV0391 / #1785

LIPIDOMIC ANALYSIS PERINATALLY HIV INFECTED ADOLESCENTS AND MATCHED CONTROLS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: With the introduction of combination antiretroviral therapy (cART), mortality rates of children with perinatally acquired Human Immunodeficiency Virus (PHIV) have declined. Adolescents are growing up with disease and treatment associated comorbidities, such as dyslipidemia. HIV is identified as independent risk factor for CVD. Hypothesis include vascular inflammation, dyslipidemia and cART toxicity. Lipidomic analysis, comprehensive lipid analysis, measuring concentration and composition of individual lipid species, can be used to evaluate and identify possible lipid risk profiles. To investigate differences in lipid profile and to further understand pathophysiological mechanisms of CVD risk in adolescents with PHIV, we assessed differences in plasma lipidome between PHIV adolescents compared to HIV-negative matched controls.
Methods: We included 21 PHIV-infected adolescents and 23 HIV-negative controls matched for age, sex, ethnic origin and socio-economic status. Lipid composition in plasma was measured using Thermo Scientific Ultimate 3000 binary high-performance liquid chromatography (HPLC)-mass spectrometry. In addition differences in lipid composition were measured between PHIV children and adolescents on different cART regimens known to be associated with lipid alterations. Statistical analysis was performed by in-house developed lipidomics pipeline at the Core Facility Metabolomics of the Amsterdam UMC, location AMC, the Netherlands.
Results: The median age was 17.5 years (15.5–20.7) and 16.5 years (15.7-19.8) for PHIV adolescents and controls, respectively 42 % of PHIV adolescents used an NNRTI-based or PI-based cART regimen. We observed no significant differences between lipidomic profiles or levels of individual lipid species between PHIV adolescents and controls. In PHIV adolescents differences in lipid species between different cART-based regimens were observed.
Conclusions/Learning Points: Plasma lipidomic profiles are comparable in virally suppressed PHIV adolescents and HIV negative controls. Different cART regimens might influence lipid composition and further research could further identify these alterations.

PV0392 / #2060

HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS-LIKE SYNDROME IN AN INFANT WITH PARECHOVIRUS TYPE 3 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: Hemophagocytic lymphohistiocytosis-like syndrome in an infant with parechovirus type 3 infection
Background: Human Parechovirus (HPeV) infection in children usually leads to mild respiratory or gastrointestinal symptoms. However, neonatal infection by type 3 genotype (HPeV-3) has been associated with more severe features namely a hemophagocytic lymphohistiocytosis (HLH)-like clinical presentation, due to a significantly stronger activation of genes involved in immune and inflammatory signalling of the host immune response.
Case Presentation Summary: A 48-day-old, full-term female infant, was brought to the emergency department for fever (38.3ºC). On admission she was febrile (38.1ºC), with normal physical examination. Initial laboratorial workup revealed: haemoglobin 9.5g/L, normal leucocyte and platelet count, C-reactive protein 0.77mg/dL, normal AST; and leukocyturia (75/uL). She was admitted with IV cefuroxime for urinary tract infection. Two days after admission she maintained fever, with irritability, maculopapular exanthem and hepatomegaly. Further lab results revealed: neutropenia 600/uL haemoglobin 11.2g/dL; AST 550U/L, ALT 219U/L, ferritin 8521ug/L, LDH 736U/L and triglycerides 978mg/dL in serum; and normal CSF parameters. She completed 2 days of cefuroxime (until negative urine culture), and was apyretic after 3 days of antibiotic, without other therapeutic intervention. After 5 days, she was discharged against medical advice, but with clinical and laboratory improvement. HPeV-3 was detected in faeces by polymerase chain reaction.
Learning Points/Discussion: This case suggests a self-limited virus-induced secondary HLH-like presentation of HPeV-3 infection in early infancy. Some authors have reported similar cases with different management approaches, including immunomodulatory treatment. Our case highlights the relevance of searching for HPeV-3 in newborns and small infants investigated for HLH, which may reduce the need for more aggressive immunomodulatory treatments, maintaining an appropriate clinical and laboratory follow-up.

PV0393 / #2046

CONGENITAL SYPHILIS PRESENTING AS FEVER WITHOUT LOCALIZING SIGNS AFTER THE NEWBORN PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Title of Case: CONGENITAL SYPHILIS PRESENTING AS FEVER WITHOUT LOCALIZING SIGNS AFTER THE NEWBORN PERIOD
Background: Congenital syphilis (CS) remains a worldwide public health problem and has been increasing at higher rates in the last 20 years. As the diagnosis (pre and postnatal) is crucial for adequate treatment and prevention of severe consequences, acknowledgement of clinical and analytical signs is mandatory. Portuguese antenatal care programs advocate universal VDRL screening in all pregnant women. Failure to detect maternal disease results in CS. We describe an early CS in an infant with fever without localizing signs.
Case Presentation Summary: A 2-month-old, previously healthy male infant, was brought to the ER with a 24-hour history of fever and diffuse rash. His mother's third trimester serologies were negative. At 38 weeks she presented vulvar ulcers and only herpes PCR was performed, with a negative result. The infant's ER blood tests revealed anemia (Hb 7,6x10g/L), leukocytosis (22000/uL) with monocytosis (5500/uL), thrombocytopenia (minimum 55000/uL) and CRP 263 mg/L. He started cefotaxime and gentamicin due to sepsis. On day 2, palms and soles rash appeared and VDRL (1/4) and TPHA were positive. Other TORCH, enteroviral and rickettsia infections were excluded. After full organ involvement studies (lumbar puncture, transfontanellar ultrasound, hearing test, eye examination and long bone radiographs), the infant was treated with penicillin G for 10 days with good serologic response after 12-months follow-up. Anemia, thrombocytopenia and elevated transaminases values normalised after treatment.
Learning Points/Discussion: CS is a preventable and treatable disease. We pretend to highlight how important high suspicion for CS is and how detailed maternal history provides important clues for the diagnosis. Palms and soles rash raised a high suspicion of the diagnosis and, monocytosis is very common in these cases. We must keep in mind that third trimester negative serologies do not exclude this diagnosis.

PV0394 / #1253

DIFFERENTIAL INFLAMMATORY RESPONSE INDUCED BY UREAPLASMA UREALYTICUM AND UREAPLASMA PARVUM IN AIRWAY EPITHELIAL CELLS

E-Posters Viewing
E-POSTER VIEWING: AS06.A. CONGENITAL AND PERINATAL INFECTIONS

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Backgrounds: Development of chronic lung disease (CLD) in premature infants is associated with inflammation and infection with pathogens such as Ureaplasma. However, it is unknown whether the inflammatory response elicited in alveolar epithelial cells differs between the Ureaplasma biovars: U. urealyticum (UU) and U. parvum (UP). Here, we compared the inflammation induced by UU and UP in respiratory epithelial cells upon infection.
Methods: Human alveolar epithelial cells were co-cultured with different Ureaplasma strains of UU and UP, at different ratio's. Inflammatory responses of alveolar epithelial cells were assessed by detecting the cytokines interleukin-6 (IL-6), IL-8 and C-C Motif Chemokine Ligand 2 (CCL-2) in co-culture supernatants by ELISA. The effect of Ureaplasma exposure on alveolar epithelial cell apoptosis and cell death was evaluated by flow cytometry using anti-cleaved-caspase-3 specific antibodies and a viability dye, respectively. Uninfected alveolar epithelial cells, treated with TLR2/TLR6 agonist or DMSO respectively, served as a control.
Results: Infection of alveolar epithelial cells with UP led to a greater production of the pro-inflammatory mediators IL-6 and IL-8 and a higher expression of CCL2 mRNA than UU, and was most distinct at higher ratios. We did not detect apoptosis of alveolar epithelial cells upon co-cultures with either Ureaplasma species. However, UU induced more cell death than UP. Remarkably, Ureaplasma-induced responses appear dependent on secreted factors as responses induced by heat-inactivated bacteria were lower than those by alive bacteria.
Conclusions/Learning Points: By directly comparing Ureaplasma biovars in a controlled in-vitro infection model we demonstrate that both UU and UP may contribute to inflammation and cell damage seen in CLD, but differ in their mechanism of action. Our data shed light on the role of Ureaplasma in development of CLD in premature infants.

PV0395 / #2483

SPORADIC EARLY ONSET SEPSIS IN EXTREME PRETERM CAUSED BY PANTOEA AGGLOMERANS IN LEVEL THREE NEONATAL UNIT IN THE UK

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: Sporadic early onset sepsis in extreme preterm caused by Pantoea agglomerans in level 3 neonatal unit in the UK
Background: Pantoea agglomerans is a gram-negative plant pathogen. It can infrequently cause opportunistic infections in humans. Neonatal bloodstream infections in neonatal intensive care units had been reported with high mortality rates. Here we report neonatal sepsis caused by Pantoea agglomerans in a level three NICU in the UK.
Case Presentation Summary: Extreme preterm male born at 26+5 via emergency C/S for prolonged rupture of membranes and abnormal CTG. His birth weight was 1 Kg. He received surfactant at delivery and was extubated to CPAP after a few hours. On admission to NICU, umbilical lines were inserted and TPN was commenced. Benzylpenicillin and Gentamicin were received and stopped at 36 hours following negative sepsis screening. At 48 hours he was intubated for profound apnoea, had a repeat of the sepsis screen, and was commenced on Cefotaxime and Vancomycin. His blood culture grew Pantoea Agglomerans which remained positive on the repeated sample five days later. His CRP peaked at 108, his WBC count peaked at 36.3. He received platelet transfusion twice; the lowest platelet count was 9. The lumbar puncture was not done as he was very sick, but he had a normal cranial ultrasound scan. He was switched to the maximum dose of Meropenem for 3 weeks. The fourth and fifth blood cultures were negative, and he recovered. Written informed consent was obtained from the patient's legal guardians for the publication of this case report.
Learning Points/Discussion: From the literature, Pantoea Agglomerans has been associated with high mortality in newborn infants, especially preterm. Early identification with proper management is paramount for a better outcome.

PV0396 / #1813

A PRETERM WITH SALMONELLA SEPSIS AND SEVERE THROMBOCYTOPENIA

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: SALMONELLA SEPSIS IN A PRETERM AND SEVERE THROMBOCYTOPENIA
Background: Salmonella, although a rare cause of neonatal sepsis has been documented to have serious complications in affected neonates.
Case Presentation Summary: We present a case of a Preterm who developed Salmonella sepsis associated with severe thrombocytopenia. Born at 31 weeks with a weight of 800 grams to a primigravida mother. He was growth restricted secondary to absent end diastolic flow and anhydramnios. On admission, he was started on first line antibiotics, Cefotaxime and Amikacin due to respiratory distress requiring ventilation. First CRP was 0.5. Antibiotics were stopped with the first negative culture. On day 9^{th} of life there was clinical deterioration and CRP increased to a maximum of 74. Blood cultures were sent and Meropenem and Vancomycin were started. The blood culture was positive for Salmonella and sensitive to Meropenem. Despite being on Meropenem for 10 days, the baby continued to develop severe refractory thrombocytopenia and no clinical improvement. Platelet count was persistently less than 10×10^3. His antibiotics were changed to Piperacillin / Tazobactam as per culture sensitivity because of suspicion of Meropenem induced Pancytopenia. Due to no clinical improvement for the next 7 days and further reduction of platelet count to a minimum of 4×10^3, Antibiotics were changed to a combination of beta- lactam 3^{rd} generation cephalosporin, Cefoperazone Sodium and beta-lactamase inhibitor Sulbactam Sodium as per culture sensitivity. Clinical improvement was noticed in the first week of this combination treatment along with a recovery in the platelet counts. He was given 21 days of this combination treatment.
Learning Points/Discussion: Salmonella sepsis can be challenging to treat. Change of antibiotic as per sensitivities should be considered in cases where there is no clinical improvement.

PV0397 / #1469

SEX DIFFERENCES INFLUENCE ANTIBIOTIC AND ANTI-INFLAMMATORY TREATMENT RESPONSES IN A NEONATAL MURINE MODEL OF ESCHERICHIA COLI SEPSIS.

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Neonatal sepsis triggers inflammation that contributes to increased mortality and acute kidney injury (AKI). Male sex is a risk factor for AKI in rodents and critically-ill human newborns. The phosphodiesterase inhibitor pentoxifylline (PTX) may protect immature kidneys from sepsis-induced injury. We aimed to determine if sex influenced inflammatory and kidney injury biomarkers (as surrogate for AKI) in response to pentoxifylline among Escherichia coli-septic neonatal mice.
Methods: Newborn (<24 hours old) C57BL/6J mice (Jackson Laboratory; n=98, 60.2% male) were intravenously injected with live E. coli K1 (10^5 colony forming units/gram weight). After 1.5 hours, pups randomly received saline, gentamicin, PTX, or gentamicin with PTX (GENT+PTX), and were euthanized 4 hours later. Cytokine and kidney injury marker concentrations were measured in homogenized renal tissue, and sex determined through y chormosome genotyping. Analysis employed linear mixed effects models with litter as random, and sex and treatment as fixed effects, adjusted for sex and treatment interaction.
Results: Gentamicin alone significantly ($p<0.05$) diminished renal tissue interleukin (IL)-1β and granulocytes colony stimulating factor (G-CSF); gentamicin or GENT+PTX suppressed IL-17, IL-12(p40), chemokine (C-X-C motif) ligand 1 (CXCL1), chemokine ligand 2 (CCL2), CCL3, and CCL4; while GENT+PTX decreased neutrophil gelatinase-associated lipocalin, CXCL10, and vascular endothelial growth factor. Sex significantly ($p<0.05$) interacted with treatment for IL-1α, IL-1β, IL-12(p40), G-CSF, CXCL1, and tumor necrosis factor (TNF): GENT+PTX decreased IL-1α, IL-12(p40), and G-CSF compared to untreated, and IL-1α and IL-12(p40) compared to gentamicin-treated female pups, but increased IL-1β, G-CSF, CXCL1, and TNF compared to gentamicin alone in male mice.
Conclusions/Learning Points: Addition of PTX to gentamicin preferentially suppressed pro-inflammatory cytokines in female septic pups, which may have therapeutic implications.

PV0398 / #2139

GROUP B STREPTOCOCCAL INFECTION IN NEONATES – A CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: GROUP B STREPTOCOCCAL INFECTION IN NEONATES – A CASE SERIES
Background: Group B Streptococcus (GBS) remains the most important cause of neonatal bacterial infection, with significant morbidity and mortality. Some important risk factors are maternal vaginal or rectal GBS colonization, maternal fever, prolonged rupture of membranes and prematurity. A retrospective observational study of the neonates diagnosed with GBS infection was performed, between January 2018 and December 2022.
Case Presentation Summary: 6 neonates presented with GBS infection in 10 923 births. All pregnancies were uneventful and the majority were full term neonates. 3 were caesarian deliveries, 2 were vacuum deliveries and 1 was an eutocic delivery. 4 had infectious risk, being the common factor maternal fever. GBS screening was performed in all full term neonates, with negative result. When not performed, adequate prophylaxis was administered. They all had weight adequate to gestational age. The minimum Apgar score was 6 at the 1st minute and at the 10th minute all had 9 or 10. 5 cases had manifestations in the first 12 hours of life and the other case presented at the 10th day of life. The major symptoms were moan (4), fever (3) and 1 presented with septic shock, needing admission to an Intensive Care Unit. 1 of them had meningitis. All had favorable evolution at the end of the treatment and at posterior ambulatory follow-up.
Learning Points/Discussion: The incidence and unspecific manifestations of the infection in our population are similar to that described in the literature. The fact that all mothers had GBS negative screening should alert us to the possibility of intermittent infection. Adequate prophylaxis still requires close vigilance and other contributing factors can influence the possibility of neonatal infection.

PV0399 / #2664

MICROBIOLOGICAL PROFILE OF NEONATAL SEPSIS IN AN INTENSIVE CARE UNIT OF A HOSPITAL IN SOUTHERN BRAZIL

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Background: In Brazil, it is estimated that 60% of infant mortality occurs in the neonatal period, with a significant proportion attributable to sepsis. Blood culture is a gold standard test for diagnosis but due to the time of identification, an empirical therapy is established. In this case ampicillin and gentamicin in early neonatal sepsis, and in late oxacillin and an aminoglycoside, according to Brazilian guidelines.
Methods: A prospective observational cohort study was conducted, composed of 118 newborns admitted to a Neonatal Intensive Care Unit in southern Brazil. The medical records of patients were evaluated from January 2021 to September 2021.
Results: In this period, 45.8% of neonates were moderate/late preterm, 41.5% with low birth weight. Sepsis was the third leading cause of hospitalization (29.7%), associated with a higher median length of hospitalization (25 ± 33.5 days). Blood cultures were collected from 55.1% of patients. Only 15.3% of them had positive results, with Staphylococcus epidermidis (4.2%) being the most prevalent, followed by Klebsiella pneumoniae (3.4%). After empirical therapy, 57.1% of the agents were sensitive to the therapy. Approximately 3.4% of those hospitalized patients died, which were mainly caused by septic shock.
Conclusions/Learning Points: Our study indicated the microbiological profile of sepsis and the characteristics of our population are very similar to those reported in the literature for developing countries. Knowledge of the characteristics related to microbial sensitivity and resistance to drugs used remains fundamental for a better approach. Although the COVID-19 pandemic is active in this period, no change in expected patterns was observed. Further research is required to identify other clinical parameters important for an ideal infection surveillance program in Brazil.

PV0400 / #756

PLESIOMONAS SHIGELLOIDES NEONATAL SEPSIS: CASE REPORT AND LITERATURE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: Plesiomonas shigelloides neonatal sepsis: case report and literature review
Background: Plesiomonas shigelloides is a Gram-negative rod, belonging to Enterobactereacea family, that is generally found in fresh water. The most frequent presentation of P. Shigelloides infection is gastroenteritis, although it can also be an agent of bacteriemia, meningoencephalitis, and others. Extraintestinal manifestations are more common in newborns and immunocompromised individuals.
Case Presentation Summary: A male term newborn, from an uncomplicated pregnancy and delivery was admitted in a neonatal care unit at 11 hours of life for continuous grunting and subfebrile temperature. Faced with the clinical suspicion of early neonatal sepsis, an analytical study and septic screening were performed and empirical antibiotic therapy was started with ampicillin and gentamicin. In the analytical study on admission, he had leukopenia and negative CRP. The cytochemical examination of the cerebrospinal fluid (CSF) showed no suggestions of central nervous system (CNS) infection. After 24 hours of therapy, due to clinical deterioration, cefotaxime was started, and the newborn improved. The blood culture came back positive for Plesiomonas shigelloides, resistant to ampicillin and gentamicin and sensitive to cefotaxime. The urine and CSF cultures were negative, and the control blood culture was negative. This microorganism was not isolated from the mother's feces, and it was not possible to confirm its origin. The child is currently without sequelae.
Learning Points/Discussion: Plesiomonas shigelloides is a very rare agent of neonatal sepsis, there are only 15 previous reported cases of neonatal sepsis and all the previous described cases had simultaneous CNS infection symptoms, while in this case there was no CNS involvement. The mortality rate associated with neonatal infection by this agent is 60% and morbidity and mortality depend on the timely institution of antibiotics with an adequate spectrum.

PV0401 / #1904

ROLE OF POSTNATAL MATURATION AND CELLULAR INNATE IMMUNITY IN INTESTINAL COLONISATION WITH GROUP B STREPTOCOCCUS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: GBS remains a leading pathogens causing neonatal sepsis and meningitis worldwide. The neonatal gut constitutes a reservoir for GBS as a pathogen in late-onset GBS sepsis, whereas the adult gut may serve as a safe haven for GBS as a harmless commensal. However, host factors that control intestinal colonisation with GBS and prevent translocation are largely unknown.
Methods: We developed a GBS colonisation model where mice (14 days – 6 weeks) were colonized with GBS via gastral gavage. Selective agar was used to determine colonization density and organ dissemination. Lamina propria macrophages were extracted and analysed with flow cytometry or sorted by FACS for subsequent PCR or RNA sequencing. Different transgenic mouse strains and depletion methods as well as bone marrow transfer were used for detailed analysis of host factors.
Results: While stable colonisation is frequently achieved in 14 days old neonatal mice, it is uncommon or occurs only at low density in adult mice. Yet, a deficiency in MyD88, the common adapter of Toll-like receptors, results in lethal GBS dissemination in neonatal mice and causes substantially increased colonisation densities and sepsis rates in adult mice. In contrast, other innate signalling pathways were redundant in controlling GBS in the gut, as demonstrated in ACS-, CCR2-, UNC93B-deficient mice. Analysis of intestinal macrophages from colonised neonatal mice revealed a distinct cytokine expression pattern, e.g. downregulated IL-6 and IL-10, as well as metabolic differences with reduced mitochondrial mass and membrane potential.
Conclusions/Learning Points: Non-epithelial MyD88 plays a central role in control of intestinal GBS colonisation and protection from sepsis originating from the gut. Colonisation with GBS changes inflammatory and metabolic states of intestinal macrophages, highlighting their role as critical mediators of innate immune response.

PV0402 / #1752

PASTEURELLA MULTOCIDA: SEPSIS IN A YOUNG INFANT

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: PASTEURELLA MULTOCIDA: SEPSIS IN A YOUNG INFANT
Background: Pasteurella multocida is a rare cause of infection in pediatric age. This bacterium is a gram negative coccobacillus that is part of many domestic animals' nasopharyngeal flora, such as cats and dogs. This infection can be acquired through contact with domestic animals' oropharyngeal secretions (bite, scratching and licking) and, less frequently, through vertical transmission.
Case Presentation Summary: A 30 days old infant presenting intermittent whining was examined at the neonatology appointment. No history of fever. Ill-looking, decreased vitality and decreased peripheral perfusion, with no other positive findings. Blood tests with blood gas analysis were performed, revealing hyperglycemia (256 mg/dl), hyponatremia (128 mmol/L) and respiratory acidosis (pH 7.3, pCO_2 58 mmHg, HCO_3 27.6 mmol/L), with a slight increase of C- reactive protein (18,3 mg/L). He was admitted to the hospital. Six hours after admission, fever, whining and marbled skin were objectivated and new blood tests were performed, this time with increased C- reactive protein (75,5 mg/L) and lactate (3,5 mmol/l). He started antibiotic therapy with ceftriaxone and ampicillin. Hemoculture was positive for Pasteurella multocida therefore ceftriaxone was suspended, continuing ampicillin for 14 days. CSF and urine culture were negative. Following the first day of admission, he had a favorable clinical evolution with sustained apyrexia and no other episodes of hyperglycemia. He had a prior contact with a dog at home.
Learning Points/Discussion: Pasteurella multocida infection is associated with life-threatening complications. Domestic animals are frequent members of today's families, which increases the risk of being in contact with this agent. Parents should be reminded to avoid direct interactions between these animals and infants, reinforcing how important handwashing is after any contact with the formers.

PV0403 / #2675

EARLY ONSET NEONATAL SEPSIS CAUSED BY PASTEURELLA MULTOCIDA

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: Early-Onset Neonatal Sepsis caused by Pasteurella multocida
Background: Neonatal sepsis is a major contributing cause of neonatal morbidity and mortality. EOS is most often caused by intrapartum maternal- vertical transmission, by group streptococcus, Escherichia colli and other less common bacteria. Less common bacteria are also responsible for neonatal EOS and we must considered to ensure appropriate management.
Case Presentation Summary: The mother was 29-year old who received routine prenatal care, all vaginal swabs and serologies were all negative. She went into spontaneous labor and spontaneous rupture of membranes occurred 5 hours prior to delivery. She delivered at 40 weeks of GA a male newborn with birth weight 3100 grams and 50sm birth length, APGAR score 8/9 with no resuscitation required. The infant developed respiratory distress with grunting 4 hours after birth. The infant was lethargic and hypoglycemic. We initiated oxygen via nasal cannula and I.V. access was obtained for empiric administration of ampicillin +sulbactam and gentamicin. After 16 ours after birth the newborn got a high temperature 38,6C. After that we transport the neonate to higher level of health care. After 48 hours blood culture revealed pasteurella multocida. The neonate was treated with antibiotics, supportive care within 3 weeks and recovered without complications.
Learning Points/Discussion: Neonatal care providers should often take a consideration non-common bacterial species of early onset sepsis in neonate.

PV0404 / #2505

PROCALCITONIN AND OTHER BIOMARKERS OF SEPSIS IN NEWBORN IN DEPARTMENT OF NEONATOLOGY IN GENERAL HOSPITAL KUMANOVO

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Background: Objective: Neonatal Sepsis is one of the most significant causes of mortality and morbidity in infants. There are numerous parameters available to confirm presence of early sepsis in newborn. This study is undertaken to determine the importance of early laboratory signs to confirm early neonatal sepsis in our department.
Methods: Material and Methods: We chose procalcitonin, WBC and CRP in blood sample obtained by puncture of peripheral vain within first 12 hours after birth. We included 228 newborn infants suspected for bacterial infection in period from 01 January 2022 until 31 December 2022.
Results: In every newborn suspected for neonatal infection, we noticed elevated levels of procalcitonin (above 0,5ng/ml). Level of 33,4 ng/ml was found in patient with streptococcus type B sepsis, 27ng/ml in patient with staphylococcus aureus methicillin resistant sepsis and 9ng/ml in newborn with pyelonephritis ac lat dex. In 110 newborns we noticed elevated levels of CRP (above 10 mg/L) and in every newborn we noticed elevated or depleted values of WBC.
Conclusions/Learning Points: Conclusion: Although diagnosis of neonatal sepsis is based of isolation of bacteria in blood sample and measurement of endotoxins, elevated levels of PCT, CRP and elevated or depleted values of WBC are very important biomarkers for early diagnose of early onset of neonatal sepsis.

PV0405 / #1651

THE PRO-INFLAMMATORY CYTOKINE RESPONSE BY PRETERM NEWBORNS IS HIGHLY VARIABLE AT BIRTH BUT COMPARABLE WITH TERM NEWBORNS AND ADULTS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Bacterial infections can lead to a harmful inflammatory response in newborns, called neonatal sepsis. The high incidence of sepsis in preterm newborns highlights the need to better understand the neonatal inflammatory response. A high degree of variation in serum cytokine responses is observed during neonatal sepsis and high levels of TNF and IL-6 are correlated with increased disease severity. However, it is unclear whether preterm newborns with a hyperinflammatory response can already be identified at birth. This study determined (I) the variation in cytokine production between preterm newborns at birth and (II) the production of TNF and IL-6 by preterm newborns compared to term newborns and adults. This knowledge could provide clinicians with tools at birth to identify preterm newborns with a hyperinflammatory cytokine response.
Methods: Whole blood was collected from the umbilical cord or healthy adults. Prematurity was defined as gestational age < 37 weeks. Whole blood was stimulated with TLR ligands (LPS, Pam3Cys4K, R848) or bacteria (E. coli, S. epidermidis, S. agalactiae). After 5 hours, the production of TNF and IL-6 was measured with ELISA and the interindividual variation was calculated.
Results: No differences were observed for the production of TNF and IL-6 by preterm newborns (N=10), term newborns (N=15) or adults (N=16) for all stimuli (Fig. 1A-D). A high degree of variation in the production of TNF and IL-6 by preterm newborn was already present at birth for all stimuli (Fig 1E).

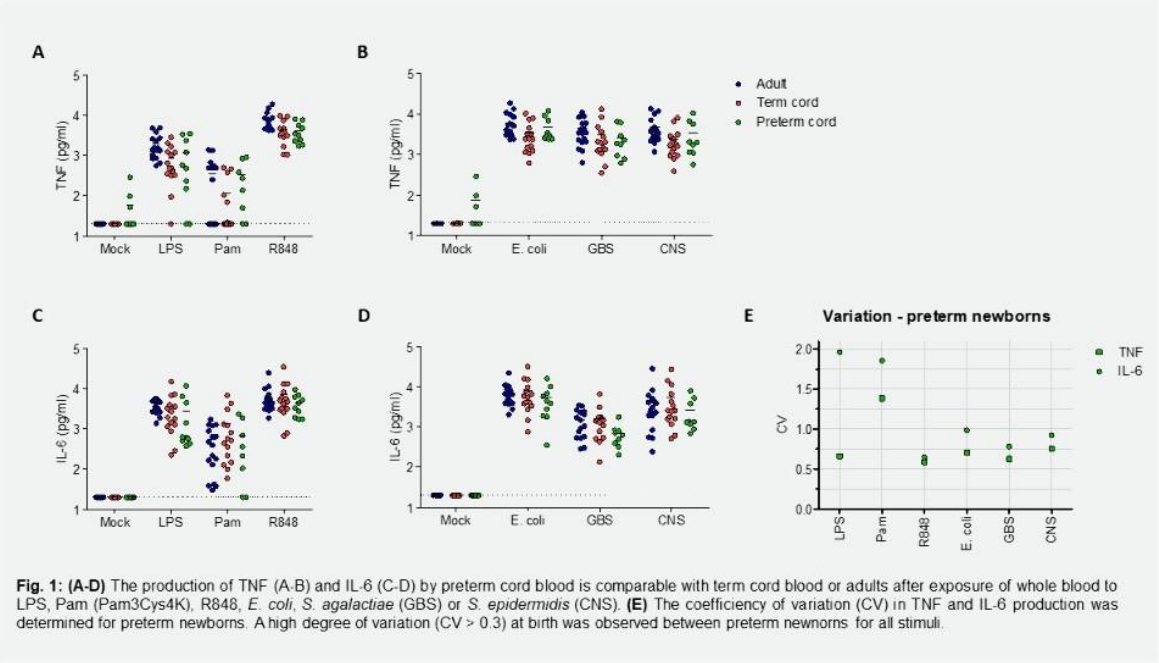

Fig. 1: (A-D) The production of TNF (A-B) and IL-6 (C-D) by preterm cord blood is comparable with term cord blood or adults after exposure of whole blood to LPS, Pam (Pam3Cys4K), R848, *E. coli*, *S. agalactiae* (GBS) or *S. epidermidis* (CNS). **(E)** The coefficiency of variation (CV) in TNF and IL-6 production was determined for preterm newborns. A high degree of variation (CV > 0.3) at birth was observed between preterm newnorns for all stimuli.

Conclusions/Learning Points: Preterm newborns mount an adult-like production of TNF and IL-6 at

birth. More importantly, the production of TNF and IL-6 is highly variable between individuals. This knowledge is clinically relevant, because it could provide clinicians with tools at birth to identify preterm newborns with a hyperinflammatory response.

PV0406 / #1085

GROUP B STREPTOCOCCUS AMONG PREGNANT WOMEN AND INFANTS IN KOREA: COLONIZATION DYNAMICS, VERTICAL TRANSMISSION RATE, AND SEROTYPE DISTRIBUTION

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Group B Streptococcus (GBS) remains a leading cause of invasive infections in infants in the first 90 days of life. This study aimed to analyze the colonization dynamics, vertical transmission rate, and serotype distribution in pregnant women and their infants.
Methods: The prospective cohort study of mother-infant pairs was conducted between January 2020 and August 2021 at Hallym University Sacred Heart Hospital in Korea. In pregnant women, swab samples were obtained from the vagina and rectum, and in their newborns, gastric juice and nasopharyngeal aspirate were collected within one hour of birth. Nasopharyngeal and rectal swab samples were obtained at one month and two months of age. These were assessed for GBS presence using culture, and serotyping was conducted using multiplex PCR.
Results: The authors confirmed that 40 among 213 pregnant women were positive for GBS culture in rectovaginal swab samples, establishing a colonization rate of 18.8%. Dominant serotypes were VII (20%), III (17.5%), V (15%), and Ib (15%). Vertical transmission of GBS infection was not identified. Colonization of GBS was observed in 4 and 3 cases at one month and two months of age, respectively, and common serotypes were Ia and VIII for 1-month-old infants and Ia and III types for 2-month-old infants.
Conclusions/Learning Points: The colonization rate of GBS in pregnant women was higher than in previous Asian studies, and vertical transmission was not observed. However, GBS colonization was observed in infants at 1 and 2 months of age. This is the first cohort study to assess GBS dynamics in Korean mother-infant pairs and will be beneficial for developing clinical guidelines and therapeutic approaches.

PV0407 / #2605

USE OF THE SCALE SNAP-II TO ASSESS THE SEVERITY OF ECO-DEPENDENT NEONATAL SEPSIS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Background: Immaturity of immune protection factors, genetically determined expression of immune factors determine the susceptibility of newborns to infection. Environmental factors of varying intensity due to the bioaccumulation of xenobiotics in the mother's tissues and their release into the bloodstream during pregnancy can have a pathogenic effect on the fetus.
Methods: Newborns were divided into two groups. Group I(30 children) - parents who lived in places affected by adverse environmental factors, and Group II(26) - parents who lived in favorable conditions. A diagnostic scale SNAPII was used to assess the condition.
Results: When using the diagnostic system to assess the severity of the disease, a more severe condition was found in the patients of the main group, which is also confirmed by the fact that when choosing the distribution points for SNAP II-10 or more points. Thus, the number of points for assessing the severity of general condition disorders according to the SNAPII scale is given in 70.0% and 46.1%($P<0.05$) of patients of observations. The more severe clinical course of sepsis in the newborns of the main group compared to the children of the II group was also evidenced by a higher reliable degree of correlation when assessing their general condition using the indicated indicative prognostic system ($r=0.95$,($P<0.05$)). In the 1st clinical group, the average duration of treatment in the intensive care unit was 9.0 ± 0.5 days, and in the hospital - 44.1 ± 1.6 days. In the comparison group, these indicators reached 7.0 ± 0.3 days ($P<0.05$) and 37.5 ± 1.7 days ($P<0.05$), respectively.
Conclusions/Learning Points: Therefore, the residence of parents of children with neonatal sepsis in places with worse environmental conditions affects the severity of the disease.

PV0408 / #155

CHARACTERIZATION OF GRAM-NEGATIVE BACILLI BACTERAEMIAS IN THE NEONATAL INTENSIVE CARE UNIT OF A TERTIARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Despite the effort put in preventive measures, neonatal sepsis is still a major cause of morbidity and mortality. An increase in hospital and community-based multidrug-resistant enterobacterial infections has been reported in the last years. We aim to describe the clinical and microbiological characteristics of Gram-negative bacilli bacteraemias in neonates in our hospital.
Methods: Single-centre retrospective observational study in the neonatal intensive care unit of a paediatric tertiary hospital. We included all episodes of neonatal bacteraemia during 2019-2020, outside of any outbreak period.
Results: One hundred forty-four positive blood cultures were documented in the study period, resulting in 104 episodes of clinically significant bacteraemia (72.2%); 22/104 (21.1%) were caused by Gram-negative bacilli and were included in this analysis (Table 1). Two multidrug-resistant microorganisms were identified (2/22, 9.1%), both producers of extended-spectrum beta-lactamase (ESBL), one of them AmpC type. A previously known colonizing microorganism caused 4/7 (57.1%) episodes. Median treatment duration was 16.3 days (p25-75; 11.0 – 16.0). Complications were observed in 7 patients: disseminated disease (n=1, 4.5%), persistent bacteraemia (n=4, 18.2%), and death (n=2, 9.1%).

Table 1.	
Epidemiology	
Woman	6/22 (27.3%)
Age at bacteraemia diagnose, days *(Mean, range)*	23.8 (1-66)
Ethnicity	
Arab	7/22 (31.8%)
Hispanic-American	4/22 (18.2%)
White	11/22 (50.0%)
Delivery	
Non-instrumented vaginal	9/22 (40.9%)
Instrumented vaginal	4/22 (18.1%)
Caesarean	9/22 (40.9%)
Risk factors	
Antenatal infectious risk factors	13/22 (59.1%)
Group B *Streptococcus* maternal colonization	1/22 (4.5%)
Chorioamnionitis	5/22 (22.7%)
Prolonged membrane rupture (>18h)	3/22 (13.6%)
Other	4/22 (18.1%)
Prophylactic intrapartum antibiotic use	12/22 (54.5%)
Low birthweight	8/22 (36.4%)
Very low birthweight	9/22 (40.8%)
Prematurity	19/22 (86.4%)
Catheter Use, number *(Mean, range)*	1,52 (0-3)
Central catheter	9/22 (40.9%)
Peripherally inserted central catheter	5/22 (22.7%)
Days of catheter *(Mean, p25-75)*	11.12 (4.0-15.0)
Invasive mechanical ventilation	15/22 (68.2%)
Severe illness	
Surgery	12/22 (54.5%)
Parenteral feeding	9/22 (40.9%)
Necrotizing enterocolitis	7/22 (31.8%)
Major congenital anomaly	9/22 (40.9%)
Extracorporeal membrane oxygenation	1/22 (4.5%)
Prior antibiotic therapy	11/22 (50.0%)
Prolonged stay in neonatal unit, days *(Mean, range)*	23.6 (1-66)
Colonization, any species	7/22 (31.8%)
Klebsiella spp.	4/7 (57.1%)
Serratia spp.	3/7 (42.9%)
Colonization, same microorganism as bacteraemia	4/7 (57.1%)
No breastmilk feeding	1/22 (4.5%)
Clinical and microbiological features	
Clinical presentation	
Only Fever	2/22 (9.1%)
Only Apnoea	3/22 (13.6%)
Abdominal abnormalities	3/22 (13.6%)
Late-onset sepsis	11/22 (50.0%)
Early-onset sepsis	1/22 (4.5%)
Asymptomatic bacteraemia	2/22 (9.1%)
Infection source	
Catheter-associated	7/22 (31.8%)
Respiratory	1/22 (4.5%)
Urinary	1/22 (4.5%)
Gastrointestinal	6/22 (27.3%)
Unknown	7/22 (31.8%)
Microbiological isolate	
Escherichia coli	4/22 (18.2%)
Klebsiella (K. oxytoca, K. pneumoniae)	9/22 (40.9%)
Serratia marcescens	4/22 (18.2%)
Other microorganisms	5/22 (22.7%)
Multidrug-resistant Gram-negative bacilli	2/22 (9.1%)
Lumbar puncture performed	16/22 (72.7%)
Days until lumbar puncture *(Mean, p25-75)*	2.14 (0-3)
Abnormal CSF result	3/16 (18.8%)
Positive CSF culture or molecular analysis	0/16 (0%)
Empirical antibiotic regimen	
Vancomycin + Amikacin	4/22 (18.2%)
Vancomycin + Ceftazidime	7/22 (31.2%)
Vancomycin + Meropenem	8/22 (36.4%)
Ampicillin + Gentamycin	1/22 (4.5%)
Ampicillin + Cefotaxime	1/22 (4.5%)
Ampicillin + Metronidazole	1/22 (4.5%)
Days of antibiotic treatment *(Mean, p25-75)*	16.34 (11.0-16.0)
Survival without complications	15/22 (68.2%)
Complications	
Persistent bacteraemia	4/22 (18.2%)
Dissemination (to central nervous system)	1/22 (4.5%)
Deaths	2/22 (9.1%)

Conclusions/Learning Points: The present study revealed the characteristics of Gram-negative bacilli bacteraemias in the neonatal intensive care unit in our hospital. Multidrug-resistant microorganisms caused 9.1% of the episodes, all of them related with ESBL producers, as previously reported in a similar study from Spain (Aguilera-Alonso D., An Pediatr, 2019). Colonization screening can be useful to guide empirical treatments. Meadin antibiotic duration exceeded the current recommendations for sepsis-bacteraemia. Meropenem and ceftazidime were used as empirical Gram-negative active drugs in most cases. Monitoring of antimicrobial susceptibilities of the isolates and treatment regimens is necessary for appropriate selection of empirical therapies while promoting a rational antibiotic use.

PV0409 / #2231

LEVOFLOXACIN AS TREATMENT OF STERNOTROPHOMONAS MALTOPHILIA BACTERAEMIA IN A NEONATE

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: LEVOFLOXACIN AS TREATMENT OF STENOTROPHOMONAS MALTOPHILIA BACTERAEMIA IN A NEONATE
Background: Stenotrophomonas maltophilia is a multi-drug resistant non-fermenting gram negative bacillus. It is an emerging cause of nosocomial sepsis in neonatal intensive care units and is challenging to treat due to its multidrug resistance.
Case Presentation Summary: We report a case of Stenotrophomonas maltophilia bacteraemia in a premature neonate treated with Levofloxacin. A newborn weighing 1110g was born by caesarian section at 32 weeks gestation. The mother was 35 years old primigravida with a dichorionic diamniotic twin pregnancy. She developed a Covid-19 infection and developed premature contractions at 32 weeks gestation. At birth, the neonate was treated for mild respiratory distress syndrome and presumed sepsis, and completed a week of intravenous C-penicillin and cefotaxime. Cultures during this period were negative. At day 20 of life, she developed severe Klebsiella pneumoniae sepsis with septic shock, hepatitis, and septic ileus. She was on day 21 of intravenous meropenem when blood cultures taken due to persistent thrombocytopenia despite clinical recovery reported Stenotrophomonas maltophilia. Two subsequent blood cultures isolated the same organism. Concurrently, she had liver impairment with direct hyperbilirubinaemia attributed to bile plug syndrome and total parenteral nutrition. Hence, sulfamethoxazole-trimethoprim were contraindicated. She completed a three-week course of intravenous levofloxacin with clearance of bacteraemia after 10 days.
Learning Points/Discussion: Due to uncertain neonatal dose, we used the paediatric dose of 10 mg/kg per dose every 12 hours. Clinical resolution with clearance of bacteraemia was obtained with no observed side effects or blood parameter impairments. No increase in direct hyperbilirubinaemia was observed despite published reports in the literature noting its association. The use of levofloxacin as an alternative antibiotic in neonates should be explored further to establish its safety and therapeutic profile.

PV0410 / #1511

PROBABLE PHREATOBACTER OLIGOTROPHUS SEPSIS IN A PRETERM NEONATE

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: PROBABLE PHREATOBACTER OLIGOTROPHUS SEPSIS IN A PRETERM NEONATE
Background: Phreatobacter oligotrophus is a recently described genus which was first isolated from ultrapure water in a Hungarian power plant (Toth et al. in 2014). This is a very rare organism of environmental origin and has not been reported to be associated with any human infections.
Case Presentation Summary: We report a case of probable Phreatobacter oligotrophus sepsis in a 5-day old premature neonate. Mother was 36 years old primigravida who had primary infertility of unknown cause for 11 years. Antenatally, she had gestational diabetes mellitus on diet control with positive Group B streptococcus vaginal colonisation. She developed spontaneous premature labour at 29 weeks. The baby had moderate respiratory distress syndrome and clinical sepsis at birth, complicated with metabolic acidosis, acute kidney injury, coagulopathy, and hyperglycaemia. Initial blood culture was negative, and she was initially on intravenous C-penicillin and gentamicin. However, on day 5 of life, the patient became less active with increased respiratory distress. Inflammatory markers were normal, however there was presence of new thrombocytopenia and leukopenia. Two separate blood cultures taken on the day of deterioration and 3 days later grew Phreatobacter oligotrophus. She completed a course of Vancomycin and clinically improved with three negative blood cultures subsequently.
Learning Points/Discussion: Phreatobacter oligotrophus is a strictly aerobic motile gram-negative rods which grew after 48 hours of incubation. We identified the organism using MALDI-TOF with the score of 2.56. Clearance in blood culture was achieved with clinical improvement, despite the unknown antibiotic sensitivity. The origin of the organism in this patient is uncertain. This case proposes the potential for neonatal sepsis by an environmental bacterium not known to invade human hosts.

PV0411 / #2689

BEING ON THE BALL: A CASE REPORT OF C. TROPICALIS' UROSEPSIS TREATED WITH A CONSERVATIVE APPROACH

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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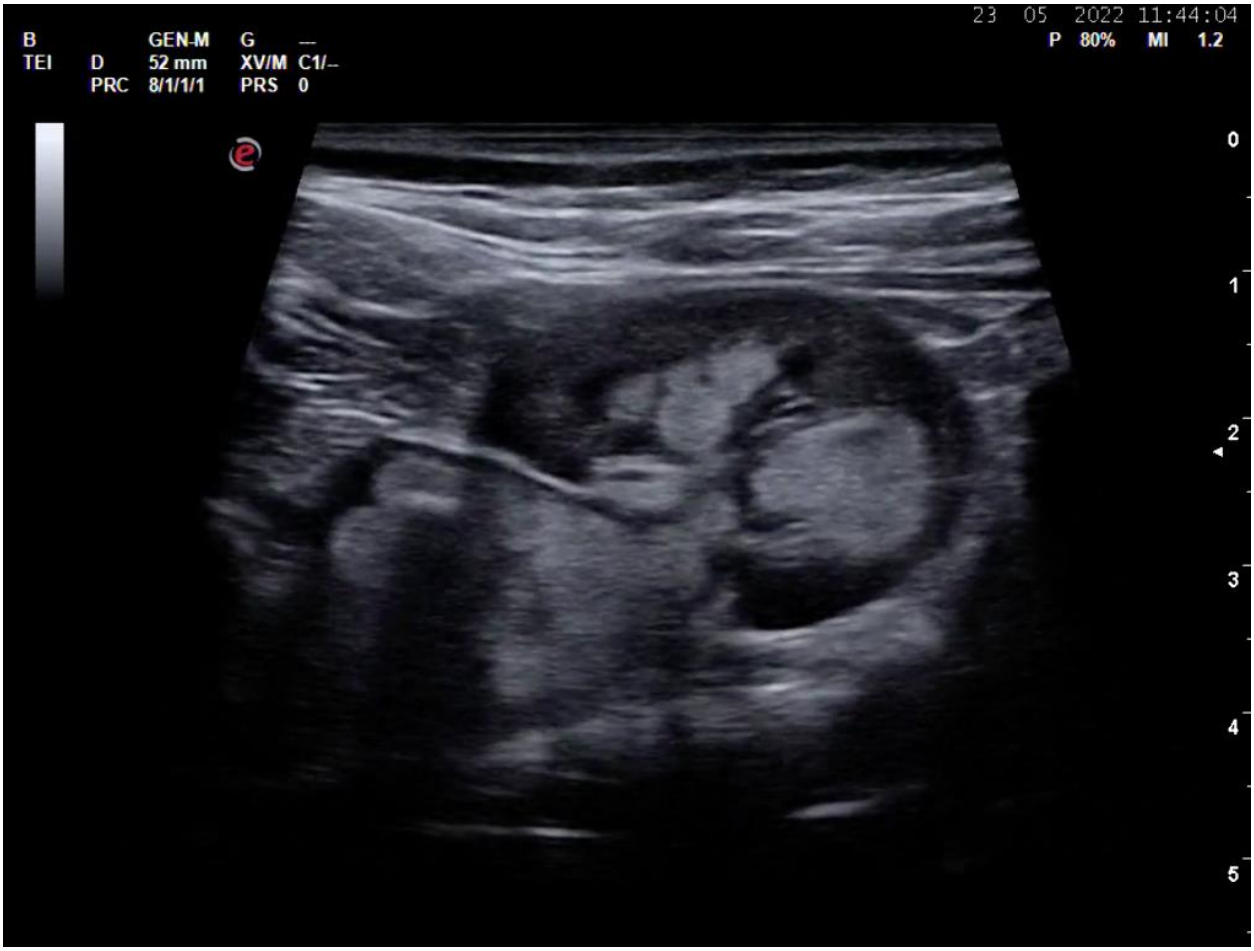
Title of Case: Being on the ball: case report of C. tropicalis' urosepsis treated with a conservative approach
Background: Renal fungal balls are concretions in the renal pelvis formed by cellular debris and fungal mycelia. They may represent a rare but severe complication of ascending urinary tract infections.
Case Presentation Summary: Herein we describe a case of urosepsis from C. tropicalis in a term newborn with severe hydronephrosis secondary to PUV, presenting with fever, poor feeding, weight loss and initial circulatory failure. Initial work-up showed mild kidney failure, significant elevation of inflammation markers and leukocyturia, with no improvement after IV broad-spectrum antibiotics administration. A kidney ultrasound performed on admission revealed severe dilation in the left kidney, with calyces occupied by hyperechogenic formations compatible with fungal masses, therefore a combination of fluconazole and micafungin was started. The day after, urine cultures returned positive for Candida tropicalis fluconazole-resistant, thus antimycotic treatment was shifted to IV amphotericin B with concomitant de-escalation of antibacterials. Further work-up with echocardiography displayed mitral insufficiency from anterior leaflet perforation secondary to mycotic embolization, requiring no invasive maneuvers. After multidisciplinary discussion, according to the good response to antimycotics, the clinical picture and the cardiac involvement, the conservative approach was continued. Forty-eight hours after treatment initiation, the patient was apyretic and started to feed well again. The fungal balls in the left kidney were monitored over time, with the progressive shrinking of the masses and disappearance after six weeks from the start of the antimycotic regimen, which was stopped after two months when the patient was finally discharged home. Follow-up controls documented good thriving and growth and no residual lesions, with good renal function and severe dilation of bilateral pelvis.
Learning Points/Discussion:



Conservative treatment vs invasive for neonatal urosepsis

PV0412 / #1298

EARLY-ONSET NEONATAL SEPSIS IN A TERCIARY NEONATAL INTENSIVE CARE UNIT AFTER THE IMPLEMENTATION OF MATERNAL GROUP B STREPTOCOCCUS SCREENING AND INTRAPARTUM PROPHYLAXIS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Early-onset sepsis (EOS) is the major cause of neonatal morbidity and mortality. The currently recommended Group B Streptococcus (GBS) screening and intrapartum antibiotic prophylaxis (IAP) has led to growing concerns about modification of EOS-causing pathogens. Our aim is to evaluate the changes of pathogens and their antibiotic susceptibility after implementation of maternal GBS screening and IAP in our hospital.
Methods: Data from medical charts of mothers and newborns with EOS 10 years prior and 10 years after this implementation (P1: 2003-2012; P2: 2013-2022) was retrospectively collected and analyzed using SPSS®v26.
Results: Between 2003 and 2022 we registered 55412 live births (P1: 30998; P2: 24414) and 47 EOS confirmed by positive blood culture (P1: 32; P2: 15). SGB EOS rate decreased from 0.44‰ in P1 to 0.12‰ in P2 (p=0.047). E.coli EOS rate was 0.19‰ in P1 and 0.25‰ in P2 (p=0.620). S.aureus EOS rate had a reduction from 0.16‰ in P1 to 0.00‰ in P2 (p=0.031), with only 1 MRSA in P1. Remaining pathogens didn't show significant differences between P1 and P2. Regarding SGB, 0.0% of the strains tested were resistant to ampicillin in both periods. As for E.coli tested strains, resistance to ampicillin was 80% in P1 and 66.7% in P2 (p=1.000) and to gentamicin 0.0% in P1 and 16.7% in P2 (p=1.000).
Conclusions/Learning Points: After the introduction of maternal GBS screening and IAP, there was a statistically significant reduction in GBS EOS rate without an increase in E.coli EOS rate. There was no statistically significant increase in resistance to the antibiotics empirically used in EOS, so it seems appropriate to maintain their use. Continuous monitoring of microorganisms causing EOS and their antibiotic sensitivity is essential for EOS effective treatment.

PV0413 / #2091

NOVEL CLONAL LINEAGES AMONG CLINICAL PEDIATRIC PSEUDOMONAS AERUGINOSA STRAINS IN INDIA: GENETIC DIVERSITY AND GENOMIC CHARACTERIZATION

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: The emergence of multi-drug-resistant Pseudomonas aeruginosa poses a global threat worldwide. There is a paucity of studies addressing the prevalence and epidemiology of P. aeruginosa in Paediatric India population. The goal of the current study is to bridge the knowledge gap
Methods: Thirty-one paediatric P.aeruginosa clinical isolates were obtained from 11 medical centers across 11 states between 2017-2022. Whole-genome sequencing (WGS) was performed on Illumina MiSeq Platform and inhouse bioinformatic pipelines were used for genomic characterization, sequence typing, and phylogenetic analysis
Results: Results showed that local high risk novel lineages outnumbered (n=10) the globally distributed high-risk clones (ST235 and ST357, n=4 each). These isolates were obtained from blood (80%) and CSF (20%). There were sensitive to Aminoglycosides, Carbapenem, Cephalosporins, Macrolides, Tetracyclines and Trimethoprim and resistant to Pheicols(catB7 gene). Fluroquinolone(crpP) and Quinolone(parC_S87L,gyrA_T83I mutation) resistance was observed in 2 isolates. Interestingly, these novel lineages contained pleothera of virulence genes, of particular importance is presence of exoS, exot, exou, exoy, toxA genes in all isolates apart from genes encoding TTSS secretion system, Flagella, Pili, Aliginate biosynthesis, Quorum sensing and iron uptake. Isolates from neonates (Age <=1 yr, n=10) constituted major chunk of the dataset. These were isolated from blood stream infection. Two isolates had novel STs. ST235, 308, 357, 381, 654, 664, 1197 and 1978 were the other STs found. Displayed varying resistance to different antibiotic classes but in contrast showed to contain an array of virulence responsible of emergence of virulent strains in hospital settings
Conclusions/Learning Points: It is of utmost importance to address the dearth of studies examining the prevalence and epidemiology of P. aeruginosa in the paediatric population of India and take proper measures to avoid transmission of the high-risk clone

PV0414 / #76

SEPSIS ASSOCIATED WITH HIGH INCIDENCE OF PULMONARY HEMORRHAGE IN A NEONATAL POPULATION IN BOTSWANA

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Neonatal sepsis is a life-threatening complication with high morbidity and mortality. Sub-Saharan African countries experience shortages of antibiotics, materials and equipment for work-up. Overuse of available antibiotics and recurrent outbreaks of multidrug resistant bacteria contribute to morbidity and mortality in our neonatal unit. We explored incidence, risk factors and survival of newborns with sepsis and pulmonary hemorrhage in Botswana.
Methods: A cohort study with prospective data collection was conducted in a tertiary level hospital in Botswana. All newborns admitted in the neonatal unit from 1st January 2020 to 31st December 2021 were included in the study. Data were collected using check lists developed on RedCap database (https//: ehealth.ub.ac.bw/redcap). Incidence rate of neonatal sepsis and pulmonary hemorrhage was calculated. Group comparisons were made using X^2 and student t-test. Multivariate logistic regression was used to identify risk factors independently associated with pulmonary hemorrhage.
Results: 1350 newborns were enrolled during study period, males 729(54%). The mean (SD) birthweight was 2154(+997.5) gram, and gestational age 34.3(+4.7) weeks. Eighty percent of the newborns were delivered in the same facility. The incidence of sepsis was 101/1350(75 per 1000 live births) and pulmonary hemorrhage was 54/1350 (40 per 1000 live births) among the newborns admitted in the unit. Mortality rate in those diagnosed with pulmonary hemorrhage was 29/54 (53.7%). Multivariate logistic regression identified neonatal sepsis and disseminated intravascular coagulopathy (DIC), and birthweight, anemia, apnea of prematurity, neonatal encephalopathy, intraventricular hemorrhage, mechanical ventilation and blood transfusion as risk factors independently associated with pulmonary hemorrhage.
Conclusions/Learning Points: Pulmonary hemorrhage associated with sepsis is a recurrent experience in critically ill newborns in Botswana. Exploring risk factors and guidelines for appropriate treatment will likely improve neonatal morbidity and mortality rates

PV0415 / #2504

RELIABILITY AND VALIDITY OF AXILLARY AND TYMPANIC THERMOMETRY COMPARED WITH RECTAL THERMOMETRY AMONG YOUNG UGANDAN INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Background: Fever and hypothermia are critical indicators of severe bacterial infection in sick infants aged up to two months. Although rectal thermometry is the gold standard method, it poses a risk of rectal perforation. This study evaluated the accuracy and validity of less-invasive axillary and tympanic thermometry methods and explore the need for new temperature cutoffs.
Methods: The study was conducted on 713 infants at Mulago National Referral Hospital in Kampala, Uganda, using digital thermometers to measure rectal, tympanic, and axillary temperatures. The reliability of measurements was assessed by calculating Pearson correlation coefficients, technical errors, and coefficients of variation. The agreement between the three thermometry methods was evaluated using Bland-Altman analyses, and the validity of axillary and tympanic temperature measurements were compared to rectal temperature measurements.
Results: Axillary and tympanic measurements showed small mean differences from rectal measurements (-0.24°C and 0.43°C, respectively), but had relatively wide limits of agreement (approximately 1.6°C). Axillary and tympanic measurements had high sensitivity for detecting fever (98.4% and 100%, respectively). Axillary measurements had higher sensitivity (70.8%) and specificity (100%) for detecting hypothermia compared to tympanic measurements (58.5% and 98.7%, respectively). Increasing the hypothermia cutoff point for axillary and tympanic measurements improved sensitivity to 99.4% and 96.8%, respectively, with only a slight reduction in specificity.
Conclusions/Learning Points: Axillary thermometry has both a high sensitivity and a high specificity for detecting fever in young infants, while tympanic measurements tended to overestimate temperature and its specificity for fever was accordingly suboptimal. Increasing the temperature threshold for hypothermia detection improves the sensitivity of both methods without significantly reducing specificity. These findings suggest that axillary thermometry can be a reliable alternative to rectal thermometry for detecting fever and hypothermia in young infants.

PV0416 / #1194

GLOBAL DISEASE BURDEN OF ESCHERICHIA COLI BLOODSTREAM INFECTIONS IN INFANTS AGED UNDER 6 MONTHS: SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Neonatal bloodstream infections (BSI) are a significant cause of health loss worldwide. Escherichia coli is a leading cause of neonatal bloodstream infections. There is limited comprehensive epidemiological evidence on E. coli BSIs in infants at a global level. We undertook a systematic review and meta-analysis to characterise E. coli in this population.
Methods: We searched MEDLINE, EMBASE, Scopus, LILACS and Cochrane Library for studies published in English language and Wanfang, the China National Knowledge Infrastructure and Chinese Scientific Journal Database for studies published in Chinese language between January 2000 and February 2021. E. coli infections were defined as positive cultures from blood/cerebrospinal fluid. The primary outcomes were to estimate incidence per 1000 live births and case fatality rate (CFR) of E. coli in infants aged under 6 months. The sub-group estimates were performed by WHO regions. Sensitivity analysis was performed to observe the effects of early-onset sepsis (EOS: <72 hours of age), late-onset sepsis (LOS: 72h-90 days) and meningitis.
Results: The overall estimated incidence of E. coli BSIs was 0.45/1000 live births (95% CI 0.32-0.60). Incidence was lowest in Western Pacific Region (0.31; 95% CI 0.04-0.79) and European Region (0.31; 95% CI 0.16-0.50) and highest in South-East Asia Region (1.47; 95% CI 1.12-1.86). CFR was 18.46% (95% CI 15.26-21.65%), being lowest in Western Pacific Region (14.37%; 95% CI 10.42-18.32%) and highest in Eastern Mediterranean Region (32.96%; 95% CI 25.55-40.37%). No studies reported CFR from African Region and only one study reported live birth data. A high heterogeneity between studies was observed.

WHO Region	Incidence (95% CI)	CFR (95% CI)
African Region	NA	NA
Eastern Mediterranean Region	0.49 (0.13 – 1.06)	32.96 (25.55 – 40.37)
European Region	0.31 (0.16 – 0.50)	15.72 (11.96 – 19.49)
Region of the Americas	0.56 (0.24 – 1.00)	22.58 (15.96 – 29.20)
South-East Asia Region	1.47 (1.12 – 1.86)	30.19 (0.00 – 71.72)
Western Pacific Region	0.31 (0.04 – 0.79)	14.37 (10.42 – 18.32)
All studies	0.45 (0.32 – 0.60)	18.46 (15.26 – 21.65)

Conclusions/Learning Points: The estimated disease burden rate of E. coli in infants varied significantly across WHO regions. We plan to investigate the AMR patterns of E. coli BSIs in this population.

PV0417 / #994

INHIBITION OF THE AKT/MTOR PATHWAY PROMOTES AUTOPHAGY AND CLEARANCE OF GROUP B STREPTOCOCCUS FROM THE ALVEOLAR EPITHELIUM

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Group B Streptococcus (GBS) is a gram-positive bacterium that is harmless for healthy individuals but may provoke invasive disease in young infants, causing pneumonia, sepsis, and meningitis. As GBS invades epithelial barriers to enter the bloodstream, strategies that enhance epithelial cell responses may hamper GBS invasion. In the present study, we investigated whether inhibition of Akt, a kinase that regulates host inflammatory responses and autophagy via suppression of mTOR, can enhance the response of non-phagocytic alveolar epithelial cells against GBS.
Methods: A549 cell line served as a model of type II pulmonary epithelial cells. Akt inhibition was performed using the selective Akt 1/2 inhibitor MK-2206. A549 cells were infected ex vivo with GBS (MOI 1:10). MK2206 was administered via oral gavage in C57BL/6 subjected to GBS pneumonia, for in vivo experiments.
Results: Treatment of the GBS-infected alveolar epithelial cell line A549 with the Akt inhibitor MK-2206, resulted in enhanced production of reactive oxygen species and inflammatory mediators. Akt inhibition via MK-2206 led to reduced phosphorylation of the mTOR targets S6 and 4E-BP1, LC3 lipidation and increased autophagic flux. Importantly, inhibition of Akt promoted GBS clearance both in alveolar epithelial cells in vitro and in lung tissue in vivo, in a murine model of GBS pneumonia. Induction of autophagy was essential for GBS clearance in MK-2206 treated cells as knockdown of ATG5, a critical component of autophagy, abrogated the effect of Akt inhibition on GBS clearance.
Conclusions/Learning Points: Our findings highlight the role of Akt kinase inhibition in promoting autophagy and GBS clearance in the alveolar epithelium. Inhibition of Akt may serve as a promising measure to strengthen epithelial barriers and prevent GBS invasion in susceptible hosts.

PV0418 / #417

INCIDENCE OF NEONATAL SEPSIS FOLLOWING PROLONGED RUPTURE OF MEMBRANES AMONG PATIENTS ADMITTED AT THE NICU OF JOSE R. REYES MEMORIAL MEDICAL CENTER

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

Niko Miguel Pasatiempo
JOSE R. REYES MEMORIAL MEDICAL CENTER, Pediatrics, CITY OF MANILA, Philippines

Backgrounds: Neonatal mortality is a global burden and a significant number of neonatal deaths are attributed to early onset sepsis. Prolonged rupture of membranes is an important risk factor for the development of early onset neonatal sepsis (EONS). This study aims determine the incidence of early onset neonatal sepsis in relation to mothers with prolonged rupture of membranes (PROM) of more than 18 hours.
Methods: This is a prospective cohort study which aimed to identify the incidence of early onset neonatal sepsis following prolonged rupture of membranes among patients admitted at the NICU of Jose R. Reyes Memorial Medical Center. Patients included in the study were admitted at the NICU and followed up whether they will develop neonatal sepsis or not.
Results: Out of 105 neonates with maternal history of prolonged rupture of membranes of > 18hours in this study, incidence of neonatal sepsis was reported at 39% with a total of 41 neonates; 3 of them or 7.31% had culture proven sepsis. 64 neonates did not develop clinical signs consistent with sepsis. The birth weight of neonates is more than 2500g at 59% With regards to WBC count, 77.14% belongs to the bracket of 9,000 – 20,000 WBC count. In Neutrophil Count, 61.90% had less than 60,000. Bacterial isolates found in one patient, Staphylococcus epidermidis and two patients with growth of Enterobacter cloace.
Conclusions/Learning Points: Prolonged rupture of membranes was found out to be significantly associated among mothers with history of maternal fever. Also, low birth weight (< 2500g) neonates was found out to be significantly associated with development of sepsis among newborns with prolonged rupture of membranes. Elevated WBC and elevated neutrophil counts were found out to be significant characteristics of neonates with sepsis.

PV0419 / #2690

FULMINANT NEONATAL SEPSIS BY AN UNCOMMON BACTERIA. NEW EMERGENT PATHOGENS?

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: Fulminant neonatal sepsis by an uncommon bacteria.
Background: The incidence of early-onset neonatal sepsis has decreased thanks to the screening protocols. However, its impact on atypical microorganisms remains unclear. We present a neonatal fulminant sepsis due to a uncommon bacteria.
Case Presentation Summary: On-term pregnant woman, admitted to our center for premature rupture of membranes. The pregnancy had elapsed without complications. GBS swab negative. At the 24th hour, she spiked a fever (38.6ºC), associating a pathological fetal register, whereby an emergent C-section was performed. A hypotonic female was born, without respiratory effort and heart rate around 80 bpm. Despite stabilization measures, at the 4th minute she suffered a cardiorespiratory arrest. CPR was performed, recovering pulse after 25 minutes. pH-UV: 6.3. During resuscitation, severe difficulties on ventilation were detected. Before referring the patient to NICU, intravenous antibiotics (Ampicillin-Cefotaxime) and vasoactive drugs were started. At the reference center, therapeutic hypothermia and high frequence ventilation (FiO2 100%) were started. Notwithsanding, the patient died at 12th hour of life. The family allowed pulmonary biopsy.
Both cultures (patient's blood and placenta) were positive for Streptococcus Gallolyticus ssp gallolyticus (R to Eritromicine and Clindamicine), and the pulmonary sample showed signs of intrauterine pneumonia. Finally, the case was diagnosed as a S.Gallolyticus sepsis.
Learning Points/Discussion: Streptococcus Gallolyticus are described in several reviews as an unusual but possible cause of neonatal sepsis, specially Ssp Pasteurianus. Mots of described cases had a severe course with a long-term good outcome, except for one case of fulminant sepsis, as the exposed one. We consider that further epidemiological surveillance is necessary in order to detect its emergency as a potentially pathogen microorganism. Finally, we want to emphasize the importance of coordinated interhospitallary network on the assistance of critical cases.

PV0420 / #2179

NON-BACTERIAL PATHOGENS DETECTED IN SEPSIS AND SEPSIS-LIKE SYNDROME IN NEONATES AND YOUNG INFANTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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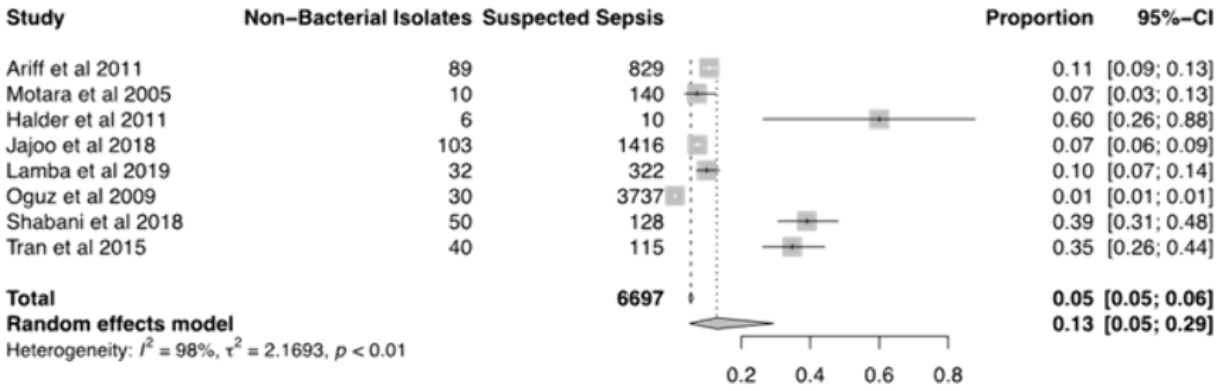
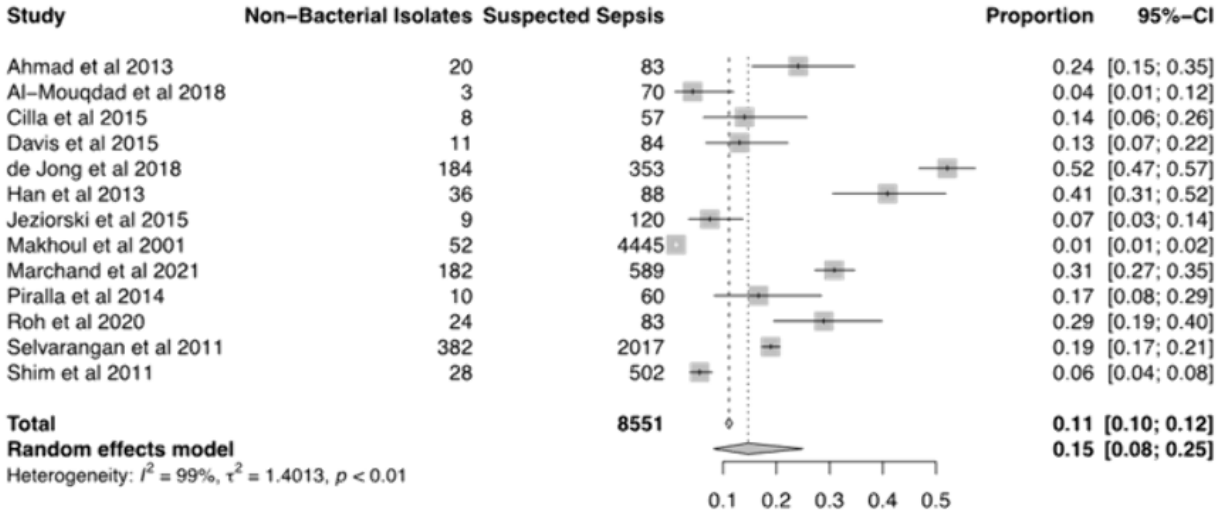
Backgrounds: Sepsis is one of the greatest threats to global health with an estimated incidence of 3 million cases every year. In approximately 2/3 of cases with blood cultures taken, no bacterial pathogen is identified. The aim of this review was to aggregate the existing evidence on detection of non-bacterial pathogens in neonates presenting with signs of sepsis.
Methods: EMBASE, MEDLINE and Ovid Global Health were searched for studies published since 1996 reporting on detection of non-bacterial pathogens in sepsis and sepsis-like syndrome in infants ≤ 6 months of age. Pathogen detection data was extracted from eligible articles with low risk of bias (JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies) and combined prevalence estimates for high- (HIC) and lower- or middle-income settings (LMIC) were constructed using a random effects model.
Results:

A – studies from lower and middle income settings



B – studies from high income settings



After duplicate removal, our database search yielded 267 articles. 8 more articles were identified through reference lists. 21 articles fulfilled eligibility criteria and passed bias assessment. Figure 1 shows forest plots for proportions of non-bacterial pathogens detected. Non-bacterial isolates most often detected in LMIC were fungi (86.49% of reported isolates), most commonly C. albicans. In HIC, 89.88% of reported isolates were viruses, with enteroviruses alone accounting for 67.7% of isolates.

Conclusions/Learning Points: Studies aiming for the detection of non-bacterial pathogens found these in ca. 15% of neonatal and young infant sepsis cases, with high heterogeneity between studies. Detection of viral pathogens in LMIC is commonly limited by testing capacities and lack of detection most likely reflects lack of testing. Fungal sepsis, while rare in HIC, may account for around 10% of neonatal and young infant sepsis cases in LMIC.

PV0421 / #1133

PROTEOMICS IN EARLY ONSET SEPSIS: A COHORT STUDY OF 53 NEONATES BORN BEFORE 28 GESTATIONAL WEEKS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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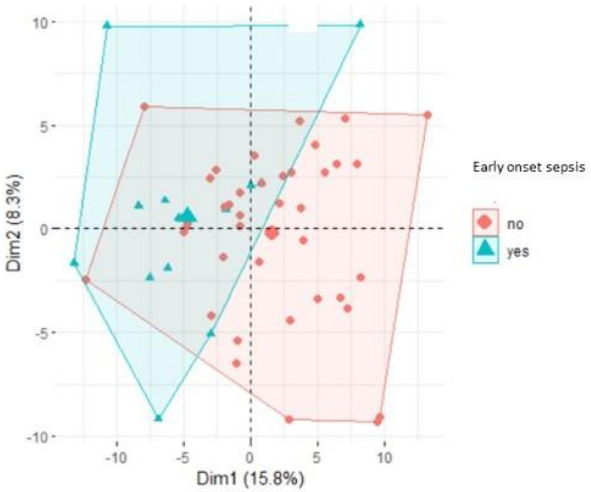
Backgrounds: Early onset sepsis (EOS) in extremely preterm neonates is a significant cause of morbidity and mortality. We have only just started to understand the pathophysiology of sepsis in the extremely preterm neonates. Neonatal sepsis pathophysiology involves multiple organ systems; highlighting the need for a systems biology approach to capture the complex interactions between biological systems during EOS. Elucidating this may in time enable us to promptly and accurately diagnose EOS and point towards potential therapeutic targets. The aim of our study was to identify proteins and biological systems involved in EOS in extremely preterm neonates.
Methods: In blood samples from 53 consecutively born neonates born before 28 gestational weeks the proteome was analyzed by mass spectrometry (nanoLC-MS/MS). EOS was defined pragmatically as 7 days or more of antibiotics treatment initiated within 72 hours after birth.
Results: We identified 27 proteins with different abundance in neonates with EOS compared to neonates without EOS. Among others we found decreased levels of Neural cell adhesion molecule 1 (CD56) (NCAM1), Alpha-2-antiplasmin (SERPINF2), Attractin (ATRN), Hepatocyte growth factor activator (HGFAC), and Apolipoprotein A-I (APOA1). Whereas C4b-binding protein alpha chain (C4BPA), Alpha-1-antichymotrypsin (SERPINA3), and Apolipoprotein B-100 (APOB) was found in increased levels in neonates with
EOS.



Unsupervised principal component analysis (PCA). Every dot represents a sample.

Conclusions/Learning Points: With this study we provide further insight into EOS in extremely preterm neonates. We identified proteins that are part of core biological systems including coagulation, endothelial function, lipid metabolism and immunity, in particular NK-cell function and complement system. These systems are all believed to be related to sepsis in adults; however, they are scarcely described in relation to EOS in extremely preterm neonates who often lack the symptomatology seen in adults.

PV0422 / #98

EPIDEMIOLOGY OF GROUP B STREPTOCOCCAL DISEASE IN INFANTS YOUNGER THAN 1 YEAR IN JAPAN: A NATIONWIDE SURVEILLANCE STUDY 2016-2020

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Group B streptococcus (GBS) can cause invasive disease in neonates and young infants. Understanding the burden and serotype distribution among infants with GBS disease is crucial in assessing the success of current guidelines as well as the potential impact of a GBS vaccination program in pregnancy. The epidemiology of GBS diseases varies considerably geographically and over time. The aim of this study to define the burden and clinical features of invasive GBS disease in infants younger than 1 year in Japan.
Methods: We conducted a retrospective, questionnaire-based nationwide surveillance study between 2016 and 2020.
Results: A total of 875 GBS cases were identified, including 186 early-onset disease, 628 late-onset disease (LOD), and 61 ultra-late-onset disease. Case fatality rate in each age category was 6.5%, 3.0%, and 3.3%, respectively. Patients with meningitis had sequelae in 21.5% (64/297). Annual incidence in infants younger than 1 year and in LOD significantly increased from 0.28 to 0.44/1000 livebirths (p=0.021) and from 0.19 to 0.29/1000 livebirths (p=0.046), respectively. Maternal colonization status at the LOD diagnosis was available for 148 mothers, of whom 21/58 (36.2%) had positive rectovaginal swabs and 42/117 (36.2%) had GBS in breastmilk culture. The four leading disease-causing serotypes were III, Ia, Ib, and V. Thirty-one recurrent cases were identified, and prematurity and antepartum maternal GBS colonization were risk factors for recurrence. Three pairs of twins were affected with invasive GBS diseases. All episodes presented with LOD.
Conclusions/Learning Points: A significantly increased trend was observed in infant GBS disease in the first year of life, mainly driven by LOD. GBS disease burden still remains with considerable mortality and morbidity in Japan, and thus effective vaccine is anticipated.

PV0423 / #2472

SEVERE PERSISTENT PULMONARY HYPERTENSION IN INFANT WITH SEPSIS BY LISTERIA MONOCYTOGENES: WHEN ECMO CAN CHANGE THE OUTCOME

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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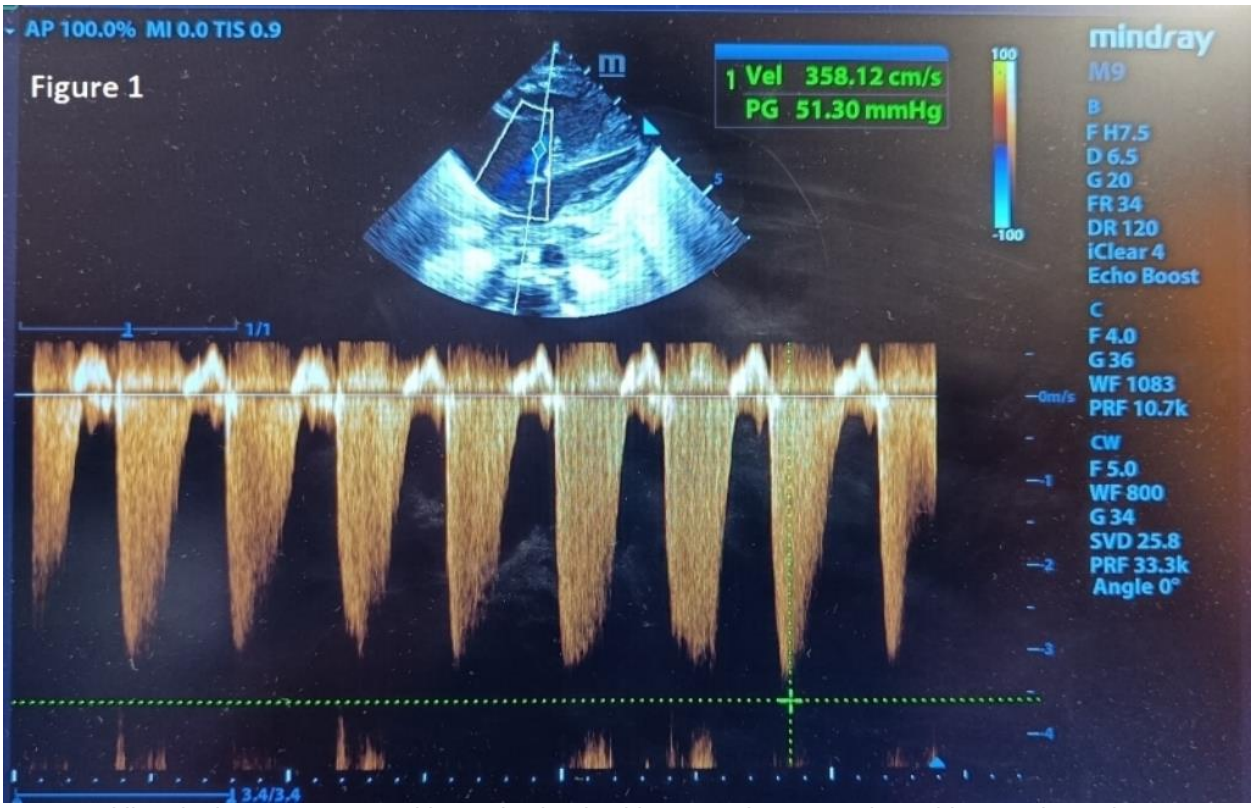
Title of Case: SEVERE PERSISTENT PULMONARY HYPERTENSION IN INFANT WITH SEPSIS BY LISTERIA MONOCYTOGENES: WHEN ECMO CAN CHANGE THE OUTCOME
Background: Listeria is a foodborne Gram-positive pathogen that can cause neonatal sepsis/meningitis due to transplacental acquisition via maternal bacteremia. Early onset neonatal listeriosis is rare but can result in significant mortality, morbidity and severe neurological sequelae.
Case Presentation Summary: Here a case of early onset listeriosis in a full-term newborn (37+2/7 weeks), female, appropriate for gestational age (AGA), born with cesarean section. Maternal swabs were negative for Group B Streptococcus (GBS). Amniotic fluid was meconium-stained. Apgar scores were 8 at 1 minutes and 9 at 5. At 12 hours of life, the patient showed severe desaturation, polypnea and chest retractions, so she was admitted to Neonatal Intensive Care Unit. Blood tests showed acidosis with high lactates, severe hypoxemia and elevated C-reactive protein levels. For this reasons, oxygen therapy and empirical intravenous antibiotic therapy with ampicillin and gentamicin were started. Continuous Positive Airway Pressure (CPAP) and High Frequency Oscillatory Ventilation (HFOV) were required due to worsening of respiratory distress. Due to hemodynamic instability and refractary persistent hypoxiaemia, echocardiogram was performed and showed severe pulmonary hypertension (Figure 1), so noradrenaline, dobutamine and then milrinone and also inalatory nitric oxide were started. Mother and children’s blood cultures resulted positive for Listeria monocytogenes. Because of persistent refractoriness to medical therapies, Extracorporeal Membrane Oxygenation (ECMO) program was started. After that, there was a gradual and significative improvement of clinical conditions and need for oxygen.The baby was dismitted after about one month in good clinical conditions.
Learning Points/Discussion:



Neonatal listeriosis may present with septic shock with severe hypoxaemia and haemodynamic decompensation. ECMO should be considered as therapeutic option in severe cases non-responsive to medical therapy.

PV0424 / #1404

NEONATAL MENINGITIS DUE TO STAPHYLOCOCCUS AUREUS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Title of Case: NEONATAL MENINGITIS DUE TO STAPHYLOCOCCUS AUREUS: A CASE REPORT
Background: Bacterial meningitis is more common in the first month of life and occurs in as many as 15 percent of neonates with bacteremia. Staphylococcus aureus is an uncommon cause of meningitis associated with high mortality.
Case Presentation Summary: This is the case of a 16-days-old, healthy girl, who was admitted to the emergency department with fever, irritability, inconsolable crying and three episodes of loose stools since that day. Physical examination showed no other alterations. Urinalysis presented leukocyturia with 36 leukocytes/field. The newborn was admitted for intravenous treatment with cefotaxime and ampicillin. After 24 hours of antibiotic therapy, due to worsening irritability, a lumbar puncture (LP) was performed. Cerebrospinal fluid (CSF) was cloudy and revealed 24.673 cells/mm3, polymorphonuclear cells, pH >8.000, glucose <4.0mg/dL and proteins 2.46g/L. Blood culture was positive for Staphylococcus aureus and vancomycin was added to antibiotic therapy. The CSF culture was negative and echocardiography excluded endocarditis. On the fourth day she had a generalized tonic-clonic seizure. Electroencephalogram showed paroxysmal frontal activity and phenobarbital was initiated. Cranial computed tomography scan was normal. She had a favorable evolution and was discharged after completing 14 days of antibiotic therapy.
Learning Points/Discussion: With this case we want to draw attention to Staphylococcus aureus as a rare etiology of neonatal meningitis, whose prognosis can be potentially serious. As we know, the non-specificity of symptoms makes diagnosis difficult and early suspicion is important. The diagnosis of bacterial meningitis may be made if the initial blood culture grows a pathogen and the CSF obtained 24 to 36 hours after initiation of antibiotic therapy is abnormal.

PV0425 / #2030

LATE ONSET SEPSIS IN A PORTUGUESE NEONATAL INTENSIVE CARE UNIT - A 5-YEAR REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Late Onset Sepsis (LOS) is an important cause of morbidity and mortality in neonates, particularly preterms. Understanding local epidemiology is key to adequate treatment strategies. We aimed to review the cases of LOS in our neonatal intensive care unit (NICU) over the last five years.
Methods: An observational cross-sectional study including neonates admitted to our NICU between January 1st 2018 and December 31st 2022, diagnosed with late onset sepsis. Statistically significance was established at $p<0.05$.
Results: We found 50 cases, 64,0% in males, at a median gestational age of 20,0 (26,3-35,3) weeks, median birth weight of 994,0 (807,5-1771,3) grams and median age of presentation of 13,0 (8,8-20,5) days. Blood culture was obtained in 100,0% and cerebrospinal fluid culture in 40,0%. In 70,0% of cases the pathogen was identified, the most common of which was Staphylococcus epidermidis (36,0%), followed by Klebsiella pneumoniae (10,0%). The most common option for empiric antibiotics was vancomycin and amikacin (38,0%). There were no resistances to amikacin or meropenem. Only one Staphylococcus epidermidis was resistant to vancomycin. Gram negative pathogens had higher resistance rates and 40,0% were resistant to gentamicin. Median antibiotic duration was 10,0 (7,0-13,25) days. Mortality was 10,0% in our sample; those neonates had a lower age at presentation, but there were no statistical significant differences in CRP or procalcitonin elevation.
Conclusions/Learning Points: Staphylococcus epidermidis was the most common cause of LOS. Vancomycin, amikacin and meropenem resistance is low but gentamicin resistance is of increasing concern. This should influence antibiotic selection for empirical treatment of LOS.

PV0426 / #981

NEONATAL SEPSIS IN A RESOURCE-CONSTRAINED COUNTRY WITHOUT BLOOD CULTURES

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Sepsis is one of the foremost reasons for neonatal death in Sub-Saharan Africa (SSA). Sao Tome and Principe (STP) is a resource-constrained SSA country. Probable early-onset neonatal sepsis (EOS) in STP is defined as having an intrapartum infectious risk and clinical suspicion, without gold-standard culture diagnosis. In this study we aimed to describe probable EOS and infectious risk among newborns admitted at the only neonatal care unit (NCU) in STP.This is the first study ever conducted at this NCU.
Methods: Retrospective chart review of neonatal admissions at NCU in Hospital Dr. Ayres de Menezes in STP, between October 2021-October 2022.
Results: Of 948 neonatal admissions, 53.2% were male, 5.8% twins, 73% birthweight ≥2500g-<4000g, 16.2% premature (1.7% EPT, 3.8% VPT, 10.7% LPT). Most common reasons for admission were: 1) infectious risk with meconium-stained amniotic fluid (25.2%), 2) probable EOS (17.1%), 3) prematurity-complications (9.8%), asphyxia (6.1%), congenital anomalies (3.5%), HIV-MTCT treatment (3.1%). The average length of stay was 5.5 days (SD 7.8). The overall mortality rate was 6% (57), with 20% (200) missing discharge information. Infectious risk neonates (239) characteristics: 50.6% female, mean birthweight 3146g and GA 39.53 weeks, mean maternal age was 26, 23.4% caesarean, 12.6% foetal distress (1-min Apgar<7), 5.4% clinical asphyxia (5-min Apgar<7), 98.7% completed 48h-antibiotic, 2 neonatal deaths (2.1%). Probable EOS neonates (162) characteristics: 55.6% male, mean maternal age 25.6, mean birthweight 3135g and GA 39.43, 99.4% completed 7/14 days empiric antibiotics, 4 neonatal deaths (2.5%).
Conclusions/Learning Points: The positive outcomes among EOS and infectious risk newborns of this study highlights that having a well-defined risk-based diagnosis strategy through identification of risk factors and timely initiation of antibiotics, can save many newborn's lives in limited resource-settings.

PV0427 / #2055

AKT1 KINASE INHIBITION PROMOTES MACROPHAGE ACTIVATION AND SLAMF8-DEPENDENT PHAGOSOMAL MATURATION AND PROTECTS AGAINST NEONATAL GROUP B STREPTOCOCCUS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Group B Streptococcus (GBS) persists inside neonatal phagocytes and resists killing, facilitating its dissemination in neonatal hosts. Classical activation of macrophages results in enhanced bactericidal capacity, and ablation of Akt1 kinase is known to induce classical macrophage activation. By utilizing Akt1-deficient macrophages, this study aimed to delineate the role of classical phagocyte activation in GBS elimination and elucidate the molecular pathways that confer protection from GBS infection in neonates.
Methods: Macrophages from murine WT and Akt1-/- newborn mice were infected with GBS ex vivo. High-throughput RNA sequencing, microscopy, real-time PCR, flow cytometry and gene silencing experiments were further performed.
Results: Akt1-deficient neonatal macrophages had a significantly enhanced ability to eliminate intracellular GBS ex vivo. Neonatal macrophages had more proliferating GBS bacteria in their cytoplasm compared to Akt1-/- cells, in which GBS was primarily localized inside single membrane vacuoles. Phagosome examination by electron microscopy revealed that a significantly higher number of GBS–containing phagosomes was damaged in WT neonatal macrophages compared to Akt1-/- ones. In Akt1-/- neonatal macrophages, GBS colocalized with LAMP-1 protein, a marker of endosomal to lysosomal fusion, while this phenomenon was less commonly observed in WT macrophages. RNA sequencing analysis showed that the signaling lymphocytic activation molecule family receptor 8 (SLAM8), a protein that can induce receptor-mediated phagocytosis, was significantly elevated in GBS-infected Akt1-/- macrophages. Subsequently, mRNA silencing of SLAMF8 abrogated GBS clearance and phagosomal maturation in Akt1-/- neonatal macrophages.
Conclusions/Learning Points: Classical activation of neonatal macrophages, via suppression of Akt1 kinase, induces SLAMF8-receptor dependent activation of phagosomal maturation and leads to rapid GBS elimination and better survival rates from GBS sepsis.

PV0428 / #2173

DYNAMICS OF CARDIOLOGICAL CHANGES IN NEWBORNS WITH SEPSIS, DEPENDING ON THE INFLUENCE OF XENOBIOTICS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Due to the effect of bioaccumulation of environmental pollutants in the woman's tissues and their release from the depot during pregnancy, their content in the umbilical cord blood of the fetus can exceed the safety threshold for it and lead to a pathogenic effect on the body.
Methods: The main clinical group was formed by 141 newborns, whose parents permanently resided in areas with the different ecological risk coefficient
Results: The average systolic pressure on days 1-3 of treatment of neonatal sepsis of the main group was significantly lower than that of patients in the comparison group. Thus, on the 1st day of treatment, patients in the main group have a systolic blood pressure of less than 50 mm Hg. Art. was determined in 18.8±3.2% of cases, and in the comparison group only in 8.3±2.5% of newborns ($P<0.05$). Slowed filling of the vascular bed after pressure was observed significantly more often in patients of the I group on these days of observation. On the 1st day of treatment of sepsis in these children, the symptom of a white spot for more than 3 seconds occurred in 26.4±3.7% of cases, and in the comparison group - in 14.4±3.2% of observations ($P<0.05$). On the 3rd day of treatment, a positive white spot symptom was determined in 13.7±2.8% of children (P1:3<0.05) and 6.8±2.3% (P1:3>0.05) of observations, respectively .
Conclusions/Learning Points: Thus, the given data of the clinical examination of patients with neonatal sepsis allow us to believe that in children whose parents lived for a long time in places of high environmental risk, the cardiological changes were more significant, which indicated the severity of the disease

PV0429 / #2713

PARACLINICAL FEATURES OF THE COURSE OF NEONATAL SEPSIS TAKING INTO ACCOUNT THE FEATURES OF THE INFLAMMATORY RESPONSE

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Background: Limited opportunities for bacteriological confirmation of sepsis in newborns and low specificity and/or sensitivity of clinical manifestations of the disease prompt clinicians to look for surrogate markers of neonatal sepsis to justify initial therapy.
Methods: 60 newborns with a diagnosis of "neonatal sepsis" were taken for the study. The group-forming feature was the level of C-reactive protein in blood serum and the level of presepsin > 300 pg/ml. Thus, the first clinical group (main) included 25 patients with neonatal sepsis with a serum level of C-reactive protein < 20 mg/l and a presepsin level >300 pg/ml. The second group (comparison) was formed by 31 newborns with sepsis in serum C-reactive protein > 20 mg/l and presepsin level >300 pg/ml.
Results: Biochemical indicators of organ dysfunction and hemostasis disorders were significantly more common in newborns of the second group (P<0.05). In these patients, signs of decompensated metabolic acidosis and acute lung damage were determined significantly more often (P<0.05). The results of the immunological examination on the first day of the disease were characterized by signs of a systemic inflammatory reaction (Interleukin-8 content greater than 24.0 pg/ml was detected in 20.0±8.0% of cases in the main group and in 54.2±8.8%(P<0.05) in the comparison group), indicating about the severity of the course in newborn patients with neonatal sepsis. It should be noted that the ratio of interleukin-6 to interleukin-10, which is a specific indicator of neonatal sepsis in children of the comparison groups, was 1.3 in the first group and 1.5 in the comparison group.
Conclusions/Learning Points: The conducted correlation analysis showed that the condition of children according to the assessment of organ dysfunction on the SOFA scale in the second group is more severe r=0.08 (P<0.05)/

PV0430 / #555

A 10-YEAR REVIEW OF LATE ONSET PATHOGENIC BLOOD STREAM INFECTIONS IN

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: National Neonatal Audit Programme (NNAP) highlighted that our unit had high rate of late onset (>72 hrs) blood stream infections with clearly defined pathogenic organisms (pBSI) in preterm babies <32 weeks gestation in 2021[(1)]. With our unit's ethos of less invasive approach with ventilation, central line insertions and early enteral feeding, we aimed to review the characteristics of the neonates who had pBSI to check compliance with guidelines.
Methods: NNAP electronic source document was used to conduct retrospective analysis all preterm babies <32 weeks with pBSI discharged from our NICU over 10 years between January 2013 and December 2022.
Results: Of 1305 admissions in 1187 babies over 10 years, 61 babies had 63 episodes of pBSI giving a total of 5.3%. The most common organisms were Staph Aureus (28%), E-coli (20%), Enterococcus Fecalis (12%). The characteristics of these babies are presented in table below. However, for 2021 and 2022, our pBSI rate was 14.8 and 10.5 respectively. While the 10 year review showed a lower rate and consistent practice in line with our guidelines, the rate of PBSI had risen significantly in the last 2 years.

Table: Baseline demographics and Clinical characteristics of the babies with late onset pBSI over last 10 years.

Sex (Male, Female)	54%, 46%
Gestation age (IQ1, Mean, IQ3), weeks	24+1, 25+2, 27+5
Birth weight (IQ1, Mean, IQ3), grams	605, 806, 880
Ethnicity: British/Other White/Asian/Black/ mixed /missing info	 56%,11%, 11%,10%, 7%, 4%
Inborn, Outborn	77%, 23%
Singleton, Multiple	72%, 28%
Vaginal birth, C section	54%, 46%
Antenatal/intrapartum Risk factors: Maternal chorioamnionitis Reversed end diastolic flow Preterm rupture of membranes	 18% 8% 23%
Mean APGAR score at 1,5 and 10 mins	5,7,8
Day of life at the time of pBSI mean	15 days
Invasive ventilation /Nasal high flow at the time of pBSI	54%, 44%
Days of invasive ventilation at the time of pBSI, mean	7 days
Total days of ventilation till discharge from unit, mean	16 days
Inhaled budesonide, %	53%
Presence of central lines: Umbilical/PICC/None	 35%, 28.5%, 36.5%
Feeds initiated with 24 hrs of life	79%
Fully fed at the time of infection	28%
Average length of stay	53 days
Blood transfusion prior to infection	56%
Co-morbidities: PDA/ IVH / NEC	31%, 18%, 5%
Transfer /Discharge /Death	57%, 31%, 12%

Conclusions/Learning Points: Despite effectively following the non-invasive strategy, we have seen a high rate of pBSI in our unit in recent years. This is likely due to better data entry since the implementation of paperless records. Other factors including effective infection control measures and environmental risks need to be explored further. Reference: 1. 2022_nnap_audit_measures_guide_v1.2.pdf (rcpch.ac.uk)

PV0431 / #2608

CAN THE MODIFIED SOFA SCALE BE USED TO ASSESS THE SEVERITY OF THE CONDITION OF NEWBORNS WITH SEPSIS?

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Background: The Sofa scale is used to assess multiple organ failure in adults with sepsis. The score ranges from 0-24 points. A score of > 2 points on the scale indicates the presence of multiple organ failure. Our team decided to modify this scale and evaluate the results. We replaced the Glasgow Coma Scale with the modified Glasgow Coma Scale for Infants.
Methods: The assessment of the ecological situation in the places of permanent residence of the parents of newborns, which was determined by the value of the ecological risk coefficient (ERC), served as a group-forming feature. The value of ERC <2.0 was regarded as an indicator of favorable environmental conditions-group I(30 children), and ERC ≥ 2.0 indicated the risk of adverse effects of environmental factors on the body-group II (26children)
Results: The assessment of the severity of the condition of the newborn according to the Sofa scale >5 points showed that in the first group of newborns with eco-dependent sepsis, 80.0% of patients were observed and in the comparison group - 7.7% (P<0.05). The more severe clinical course of sepsis in newborns of the main group compared to children of the II group was also evidenced by a higher reliable degree of correlation when assessing their general condition according to the specified prognostic scale (r=0.80, (P <0.05)).
Conclusions/Learning Points: Therefore, the Sofa scale can be used to assess the severity of the condition of newborns with sepsis, with a starting score > 5 points. It was also established that the risk of indicators of the severity of the condition increases by 5.1 (CI 95% 2.2-12.0) in newborns with sepsis whose parents lived in places with worse environmental conditions.

PV0432 / #1211

MOLECULAR CHARACTERISTICS AND CLINICAL FEATURES OF STAPHYLOCOCCUS CAPITIS LATE-ONSET BACTEREMIA AMONG INFANTS HOSPITALIZED IN NEONATAL INTENSIVE CARE UNITS

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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Backgrounds: Coagulase-negative Staphylococcus (CoNS) were the most common pathogen of late-onset sepsis (LOS) in neonatal units in Taiwan; however, scant studies evaluated the role of Staphylococcus capitis. Recently, a specific clone of S. capitis, named NRCS-A, spread in NICU worldwide.
Methods: We collected and molecularly characterized all S. capitis bloodstream isolates from infants hospitalized in neonatal units of a medical center in Taiwan between 2014 and 2021. Medical records of these infants were retrospectively reviewed.
Results: A total of 48 isolates identified from 48 episodes of bacteremia in 47 infants were included for analysis. 27 (56%) case patients were male. Mean age at onset was 34.3 days (+ 21.6). Common presentations at onset included desaturation (50%), apnea (23%), bradycardia (40%), cyanosis (23%), and fever (17%). Mean serum C-reactive protein level at onset was 19 mg/L (+ 30). Of the 48 isolates (episodes), only 2 pulsotypes and 2 types of staphylococcal chromosomal cassette (types III & V) were identified. One pulsotype accounted for 85.4% of the isolates. No statistically significant differences were found between patients infected with both pulsotypes in terms of clinical and laboratory characteristics. All the isolates were susceptible to teicoplanin, vancomycin and rifampin, but resistant to oxacillin and penicillin. All the isolates with major pulsotype were resistant to erythromycin, and clindamycin.
Conclusions/Learning Points: All S. capitis bloodstream isolates from infants in neonatal units in Northern Taiwan were resistant to oxacillin, and shared two pulsotypes. One pulsotype, the minor clone, was similar to that of the NRCS-A strain.

PV0433 / #684

LATE-ONSET NEONATAL SEPSIS WITH ENTEROBACTER CLOACAE COMPLICATED BY CEREBRAL ABSCESSES: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS06.B. NEONATAL SEPSIS

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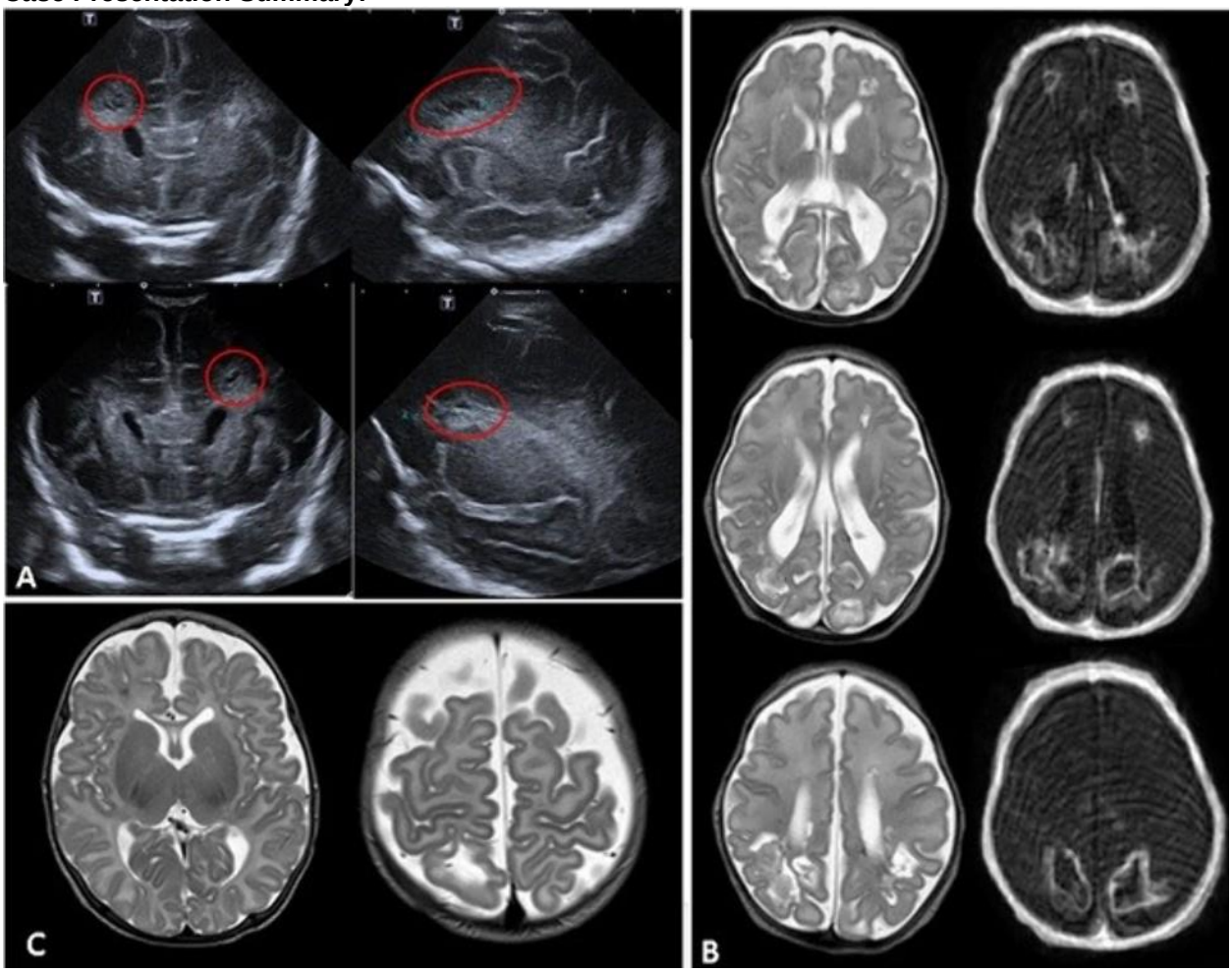
Title of Case: We report the case of a preterm infant that developed cerebral abscesses within a E.cloacae late-onset sepsis that needed surgical and antibiotic treatment employing prolonged Meropenem infusions plus Fosfomycin and maintenance with Trimethoprim/Sulfamethoxazole.
Background: E.cloacae is a gram-negative rod-shaped bacterium that can lead to nosocomial infections in neonates but is rarely reported as the cause of cerebral abscesses.
Case Presentation Summary:



A female preterm infant born at a gestational age of 26 weeks and 4 days developed a late-onset sepsis with E.cloacae at a corrected gestational age of 32 weeks and 2 days. The initial regimen with Meropenem and Vancomycin was changed to Cefotaxime due to a Cefotaxim-susceptible strain in the blood culture. After ending of antibiotic treatment, a multi-resistant strain of E. cloacae (resistant to Cefotaxime, Piperacillin/Tazobactam and Ertapenem) was detected in the routine throat and anal swabs.

Furthermore, sonographic controls of the brain revealed bihemipsheric periventricular cystic changes(A). An MRI showed them to be abscesses(B). The biggest abscess was drained surgically for decompensation and also for identifiying the causing pathogen which occured to be a Meropenem-susceptible E. cloacae strain. The patient was treated with high-dose Meropenem over a prolonged infusion time. Fosfomycin was later added to the regimen. The patient received 4 weeks intravenous antibiotics and was discharged with Trimethoprim/ Sulfamethoxazole orally for another 6 weeks. Control-MRI showed significant improvement of findings(C).

Learning Points/Discussion: Diagnosis of brain abscesses in neonates is difficult, early imaging with MRI is a key diagnosis tool. The choice and duration of antibiotic regimens should be considered carefully with unusual pathogens or infection sites. Single cephalosporine therapy in known E. cloacae sepsis may lead to colonization with resistant E. cloacae. If larger cerebral abscesses are present, neurosurgical drainage is to be considered.

PV0434 / #2222

HEPATITIS C POST-TRASNFUSION IN 2 VENEZEUELAN CHILDREN: CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: HEPATITIS C POST-TRASNFUSION IN 2 VENEZEUELAN CHILDREN: CASE SERIES
Background: 2 cases of post-transfusion hepatitis C in an 8 and 12-year old males, both from Venezuelawho received blood transfusion in their former country are presented.
Case Presentation Summary: The first 8-year-old male received blood transfusions since 2021 due to immune thrombocytopenic purpura reported in positive hepatitis C antibodies with a confirming viral load in 15720781 copies in follow-up laboratories. Chronic hepatitis C was diagnosed and sofosbuvir + velpatasvir every day for 12 weeks was prescribed. The second case is a 12-year-old male with the antecedent of acute lymphoid leukemia B diagnosed in 2015 who presented with a clinical picture compatible with leukemia relapse. Before our evaluation in Colombia, he received several blood products transfusion with positive Hepatitis C antibodies in 2016. No previous treatment was indicated with persistent positive viral loads since 2016. The last viral load with 117,977 copies/ml, sofosbuvir + velpatasvir every day for 12 weeks was ordered.
Learning Points/Discussion: With technology advances in Hepatitis C detection by PCR, this entity is exceptionally related to blood products transfusion. However, in low and middle-income countries, routine screening in blood banks is deficient and is based on antibodies, so, blood products still represent a risk for viral blood-borne diseases such as Hepatitis C. With the advance of pan-genotypic treatment plans that involves also pediatric patients the cure rates of the disease exceed 95%, having an important impact on the development of liver cirrhosis and hepatocellular carcinoma.

PV0435 / #2252

DIFFERENCES IN CLOSTRIDIOIDES DIFFICILE INFECTION BETWEEN CHILDREN AND ADULTS IN MEDELLÍN, COLOMBIA.

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: DIFFERENCES IN CLOSTRIDIOIDES DIFFICILE INFECTION BETWEEN CHILDREN AND ADULTS IN MEDELLÍN, COLOMBIA.
Background: C.difficile infection (CDI) is the most frequent healthcare Infection (HAI), is associated with antibiotic´s use, prolonged hospital stay, morbidity and increased costs. We report one of the most numerous outbreaks in children and describe differences with adults. A Retrospective report (September 2017-March 2018) of an outbreak of healthcare facility-onset (HO)-CDI with detection of toxin A/B and 3-month follow-up, prior approval of ethics committee of Hospital Pablo Tobon Uribe, Medellín- Colombia.
Case Presentation Summary: 25 cases, 15 pediatric (60%); the index case was a 79-year-old woman. 68% were immunocompromised. Children had more symptoms and abnormal physical examination findings; 68% received more than 1 previous course of antibiotics, mostly children (80% vs 50%, p 0.11); cephalosporins were the most prescribed in children (73.3% vs 50%) and 92% were diagnosed in the first 3 months. PPIs and abdominal surgery predominate in adults [(33.3% vs 90%, p 0.005) and (60% vs 20%, p 0.04)]. There were 2 severe cases, one adult and one child with BI-NAP1-027. All received oral treatment (vancomycin 56%). Children were treated for 10 days, showing a statistically significant difference with adults (10 days: 86.6% vs 40%, p 0.01; 14 days: 13.3% vs 60%, p 0.01). There was 1 recurrence and no mortality attributable to infection.
Learning Points/Discussion: In our study, clinical risk factors for CDI are similar to the reported in the literature, more common in immunocompromised patients. Children are more symptomatic, but as reported, can be treated with shorter regimens with good clinical results and low probability of recurrence. The use of PPIs and abdominal surgery were more important in adults than in pediatrics.

PV0436 / #1577

ACUTE HEPATITIS OF UNKHONW AETIOLOGY IN CHILDREN. EXPERIENCE OF A TERTIARY HOSPITAL IN GREECE

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: Since April 2022, an increasing number of acute hepatitis cases of unknown aetiology in previously healthy children have been reported worldwide. Concerning Greece, the first probable cases were recorded during May 2022, with the National Public Health Organisation defining the probable case as a person under 16 years old, presenting with acute hepatitis (non-hepatitis A-E) with serum transaminase>500IU/L (AST or ALT) since the 1st of January 2022.
Methods: Retrospective study of 20 probable cases of acute hepatitis of unknown origin, detected in a tertiary hospital in Athens, Greece, until May 2022.
Results: Patient's age ranged between 2 months and 15,5 years. All had abnormal laboratory findings of liver function. The FILMARRAY® of the respiratory panel detected Adenovirus and Human Rhinovirus/Enterovirus in three and six patients, respectively and SARS-CoV-2 in one patient. From the FILMARRAY® of the gastrointestinal panel, four children appeared to have different pathotypes of pathogenic E.Coli; 2 of whom had Enteropathogenic E.Coli. Polymerase chain reaction of blood samples was positive for Human Herpesvirus7 in four children, two of whom were also positive for Epstein-Barr virus. Among all cases, only one was Adenovirus positive, and genetic sequencing identified Mastadenovirus type C. Same pathogen was also isolated in the child's stool. Past SARS-CoV-2 infection was detected in eight cases. Epstein-Barr IgM antibodies were detected in four patients and Cytomegalovirus IgM antibodies in equal number. One child was HIV positive, although the titre of antibodies was low.
Conclusions/Learning Points: Despite international concern, Adenovirus was detected only in four out of twenty cases, none with adenovirus 40/41. Hepatitis of unknown aetiology is a previously existing phenomenon among children, although the 2022 outbreak remains unsolved.

PV0437 / #1331

ROTAVIRUS ACUTE GASTROENTERITIS (RVAG) BEYOND THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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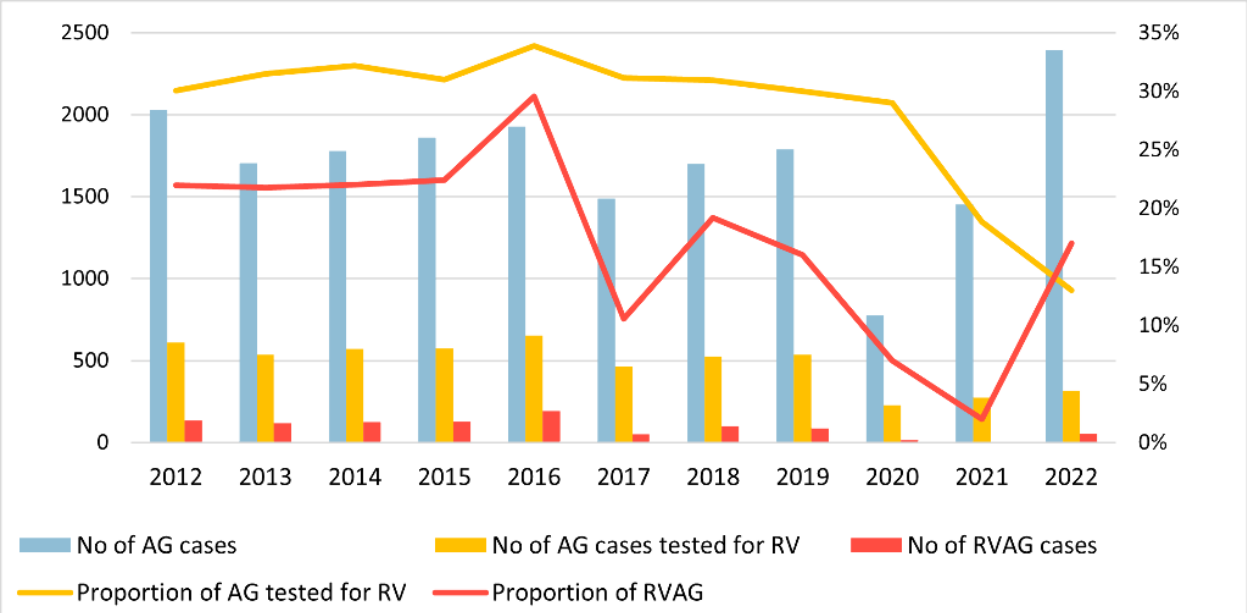
Backgrounds: In Portugal, rotavirus (RV) remains an important cause of acute gastroenteritis (AG). RV vaccine has been available in the private market since 2006 (with an estimated coverage ~60%) and in December 2019, was introduced in the National Immunization Program for risk groups. Non-pharmacological interventions during the COVID-19 pandemic had a dramatic impact on several infections, with important reduction or disappearance, followed by resurgence, in some cases with big epidemics outside the usual seasonality. The aim of this study is to describe the impact of the COVID-19 pandemic on annual RV epidemics.
Methods: Retrospective analysis of all AG episodes (≥3 stools/24h) in children aged <=36 months, observed in an Emergency Service (ES) of a tertiary paediatric hospital, between Jan 2012-Dec 2022 (n=18901). Stool samples were tested for RV using a rapid immunochromatographic test.Around 30% of children with AG were tested for RV each year, with a decrease in the past 2 years (16 and 13%, respectively).
Results: The number and proportion of cases of AG observed and tested for RV over the last decade is shown in the figure. An important reduction of AG cases in 2020, was followed by a significant increase, that reached the highest level in the last decade. The proportion of RVAG returned to the prepandemic values, peaking in the Spring-Summer, unusually late but already observed in previous epidemics in this community. The average age of RVAG was slightly lower (13.5 vs 16 months).



Conclusions/Learning Points: The downward trend in RVAG observed in the ES since 2016 and accelerated during the COVID-19 pandemic, was followed by an increase in AG cases and in the RV positivity rate that went back to prepandemic levels.

PV0438 / #2107

BENIGN TRANSIENT HYPERPHOSPHATASEMIA AND ACUTE CAMPYLOBACTER SPP GASTROENTERITIS

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: BENIGN TRANSIENT HYPERPHOSPHATASEMIA AND ACUTE CAMPYLOBACTER SPP GASTROENTERITIS
Background: Benign Transient Hyperphosphatasemia (BTH) is associated with several pathologies, including infections. It is characterized by a transient elevation of serum alkaline phosphatase (ALP) in the absence of liver or bone disease.
Case Presentation Summary: A three-year-old male child with no prior medical history and good weight-height evolution, was referred to the Pediatrics clinic for recurrent episodes of abdominal pain accompanied by loose stools with mucus, but no blood. Due to the recurring nature of these symptoms, a microbiological stool analysis was conducted and the diagnosis of acute Campylobacter spp. gastroenteritis was confirmed. Blood tests also revealed an elevation of ALP (722U/L), with normal kidney function. An abdominal ultrasound revealed no significant changes, particularly in the liver parenchyma or bile ducts. The patient did not consume contaminated water, expired foods or medications, including phenobarbital and sodium valproate. During the appointment, any relevant family history, such as benign familial hyperphosphatasemia or inflammatory bowel disease, was excluded and no clinical signs of bone or liver disease were observed during physical examination. The patient was re-evaluated 6 months later with resolution of complaints.
Learning Points/Discussion: The authors believe it is crucial to emphasize that a simultaneous diagnosis of acute gastroenteritis caused by Campylobacter jejuni was made in this case, which is also reported in other BTH cases. However, it is not currently possible to establish a causal link between infection by Campylobacter jejuni and BTH. The child's follow-up, confirmation of normalization of the ALP values, age of presentation, and lack of underlying disease are essential to confirm the diagnosis of BTH. Recognizing BTH prevents the unnecessary conduct of additional investigation.

PV0439 / #2204

ROTAVIRUS GASTROENTERITIS - DESCRIPTIVE STATISTICS OF 10 YEARS IN A LEVEL II HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: Rotavirus infection is the leading cause of acute gastroenteritis in children under 5 years of age. In Portugal, the vaccine is indicated for risk groups since october 2021. In other European countries there was a significant reduction in hospitalizations (69-89%) after the introduction of this vaccine in the vaccination program.
Methods: Descriptive retrospective study of pediatric patients with acute gastroenteritis and identification of rotavirus in stool (antigen) over a 10-year period (january 2012 - january 2022) in a level II hospital. Statistical analysis: Microsoft Excel.
Results: 609 patients were included, representing 4% of total admissions. 58% male, median age 1 year (mín. 6 days, máx. 15 years). 10.3% belonged to risk groups. The month with the highest number of hospitalizations was march. Clinically: 97% presented diarrhea, 90% vomit, 58% fever, 3.3% bloody diarrhea and 1.3% seizures. The most common reasons for hospitalization were dehydration (51.6%) and persistent vomiting (23.6%). The most frequent complications were metabolic acidosis (41.2%), hypoglycemia (14.6%) and acute kidney injury (10.3%). 2.8% had gastrointestinal coinfection, the most prevalent agent was adenovirus. There were 5.3% readmissions and 11.5% nosocomial infections. The median length of hospitalization for community infections was 2 days (mín. 1, máx. 28). Nosocomial infections occurred mainly in patients with prolonged hospital stay, some with severe illness. Only 2.5% had complete vaccination against rotavirus infection.
Conclusions/Learning Points: In most cases, children do not have serious complications. However, it may cause a significative burden in children and their families, being a frequent cause for school and work absence. In this study, we emphasize the low vaccination rate and high number of nosocomial infections. In the future, we hope to reduce the number of hospitalizations by vaccinating risk groups.

PV0440 / #2510

SEVERE COURSE OF HEPATITIS A IN CHILDREN DURING AN OUTBREAK IN PRESCHOOL.

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

Anna Dobrzeniecka[1], Maria Pokorska-Śpiewak[1,2], Ewa Talarek[1,2], Małgorzata Aniszewska[1,2], Magdalena Marczyńska[1,2]
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Title of Case: SEVERE COURSE OF HEPATITIS A IN CHILDREN DURING AN OUTBREAK IN PRESCHOOL.
Background: Hepatitis A is a liver disease caused by hepatitis A virus(HAV). In children,HAV infection is usually subclinical. The aim of this report was to present two patients,who were hospitalized with severe course of hepatitis A.
Case Presentation Summary: Two children aged 6.5 years were admitted with suspicion of acute hepatitis. Both patients had attended the same preschool, where between November 2021 and January 2022, hepatitis A outbreak occurred. On admission,patient 1, female, presented with two days history of nausea, fatigue, hepatomegaly and jaundice. During four days of hospitalization progression of liver disease and deterioration in general condition was observed. Liver tests showed alanine aminotransferase (ALT) maximum level up to 5148 U/L, aspartate aminotransferase (AST) of 7805 U/L(N.10-36), gamma-glutamylotranspeptidase(GGTP) 268 U/L(N.12-43), total bilirubin(TBil) 120.6 µmol/l(N.3.0-22.0), direct bilirubin(DBil)106.0 µmol/l(N.0.0-5.0), prothrombin time(PT) 60.30s(N.9-16.7), international normalized ratio (INR)1.63 (N.0.86-1.20).Anti-HAV IgM antibodies and anti-Epstein-Barr Virus IgM VCA(EBV) antibodies were detected. Patient 2,male,presented with three days history of malaise, stomachache, choluria, slightly enlarged liver, and jaundice. Laboratory tests showed ALT 2224 U/L, AST 542 U/L, GGTP 105 U/L, TBil 87.3 µmol/l, DBil 69.7 µmol/l, PT 22.9 s, INR 2.07.Anti-HAV IgM were positive. Both children were diagnosed with hepatitis A,patient 1 had HAV/EBV coinfection. We excluded other hepatotropic viruses. Both patients required vitamin K supplementation and supportive therapy. Patient was treated with rifaximin and consulted with Children's Transplant Center. We observed gradual normalization of liver function tests. In patient 2,coagulopathy persisted for 3 months after discharge.
Learning Points/Discussion: Hepatitis A may have a severe course in children. Postexposure prophylaxis of the HAV infection with effective immunization should be implemented in case of an outbreak for all children attending the setting.

PV0441 / #2513

CHALLENGES AND EFFECTS OF OUTCOMES TREATMENT OF CHRONIC HEPATITIS C IN 5-YEAR OLD CHILDREN WITH COMORBIDITIES.

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: CHALLENGES AND EFFECTS OF OUTCOMES TREATMENT OF CHRONIC HEPATITIS C IN 5-YEAR OLD CHILDREN WITH COMORBIDITIES.
Background: Real-life data on effects and course of treatment with fixed-dose combination of sofosbuvir/ledipasvir (SOF/LDV) in pediatric patients with chronic hepatitis C are limited. The efficacy and safety of 12 weeks of therapy with SOF/LDV in 5-year old tweens suffering from comorbidities are presented.
Case Presentation Summary: 5-year-old twins (a boy and a girl) were infected vertically with genotype 1 HCV, and they were negative for HBs antigen, anti-HBc antibodies, and anti-HIV antibodies. They presented with a history of prematurity, delayed psychomotor development, chronic kidney disease, renal hypodysplasia, and growth deficiency. In addition, the boy had hypertension, he was treated with ramipril and received trimethoprim/sulfamethoxazole to prevent urinary tract infections. No fibrosis (Metavir F0-1) was found in either child. They were qualified for 12 weeks of therapy with SOF/LDV and started the treatment in November 2021. As they weighted below 17 kg at baseline, both received pellets containing 150/33.75 mg of SOF/LDV. After 4 weeks of treatment, due to the weight gain, the dose was increased to 200/45 mg. Both patients achieved a sustained virologic response (SVR12) 12 weeks after the end of treatment. No adverse effects during and after treatment were reported and compliance was good.
Learning Points/Discussion: Decision on starting the treatment in special groups of patients like children under 6 years of age or with comorbidities should be made individually. The adjustment of formulation and dosing of medication during treatment is necessary.

PV0442 / #2220

GASTROINTESTINAL BLEEDING FROM CADE OIL POISONING

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: GASTROINTESTINAL BLEEDING FROM CADE OIL INTOXICATION
Background: Intoxication by cade oil is often of iatrogenic origin resulting mainly from the ingestion of a large quantity or, in infants and newborns, from prolonged and extensive cutaneous application. Used for therapeutic purposes, this oil can be responsible of poisonings that can even be fatal.
Case Presentation Summary: An 11-month-old infant with no pathological history. Brought by his mother to the pediatric emergency room for respiratory distress with generalized cyanosis and loss of consciousness, which appeared two days after an extensive application of an imprecise quantity of cade oil to the scalp and nostrils to treat an influenza-like syndrome complicated by two episodes of hematemesis. The infant was comatose, hypotonic with bradycardia at 61/min and blood pressure at 65/35 mm Hg. He was polypneic and showed signs of respiratory struggle. Its saturation at 78%. Capillary blood glucose was correct. The initial biological report showed anemia at 9 g/dl, thrombocytopenia at 50,000 platelets/mm3, renal function preserved with hepatic cytolysis and CPK level at 3458 IU/L. Initial arterial blood gas analysis revealed severe metabolic acidosis The initial management included intubation for mechanical ventilation, a filling test completed by the administration of norepinephrine 0.1ug/kg/min and decontamination with soapy water to eliminate cade oil. After receiving the report, it was completed by the administration of 1.4% bicarbonates 10 mL/kg and a transfusion of red blood cells (80 mL). The immediate evolution was marked by an alteration of the hemodynamic state, oliguria, persistence of metabolic acidosis, leading to death in multiorgan failure chart 3 days after admission.
Learning Points/Discussion: Reducing the incidence of this type of poisoning requires preventive measures based on public awareness and the implementation of a strategy to combat these intoxications

PV0443 / #1756

ETIOLOGICAL STRUCTURE OF ACUTE VIRAL HEPATITIS IN THE POST-PANDEMIC PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: Etiological structure of acute viral hepatitis in the post-pandemic period
Background: Backgrounds: Hepatitis in children has significantly increased recently. This problem has become even more important during in the post-covid period. Nowadays, according to the data reported from many countries, there is information about the increasing numbers of non A-E hepatitis, which mostly have an unknown etiology.
Case Presentation Summary: Methods:The research is prospective. From January 2021 to December 2022,27 patients diagnosed with acute viral hepatitis were treated in the hospital of Acad. V. Bochorishvili Clinic. According to the WHO definition, the diagnosis of hepatitis of unknown etiology was initally made.11 Of them were hepatitis A-E.In order to determine the etiology in 16 patients, research of 4 different samples was performed-blood,urine,feces,and mouth-throat smear, Research method–was RT-PCR. The exclusion criteria from the study were hepatitis A-E. Results: By WHO working case definition-Probable case: A person presenting with acute hepatitis (hepatitis non A-E) with serum transaminase >500 IU/L (ALT, AST), who is <16 years. 16 patients who were treated with the diagnosis of hepatitis were identified by this criterion. The research was conducted on the following pathogens:Paraechovirus,Enterovirus,HH6,HH7,Parvovirus B19,HSV1,HSV2,VZV,Adenovirus, EBV, CMV. Studies with autoimmune panel-ANA, AMA, AAB to liver-Kidney Microsomes, SLA/LP AB,Smooth muscle Ab. Biochemical studies: ALT, AST, GGT, ALP, Total bilirubin (Direct/ indirect), CBC, CRP,Ferritin,Procalcitonin,Ammonia,Creatinine. Adenovirus was confirmed in 3 cases;in 2 cases-SARS CoV-2;in 2 cases VZV;in 3 cases CMV;in 2- EBV;in 3-HH7,and in 1 case remained of unknown etiology.The severity was relatively more prominent in the case of adenoviral and covid infection.During the infection caused by herpes zoster,hepatitis was less acute and progressed more slowly.
Learning Points/Discussion: Conclusion, hepatitis at this stage is polyetiological.For more accurate conclusions, studies should be continued and meta-analysis should be performed.

PV0444 / #2024

CRYPTOCOCCAL HEPATITIS IN AN IMMUNOCOMPETENT CHILD

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: Cryptococcal Hepatitis in an immunocompetent child
Background: Cryptococcosis is a systemic mycosis, frequently occurring in immunologically compromised human host. It usually involves central nervous system, lungs and skin. Cryptococcal involvement of the hepatobiliary system is very rare. A rare case of localised hepatic cryptococcosis in an immunocompetent child responding well to standard treatment is reported here.
Case Presentation Summary: A 2.5 year old girl child, was referred for intermittent, high grade fever for 3 months, periumbilical abdominal pain, jaundice & poor appetite; after treatment at 2 hospitals without relief. On examination, she had fever, pallor, jaundice and moderate hepatomegaly and normal other systems. Investigations- Hb-7gm/dl, TWBC 25550/cmm P76,L20,E2,M2, platelets11.4 lakh. LFT- total bilirubin 8.4 mg/dl, direct 6.15mg/ dl), SGPT 198 IU/L, SGOT 219 IU/L , GGT 516IU/L, alkaline phosphatase 1658 IU/L, serum albumin 3.14 g/dL & INR 2.2 (normalized after 1 dose of vitamin K). Normal Immunoglobulin levels, Negative HIV, brucella, leptospira, typhoid and tuberculosis serology. Abdominal ultrasound showed bright liver parenchyma with heterogenous echotexture, mild splenomegaly, few enlarged lymph nodes at porta. chest x-ray was normal. Liver biopsy histopathology showed hepatocellular and canalicular cholestasis, portal based granulomatous inflammation with eosinophils. Occasional yeast forms were seen extracellularly and within multinucleate giant cells. Mucicarmine stain highlighted and confirmed the diagnosis of Cryptococcosis . Serology for cryptococcal antigen was positive with titre 1:4. Standard treatment - IV Amphotericin-B and flucytosine for 3 weeks, followed by oral fluconazole and flucytosin for 6 weeks and oral fluconazole continued for 6 months. Child improved clinically by 1st week, and was totally asymptomatic after 6 weeks of treatment,
Learning Points/Discussion: Cryptococcosis is a rare consideration in immunocompetent children as is hepatic involvement There is a need to identify liver dysfunction as a possible initial manifestation of fungal infection, a treatable cause with good outcome.

PV0445 / #922

ACUTE PANCREATITIS AND HEPATITIS AS A COMPLICATION OF SALMONELLA GASTROENTERITIS

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: ACUTE PANCREATITIS AND HEPATITIS AS A COMPLICATION OF SALMONELLA GASTROENTERITIS
Background: Salmonella gastroenteritis ranges from self-limited to fulminant illness, seldom associated with transient bacteriemia (1-5%) and extraintestinal organ involvement. Liver and pancreatic damage are rare complications of salmonellosis and may alter its course resulting in poorer outcomes. We report a paediatric case of acute pancreatitis and hepatitis complicating Salmonella infection.
Case Presentation Summary: A healthy nine-year-old girl, without epidemiological context, presented with a 4-day history of febrile non-bloody-diarrhoea associated with anorexia, vomiting and abdominal colic that aggravated with food intake. The pain was initially periumbilical and within 24 hours it intensified and irradiated to the back. On examination the child was lethargic, pale, anicteric and hemodynamically stable with an overall abdominal tenderness on palpation without organomegalies or peritoneal irritation. Laboratory workup reported lipase (688U/L), amylase (75U/L), ALT (108U/L), and AST (154U/L). Abdominal ultrasound showed no signs of acute pancreatitis, lithiasis or extrahepatic biliary tract obstruction. Mild-to-moderate acute pancreatitis was admitted, and the patient was treated with IV fluids, analgesia, and oral intake was suspended for 24h hours. On the 4th day of hospitalization, stool culture was positive for Salmonella enterica subsp. enterica and the diagnosis of salmonellosis complicated with acute pancreatitis and noncholestatic hepatitis was confirmed. Assuming extraintestinal involvement ampicillin was started, according to antibiogram, with clinical improvement.
Learning Points/Discussion: The coexistence of pancreatitis and hepatitis is a rare complication of Salmonella infections, with few paediatric cases described in literature. This disease may be underdiagnosed since its symptoms may overlap with those of enteritis. The characteristics and intensity of abdominal pain should draw clinicians' attention to the possibility of a pancreatic complication. Early recognition and timely treatment halt further progression and are associated with better outcomes.

PV0446 / #1415

MASSIVE SPLENIC INFARCTATION, A RARE ENTITY IN A FEMALE TEENAGER

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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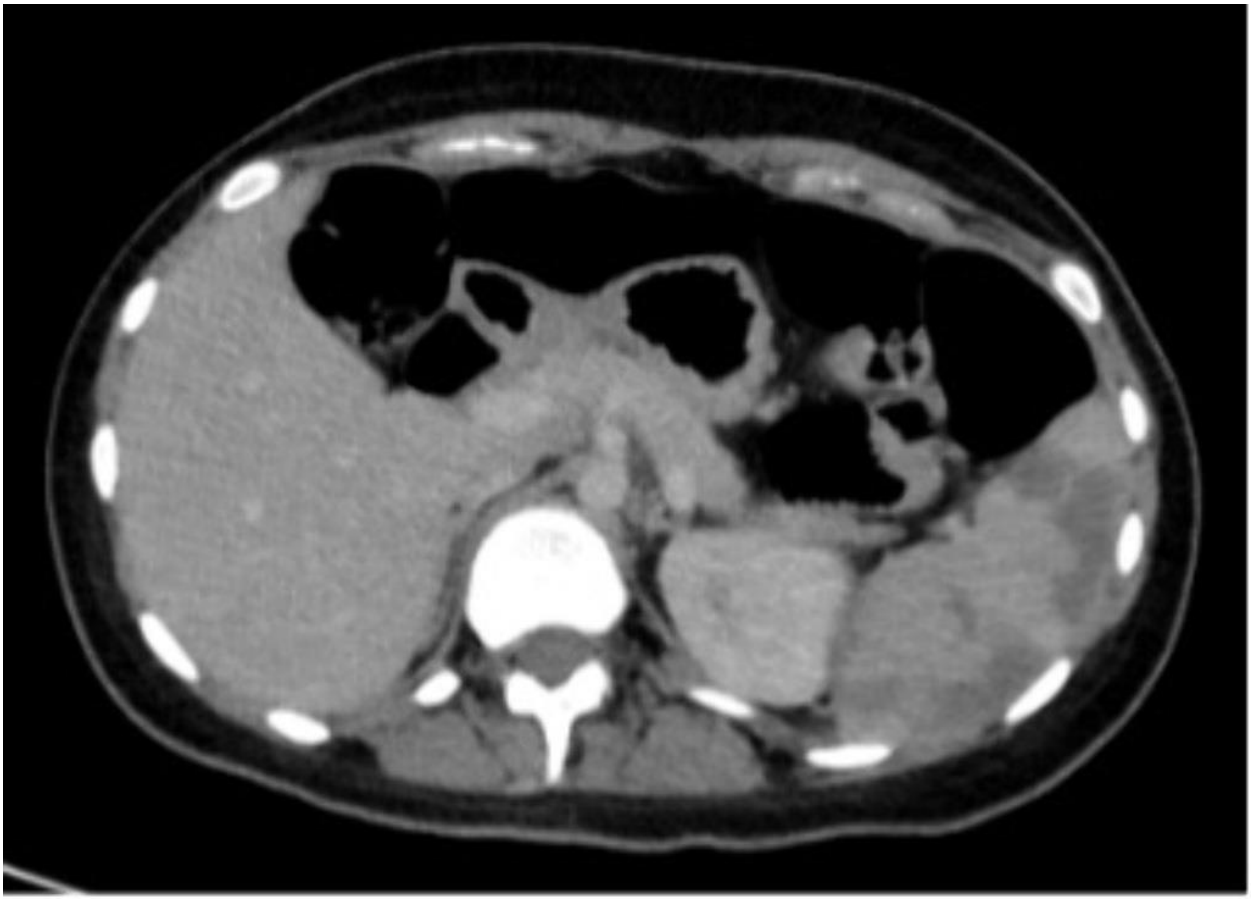
Title of Case: MASSIVE SPLENIC INFARCTATION, A RARE ENTITY IN A FEMALE TEENAGER
Background: Splenic infarction is a rare entity in the pediatric age that most commonly is associated with predisposing factors such as oncological, hematological or infectious diseases. Abdominal pain is the most common complaint, and a high degree of clinical suspicion is necessary, as it can mimic other causes of abdominal pain. There is no consensus about the best treatment option.
Case Presentation Summary: A 15-year-old female with Steinert myotonic dystrophy presented to our pediatric emergency department with a 1-week history of intense abdominal pain, worsened in the last two days, and recent onset fever. Initial labs revealed leukocytosis, lymphocytosis, hypoalbuminemia, thrombocytosis, elevated serum liver enzymes, lactate dehydrogenase, C-reactive protein, and Erythrocyte sedimentation rate. Blood smear showed atypical lymphocytes. History of trauma was denied. Abdominal ultrasound, limited by abundant intestinal air, revealed homogeneous splenomegaly. Abdominal X-ray was suspicious for bowel obstruction, and an abdominal CT was performed, revealing extensive splenic infarctions. EBV VCA IgM antibody test was positive, and remaining microbiological investigation was negative. Tests for thrombophilia and malignancy were also negative. Transthoracic echocardiogram was normal. Treatment with enoxaparin was started, with progressive clinical improvement and no complications. She repeated abdominal ultrasound 1 week later with overlapping and stable splenic subcapsular infarctions involving more than 50% of the parenchyma.



Learning Points/Discussion: We report a case report of massive splenic infarction as a rare complication of infectious mononucleosis due do primary EBV infection. Signs and symptoms are nonspecific, so a high index of suspicion is important. Due to its massive extension and severe abdominal pain, enoxaparin was started in this girl, however, most cases are managed conservatively. Close monitoring is necessary as there is risk of splenic rupture.

PV0447 / #1744

AN UNUSUAL EBV PRESENTATION IN A 11-YEAR-OLD CHILD

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: AN UNUSUAL EBV PRESENTATION IN A 11-YEAR-OLD CHILD
Background: Epstein-Barr virus (EBV) is a member of the gamma herpesvirus family (human herpes virus 4). The majority of EBV infections that occur in childhood are mild and hepatic involvement is not uncommon.
Case Presentation Summary: We present a case of a 11-year-old girl, admitted to our Tertiary hospital due to fever and abdominal pain. Clinical examination revealed an unwell child with jaundice, hepatomegaly, splenomegaly, mild ascites, lymphadenopathy and sore throat. Empirical antibiotics were started. Laboratory investigations revealed elevated aminotransferases , triglycerides, bilirubin and ferritin. Serological tests for Epstein-Barr virus (EBV IgM/IgG) were positive. Criteria for Hemophagocytic lymphohistiocytosis (HLH) were not met. Blood cultures were negative. Nasopharyngeal RT-PCR multiplex tests (Influenza A/B, RSV A/B, Paraninfluenza 1/2/3/4, Coronavirus OC43/229E/ HKU1/NL63, Rhinovirus/Enterovirus, Aderovirus, Human Metapneumovirus, Bocavirus 1, Mycoplasma pneumonia, Chlamydophila pneumonia, Legionella pneumonophila, Bordetella pertussis, Mers, Sars-CoV-2) came back negative. Due to her ongoing fever, ascites and worsening abdominal pain, that could be due to an excessive immunological response to EBV, we administered methylprednisolone for 7 days (dose of 1.5 mg/kg) and a single intravenous immunoglobulin infusion (dose of 1g/kg). Fever settled 4 days later and the child improved clinically. She was discharged on day 10 of hospitalization and remained well in her follow- up visit a month later.
Learning Points/Discussion: The development of ascites has rarely being reported in the literature during EBV infection and appropriate management of severe cases remains unclear.

PV0448 / #883

TREATMENT OF PEDIATRIC CHRONIC HEPATITIS C IN PANDEMIC TIMES

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: WHO global strategy aims to reduce new hepatitis infections by 90% in up to 2030. Identifying children and adolescents with chronic hepatitis C and treating contribute to hepatitis decrease. Direct acting antivirals (DAAs) have more than 90% efficacy. Poor adherence is the main reason for treatment failure. The goal of this study was to describe features and outcomes of chronic hepatitis C pediatric patients treated with DAA and to compare adherence in person up versus by telemedicine.
Methods: We conducted an observational prospective cohort at outpatient in a Brazilian center since May 2019. HCV chronically infected pediatric patients treated with DAA were included. Brazil's Ministry of Health approved DAAs for children older than 12 years or weighing more than 35Kg: ledipasvir90mg +sofosbuvir400mg(SOF-LDV) once daily for 12 weeks for genotype 1 and sofosbuvir(SOF)400mg+ribavirin(RBV)1g daily for 24 weeks for genotype 3. From November 2022 there was a change to the pangenotypic regimen: sofosbuvir400mg+velpatasvir100mg. We analyzed clinical profile, side-effects, and treatment response. Adherence was evaluated in person up to January 2020 (n=10) and by telemedicine from February 2020 (n=13).
Results: Twenty-three pediatric chronic HCV infected received DAA: mean age 13y(9-17), 56.5% females, 8.6% HIV co-infected, 91.3% vertical transmission, genotype: 1(91.3%), 2(4.3%), 3(4.3%). No known cirrhosis. Side-effects were transient and non-severe: 60%headache, 30%nausea, 20%fatigue and 10%diarrhea. All patients had good adherence. Quantitative detection HCV-RNA was <12 UI/ml in week-12 of treatment for all patients. Sustained virologic response (SVR) in posttreatment week-12 was achieved in all 21patients that already performed the test.
Conclusions/Learning Points: In our study, we observed high tolerability and excellent response to DAAs. Telemedicine attendance was good for assessing adherence. We reinforced pediatric hepatitis C treatment as part of the global strategies for reduction Hepatitis C.

PV0449 / #894

CLINICAL ASPECTS AND ETIOLOGIC INVESTIGATION OF PEDIATRIC PATIENTS WITH HEPATITIS OF UNKNOWN ETIOLOGY

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: A new outbreak of acute hepatitis of unknown etiology (AHUO) has raised awareness in April 2022. The study's aim was to describe AHUO pediatric cases.
Methods: Retrospective study of pediatric patients with acute non-A-E hepatitis, as described by the The World Health Organization(WHO) criteria(Acute non-A-E hepatitis with serum transaminase (ALT or AST) > 500 IU/L, with 16 years of age or younger) admitted to the Pediatric Intensive Care Unit of Instituto da Criança e Adolescente-HCFMUSP, from January to April 2022, was performed. Prospective study started on May 2022. Local ethics committee approval the study. Demographic, clinical, and laboratorial data were collected. Etiological research included: viral and auto-antibody serologic tests [anti-LKM1, anti-smooth-muscle, Cytomegalovirus(CMV), EBV, Hepatitis A-E, HIV, HTLV, Toxoplasmosis, Herpes simplex 1+2, Mumps, Rubella, Chagas disease, SARS-CoV-2]; polymerase chain reaction PCR) for Hepatitis E, Yellow Fever, Dengue, Chikungunya, and adeno-associated virus type 2(AAV-2) in plasma; molecular panel for 22 respiratory pathogens (containing SARS-CoV-2) in nasopharynx and molecular virus panel in hole blood [Adenovirus, CMV, EBV, Enterovirus, Parvovirus B19, Herpes simplex 1/2, HHV-6, HHV-7, Paraechovirus, Varicella Zoster Virus].
Results: Ten pediatric patients with Acute non-A-E hepatitis were included from January to June 2022. Main symptoms were jaundice, loss of appetite and abdominal pain. Seven of 10 patients had viral isolates: AAV-2(n=3), respiratory syncytial virus(n=2), CMV(n=2), adenovirus(n=2), metapneumovirus(n=1), rhinovirus(n=1). Co-infection was observed in 3 patients: AAV2+RSV(n=1), adenovirus+rhinovirus+CMV(n=1), CMV+ metapneumovirus(n=1). Immunohistochemical for CMV and adenovirus was positive in the liver explant in one case each. Five patients received corticosteroid pulsetherapy, 3 of them improved. Five patients underwent liver transplantation. One patient dying on day 1 after transplantation.
Conclusions/Learning Points: Different from United Kingdom, we did not found adenovirus predominance, nor observed a similar pattern in AHUO cases.

PV0450 / #2196

LIVER ELASTOGRAPHY IN HEPATITIS C INFECTED CHILDREN: WHAT ROLE?

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: To date, there are few studies investigating the role of elastography in the management of children and adolescent HCV infected. We performed a retrospective analysis of our HCV infected pediatric cohort, in order to evaluate elastography modification before (EPre) and after therapy (EPost).
Methods: We retrospectively evaluated the clinical records of 57 children referred to the Pediatric Infectious Disease Unit of Luigi Sacco Hospital (Milan, Italy) for vertically and horizontally acquired hepatitis C virus (HCV) infection, from January 1997 to January 2022.
Results: In this study h 57 patients were enrolled: 28 treated (49,1%),13 non treated (22,8%), 6 of which haven't been treated for spontaneous viral clereance (10,5%). All patient treated underwent elastography one month before therapy began and then the exam was repeated after one year after therapy according to our clinical management protocol. HCV RNA was undetectable in all treated patients after treatment. Comparing EPre to EPost of treated children we did not find any statistically difference between the two groups. As expected, however, alanine (ALT) and aspartate (AST) aminotransferase and HCV RNA decreased significantly from EPre to EPost. We found a positive correlation between EPre and EPost, and a positive correlation between EPre and pre-therapy aspartate transaminase values. Furthermore, a statistically significant linear regression between EPre and Epost were reported, as same result emerged between EPre and AST values pre-therapy.
Conclusions/Learning Points: Liver Elastography is not well recognize as a valid instrument to check therapy effectiveness in HCV patients, but according to our data it can be highly informative about the patient's status as the transaminases. More data are needed to evaluate a diagnostic accuracy and its appropriateness as a follow-up tool.

PV0451 / #167

HISTOPATHOLOGICAL PARAMETERS IN H. PYLORI INFECTION WITH ENDOSCOPIC NODULAR GASTRITIS

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: To assess the severity of histopathological variables of gastritis in children with Helicobacter pylori infection associated with endoscopic nodular gastritis.
Methods: This prospective study carried out over two years period and included 468 children and adolescent in whom upper digestive endoscopy was performed for gastrointestinal symptoms and gastric antral mucosal biopsy was taken. Sixty-seven children and adolescent were diagnosed as having nodular gastritis and were included in the study. Demographics, clinical characteristics, endoscopic and pathologic findings were recorded. H pylori were recognized in gastric biopsy on H&E sections; a modified Giemsa stain was performed in biopsy suspicious for H pylori.
Results: The prevalence of nodular gastritis in children and adolescent was 14.3% (67/468) and consisted of 46.3% male and 53.7% female. The age ranged from 3 - 18 years (mean age, 9.2 + 0.4 years). The prevalence of nodular gastritis increased gradually with age. H pylori infection was identified in 68/468 (14.5%) children and adolescent. Nodular gastritis had a poor accuracy rate to determine H. pylori infection (sensitivity, 40.3%; positive predictive value, 39.7%) and was observed in 27/68 (39.7%) H pylori positive patients and in 40/400 (10%) H pylori negative patients. There was a significant increase in grade of inflammation, activity, atrophy, number of lymphoid follicles and H. pylori density on histological evaluation in H pylori positive patients with nodular gastritis than other groups.
Conclusions/Learning Points: H. pylori infection in children and adolescent with nodular gastritis identifies cases with severe gastritis and marked bacterial colonization. Nodular gastritis has a poor prediction for H. pylori infection. Gastric biopsies should always be obtained during endoscopy to establish the H pylori infection.

PV0452 / #636

NEUROLOGICAL COMPLICATIONS OF ROTAVIRUS INFECTIONS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: Rotavirus is the leading cause for complicated gastroenteritis in children younger than 5 years in countries where vaccination is not implemented. Besides the intestinal symptoms that are associated with ordinary gastroenteritis, rotavirus can cause neurological complications. The aim of this study is to describe the clinical characteristics of complicated rotavirus infections.
Methods: From 1 January 2016 to 31 January 2022, all children (below the age of 18) with a positive rotavirus test in feces that were either hospitalized or presented at the outpatient clinic or emergency department of a large pediatric hospital in the Netherlands were included. Rotavirus was only tested in case of a severe or abnormal disease course. We described the clinical characteristics and outcome with a particular focus on neurological manifestations.
Results: In total, 59 patients with rotavirus were included of whom 50 (84.7%) were hospitalized and 18 (30.5%) needed intravenous rehydration. 10 patients (16.9%) had neurological complications, of whom six patients (60.0%) presented encephalopathy. Two patients (20.0%) with neurological symptoms showed abnormalities on diagnostic imaging.
Conclusions/Learning Points: Rotavirus can cause gastroenteritis with severe, but apparently self-limiting, neurological manifestations. Considering rotavirus in pediatric patients with neurological symptoms such as encephalopathy and encephalitis is therefore important. Early detection of rotavirus infection may predict a favorable course of disease and may thereby prevent unnecessary treatment and should be further investigated.

PV0453 / #161

GENE EXPRESSION ANALYSIS OF LIVER TISSUE TO EXPLORE PATHOGENIC PATHWAYS IN INFLAMMATION

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: Liver diseases such as Non-alcoholic fatty liver disease (NAFLD) and Non-Alcoholic Steatohepatitis (NASH) are extremely prevalent worldwide and carry a poor prognosis. Gaining insight into the transcriptional profiles of these conditions is therefore crucial for understanding their pathogenesis. We therefore aimed to compare hepatocyte transcriptomic data in control and diseased states using differential expression analysis. We hypothesised that different drivers of inflammation are present in distinct liver diseases, and that gender impacts expression.
Methods: We made use of data from two large studies which had retrieved liver biopsies. The first study looked at 195 Hepatitis C (HCV) infected individuals, while the second took samples from obese (12), control, (14), NAFLD (15) and NASH-affected (16) individuals. We analysed the second study independently, comparing gene expressions for all states against the controls and then merged the datasets to compare HCV-infected gene expression to controls. The impact of gender on gene expression was also compared. Multiple R software packages and Gene-set enrichment analysis (GSEA) were used to analyse the data.
Results: All studied liver diseases (NAFLD, NASH, HCV-infection) resulted in upregulation of inflammatory markers compared to control, with the biggest difference noted in HCV-infection. Meanwhile, obesity did not alter gene expression significantly. GSEA confirmed these findings, further revealing that complement dysregulation is present in all these conditions. We also demonstrated that gender drives differences in gene expression in HCV infection specifically.
Conclusions/Learning Points: Differential expression analysis of diseased and control liver tissue reveals a host of inflammatory markers that are upregulated. Gaining a better understanding of these inflammatory drivers could help in the development of therapeutic targets, for example in the form of complement or IL-2 blockade, which could potentially assist in the halting of hepatocyte inflammation.

PV0454 / #1465

HEPATIC ABSCESS: DON'T FORGET BRUCELLA IN SUSCEPTIBLE HOST

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Title of Case: HEPATIC ABSCESS: DON'T FORGET BRUCELLA IN SUSCEPTIBLE HOST
Background: Brucellosis is the most common zoonosis worldwide that may affect any organ or system of the human body. Diffuse hepatic involvement is common during the course of human brucellosis, however, hepatic abscess formation is very rare presentation, specifically in pediatric age group.
Case Presentation Summary: A 7.5 years male child was admitted with the complaints of high grade fever, vomiting, and weakness for 8 days. He had history of ingestion of raw goat milk and also complaints of arthritis in goat. On clinical examination, there was right upper quadrant tenderness. The significant laboratory investigations were normocytic normochromic anemia (hemoglobin 9.6 g/dL), a moderate hyper-leucocytosis (11,600/mm3) with a slightly neutrophilic differential count (64%) and increased ESR (65 mm/h). Liver function tests were slightly abnormal as serum alanine transferase (ALT), 422 U/L; serum aspartate transferase (AST), 192 U/L; serum gamma-glutamyl transpeptidase, 110 U/L; and alkaline phosphatase, 135 IU/mL. Viral hepatitis markers (HBsAg, anti-HBc IgM, anti-HAV IgM, and anti-HCV tests) and serology tests for hydatidosis, amebiasis, syphilis, and cytomegalovirus were negative. The Brucella standard tube agglutination test was positive at a titer of 1:1280 and immunoglobulin M and G were significantly raised for B.melitensis. Abdominal ultrasonography showed 8cmx10cmx8 cm echogenic foci in the right lobe of the liver. MRI confirmed the US findings, and also revealed further inner features of the mass-like liver lesion and changes in the surrounding liver parenchyma. The child was diagnosed as having hepatic abscess due to brucellosis. Doxycycline and rifampicin were started in standard doses. The child recovered well with normal hepatic function in 3 months.
Learning Points/Discussion: Clinicians should consider brucella in the differential diagnosis of liver abscess with history of livestock.

PV0455 / #2020

A SERIES OF 105 FOOD-BORNE INFECTIONS IN A TERTIARY PEDIATRIC HOSPITAL IN GREECE

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: Foodborne diseases remain a burden to public health systems worldwide. Their epidemiological surveillance is crucial to strengthen their prevention and optimal management. Objectives of our study were to report the incidence of pathogens, examine their seasonal distribution and prevalence among gender and age and log their treatment.
Methods: We performed a single-tertiary center retrospective cohort study on a sample of 1155 children hospitalized in our Department from May 2022 to September 2022, who presented with gastrointestinal symptoms. Stool and blood cultures, antigen testing, multiple polymerase chain reaction were used to specify the virulent factors. Demographic profiles were, also, recorded.
Results: Out of 105 foodborne infections in children aged 2 months to 16 years old, 37 (35.2%) were reported as Rotavirus infection, 29 (27.6%) Salmonella spp infection, (comprising the most common bacterial pathogen), 19 (18%) Campylobacter infection, 7 (6.6%) E.coli infection (50% of which EPEC), 6 (5.7%) Shigella sppinfection, 4 (3.8%) Norovirus infection, 2 (1.9%) G. lamblia and 1 (0.9%) Yersinia spp. Blood cultures were positive in 3 cases (10%) of Salmonellosis. Regarding antibiotic resistance, 82% of Salmonella strains were pansusceptible and 4% were multiresistant. For Campylobacter over 64% of strains were reported multiresistant. Antibiotics were given to 37.9% of patients with Salmonella, 50% of patients with Shigella and 21% of patients with Campylobacter. Overall, children under the age of four were mostly affected with no statistically significant difference among genders. The majority of bacterial infections 19/64 were reported in September.
Conclusions/Learning Points: In our study, the most common bacterial factor isolated was Salmonella spp and not Campylobacter, as shown in other published European data. In addition, we noticed a change in the seasonal pattern, possibly due to climate change, with the peak of bacterial infection in September.

PV0456 / #2134

CHARACTERISTICS OF ROTAVIRUS INFECTION BETWEEN 2019 - 2022, IN TERMS OF MANDATORY VACCINATION AND PANDEMIC RESTRICTION – SINGLE CENTRE STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS07.A. GASTROINTESTINAL INFECTIONS - HEPATITIS

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Backgrounds: Rotavirus is the leading cause of acute diarrhea in children in the first years of life. In the last 3 years, two factors emerged that may affect the morbidity and severity of RV infections. The first one is mandatory rotavirus vaccination and the second one is pandemic restrictions in 2020 and 2021.
Methods: 323 children diagnosed with acute gastroenteritis caused by rotavirus between June 2019 and August 2022 were examined. The information about clinical picture, month of illness, as well as laboratory tests results were obtained from medical documents. Vaccine impact on rotavirus course of infection was also assessed. An important question in our study is also whether pandemic restrictions such as lockdown, social distancing and compulsory hand sanitisation have an impact on the number of cases.
Results: Analyzes of the collected medical data of patients showed that the age on the day of admission to the ward was significantly higher after the introduction of compulsory vaccinations compared to the period before introduction (3 years 7 months vs 1 year 7 months). Similar significant differences were noted for the length of hospitalization. After the introduction of compulsory vaccinations (mean= 4.97), the length of required hospitalization decreased significantly compared to the period before vaccination (mean= 6.42).In the months in which pandemic restrictions such as social distancing, the order to wear masks, lockdown, and widespread hand sanitizing were mandatory, the number of infections was lower than before the pandemic, and after the 'return to normality.
Conclusions/Learning Points: We can conclude that compulsory vaccinations have a positive effect on the morbidity in the affected group and the overall length of hospitalization. An additional conclusion is the positive effect of pandemic restrictions on the number of RV infections.

PV0457 / #1616

URINARY TRACT INFECTIONS CLINICAL EVOLUTION – A COMPARISON WITH THE ANTIBIOGRAM

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Backgrounds: Urinary tract infection (UTI) is one of the most common infections in childhood and the most frequent pathogen is Escherichia coli (E. coli). Age, clinical presentation, and local patterns of antibiotic susceptibility are essential to choose the empirical antibiotherapy. Our main aim was to describe the pathogens causing UTI and its antibiotic susceptibility patterns. Posteriorly analyse the clinical evolution with the prescribed antibiotic and comparing it with the susceptibilities found.
Methods: Retrospective cohort study including all 2021's positive urine cultures in children between 3 months and 10 years.
Results: A total of 348 urine cultures were included, 284 (81.6%) were from females. The median age was 21 months (Interquartile Range (IQR): 41), 185 (53.2%) under 24 months and 163 (46.8%) above. Pre or postnatal nephrological alterations were present in 26 (7.5%). 95 (27.3%) had previous UTI episodes, of which 18 (5.2%) were under antibiotic prophylaxis. In the group under 24-months-old, fever was present in 162 (83.3%) and vomiting in 39 (19.1%). In patients above 24-months-old, 105 (64.4%) had afebrile UTI and 108 (66.3%) had dysuria. The most common bacteria was E. coli (88.8%), followed by Proteus mirabilis (10.1%) and Klebsiella pneumoniae (3.5%). E. coli was mostly resistant to Ampicillin (40.8%) and Amoxicillin/clavulanic acid (33.0%), and 23 (7.4%) were multidrug resistant. Klebsiella pneumoniae was resistant to at least 1 class of antibiotic in 100%. From the 159 cases of pathogens resistant to the prescribed antibiotic, 42 (89.3%) had favorable clinical evolution.
Conclusions/Learning Points: In vitro susceptibility is not always verified clinically. In most cases in our sample (89.3%) there was a positive clinical evolution despite treatment with an antibiotic classified as resistant in the antibiogram.

PV0458 / #2300

URINARY TRACT INFECTIONS IN PEDIATRIC SURGERY: A PROSPECTIVE STUDY OF 36 CASES

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Backgrounds: Urinary tract infection is one of the most common bacterial infections in pediatrics. The objective of our work is to determine the epidemiology and the profile of patients likely to develop a urinary infection in pediatric surgery.
Methods: This is a prospective, descriptive study conducted in the pediatric surgery department of the Albert Royer Children's Hospital in Dakar over a period of 14 months, from April 1, 2020 to May 31, 2021.
Results: We collected 36 patients, representing 3.08% of the patients hospitalized and followed during the study period. The average age was 3 years and infants represented 41.6%. The sex ratio was 3. Thirty-three patients had abnormalities of the urinary tract defect, including 21 posterior urethral valves (58.7%). Fourteen patients (38.9%) had a history of urinary catheterization. Probabilistic antibiotic therapy combining a 3rd generation cephalosporin and an aminoglycoside was used as first-line treatment in 22 cases (61%). Adaptation of antibiotic therapy was necessary in 4 patients with multi-resistant bacteria secreting extended-spectrum β-lactamase. Ten patients presented a recurrence requiring circumcision in 5 children with urinary tract abnormalities.
Conclusions/Learning Points: Urinary tract infections are frequent in pediatric surgery. They mainly affect male infants with urinary tract abnormalities or who have had an urinary catheterization.

PV0459 / #709

CLINICAL CHARACTERISTICS AND ANTIMICROBIAL RESISTANCE PATTERNS OF COMMUNITY-ACQUIRED URINARY TRACT INFECTIONS IN INFANTS UNDER THREE MONTHS OF AGE IN THE SOUTH OF SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

Fuensanta Guerrero Del Cueto, Alfonso Lendínez-Jurado, Alba Montero-Reina, Antonio Medina-Claros, Begoña Carazo-Gallego
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Backgrounds: Urinary tract infections (UTI) are a common and potentially severe illness that must be considered when evaluating febrile infants <3 months, at higher risk of invasive bacterial infection. Studying antimicrobial resistance patterns of community-acquired pathogens is necessary to guide empirical treatment.
Methods: Descriptive observational study including patients <90 days old in the Emergency Department of a tertiary paediatric hospital diagnosed with a UTI between 2017-2022.
Results: 302 patients were assessed for suspected UTI, 99% as part of the evaluation of fever without a source. 61.6% were male. The age at presentation in 26.6% was <1 month, 33.3% 1-2 months and 40.1% 2-3 months. 74.8% of the patients were hospitalized, with a mean length of stay 5.02 days (SD 2.8), mean antibiotic treatment duration 9.6 days (SD 4.9). Catheter-obtained urine cultures were positive in 221 (73.2%) patients. The most frequent pathogens isolated were E. coli (80.1%), followed by Klebsiella spp. (9.5%), Citrobacter spp. (2.7%) and E. faecalis (2.7%). Twelve patients (5.4%) had bacteremia, nine (75%) E. coli, one E. faecalis (8.3%), one Acinetobacter ursingii (8.3%) and one MRSA (8.3%), which was isolated in a neonate who also had the only positive cerebrospinal fluid culture (0.5%) in our sample. 86.5% of all the urine isolates tested were susceptible to second-generation cephalosporins, 95.9% to third-generation cephalosporins, and 95.1% to aminoglycosides. E. coli were resistant in 49.4% to amoxicillin, 36.4% to amoxicillin-clavulanate, 23.1% to trimethoprim-sulfamethoxazole and 7.6% to quinolones.
Conclusions/Learning Points: -Urinary pathogen resistance to aminoglycosides and cephalosporins is low and remains the current recommended treatment in this age group. -Amoxicillin-clavulanate and trimethoprim-sulfamethoxazole should not be used as empirical UTI treatment due to high resistance of the most frequent pathogen in our context.

PV0460 / #966

AN ADOLESCENT CASE PRESENTING WITH EPIDIDYMO-ORCHITIS BRUCELLOSIS

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Title of Case: An Adolescent Case Presenting With Epididymo-Orchitis Brucellosis
Background: Brucellosis is a zoonotic disease that can be transmitted from animal to human and affects many systems in the body . Fever , sweating, weakness, lethargy, anorexia and joint pain are the most common complaints in childhood . Genitourinary system involvement and renal complications are rare in children . We would like to present a brucellosis case who applied to our clinic with epididymo-orchitis.
Case Presentation Summary: A 13-year-old male patient was admitted to our pediatric infection clinic with fever for 2 days, pain and redness in the testicle and testicular pain. It was learned that the patient, whose family was engaged in animal husbandry, was diagnosed with brucellosis 6 months ago with other family members, but stopped the treatment at the 3rd week. On physical examination, swelling in the left testis, hyperemia and tenderness on palpation. Brucella coombs test were positive with 1/640 titer, leukocytes, CRP and sedimentation were high. Treponema pallidum IgM and HIV antibody were negative. Scrotal usg was made and it was found to be compatible with epididymo-orchitis. Pediatric surgery department was consulted, cefixime antibiotic therapy was started. Due to brucellosis , 6-week rifampicin , doxycycline and gentamicin treatment was started. It was planned that the patient, who had regression in the complaints of pain and redness in the polyclinic control, to continue the rifampicin, doxycycline and gentamicin treatment and to have a control USG at the end of the treatment.
Learning Points/Discussion: As a result, brucellosis may rarely present with epididymo-orchitis in childhood . It is important to keep in mind epididymo-orchitis due to brucellosis in the differential diagnosis of scrotal diseases, especially in regions where the disease is endemic.

PV0461 / #343

EVALUATION OF CLINICAL SPECTRUM, ANTIBIOTIC SENSITIVITY AND CLINICAL OUTCOME IN PEDIATRIC AGE GROUP (0 TO 18 YEARS) WITH EXTENDED-SPECTRUM BETA-LACTAMASE (ESBL) PRODUCING ESCHERICHIA COLI ASSOCIATED URINARY TRACT INFECTION IN TERTIARY CARE HOSPITAL IN INDIA

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Backgrounds: There is increasing prevalence of ESBL E.coli associated UTIs in paediatric population. These multidrug infections are challenging to treat. Our aim is to study the clinical profile, antibiotic sensitivity pattern and clinical outcomes in ESBL E.coli UTIs.
Methods: We collected reports of all urine cultures for age group 0 to 18 years with colony counts >10^5 CFU/mL and single organism isolated, from January 2017 to December 2021. All positive reports were separated according to causative organism. Prevalence of ESBL E. coli was calculated and were further analysed for clinical spectrum, antibiotic sensitivity pattern and clinical outcome.
Results: E.coli was commonest organism with 259(57%) cases, 158(35%) were ESBL E. coli. Maximum incidence was between ages 0 to 5 years (56%). Prevalence of infection in females(59%) was higher than in males(41%). ESBL E. coli were highly sensitive to carbapenems, amikacin, fosfomycin. Resistance was high for trimethoprim/sulfamethoxazole and fluoroquinolones and 100% for beta-lactams. 25% had h/o previous UTIs, 43% had significant underlying medical problem. 51% of IPD patients had normal USG. Each patient was averagely treated with antibiotics (IV plus oral) for 11 days. 26 patients were started with beta-lactam antibiotics as an empirical treatment and by the time the culture report came, 16 patients had improved clinically hence they were continued on the same antibiotic and discharged. Mortality among IPD patients was 4%.
Conclusions/Learning Points: E. coli is most common causative organism. Prevalence of ESBL E. coli is increasing. Based on sensitivity patterns carbapenems, amikacin, and fosfomycin were good options for ESBL E. coli. Antibiotic sensitivity for cephalosporins derived by currently available methods do not always match clinical experience and third generation cephalosporin still can be used as an empirical antibiotic on admission with suspected UTI.

PV0462 / #1861

URINARY TRACT INFECTIONS UNDER 3 MONTHS OF AGE: WHICH IMPLICATIONS?

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Backgrounds: Although a very common disease in infants, urinary tract infections (UTIs) shouldn't be overlooked as they can lead to permanent renal damage. The aim of this study was to characterize UTIs under the age of 3 months and to identify predictive factors for UTI-related renal damage (UTI-RRD).
Methods: A retrospective cohort study was performed focusing on UTIs under the age of 3 months occurred between January 2018 and December 2021 in a Portuguese hospital.
Results: A total of 109 UTIs were identified. 61.5% of the affected patients were male. The median age was 53 days (IQR 48). The most frequent manifestations were fever (83.5%) and poor feeding (35.8%). Only two patients met criteria for severe infection. Escherichia coli was isolated in 92.7% of cases and showed a high rate of resistance to ampicilin (48.5%), amoxicillin-clavulanic acid (35.6%) and trimethoprim-sulfamethoxazole (22.8%). Approximately 3% of E. coli were multidrug resistant. In the followed period, of the 91 patients submitted to ^{99m}technetium dimercapto-succinic acid renal scintigraphy (TC99mDMSA), 16.5% showed renal damage. The binary logistic regression analysis confirmed a statistically significant association between history of urinary tract pathology in first degree relatives and altered TC99mDMSA (p=0.013, OR=27.47). No other variables were assumed as predictors for UTI-RRD after controlling for confounding factors.
Conclusions/Learning Points: This study documented a high rate of antimicrobial resistance in UTIs among very young patients. This represents an alarming finding considering the age of the patients and the null or low previous antibiotic exposure. Moreover, these high rates of resistance were recorded for some of the most commonly used antibiotics for the treatment and prophylaxis of UTIs. More studies are needed to identify predictors of ITU-RRD so a more evident-based follow-up can be mounted.

PV0463 / #1725

PNEUMOCOCCAL PNEUMONIA AND POST-INFECTIOUS GLOMERULONEPHRITIS - AN UNUSUAL ASSOCIATION

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Title of Case: Pneumococcal pneumonia and post-infectious glomerulonephritis - an unusual association
Background: Streptococcus pyogenes is the most common cause of post-infectious glomerulonephritis in children. However, a few cases have been associated with Streptococcus pneumoniae. Typically, post-infectious glomerulonephritis occurs 1-3 weeks after the infection, but when S. pneumoniae is associated it can develop simultaneously.
Case Presentation Summary: A previous healthy 7-year-old boy presented to the emergency department with cough and fever for 3 days, associated with haematuria and abdominal pain for 2 days. Physical examination showed only crusty skin sores on the left leg, blood pressure was normal and absence of edema. Urinalysis revealed non-nephrotic proteinuria (protein/creatinine ratio 0,85 mg/mg), haematuria, leukocyturia, some granular cylinders, and rare acanthocytes. Blood tests revealed leucocytosis (32.700/uL, with 92.2% neutrophils), elevated C-reactive protein (28,2 g/dL), acute kidney injury with creatinine 2,11 mg/dL (GFR 27 mL/min/m^2, K:0.413), urea 133 mg/dL and hyperuricemia (10.8mg/dL). ASOT was increased (717 U/ml), C3 was diminished (32.3 mg/dL) and C4 was within normal ranges. X-ray revealed an hypotransparency on the superior right lobe. Renal ultrasound was normal. The patient was admitted in the hospital with lobar pneumonia and acute glomerulonephritis and started ceftriaxone IV 100mg/kg/day. On the fifth day after admission amlodipine was initiated due to hypertension and proteinuria reached nephrotic levels (protein/creatinine ratio 3,4 mg/mg). Haemoculture was positive for Streptococcus pneumoniae serotype 18A. Cultures of urine and pharyngeal swabs were negative.
Learning Points/Discussion: Although pneumonia associated with acute glomerulonephritis is a rare condition, S. pneumoniae should be considered in the differential diagnosis of children presenting with fever and respiratory symptoms. The prognostic is usually excellent, with complete recovery in most cases and recurrency is rare.

PV0464 / #2462

CHOOSE THE RIGHT ANTIBIOTIC

E-Posters Viewing
E-POSTER VIEWING: AS07.B. UROGENITAL INFECTIONS

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Background: Introduction : Urinary tract infection occurs at all ages,occurring in the form of asymptomatic bacteriuria up to pyelonephritis. The cause is scarring kidney disease, which is one of the reasons for kidney failure in children.
Methods: Methods : Analyzed the results of the urine culture of patients aged 0-16 years . Objective: To determine the most common cause of urinary tract infections and their sensitivity to antibiotics.
Results: Results : Positive results of urine culture was 135.The leading cause E.coli 96 (71.1 %).Next Proteus spp.23 (9.62 %),Klebsiella 9(6.66 %)and 5 Enterococus (3 , 7 %).Other causes are Staphylococcus aureus and Pseudomonas to 1 positive result.Test the sensitivity of E. coli in the most used anti microbial therapy : the highest level of resistance to Ampicillin 86 (63.7 %) , the Bactrim 53 (39.2 %) .Cephalexin was 16 resistant (11.8%) and the same moderate sensitivs.On Cefotaxime was 9 (6.66 %) resistant , Amikacin were resistant only 2causal(1.48 %) , as well as pipemidic acid.On Gentamicin only 1 (0.74 %) . Ceftriaxon data are not valid, because the sample was not representative .
Conclusions/Learning Points: Conclusion: The main reason for the high resistance to Ampicillin and Bactrim , and a relatively high resistance to Cephalexin , probably a consequence of the widespread and irrational use of antibiotics . Low resistance to gentamicin confirms that this is the drug of choice for initial therapy of acute pyelonephritis . Cooperation between clinicians and microbiologists , as well as continuous monitoring of bacterial resistance,is the right time ,to the rational and proper antimicrobial therapy .

PV0465 / #1376

A CASE OF ACUTE DEMYELINATING ENCEPHALOMYELITIS (ADEM) ASSOCIATED WITH HUMAN BOCAVIRUS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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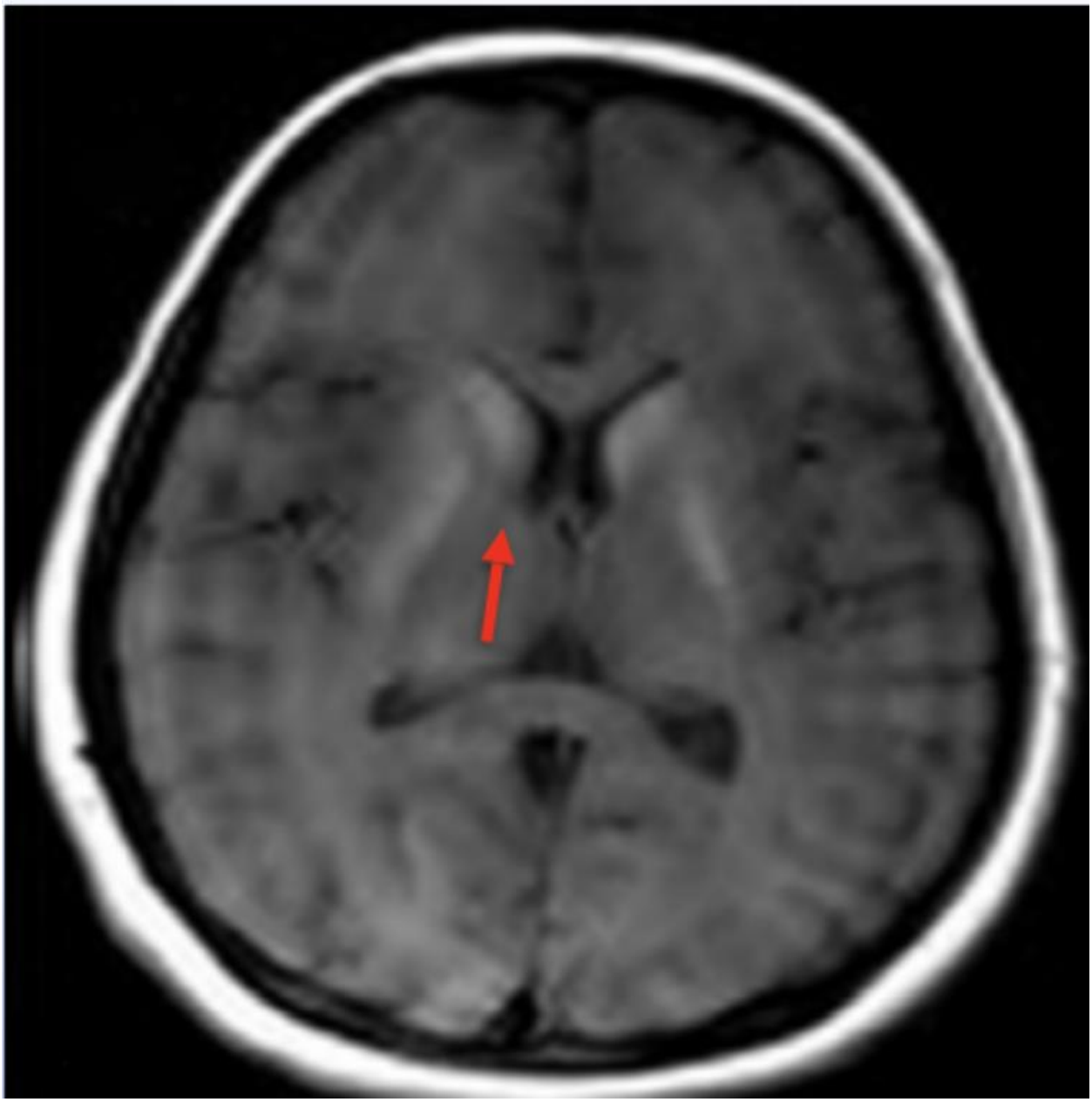
Title of Case: A Case of Acute Demyelinating Encephalomyelitis (ADEM) Associated with Human Bocavirus Infection
Background: Acute demyelinating encephalomyelitis (ADEM) is an immune-mediated central nervous system disease that is seen after a viral infection or vaccination and manifests as sudden neurological symptoms. A wide varity of viral infections are associated with ADEM, can also cause acute encephalitis. Here, a four-year-old patient diagnosed with ADEM secondary to Human Bocavirus (HboV) is presented.
Case Presentation Summary: A four-year-old girl was admitted to emergency room with fever and drowsiness. She had severe headache and vomiting for one month. On physical examination, she was lethargic with glasgow coma scale of 11. There was no signs of meningeal irritation. Lumbar puncture was perfomed. Cerebrospinal fluid (CSF) protein level was 37 mg/dL and glucose level was 52 mg/dL. Microscopic examination showed 60 leukocytes/mm3. Ceftriaxone and acyclovir therapies were started. CSF syndromic PCR panel was negative. HboV was positive in the respiratory tract PCR panel and CSF PCR. EEG showed bioelectrical disruption in both posterior regions. Cranial magnetic resonance image study showed changes in basal ganglia and corpus callosum, compatible with viral encephalitis (Figure 1).



In follow-up, her axial hypotonicity persisted, and the cranial imaging showed progression. Intravenous immunoglobulin and pulse steroid was started. Plasmapheresis was performed for the presumed diagnosis of ADEM. Following plasmapheresis, clinical condition improved rapidly. Her axial hypotonicity was completely resolved and cognitive functions became compatible with her age. The patient is still on outpatient without any sequelae

Learning Points/Discussion: Although HboV mainly cause respiratory tract infections and gastroenteritis, they may rarely present with other end-organ involvements. Since it is a virus that was only identified in 2005, the experience on end organ involvement and management is very limited.

PV0466 / #2160

AN UNCOMMON CAUSE OF BACTERIAL MENINGITIS IN A 3-MONTH-OLD INFANT

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: AN UNCOMMON CAUSE OF BACTERIAL MENINGITIS IN A 3-MONTH-OLD INFANT
Background: Bacterial meningitis represents an important cause of pediatric morbimortality, manifesting in a nonspecific way in infants. It's crucial that the diagnosis and antibiotherapy be carried out at an early stage.
Case Presentation Summary: Infant aged 3 months and 23 days, female. Perinatal history of maternal colonization by group B Streptococcus (GBS) with complete antibiotic prophylaxis and late prematurity. Brought to the emergency department due to moaning cry and irritability with 4 hours of evolution. The physical examination highlighted moaning cry and fever. In blood tests (BT) leucocytes (L) 11080/uL, neutrophils (N) 8400/uL, C-reactive protein (CRP) <5 mg/L, procalcitonin (PCT) 4,97 ng/mL, normal urine sediment and chest radiography. Cerebrospinal fluid with 3020 cells/uL, 98% of N, glucose <10 mg/dL, proteins 517 mg/dL. Started ceftriaxone and vancomycin. On D2 of admission, BT with L 12580/uL, N 7490/uL, CRP 126,2 mg/L and PCT 35,46 ng/mL. Urine culture was sterile and multisensitive Streptococcus agalactiae was isolated from CSF and blood culture, so vancomycin was suspended. She maintained fever until D5, with subsequent maintenance of apyrexia and improvement in general condition. Laboratory reassessment on D5 and D12 with normalization of inflammatory parameters. Normal transfontanellar ultrasound and bilateral pass in otoacoustic emissions. Discharge oriented to Pediatric consultation. An immunological study was performed, which was normal and maintained age-appropriate psychomotor development.
Learning Points/Discussion: We highlight a rare clinical entity which is very late onsept sepsis due to Streptococcus agalactiae complicated with bacterial meningitis. It should be noted that carrying out intrapartum prophylactic antibiotic therapy in maternal colonization by GBS only influences the reduction of early infection. Risk factors for late infection are still poorly understood, but prematurity is a well-established factor.

PV0467 / #533

INVASIVE MENINGOCOCCAL DISEASE IN BRAZIL IN THE ERA OF MENINGOCOCCAL C VACCINE.

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: Invasive meningococcal disease in Brazil in the era of Meningococcal C vaccine
Background: Background- In 2010 was included in the l Brazilian schedule a Meningococcal C conjugate vaccine for children We aim to report an experience with meningococcal disease
Case Presentation Summary: We have performed a retrospective study, through analysis of medical records and a database of exams, in patients under 18 years of ageadmitted with Meningococcal Diseases (MD) in the period from 2012 to 2018 in the Emilio Ribas Hospital We included 60 patients with confirmed meningococcal disease, 46/60 presented confirmation by specific laboratory criterion (RT-PCR, latex,or culture), 5/60 presented confirmation by nonspecific laboratory criterion (bacterioscopy), 8/60 by clinical criterion and 1/60 by epidemiological link. Seventy-four percent were serogroup C and 7.8% serogroup B. Six percent had the ACWY group identified in latex, without differentiation. Seventy-five percent of patients were admitted to the intensive care unit and the median stay was 3 days (1-48 days). Eighty-three percent had associated sepsis, 27% had a shock, 17% required orotracheal intubation, and 10% vasoactive drugs. Two patients died (lethality of 3.3%).21% (12/58) of patients were discharged with at least one sequela and 79% (46/58) of patients had a complete recovery. Five patients presented hearing loss (8.6%), four of them with altered audiometry. Three (5%) patients were discharged with arthralgia: t. One patient presented difficulty in walking referred after discharge, with an enlarged gait. One patient evolved with chronic non-evolutionary encephalopathy and another one with corneal opacity.
Learning Points/Discussion: In Brazil, most of the cases are due to N. meningitidis serogroup C even after the inclusion of the Meningococcal C vaccine in the public health system in Brazil. Follow-up of post-MD patients is essential to assess sequelae in these group

PV0468 / #1385

CASE OF INTRACRANIAL NEUROCYSTICERCOSIS

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

Sevgi Aslan Tuncay[1], Zeynep Ergenç[1], Seyhan Yılmaz[1], Burcu Parlak[1], Pınar Canizci Erdemli[1], Aylin Dizi Işık[1], Adnan Dağçınar[2], Eda Kepenekli[1]
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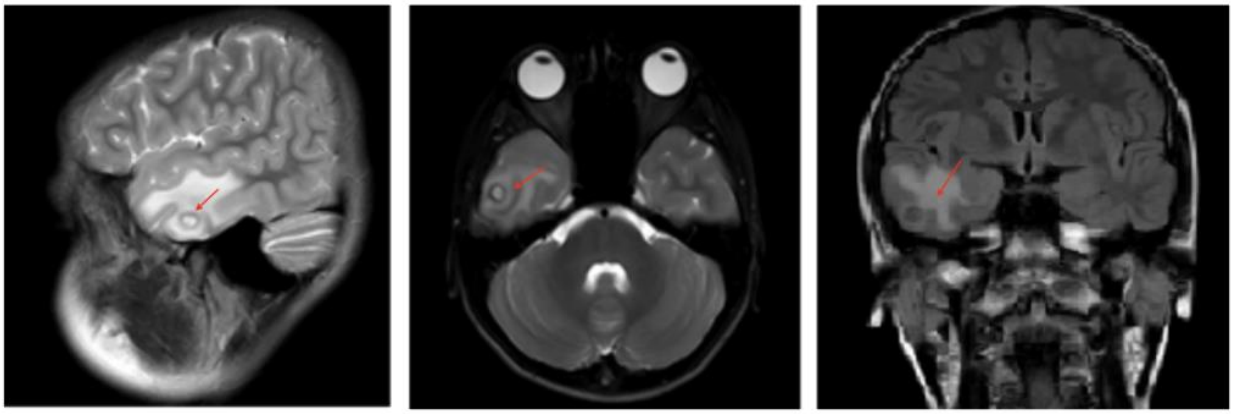
Title of Case: CASE OF INTRACRANIAL NEUROCYSTICERCOSIS
Background: Neurocysticercosis (NCC) is a central nervous system infection caused by the pig tapeworm, Taenia solium. It is one of the major causes of the seizures and neurologic abnormalities in children, especially in pork consuming countries. Here we present a case with NCC who operated with the presumed diagnosis of brain tumor.
Case Presentation Summary: An 11-year-old male patient admitted to another hospital with headache and dizziness. He was referred to our center with the suspicion of an intracranial mass that was detected in cranial MRI. The imaging studies showed a 6x8 mm lesion with peripheral contrast enhancement located in the right temporal region (Figure
1).



In the histopathological examination, there was an encapsulated tissue specimen. Absorbent disc-like structures were seen with PAS staining. These structures were consistent with Tenia solium larvae.In history, unknown parasites had been detected in his siblings with stool examination. Albendazole treatment was given to patient and his house-hold contacts. Entomeaboe histolytica and Giardia lamblia antigens were negative in stool examination. Serological tests were negative for human immunodeficiency virus (HIV), toxoplasmosis, echinococcosis, and brucellosis. MRI findings regressed in control imaging studies and albendazole was discontinued after completing ten days. He is still on follw-up without neurological problem and complaint.
Learning Points/Discussion: Although pork is consumed less in our country due to the Muslim population in the majority, neurocysticercosis should still be considered in patients with intracranial mass.

PV0469 / #2185

HEALTHCARE-ASSOCIATED VENTRICULITIS AND MENINGITIS (HAVM) IN CHILDREN, DO WE ALWAYS DO THE SAME?

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Healthcare-associated ventriculitis and meningitis (HAVM) represent a major complication in neurosurgical patients. Due to the lack of randomized studies addressing its management, usually clinicians follow recommendations base on expert opinions. Our aim was to describe a cohort of pediatric patients with HAVM in order to identify points for improvement, within a pediatric Antibiotic Stewardship Program.
Methods: Retrospective, descriptive and single-center study, including all pediatric (0-17 years) cases of HAVM defined by positive CSF culture, from January 2019 to September 2021. Epidemiological, clinical and laboratory data were collected from electronic medical history.
Results: 31 episodes were reported in 28 patients (17 male, median age 3 [IQR 0,7-11]y), most (28/31, 90%) occurred within 60 days after surgery. Common symptoms were fever (80.6%) and neurological dysfunction (45.2%). Blood tests showed leukocytosis (48.4%) and increased CRP (32.3%). CSF culture results: 22 Gram-positive cocci (15 coagulase-negative staphylococci), 9 Gram-negative rods (4 Klebsiella spp., 2 Pseudomonas spp.). Most empirical scheme included a third-generation cephalosporin (with or without antipseudomonal action) plus vancomycin. Twelve patients received intraventricular therapy (7 vancomycin, 5 amikacin). Device was removed in 28/31 episodes (24 at diagnosis).

Table 1. Age, device and underlying disease at presentation

Group of age (n=31 cases)	< 1 year: 9 cases (29%) 1-6 years: 10 cases (32.3%) 7-11 years: 7 cases (22.6%) 12-17 years: 5 cases (16.1%)
Device (n= 31 cases)	External ventricular drainage: 17 cases (54.9%) Ventriculoperitoneal shunt: 10 cases (32.3%) External ventricular drainage and ventriculoperitoneal shunt: 1 case (3.2%) External lumbar drainage: 1 case (3.2%) External subdural drainage: 1 case (3.2%) Permanent lumbar catheter: 1 case (3.2%)
Underlying disease (n= 28 patients)	Intraventricular hemorrhage due to prematurity (n=8) Pilocytic astrocytoma (n=4) Medulloblastoma (n=4) Other CNS tumors (n=4) Intracerebral hemorrhage (n=3) Arnold-Chiari malformation (n=2) Metabolic disease with hydrocephalus (n=1) Metabolic disease with lumbar catheter for drugs administration (n=1) Arachnoid cyst (n=1)

Conclusions/Learning Points: Remarkably, most episodes occurred early after the surgery, and device removal frequent as recommended. However, we observed some heterogeneity in the choice of empirical treatment, specially regarding to the antipseudomonal coverage and the addition of intraventricular therapy. More studies are needed to standardize the management of HAVM taking into account the particularities of the cases.

PV0470 / #851

CEREBROSPINAL FLUID SHUNT MALFUNCTIONS DUE TO INFECTION IN A TERTIARY LEVEL PAEDIATRIC HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Cerebrospinal fluid (CSF) shunts are the main treatment for hydrocephalus. Infection is reported as the etiology of 5-20% of shunt malfunctions, requiring antibiotic treatment and the removal of the device. The aim of this study was to describe demographic, analytical and microbiological characteristics of CSF shunt malfunctions caused by infection and compare them with mechanical malfunctions.
Methods: Observational retrospective study was conducted in paediatric patients (0-18 years) with CSF shunt malfunction admitted to a tertiary hospital in Barcelona (Spain) from January 2020 to December 2021. Infection was defined following Hydrocephalus Clinical Research Network criteria.
Results: Eighty-nine malfunction episodes were identified in 46 patients (63% male, median age 7.4 years [IQR 3.6-14]). Main causes of hydrocephalus were brain tumour (45%), intraventricular haemorrhage (IVH) in premature infants (22%) and meningitis (12%). Infection was present in 11 (12%) episodes and was more frequent in patients with hydrocephalus due to IVH (p=0.015). CSF culture was positive in all cases and S. epidermidis was the most frequent microorganism (60%). FilmArray® sepsis Panel (Biomerieux), conducted in 6 CSF samples, resulted negative in all. The median duration of antibiotic treatment was 13 days [IQR: 10-23]. Table 1 describes comparative variables between infectious malfunctions and mechanical malfunctions (results shown as n, % or median with interquartile range). Table 1.

	Infectious malfunction (n=11)	Mechanical malfunction (n=78)	p-value
Gender (males)	9 (82%)	46 (59%)	0.198
Background:			
• Prematurity	6 (55%)	14 (18%)	**0.015**
• Other causes	5 (45%)	64 (82%)	
PICU admission	9 (82%)	40 (51%)	0.103
Median PICU stay (days)	7 (1.2-150)	1 (0-2)	**0.003**
Median Hospital stay (days)	31 (22-180)	5 (2.5-12)	**<0.001**
Blood:			
• Leukocytes (/mm3)	8950 (6900-17600)	8250 (5900-10300)	0.314
• CRP (mg/l) (n=43)	57 (3-119)	2 (0-7)	**0.001**
• PCT (ng/ml) (n=17)	0.55 (0.03-2.03)	0.03 (0.02-0.07)	**0.014**
CSF:			
• Leukocytes (/mm3)	40 (6-280)	8 (3-30)	**0.022**
• Proteins (mg/dl)	112 (22-556)	29 (11-60)	**0.017**
• Glucose (mg/dl)	45 (14-61)	61 (56-67)	**0.031**

(PICU: Paediatric Intensive Care Unit; CRP: C-Reactive Protein; PCT: Procalcitonin; CSF: Cerebrospinal Fluid)

Conclusions/Learning Points: In our series, infection was identified in 12% of CSF shunt malfunctions and was more frequent in patients with history of prematurity. Statistically significant differences between the characteristics of the CSF and blood inflammatory biomarkers of the infectious and mechanical malfunctions were observed. Studies with larger samples are necessary to validate these results and to determine cut-off points suggestive of infectious shunt malfunctions.

PV0471 / #2159

ACUTE RHINOSINUSITIS COMPLICATIONS: STREPTOCOCCUS INTERMEDIUS AS PROTAGONIST

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Acute rhinosinusitis is a frequent complication of upper respiratory airway infections. Adequate clinical diagnosis and antibiotic treatment prevent further adverse outcomes, including orbital/intracranial complications and craniofacial osteomyelitis. We present a 17-patient trial describing complicated sinusitis, being majority orbital cellulitis followed by brain abscess, where principal responsible was Streptococcus intermedius, commensal in oral cavity and nasopharynx, related to higher mortality and longer hospital stay. Furthermore, it is being studied an increase in brain abscesses after SARS-CoV2 pandemic.
Methods: A descriptive observational trial, n=17 aged under 14. Data is gathered between 2017-2022 from medical records in Excel database. We studied demographic variables, symptoms, diagnosis, microbiology and antibiotic and surgical treatment.
Results: Peak age for onset was 9-12 years; 59% were male. Generally, the children were febrile (71%) and almost half added other nonspecific symptoms such as rhinorrhea, cough, headache or eyelid edema. Most common complication was orbital cellulitis, followed by brain abscess. Culture samples were obtained in all patients where surgical drainage was carried (41%), mostly isolating Streptococcus intermedius, followed by polymicrobial infection; 5.8% cultures were negative. In addition, 17,8% associated bacteremia, being once again Streptococcus Intermedius the main responsible. Over 80% had previously received oral antibiotics for bacterial sinusitis, usually amoxicillin clavulanate. Antimicrobial treatment after identifying complications varied between 2 to >4 weeks, depending on diagnosis and surgical drainage. Mono or multitherapy depended on cultures, and elected antibiotics had good penetration in central nervous system.
Conclusions/Learning Points: - Symptoms in complicated sinusitis can be unspecific, needing high level of suspicion. - We mostly isolated Streptococcus intermedius, as a cause of complications such as bacteremia and brain abscess. - Most patients required antibiotic multitherapy for a prolonged period of time, from two to four weeks.

PV0472 / #1045

DELAYED DIAGNOSIS OF HERPES SIMPLEX ENCEPHALITIS IN A 10-YEAR-OLD PATIENT WITH INTERMITTENTLY ASYMPTOMATIC APPEARANCE

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: DELAYED DIAGNOSIS OF HERPES SIMPLEX ENCEPHALITIS IN A 10-YEAR-OLD PATIENT WITH INTERMITTENTLY ASYMPTOMATIC APPEARANCE
Background: Infection with herpes simplex virus (HSV) can cause severe encephalitis including impaired consciousness, focal neurologic deficits and seizures. Immediate start of antiviral treatment is crucial for prognosis and neurological outcome.
Case Presentation Summary: We report a 10-year-old boy who presented to the emergency room after showing a bilateral tonic-clonic seizure along with elevated temperature, reported cough and frontal headache for 2 days. The seizure was followed by residual focal movements after the nasal administration of midazolam. Evidence of a primary focal seizure condition was found in the patient's history. Still, comprehensive diagnostic work-up including lumbar puncture and imaging was postponed given the patient's "stable" general condition with predominantly asymptomatic appearance, adequate reaction and lack of cognitive impairment. However, during the course of the hospital stay, the patient reported visual hallucinations and showed signs of disorientation and recurrence of focal motor seizures at day 3 of admission. Consequently, lumbar puncture and magnetic resonance imaging (MRI) was performed, revealing an elevated cell count and radiological signs of frontotemporal inflammation. Thus, intravenous antiviral treatment with aciclovir, antibiotic treatment with cefotaxime and clarithromycin and anti-inflammatory therapy using methylprednisolone was initiated. At discharge at day 27, the patient's clinical state had improved without signs of cognitive or motor impairment in line with decreasing cerebral edema in MRI. The diagnosis of encephalitis caused by HSV-1 was confirmed by polymerase chain reaction (PCR) in cerebrospinal fluid.
Learning Points/Discussion: Precise recording of patient's history is indispensable for correct differential diagnosis and consequent treatment. Additionally, thorough re-analysis in the first days of admission is essential. Herpes simplex encephalitis must be considered in events of focal seizures or focal neurologic deficits.

PV0473 / #1201

NEUROCYSTICEROSIS IN CHILDREN: A 13-YEAR RETROSPECTIVE REVIEW IN A PORTUGUESE TERTIARY-LEVEL HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: NEUROCYSTICEROSIS IN CHILDREN: A 13-YEAR RETROSPECTIVE REVIEW IN A PORTUGUESE TERTIARY-LEVEL HOSPITAL
Background: Neurocysticercosis (NCC) is a neglected tropical disease, representing one of the leading treatable causes of seizures in endemic areas. In Portugal is not a statutory notifiable disease. The aim of this study is to retrospectively review clinical features of paediatric patients (0-17 years old) with NCC,admitted to a tertiary-level hospital in Portugal over thirteen-year period (2010-2022).
Case Presentation Summary: Fifteen children were identified (median age 8 [4-14], 10/15 males). According to Del Brutto criteria,7/15 were considered definitive and 4/15 probable diagnosis.12/15 had a recent history of travel to an endemic area (Cape Verde and Guinea-Bissau). All patients presented with neurological symptoms, mostly seizures (13/15) and headache (5/15). Diagnosis was made by neuroimaging: 2/15 had viable lesion,11/15 single enhancing lesion (SEL) and 5/15 calcification. No serological serum studies or parasitological examination of feces was positive. Patients with more than a lesion (n=3) were treated with anthelmintics and corticosteroid therapy. 9/15 patients with viable lesion or SEL did not receive treatment. Patients with seizures were treated with antiepileptic drug. On clinical follow-up at six months,only one patient had symptoms (seizures).The median time for repeating image was six months and all showed improved lesions,7/10 being calcified.
Learning Points/Discussion: NCC can cause preventable severe neurologic disease. Treatment with anthelmintic and corticosteroid therapy is crucial to improve prognosis. OMS (2021) suggests new guidelines for treatment of patients with viable lesion or SEL that we should apply in the future. Our cases were mainly imported from endemic regions,but local transmission also occurred,probably in the setting of a tapeworm carrier in the household. Indeed,NCC is an important public health problem that should not be neglected also in developed countries.

PV0474 / #863

INFECTIOUS ENCEPHALITIS IN THE PEDIATRIC POPULATION: EPIDEMIOLOGICAL, CLINICAL AND MICROBIOLOGICAL CHARACTERISTICS.

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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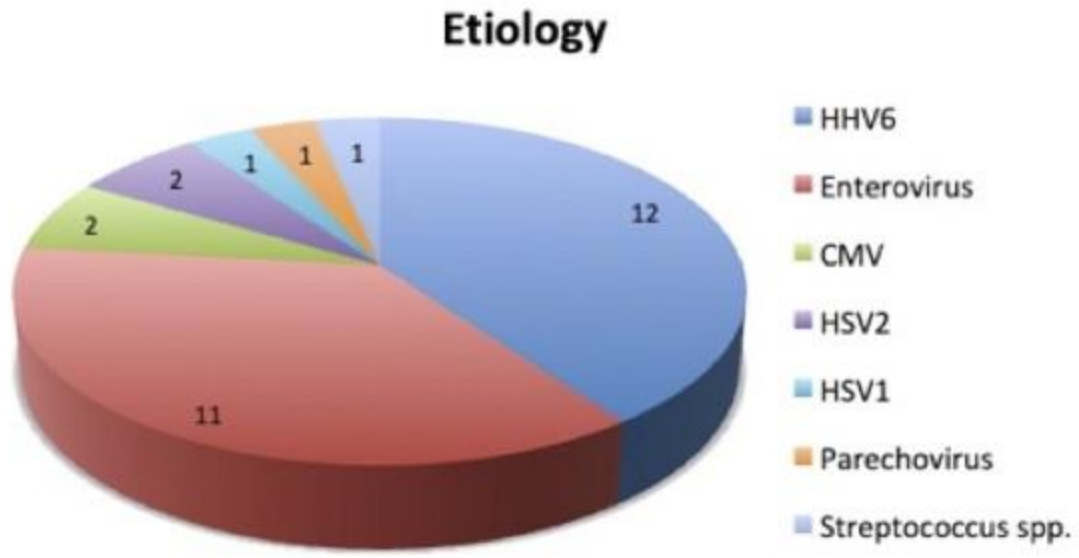
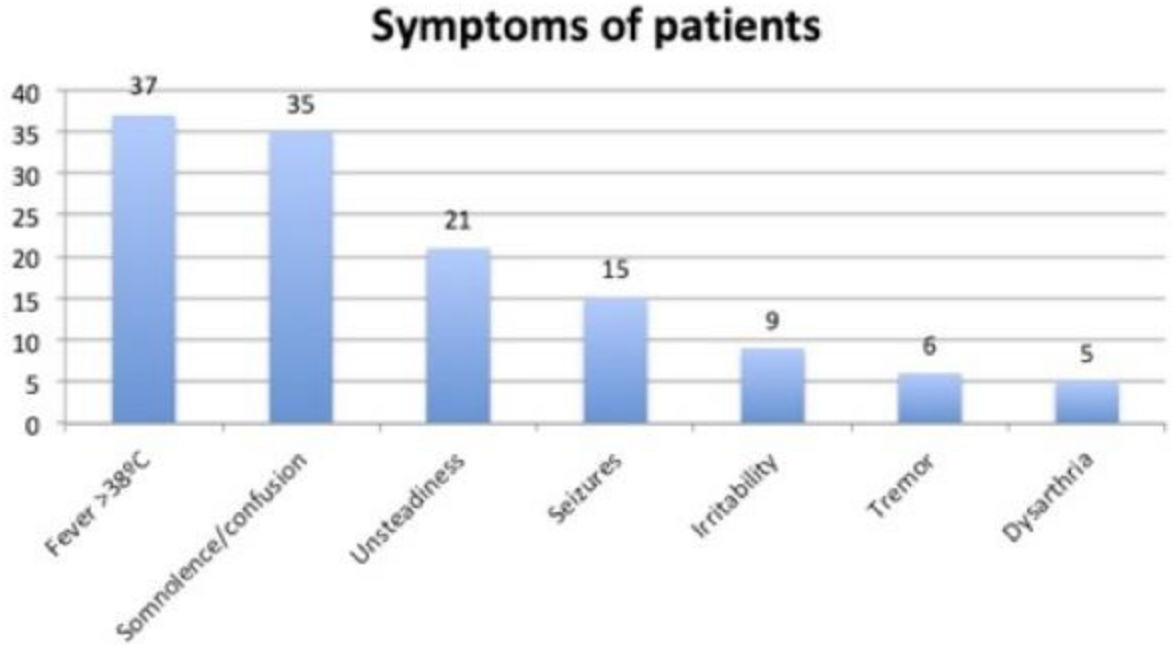
Backgrounds: Encephalitis is an infrequent pathology. Infectious and non-infectious origin should be considered, with viruses standing out among the infectious agents. Our objective is to describe the prevalence and characteristics of encephalitis and meningoencephalitis in children in a tertiary pediatric hospital.
Methods: Retrospective descriptive observational study, including only immunocompetent patients <15 years of age, with microbiological confirmed (meningo)encephalitis, admitted to a tertiary hospital, between 2012-2022. To define (meningo)encephalitis we used Granerod J. (2010) criteria.
Results: Thirty-nine patients were included, 18 diagnosed with meningoencephalitis and 21 with encephalitis. The median age was 3.2 years (IQR 19 months-4.5 years), 59% male. Regarding etiology, all cases were sporadic except 5: 3 associated with an outbreak of enterovirus A71 occurring in 2016 and 2 with an outbreak of HHV6 in 2019 (Figure 1A). Symptoms are shown in Figure 1B. Admission to PICU was required in 56.4%, with a median stay of 3 days (IQR 1-6 days). Electroencephalogram (EEG) abnormalities were observed in 25/37 (67.5%) and abnormal magnetic resonance imaging (MRI) in 17/25 (68%). Computed tomography detected findings in only 9/31 (29%) patients. Acyclovir was started in 94.8% of cases, associated with antibiotics (70%), and changed to ganciclovir in 12.8%. Steroids were co-administered in 13 (33.3%) and gammaglobulin in 8 (20.5%). No patient died. Long-term sequelae, such as hemiparesis, dysphagia, aphasia or spastic paresis were present in 10% of cases.



A. Etiology of cases of encephalitis



B. Symptoms of cases of encephalitis

Conclusions/Learning Points: Encephalitis affects mainly preschool infants, with nonspecific clinical manifestations and high morbidity. Therefore, a high index of suspicion is capital. As described in the literature, viral etiology is the most frequent (mainly HHV6 and enterovirus) and EEG and brain MRI are the tests with the highest diagnostic yield.

PV0475 / #967

PAEDIATRIC INTRACRANIAL ABSCESSES: 13 YEARS OF EXPERIENCE ON AN INFREQUENT BUT SERIOUS DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Intracranial abscesses (IA) are an uncommon infection that may cause sequelae or death if not recognised and treated promptly, frequently requiring neurosurgery and long antibiotic courses.
Methods: Retrospective study in children <14 years-old diagnosed with IA in a tertiary paediatric hospital between 2010-2022. Descriptive analysis of clinical, microbiological and treatment variables, and logistic regression of risk factors for adverse outcomes were performed.
Results: 31 patients, 61.3% male, median age 59 months (IQR=124). Main presenting symptoms were fever (87.1%), headache (45.16%) and focal neurologic deficit (41.94%). Mean days of symptoms before diagnosis was 8 (SD= 5); only 19.35% had the classical triad. 9.68% were premature; 6.45% immunosuppressed; 6.45% had congenital heart disease; 6.45% ventriculoperitoneal shunt; 3.23% neural tube defect. 32.26% had sinusitis, 22.58% mastoiditis and 22.58% meningitis. The most frequent location was frontal (64.52%) and 48.39% had multiple abscesses. 23/31 (74.19%) had microbiological isolates. Main single isolates were Streptococcus spp. (11/23, 47.83%) including 7/11 (63.63%) viridans-group-streptococci. 6/23 (26.09%) had Gram-negative-bacilli, 4/23 (17.39%) anaerobes, 2/23 (8.69%) C. albicans and 1/23 (4.35%) P. anaerobius. 3/23 (13.04%) were polymicrobial, 3/3 (100%) anaerobes and 2/3 (66.66%) viridans-group-streptococci. 77.4% required neurosurgery. 16 different empirical antimicrobial therapies were used, mainly (45.16%) cefotaxime+vancomycin+metronidazole. Antibiotics were changed in 58.06%. The median duration of treatment was 30 days (IQR=23). 51.61% of patients had sequelae, mainly cerebral palsy, epilepsy, and hydrocephalus; one patient (3.23%) died. Risk factors for adverse outcomes were meningitis (p=0.023), multiple abscesses (p=0.008) and focal deficit (p=0.008), the latter being the only significant factor after logistic regression (OR 42.81; 95%CI 2.58-708.53; p=0.009).
Conclusions/Learning Points: -Empirical treatments were diverse; coverage for Gram-positives, Gram-negatives and anaerobes is necessary. -Most patients had adverse outcomes; multiple abscesses, meningitis, and focal deficit were the main risk factors.

PV0476 / #1792

INVASIVE GROUP A STREPTOCOCCUS AND OUTCOMES OF PYOGENIC INTRACRANIAL COMPLICATIONS: A CASE SERIES FROM A LARGE QUATERNARY PAEDIATRIC NEUROSURGICAL CENTRE IN THE UNITED KINGDOM.

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Invasive Group A Streptococcal (iGAS) disease is associated with a high rate of morbidity and mortality. High income countries have reported incidences of 2-4 cases per 100,000 population per year; and case fatality rates of ~15-20%. Central nervous system (CNS) involvement is rare, accounting for only 0.2-1% of all childhood bacterial meningitis. In 2022 a significant rise in scarlet fever and iGAS was noted globally with a displacement of serotype causing a predominance of emm type 1.0
Methods: Retrospective review of a prospectively collected electronic departmental database identified patients in 2022. Further demographic and microbiological information obtained from electronic patient records and laboratory management systems.
Results: We identified 5 patients over a 2-month period between November and December 2022 with intracranial Group A Streptococcus infection. Prior to this cluster, we reported only two cases in the prior two years. All patients had preceding illnesses including chicken pox, and upper respiratory tract infections. Intracranial pathology varied; three patients had subdural empyema secondary to sinusitis; 1 patient had primary meningitis; 1 patient had an extradural empyema secondary to mastoiditis. Four patients (80%) cultured Streptococcus pyogenes of which 2 (50%) were emm 1.0 subtype. One patient was positive only on specific Group A Streptococcus PCR. Antimicrobial therapy in all patients included a third-generation cephalosporin, often including a toxin synthesis inhibitor antibiotic such as clindamycin. Neurological outcomes varied; 3 patients returned to near neurological baseline; 1 patient had significant residual neurological deficits; 1 patient died.
Conclusions/Learning Points: Despite the worldwide increased incidence, intracranial complications remain rarely reported resulting in a lack of awareness of iGAS-related intracranial disease. Awareness and prompt referral to a paediatric neurology/neurosurgical/infection team is crucial to optimise neurological outcomes.

PV0477 / #1763

COMPARISON OF ENDOSCOPIC SINUS SAMPLING VERSUS INTRACRANIAL SAMPLING FOR MICROBIOLOGICAL DIAGNOSIS OF SUBDURAL EMPYEMAS IN CHILDREN: A CASE SERIES AND LITERATURE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Subdural empyemas are often associated with contiguous sinus infection, with Streptococcus intermedius being the most common pathogen. Microbiological diagnosis is possible either via sinus or transcranial sampling. A sinus approach is minimally invasive, however the sensitivity and specificity for identifying the organism causing intracranial infection are unclear. This information is key to assessing its utility in optimising antimicrobial therapy and avoidance of intracranial surgery
Methods: Retrospective review of a prospectively collected electronic departmental database identified patients between 2019-2022. Further demographic and microbiological information obtained from electronic patient records and laboratory management systems.
Results: Twenty-eight patients were identified with intracranial empyema and sinus involvement during the 3-year period. Median age of onset was 10 years with a slight male predominance (57%). All patients had intracranial sampling;14 patients undergoing additional sinus sampling. Only 1 patient (7%) had the same organism(s) grown from both samples. Streptococcus intermedius was the most common pathogen. Eight patients (29%) had mixed growth and 65% of samples undergoing bacterial PCR identified additional organisms. Sinus samples had a significant addition of nasal flora and Staphylococcus aureus. Of concern, 9/14 (64%) of sinus samples missed the main pathogen compared to intracranial culture with additional PCR. Literature review identified 21 papers where sinus drainage was used to treat subdural empyema, with only 6 papers reporting concurrent microbiology results. It confirmed ours to be the largest comparative study and no paper reported greater than 50% concordance in microbiological diagnoses.
Conclusions/Learning Points: Endoscopic sinus surgery may have therapeutic benefit, but it is not an appropriate approach for microbiological diagnosis in paediatric subdural empyemas. High rates of contaminating nasal flora can lead to misdiagnosis and inappropriate treatment. Routine addition of 16S rRNA PCR to intracranial samples is recommended.

PV0478 / #792

PREDICTORS OF OMICRON VARIANT ASSOCIATED ENCEPHALITIS/ACUTE ENCEPHALOPATHY IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: The outbreak of COVID-19, Omicron BA.2 variant, pandemic in Taiwan is ongoing since April, 2022. Rapid increase in COVID-19 pediatric cases and associated hospitalization were noticed. Encephalitis/acute encephalopathy, an uncommon but serious neurological complication in children, has been reported in several countries. The disease course of acute encephalitis could be benign with spontaneous resolution or rapidly progressed and even fatal. The mechanism of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)induced encephalitis was possibly due to direct virus invasion, indirect immune-mediated inflammatory effect or both. We would like to describe the COVID-19 neurological presentation in children and explore the clinical factors to predict severe neurological complications and associated ICU admission.
Methods: Pediatric inpatients (age ≤ 18 years) with confirmed SARS-CoV-2 infection within one week before admission at Chang Gung Memorial Hospital, Linkou or Kaohsiung branch from April to August 2022, were prospectively enrolled. Demographic description, clinical manifestations and laboratory data were collected. The definition of encephalitis and acute encephalopathy was based on International Encephalitis Consortium definition, Brighton criteria and current consensus.
Results: Of 328 patients (188 [57.3%] male; median [IQR] age 21 [6.2-54.8] months), 98 (29.9%) had neurological symptoms including 38 (38.8%) febrile convulsion, 38 (38.8%) encephalitis/acute encephalopathy, 30 (30.6%) headache/dizziness. The common symptoms of encephalitis/acute encephalopathy were fever (97.3%), seizure (52.6%), and impaired consciousness (36.8%); 12 (31.6%) developed life-threatening conditions, required ICU care. The independent predicted risk factors for encephalitis/acute encephalopathy associated ICU admission were absolute neutrophil count (ANC) ≥ 3500mm^3/L and procalcitonin (PCT) ≥ 0.7ng/mL.
Conclusions/Learning Points: The combination of demographic data and biomarkers could assist physicians to identify children with COVID-19 infection at high risk for encephalitis/acute encephalopathy associated ICU admission.

PV0479 / #587

POTENTIALLY LETHAL INTRACRANIAL COMPLICATIONS OF OTITIS MEDIA

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: ATYPICAL ACUTE MASTOIDITIS AND INTRACRANIAL ABSCESSES COMPLICATING ACUTE OTITIS MEDIA
Background: Antibiotics have produced an overall decline in the frequency of complications of acute otitis media (AOM) relative to the pre-antibiotic era. However, severe intracranial complications (ICCs) still occur and their clinical picture has changed with the advent of antibiotics. A delay in their recognition may result in morbidity and mortality.
Case Presentation Summary: We admitted a 5-year-old girl with fever, severe pain of the right ear, treated with two-day course of intamuscular ceftriaxone. Due to worsening general condition and elevated C-reactive protein (80 mg/L), she was admitted to our hospital. On admission the girl was dehydrated ,with clinical findings of right AOM. There were no clinical signs of acute mastoiditis and her neurological examination was unremarkable. Cefotaxime was administered for AOM. On the third day of treatment, the fever continued and C-reactive protein remained elevated (175 mg/L). Vancomycin was added to her treatment. On the fifth day of her therapy, the girl complained for headache localized on the right frontotemporal area. Brain CT scan showed right mastoiditis, right temporofrontal epidural abscess and a small subdural collection in the right frontal region. Cefotaxime was switched to meropenem and the girl was referred to the Neurosurgeons and Ear Nose Throat(ENT) specialists. A second CT scan was performed a week after switching to meropenem and it showed a brain abscess formation on the right temporal lobe. Craniotomy and abscess drainage along with mastoidectomy with ventilation drainage of the right ear was then performed. She continued with meropenem and linezolid and she fully recovered.Her immunology profile was normal.
Learning Points/Discussion: Intracranial complications of AOM, although uncommon, still occur despite appropriate antibacterial treatment and require expensive and long-term inpatient treatment.

PV0480 / #107

MANAGEMENT OF INFANT BOTULISM IN SINGAPORE

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: MANAGEMENT OF INFANT BOTULISM IN SINGAPORE
Background: Infant botulism caused by Clostridium botulinum is a rare and potentially lethal condition affecting children < 1-year-old. Treatment with Human Botulism Immune Globulin Intravenous (BIG-IV) had been shown to accelerate the neurological recovery but this is expensive and difficult to obtain outside USA. We present our clinical experience in managing infant botulism from 2000-2022, including the use of Heptavalent Botulinum Antitoxin (HBAT).
Case Presentation Summary: Four infants (median age: 5.5 month, IQR: 3.5-8.3) were diagnosed with infant botulism. Only 2 infants had a history of honey ingestion. All infants presented with lethargy, poor feeding and symmetrical acute flaccid paralysis (AFP). Stool Clostridium botulinum were positive in all cases (2 with toxin A&B, 2 with toxin B&F). Invasive mechanical ventilation was required in 3 infants. Two infants were treated with BIG-IV; other 2 infants were treated with HBAT. BIG-IV and HBAT were started at a mean of 17 (SD: 8.5) and 6 days (SD: 1.4) from symptom onset, respectively. The mean duration of intensive care admission for those treated with BIG-IV and HBAT were 11.5 (SD: 4.9) and 9.5 (SD: 2.1) days, respectively. The mean duration of hospital admission for those treated with BIG-IV and HBAT were 26.0 (SD: 8.5) and 20.0 (SD: 2.8) days, respectively. Infants who received HBAT reported no side effects, similar to those who received BIG-IV. All patients recovered well without long term sequelae.
Learning Points/Discussion: Diagnosis of infant botulism should be considered in infants presenting with non-specific symptoms and AFP, even in the absence of honey ingestion. Our experience suggests that HBAT is safe and can be considered as an alternative treatment option, although it is not currently licensed for use in infant botulism.

PV0481 / #119

ETIOLOGY AND CLINICAL FEATURES OF ENCEPHALITIS IN KOREAN CHILDREN – A RETROSPECTIVE SINGLE CENTER STUDY, 2005-2020

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Encephalitis usually develops in childhood, and early diagnosis and targeted treatment can affect better prognosis. However, in most cases the cause is still unknown. We investigated the etiology of encephalitis in Korean children. We also explored the clinical features and prognosis according to the etiology.
Methods: This retrospective study was conducted between 2005 and 2020 at Severance Children's Hospital. For the diagnosis of encephalitis, we used the 2013 International Encephalitis Consortium (ICS) criteria. In the evaluation of causality between encephalitis and the causative pathogen, a proven/probable case was defined as a case when a cause was confirmed in a CNS specimen or a well-known antibody for autoimmune encephalitis (AIE) was detected. Neurological sequelae were categorized by modified Rankin Scale (mRS) score.
Results: A total of 555 children were included. The median age was 6.3 years (range, 0-14 years). By diagnostic grade of encephalitis, 7% were possible, 77% probable, and 15% proven. At least one pathogen was identified in 42% (n=222). Viruses were the most common at 42%, bacteria at 38%, and AIE at 12%. When restricted to proven/probable pathogens (n=65), bacteria accounted for 52%, viruses 25% and AIE 22%. In order of single pathogen, NDMA (N-methyl-D-aspartate) receptor autoantibody (n=14), GBS (n=13), HSV (n=11), and Enterovirus (n=4) were commonly identified. About 37% of patients at discharge had sequelae of mRS ≥2, but there was no difference in prognosis according to the etiology.
Conclusions/Learning Points: This is the largest epidemiology study on pediatric encephalitis in Korea. As the cause of pediatric encephalitis, not only infection but also AIE account for a significant portion, so efforts are needed for early diagnosis and targeted treatment.

PV0482 / #2208

BETTER DIAGNOSTIC TESTS ARE NEEDED TO GUIDE EMPIRICAL ANTIBIOTIC TREATMENT IN CHILDREN WITH CNS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Central nervous system infections in children present a diagnostic challenge. The rapid evolution of the disease and potential sequelae call for prompt broad-spectrum antimicrobial treatment even before the aetiology is confirmed.
Methods: Review of 6313 entries of children <18 years enrolled in PERFORM BIVA-ED study between 2016-2021 identifying those with a diagnosis “meningitis”, “encephalitis” or “brain abscess”.
Results: There were 202 cases, 87 female, 115 male with median age: 4.04 (range: 0-17.5) years. 58.9% appeared ill at the time of presentation and 22,8% required lifesaving interventions. One hundred and thirty-five (66.8%) were admitted to ward, 75 (37.1%) to PICU - 44 from ED and 31 later. Six children (3%) died. Bacterial pathogens were identified from any microbiological sample in 74 (36.6%) cases and viral in 116 (57.4%). Thirty (14.9%) children had a bacterial-viral coinfection. The commonly identified bacteria were Neisseria meningitidis (N=15), Streptococcus pneumoniae (N=14), Escherichia coli (N=8), Borrelia burgdorferi (6). The main viruses were enterovirus (N=67), adenovirus (N=16), and tick-borne encephalitis virus (N=8). A phenotype was assigned according to the likelihood for bacterial/viral/inflammatory condition: 63 (31.2%) had phenotypes related to bacterial infection, 105 (52%) phenotypes related to viral infection, 23 (11.4%) unknown bacterial or viral, 7 (3.5%) uncertain infection or inflammation, 2 (1%) inflammatory syndrome, 1 (0.5%) other infection. Thirty-two (15.8%) patients had received antibiotic treatment in the last 7 days before presentation and 159 (78.7%) were given new antimicrobial treatment during admission.
Conclusions/Learning Points: The majority of children presenting with CNS infections are prescribed antibiotics, despite only about a third having a bacteria-related phenotype. Better diagnostic tests are needed to optimise the use of antibiotics in this group of patients. Funding: EU H2020, GA No 66830.

PV0483 / #1111

ACUTE SEVERE HEADACHE IN A 6-YEAR OLD BOY

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: Acute severe headache in a 6-year old boy
Background: A 6-yr old presented to our ED in late summer due to a severe headache of 24-hrs duration. Multiple doses of paracetamol orally offered no relief. No vomiting or fever. The boy had complained of chronic rhinitis and recently had two small abscesses in his ear canal.
Case Presentation Summary: When admitted, he complained of a headache 8/10 VAS, had slight photophobia and bilateral conjunctivitis. His nasal pasages were congested and signs of inflammation were seen in the right ear canal. Meningeal signs were negative and no abnormal signs on the neurologic exam were noted.He became febrile (38,7°C) with a CRP of 38 - mg/L and slightly elevated leukocyte count. A head CT showed bilateral sphenoid sinusitis. Treatment was started with amoxicilin and clavulanic acid. No clinical improvement was apparent after 24 hours. A further elevation in CRP was noted (max 136 mg/L). Oedema of the eyelids and nose developed. The headache did not improve. Analgesics were needed regularly and in high doses (ibuprofen, metamisole). MRI showed significant eyelid and facial edema and bilateral sphenoid sinusitis with progression to the right ethmoid sinus. No venous thrombosis or orbital cellulitis was seen.
Learning Points/Discussion: Staphylococcus aureus was isolated from BC. Treatment with flucloxacillin, cefotaxime, and metronidazole was started. One dose of prednisone was given to reduce inflammation. Treatment with nasal corticosteroids was also prescribed. He became afebrile and his condition improved after 24h. ENT specialists were consulted and suction of the sphenoid sinus was performed. A sample grew Staphylococcus aureus, resistant to penicillin, sensitive to oxacilin, vacomycin, erithromycin, clindamycin, gentamicin, rifamycin and trimethoprin and sulphametoxazole.Three tier antibiotic treatment was continued for 14 days. Treatment with flucloxacilin was continued until day 21.

PV0484 / #2478

INHERITED CHROMOSOMALLY INTEGRATED HUMAN HERPESVIRUS 6 – A CLINICAL CASE DEPICTING THE DIAGNOSTIC APPROACH

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: Inherited chromosomally integrated human herpesvirus 6 – a clinical case depicting the diagnostic approach
Background: Human herpesvirus 6 (HHV-6) has the unique ability to integrate its entire genome into human telomeres, including in the gametes. This enables him to be vertically transmitted in the form of inherited chromosomally integrated HHV-6 (iciHHV-6). We present the process which allowed us to diagnose iciHHV-6B in a neonate.
Case Presentation Summary: A neonate was admitted in neonatalogy on 1st day of life (DOL) for pyrexia, tremulations, and irritability, without neonatal infectious risk factors. The biology showed an elevated CRP without hyperleukocytosis and the lumbar puncture revealed a pleiocytosis with atypical formula (mostly monocytic and lymphocytic). Initial treatment with aciclovir and broad-spectrum antibiotics was administered, with a favorable evolution. On DOL5, the multiplex PCR assay for meningoencephalitis (ME) performed on the CSF was positive for HHV-6B, and was confirmed by a quantitative PCR. A shift from aciclovir to ganciclovir was performed. EEG and transfontanellar ultrasound showed no abnormality. Later, the child's blood qPCR revealed >10^6 copies/ml of HHV-6B DNA. This was strongly suggestive of iciHHV-6B and motivated the interruption of ganciclovir administration. Finally, qPCR >10^6copies/ml in the father's and the child's blood at 1 month of life confirmed this diagnosis.
Learning Points/Discussion: The detection of HHV-6 can be explained by congenital transmission (iciHHV-6 or transplacental infection in neonatal period) or acquired infection. Chromosomal integration in the form of iciHHV-6 is very common (~1% of the general population), however it is widely unknown by clinicians. Incidental detections of HHV-6 are becoming more frequent due to increased use of multiplex PCR assay ME.
Our case illustrates the difficulty to distinguish between iciHHV-6 and active infection, which can result in misdiagnosis and inappropriate treatments.

PV0485 / #1148

LONG-TERM CONSEQUENCES OF PARECHOVIRUS ENCEPHALITIS IN A NEONATE

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: LONG-TERM CONSEQUENCES OF PARECHOVIRUS ENCEPHALITIS IN A NEONATE
Background: Parechovirus is a rare cause of neuroinfections in children, but complications of this infection may be devastating. We report a case of a neonate with encephalitis caused by parechovirus who developed serious long-term sequelae.
Case Presentation Summary: A previously healthy, term, 19-day-old newborn was admitted because of poor feeding, diarrhea and fever. He was restless and crying on admission. On examination nystagmus and yellowish pale skin were noticed. His fontanelles were normal. Initial lab tests showed low CRP and low procalcitonin levels. The next day he developed seizures and apnea. Blood and stool samples were collected for cultures and metabolic panels. He received treatment with ampicillin, gentamicin, aciclovir and phenobarbital. The first CSF examination revealed pleocytosis of 3 cells/µL. Due to recurrent episodes of seizures and apnea, the boy was transmitted to intensive care, intubated and ventilated. Repeated CSF examination revealed pleocytosis of 12 cells/µL and the presence of parechovirus RNA in the CSF sample. Metabolic disorders were excluded. Dexamethasone and mannitol were added to the therapy. Initial head MRI and ultrasound were normal. After eight days of ICU treatment the boy was transferred to the PID department, fully recovered showing no symptoms, and eventually was discharged home after 15 days of hospital stay. On follow-up he revealed signs of significant developmental delay. His head and brain MRI scans done two and six months after the infection showed progressive brain atrophy.
Learning Points/Discussion: Although parechovirus is a rare cause of CNS infections, the disease might be devastating and should be considered in differential diagnosis. Normal CSF cytosis does not rule out encephalitis. Patients with neuroinfections may develop long-term complications that cannot be overlooked.

PV0486 / #2103

NEURODEVELOPMENTAL DISABILITY AFTER MENINGITIS – A CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Meningitis, although mild and self-limited in most cases, can lead to significant morbidity in up to 20% of cases, especially if bacterial. As of today, there are no consensus in published literature regarding a routine follow-up appointment aimed at detecting neuropsychiatric or developmental disabilities. The aim of this study was to assess clinical outcome following an episode of meningitis and evaluate the need for such a formal evaluation.
Methods: Single center, 8-year, retrospective cohort study of children admitted for meningitis.
Results: During this period, there was a total of 64 patients, median age of 6 years old (IQR 4,3-9). Aseptic meningitis accounted for 39.1% of cases. The remainder were 14% bacterial and 46.9% viral. The most frequent viral and bacterial pathogens isolated were Enterovirus (96.6%) and Neisseria meningitidis (55.5%), respectively. 34.4% of patients underwent antibiotic therapy. No deaths were reported. 7.8% of children had neurodevelopmental delay prior to the episode. Among those with isolated pathogens, there were 25.6% of children that developed neurological, developmental or psychiatric impartment: behavioral disorder (3), attention deficit-hyperactivity disorder (3), reading and writing disorder (2), chronic headache (2), speech delay (1) and intellectual disability (1).
Conclusions/Learning Points: In our study, there were no severe neurological complications nor sequelae. However, 25.6% developed disabilities that can affect daily life after contracting meningitis. As such, monitoring of neurological and psychiatric development of these patients should be recommended, even in mild cases, for early assessment and intervention.

PV0487 / #2663

A RARE CASE OF PAEDIATRIC INVASIVE DISEASE DUE TO HAEMOPHILUS INFLUENZAE SEROGROUP A

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: A RARE CASE OF PAEDIATRIC INVASIVE DISEASE DUE TO HAEMOPHILUS INFLUENZAE SEROGROUP A
Background: Invasive disease is a serious condition that can cause severe morbidity and mortality in infants. Haemophilus influenzae (Hi) is among the causative pathogens, typically serogroup b (Hib), but the serogroup a (Hia) currently emerging is being recognized as a cause in the post-vaccinal era, especially in young children.
Case Presentation Summary: We report a 6-month-old boy who presented to the emergency room (ER) with a 3-day history of fever, nasal drip and cough. During his ER stay, he developed lethargy and a bulging fontanel. Initial blood work showed leukopenia and an elevated C reactive protein (127 mg/L). The liquor revealed pleocytosis (3 509 cells/uL), low glucose and high protein count, consistent with bacterial meningitis. Further investigations, including blood and liquor cultures, were performed. Both cultures were positive for Hia. Additional testing of both liquor and nasal secretions were positive for adenovirus coinfection. The patient was initiated on a 10-day course of ceftriaxone (100 mg/kg/day), which led to significant clinical improvement.
Learning Points/Discussion: This case highlights the importance of considering Hi as a potential pathogen in invasive disease, and the need to also consider viral coinfections. In this case, the adenovirus coinfection may have contributed to the patient's disease severity. Clinicians should be aware of the emerging Hi non-b serogroups that can cause invasive disease and are not covered by the current immunisation programs. This can have implications in future vaccine development.

PV0488 / #1669

INVASIVE MENINGOCOCCAL DISEASE (IMD): THERAPEUTIC APPROACHES AND OUTCOMES DURING 2010-2020 IN GREECE

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Despite progress in the management of IMD, it remains a severe disease with a case fatality rate of 3%-7% and a high risk of neurological sequelae (16%-50%). Although the use of dexamethasone has shown to reduce complications in IMD, this remains controversial. The aim is to analyze data on therapeutic approaches and outcomes in children with IMD in Greece (2010-2020).
Methods: Medical records from IMD cases aged 0-15 years were retrospectively analyzed.
Results: Among the 123 IMD confirmed cases, medical files of 63 cases (51.2%) were available. Age ranged between 22 days - 15 years old (median=36 months). Discharge diagnosis included meningitis (46%), meningitis and septicemia (38%) and septicemia (16%). Most patients (96.8%) received treatment with 3rd generation cephalosporin, while 33.32% received combination treatment (glycopeptides, aminoglycoside and ampicillin). Treatment duration was 1-15days (median=8d), hospitalization length was 1-44 days (median=9 d), while, 37.1% were admitted to ICU. Upon discharge, 14.5% (9/62) suffered complications including: (a) neurological complications (4/9) ; (mild walking imbalance (1/4), strabismus, dorsal imbalance, head, speech and movement difficulties (1/4)), walking imbalance and abducens nerve palsy (1/4), speech impairment (1/4)) (b) skin and soft tissue impairment 4/9 (c) Hearing impairment (1/9). Overall, 31 (49.2%) received corticosteroids: dexamethasone (26), methylprednisolone (1) and hydrocortisone (4). Case fatality rate was 4.8%. Analysis showed that there is a trend on reduction on the neurological complications risk by the use of corticosteroids in patients >2 months old (3.2% vs 12%, P=0.3).
Conclusions/Learning Points: Overall, 14.5% (9/62) IMD patients suffered complications, case fatality rate was 4,8%. Dexamethasone patients presented a trend towards less neurologic complications, however more studies are necessary towards robust conclusions.

PV0489 / #139

PRESENTATION OF BACTERIAL MENINGITIS IN CHILDREN BY AGE GROUPS

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Children are at greater risk from getting bacterial meningitis especially young ages.
Methods: This prospective study included children diagnosed with bacterial meningitis and treated at the Clinic for Infectious diseases in Prishtina during years 2018-2019. There were 21 infants (group 1), 16 older >1 – 6 years (group 2) and 17 older >6-16 years of age (group 3).
Results: Of the 91 patients treated for bacterial meningitis, 54 were children from 1 month to 16 years old. Distribution among age groups was almost equally presented without statistical differences. Male gender dominated mostly in infants and in third age group (81%; 82%). Infants were more often infected in villages (57%), older children in cities (59%). 40% were previously hospitalized in other hospital centers mostly infants (52%). Majority of children were admitted with duration of symptoms >48 hours (59%) mostly infants (67%). The etiology was confirmed in 22 cases (41); pneumococcus predominated in infants and in third age group, while in second age group dominated meningococcus. For the initial therapy was given most often combination of Ceftriaxone with Vancomycin in 25 cases (46%) and Ceftriaxone alone in 22 cases (41%). Neurologic complications were observed in 9 patients (17%) mostly in infants 7 cases (33%) [RR=4.3 (CI 95%)] with subdural effusion being the most common. There was one fatal case of a 5 years old boy.
Conclusions/Learning Points: Bacterial meningitis cases were almost equally distributed among pediatric age groups with pneumococcus being the most common pathogen. Infants age, late admission, male gender, infection with pneumococcus, rural location were factors associated with higher incidence of neurologic complications.

PV0490 / #1072

AN UNUSUAL CASE OF ASEPTIC MENINGITIS COMPLICATED BY URINARY RETENTION.

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: AN UNUSUAL CASE OF ASEPTIC MENINGITIS COMPLICATED BY URINARY RETENTION
Background: Aseptic meningitis complicated by urinary retention is called meningitis-retention syndrome (MRS). Herpes simplex virus (HSV)-2 is the most common cause of MRS. We encountered a rare case of HSV-1 meningitis complicated by urinary retention.
Case Presentation Summary: A previously healthy 8-year-old boy presented with fever, headache, and neck pain for five days, followed by difficulty walking and acute urinary retention. Although bladder-filling sensation was preserved, he could not urinate. He also complained of constipation; however, his anal sphincter reflex was not depressed. On neurological examination, he was alert and had nuchal rigidity. Cerebrospinal fluid analysis showed elevated white blood cell count (53/mm^3), and HSV-1 was detected by FilmArray® meningitis/encephalitis panel. These findings suggested that HSV-1 infection had caused the meningitis. Treatment with acyclovir 45mg/kg/day was initiated, and the symptoms of meningitis and urinary retention gradually improved. Although brain Magnetic Resonance Imaging (MRI) showed no evidence of encephalitis, MRI of the spinal cord indicated possibility of myelitis; therefore, methylprednisolone was also administered. Urinary retention improved approximately 13 days after the onset of meningitis.
Learning Points/Discussion: MRS is a rare presentation of aseptic meningitis, and the diagnosis was delayed in our case. It is important to recognize that aseptic meningitis may be complicated with urinary retention and dysuria with fever.

PV0491 / #1828

SURGICAL SITE INFECTIONS FOLLOWING PAEDIATRIC NEUROSURGICAL PROCEDURES - A SINGLE-CENTER RETROSPECTIVE STUDY FROM A UNIVERSITY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Children after neurosurgical procedures are at high risk of surgical site infections (SSI), a complication associated with increased morbidity, mortality, and cost.
Methods: The objective of this retrospective cohort study was to perform a review of demographic, laboratory, and surgical characteristics of children following neurosurgical procedures, hospitalized at the Department of Paediatric Surgery, University Medical Centre Ljubljana (UMCL) from January 2019 to December 2021, and to determine the SSI rates and risk factors for SSI development. SSIs occurring within 30 days of a procedure without an implant and up to 90 days with an implant, were identified. Univariate analyses of SSI association with demographic, clinical, laboratory, and surgical variables were performed, with subsequent bivariate logistic regression analysis to determine independent risk factors.
Results: A total of 332 procedures were performed on 297 children. The overall 30-day SSI rate was 5.7% and the 90-day SSI rate was 6.9%. SSI occurred 16.5 ± 12.4 days postoperatively, with the highest SSI rates following implantation of subgaleal reservoir (33%), transsphenoidal procedures (16.6%), and insertion of ICR electrodes (16%). The organ/deep SSI vs. superficial SSI ratio was 3:1. The most common isolates were Staphylococcus epidermidis (40%) and methicillin-susceptible Staphylococcus aureus (20%). Degree of wound contamination ≥W2, emergency surgery, history of previous neurosurgical procedures, presence of surgical drainage, need for vasoactive support, need for re-intubation, and presence of fever ≥ 39.5ºC were all found to be independently and significantly associated with SSI.
Conclusions/Learning Points: Due to their serious and potentially life-threatening complications, neuro-SSIs remain one of the most feared infections. As an important measure of the quality of care, reducing SSI numbers is paramount. Additional multi-center clinical studies are warranted to identify risk factors for SSIs across different neurosurgical procedures.

PV0492 / #1921

A RARE CASE OF HHV6 ENCEPHALITIS IN A 3YEAR OLD IMMUNOCOMPETENT GIRL; AN UNUSUAL CASE - AN OUT OF THE BOX TREATMENT

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: A rare case of HHV6 encephalitis in a 3year old immunocompetent girl; an unusual case - an out of the box treatment
Background: Human herpesvirus 6 commonly affects children younger than 3 years old and manifests with exanthema subitum associated with neurological symptoms such as febrile seizures and encephalitis. HHV-6 presents lifelong latency with possible reactivation when immunosuppression occurs. We report a rare severe case of of HHV-6 encephalitis in a 2,5years old immunocompetent girl.
Case Presentation Summary: Our patient, with a follow up for retarded speech development, was admitted at the ER for febrile convulsion and mild diarrhea for ten days. On admission, her clinical examination and laboratory work up were strictly normal. During the first day of hospitalization, she presented multiple episodes of generalized convulsions, refractory to triple antiepilectic treatment and progressively became encephalopathic with reaction only to extreme pain stimulus. The brain MRI and initial EEG were normal whereas the control EEG was compatible with encephalopathy. Blood and CSF PCR were highly positive for HHV-6. She received a five day course of immunoglobulins and a ten day course of ganciclovir. Due to persistant encephalopatic clinical state, after multidisciplinary discussion, our patient received high doses of prednisolone for three days with progressive amelioration till complete resolution of the symptoms and negative blood HHV-6 PCR on the tenth day of hospitalization. Her complete work up for autoimmune encephalopathies and immunodeficiencies was normal.
Learning Points/Discussion: The diagnosis and the treatment of severe HHV-6 encephalitis in immunocompetent children is challenging. Some studies imply that HHV-6-related neurological symptoms occur because of cytokine release rather than direct CNS infection. Nevertheless, no evidence based guidelines exist for immunocompetent pediatric patients and further studies need to be organized in this direction.

PV0493 / #592

VARICELLA ZOSTER VIRUS MENINGITIS IN THE COURSE OF HERPES ZOSTER OPHTHALMICUS

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: Varicella Zoster Virus Meningitis in the course of herpes zoster ophthalmicus
Background: Herpes zoster is a reactivation of a latent varicella zoster virus (VZV) infection, most often occurring in older or immunocompromised patients. We present a case of VZV meningitis in the course of herpes zoster ophthalmicus in a 12-year old immunocompetent boy.
Case Presentation Summary: 12-year-old boy presented to the ER with a suspicion of herpes zoster ophthalmicus. 6 days before admission patient developed fever >39^0C, left-sided headache, followed by 2 episodes of vomiting. 3 days before the admission, patient's mother noticed vesicular lesions on the left upper eyelid and eyebrow. The boy had a history of varicella at the age of 2 weeks. Patient reported no chronic diseases, no recurrent infections, or loss of weight. On admission, the patient was in a fair general condition, GCS 15, with normal vital signs. Vesicular lesions were found on the left upper eyelid, the left eyebrow and the left frontotemporal region. His head was tender on palpation in the regions of C2-C3 dermatomes. Meningeal and cerebellar signs were negative. No nuchal rigidity was observed. Blood analysis showed no abnormalities except for slight domination of lymphocytes in the peripheral blood smear. Cerebrospinal fluid (CSF) analysis revealed pleocytosis of 223 (94% lymphocytes), with normal protein and glucose levels. Multiplex PCR test of CSF detected DNA of VZV. Intravenous acyclovir in the dosage of 500mg/m^2 every 8 hours was implemented for 10 days. The patient was discharged in good general condition with no neurological complications.
Learning Points/Discussion: Meningitis in the course of VZV reactivation in immunocompetent children is rare and online medical databases describe scarce amount of such cases. However, it should be considered in patients presenting with headache and fever.

PV0494 / #2038

HAEMOPHILUS INFLUENZAE TYPE B MENINGITIS AND VACCINE FAILURE – A CASE REPORT TO NEVER FORGET

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: HAEMOPHILUS INFLUENZAE TYPE B MENINGITIS – CASE REPORT
Background: Invasive Haemophilus influenzae type b (Hib) disease, including meningitis, has decreased dramatically after the introduction of conjugate vaccine in routine immunization schedules. In Portugal, there are still about 2 cases per year of invasive disease, which are usually severe.
Case Presentation Summary: We report a case of a three-year-old boy, previously healthy, with complete immunization schedule, including three doses (at two, four and six months of age) of Hib vaccine. He was admitted in the emergency department with fever, vomiting and somnolence, with progressive deterioration of mental state, since the previous day. At admission, the patient was irritable with nuchal rigidity. The cerebrospinal fluid (CSF) analysis showed increased protein level (322mg/dL) and cell count (4864/mm3), with neutrophil predominance (98%), and low glucose level (<5mg/dL). Empiric intravenous antibiotics (ceftriaxone and vancomycin) were administered for suspected bacterial meningitis. CSF cultures isolated Haemophilus influenzae resistant to ampicillin but sensitive to ceftriaxone. Serotyping of the Haemophilus influenzae strain revealed a serotype b. Vancomicin was stopped, and the patient completed a ten-day course of ceftriaxone, with gradual clinical improvement, and was discharged with no neurologic deficits, referred to a General Pediatrics and Otolaryngology appointment. He did an immunological study which was normal, and vaccine failure was assumed.
Learning Points/Discussion: The present case report alerts to the fact that Hib meningitis is still a diagnosis to be considered, in children with clinical and CFS findings compatible with bacterial meningitis, even if they are previously healthy and vaccinated. Despite vaccination compliance and absence of risk factors, invasive Hib disease can occur due to vaccine failure. Because invasive Hib disease can cause sequelae and complications, early diagnosis and prompt treatment are important to improve prognosis.

PV0495 / #2640

PAEDIATRIC INVASIVE MENINGOCOCCAL DISEASE IN SINGAPORE

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Background: Invasive meningococcal disease (IMD) has known high morbidity and mortality. In Singapore, meningococcal vaccinations are not part of the routine childhood immunization schedule, given the historical low local occurrence of IMD.
Methods: We sought to understand demographics, risk factors and clinical course of children with IMD in our institution. We included all children who were referred to Infectious Disease Service, KK Women's and Children's Hospital in Singapore, for diagnosis of IMD, over 13 years (2009-2021). Diagnosis was made via isolation of Neisseria meningitidis and/or detection of N. meningitidis DNA sequences via nucleic acid testing in a normally sterile site (such as blood, cerebrospinal fluid).
Results: Fourteen children were included. Serotype B (n= 10, 71.4%) was the main serotype isolated. One child had prior vaccination with quadrivalent conjugate vaccine against serotype A, C, W-135, Y. However, he was subsequently infected with serotype B. The only child infected with W-135 serotype had significant travel history to Mecca, Saudi Arabia for Hajj pilgrimage with his family. He had not received any meningococcal vaccination prior to travel. Median age at diagnosis was 5 months (IQR 5.4 – 20.5). Ten children (71.4%) required higher acuity care with admission to high dependency and/or intensive care unit. Median length of stay in HD/ICU was 3.25 (IQR 2.25 – 5.5) days, with median length of overall hospitalization of 12 (IQR 8.0 - 14.8) days. 42.0% (n=6) had neurological complications including that of subdural effusions, empyema, hydrocephalus.
Conclusions/Learning Points: Although IMD in Singapore is sporadic, high morbidity is observed. Meningococcal vaccines should continue to be recommended for children travelling to high risk countries, with consideration given toward advocating for vaccines for young infants given the median age of 5 months seen in our case series.

PV0496 / #2007

H. INFLUENZA TYPE F VENTRICULITIS AND SUBDURAL EMPYEMA IN AN IMMUNOCOMPETENT 4-YEAR-OLD

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: H.influenza type F ventriculitis and subdural empyema in an immunocompetent 4-year-old
Background: Ventriculitis is a source of persistent infection following meningitis. We report a case of ventriculitis with subdural empyema in a 4-year-old male.
Case Presentation Summary: A 4-year-old boy presented to ED with a history of 3 days of fever and vomiting. He was reported to be a fit and fully immunized child. The boy was febrile with a GCS of 11/15, neck stiffness, and anisocoria. Blood gas showed metabolic acidosis and blood pressure of 80/60 mmHg was noted. Intravenous ceftriaxone and acyclovir were commenced. A 10ml/kg bolus and dexamethasone were given. The admission CT scan was normal. MRI head showed non-specific right-sided periventricular hyperintensity. He developed bradycardia, hypertension, and focal seizures on the 4th day. Hypertonic saline and levetiracetam were initiated. At this point, blood and CSF cultures were reported H.influenza sensitive to ceftriaxone and serotyping confirmed type-f strain. He was intubated and transferred to PICU. He had a 9-week PICU stay. He was readmitted following discharge from PICU with a new onset fever, headache, right-sided torticollis, and vomiting. He was recommenced on IV ceftriaxone and had CSF sent for analysis. A repeat MRI head showed enhancement of meninges over the right-frontal lobe and a small subdural collection of 2mm noted. Meropenem and Rifampicin were commenced on advice from the microbiologist. He had a prolonged antibiotic course (6 weeks) and his recovery continues to be monitored in the outpatient clinic. His immunological studies to date are negative.
Learning Points/Discussion: The incidence of H.influenza infections in <5s is higher in comparison to children aged >5 years in the recent UKHSA report (2022). This case highlights the severity of this infection and its impact on long-term morbidity.

PV0497 / #1090

IDENTIFICATION AND CHARACTERIZATION OF DISTINCT CLINICO-PATHOGENIC SUBGROUPS IN PAEDIATRIC LYME NEUROBORRELIOSIS

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Lyme neuroborreliosis (LNB) is a frequent manifestation of Lyme disease in children. It is caused by the bacteria Borrelia burgdorferi (Bb), and characterized by neurological symptoms, cerebrospinal fluid (CSF) pleocytosis, and intrathecally synthesized Bb-specific antibodies. LNB can affect both the peripheral nervous system (PNS) and the central nervous system (CNS).
Methods: We hypothesized that PNS manifestations (e.g., isolated cranial neuropathy) reflect a localized disease, whereas CNS manifestations (e.g., meningitis) are the result of a more extensive and widespread pathology. To test this hypothesis, we performed a large retrospective cohort study of children (n=191) diagnosed with LNB at the University Children's Hospital Zurich over a 15-year period to characterize clinical and laboratory characteristics, serological responses to Bb and outcome.
Results: We observed two major distinct subgroups of children with LNB: some had isolated peripheral facial palsy (PFP) (34%) which correlated with minimal CSF inflammation, intrathecal antibody production and shorter duration of symptoms, while others presented with meningitis (54%) and meningoradiculitis (8%) together with much more pronounced CSF inflammation, intrathecal antibody production and longer duration of symptoms. Interestingly, patients with meningoradiculitis showed the highest level of CSF inflammation in our patient cohort. We also noted significant differences in magnitude, but not specificity of intrathecal antibody responses to Bb between LNB subgroups.
Conclusions/Learning Points: We propose the terms "focal" and "pervasive" LNB to characterize these two clinico-pathogenic subgroups of LNB observed in our large cohort among children. We will investigate differences in infecting Bb species and underlying immune response between these clinico-pathogenic subgroups in a future prospective LNB study.

PV0498 / #2234

STREPTOCOCCUS BOVIS – UNUSUAL ETIOLOGY OF MENINGITIS AND BACTEREMIA: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: STREPTOCOCCUS BOVIS – UNUSUAL ETIOLOGY OF MENINGITIS AND BACTEREMIA: A CASE REPORT
Background: Bacterial meningitis is a major cause of morbidity and mortality in children. Streptococcus gallolyticus subsp. pasteurianus, previously known as Streptococcus bovis biotype II is a rare cause of meningitis in infants. This etiology is most of the time associated to underlying diseases or previous treatment with pharmacological agents that predisposed the patient to the infection.
Case Presentation Summary: We describe a 5 month old female baby with antecedents of patent foramen ovale and small ostium secundum-type interatrial communication. She arrived at our pediatric emergency room with one day of nasal congestion and anorexia, and 4 hours of fever (axillar temperature 40ºC). She was lethargic and with bulging anterior fontanel. Laboratory confirmation of meningitis and bacteriemia were performed with positive bacteriologic exam for Streptococcus gallolyticus subsp. pasteurianus, in both samples of blood and cerebrospinal fluid. The child was treated with intravenous ceftriaxone and vancomycin. After antimicrobial susceptibility testing it was switched for ampicillin. The infant responded to antibiotic therapy without neurological impairment. Cardiology evaluations with echocardiography were performed, which exclude acute alterations. Abdominal ultrasound, EEG, tympanogram, audiogram and otoacoustic emission were normal. Immunodeficiencies evaluation was normal.
Learning Points/Discussion: Despite being an unusual cause of meningitis in children, the S. bovis biotype II variant seems to be more associated with meningitis or neonatal sepsis, contrary to the S. bovis biotype I, which is more associated with endocarditis and gastrointestinal pathology. Nevertheless, it is important to be alert for these pathologies in every patient with S. bovis meningitis.

PV0499 / #1320

LONG FORGOTTEN, BUT WORTH REMEMBERING - ENCEPHALITIS LETHARGICA

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: LONG FORGOTTEN, BUT WORTH REMEMBERING - ENCEPHALITIS LETHARGICA
Background: Encephalitis lethargica is a rare form of encephalitis characterized by fever, lethargy, abnormalities in vision, movement and mental state, and coma. In the 1920 the “sleeping sickness” caused an epidemic that affected millions of people, but cases today occur sporadically.
Case Presentation Summary: We present a case of an 11-year old boy with neuroinfection resembling encephalitis lethargica as a complication of M. pneumoniae infection.
The previously healthy patient presented symptoms of neuroinfection on seventh day of an upper respiratory tract infection and ten days past hand-foot-mouth disease. On admission to the hospital he had muscular hypotony, ataxia and progressively worsening somnolence, muscle weakness and bradykinesia. Encephalitis was diagnosed based on clinical presentation and MRI findings with basal ganglia involvement. Lymphocytic pleocytosis of 10 cells/ml was noted in the cerebrospinal fluid. During first ten days of hospitalization, patient’s condition fluctuated with consciousness impairment (glasgow coma scale of four to ten). He presented episodes of slow or fast speech, temporal mutism, variable muscle rigidity and vegetative involvement with severe bradycardia and rhythm irregularities revealed RBBB. Based on these symptoms, encephalitis lethargica was diagnosed. The most probable cause in this case was the M. pneumoniae infection with a chest X-ray having shown features of interstitial pneumonia and left lung consolidations and seroconversion in IgG. Other causes of encephalitis were excluded. Doxycycline and high dose steroids were used as treatment. Eighteen days after onset the patient started to recover.
Learning Points/Discussion: This is not the first case report, in which upper respiratory tract infections preceded encephalitis lethargica, but one of few with M. pneumoniae etiology. Perhaps the next one brings us closer to solving the mystery of the encephalitis lethargica epidemic.

PV0500 / #158

THE IMPACT OF COVID-19 IN PNEUMOCOCCAL MENINGITIS IN A BRAZILIAN PEDIATRIC HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: Pneumococcal infection is one of the main causes of meningitis in children. The impact of COVID-19 pandemic on pneumococcal infections has been recently described. The aim of this study was to characterize the epidemiology of pneumococcal meningitis from 2005 to 2022, comparing years before introduction of pneumococcal vaccine (2005-2009), pre-pandemic years after introduction of the vaccine (2010-2019), years of lockdown (2020-2021) and the year after release of lockdown (2022).
Methods: A retrospective cohort study was conducted in children with pneumococcal meningitis, who were admitted to a reference hospital in Brazil.
Results: 67 cases of pneumococcal meningitis were identified. Mean age was 60 months. Since vaccine introduction, more admissions were observed after release of lockdown restrictions (10 cases, 14.9%). 71.6% (48) of patients were treated with cephalosporins, 25.4% (17) with penicillins, and 9% (6) with cephalosporin and vancomycin. No ceftriaxone-resistant pneumococci were identified. Supurative complications occurred in 17 patients (25.4%):16 (24%) empyema and 1 (1,5%) brain abscess. Patients in 2022 had more complications when compared with other periods ($p = 0.032$). Overall mortality was 17.9% (12), with no difference between the periods studied ($p > 0.05$).
Conclusions/Learning Points: Reduced social contact and exposure to respiratory pathogens has led to concerns about immunity debt and risk of higher pneumococcal infection rates as restrictions were lifted. More pneumococcal meningitis and more complications were observed in 2022 in our study. Despite this, no change in Pneumococcal resistance profile has been documented.

PV0501 / #2579

A PEDIATRIC CASE OF FATAL AMOEBIC ENCEPHALITIS CAUSED BY BALAMUTHIA MANDRILLARIS

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: A pediatric case of fatal amoebic encephalitis caused by Balamuthia mandrillaris
Background: Balamuthia mandrillaris is a free-living amoeba that is common in soil.It causes a rare and mostly fatal infection.It's still full of unknowns in the scientific era because it causes a disease that is rarely considered,its symptoms are nonspecific,the diagnostic process lasts long,the most appropriate approach in treatment is still not known.Therefore,the actual number of cases to date has been underestimated.
Case Presentation Summary: A previously healthy 12-year old male patient presented with headache, vomiting, fever, altered consciousness for one month.In the medical history, it was stated that he was living in a rural area in Kyrgyzstan.On his physical examination,there was right hemiparesis,neck stiffness.Acute phase reactants were negative.Brucella tube agglutination and interferon gamma release test was negative.MRI revealed an invasive-looking,calcified herniating mass and reported as oligodendroglioma.He underwent a diagnostic and therapeutic surgery.Hyphae-like structures were detected in tissue examination of the biopsy specimen with a light microscope.Histopathological examination of brain tissue showed microorganisms compatible with amoebic cystic structures.The diagnosis was confirmed by real-time PCR.
Learning Points/Discussion: This is one of the few cases of Balamuthia mandrillaris ameobic encephalitis reported globally and of the first case in our region.Due to the nonspecific nature of CNS symptoms,it cannot be distinguished from other factors at first glance, except for the subacute clinical course.Our patient could not survive due to undesirable factors such as inaccessible drugs despite early diagnosis,lack of definitive treatment,the lesion being located close to the midline,and the fatal course due to the nature of the agent.As a guide for future cases, amoebic encephalitis should be kept in mind in the case of isolated central nervous system involvement, hemorrhagic CSF, and subacute meningoencephalitis unresponsive to appropriate antibiotic therapy.

PV0502 / #2521

STREPTOCOCCUS PYOGENES MENINGITIS IN A PEDIATRIC PATIENT

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: Streptococcus pyogenes meningitis in a pediatric patient
Background: Streptococcus pyogenes (Group A streptococcus, GAS), causes a wide spectrum of diseases in children. GAS Meningitis due to S. pyogenes is highly uncommon, representing one of the most infrequently reported infections due to this pathogen. Although rare, it is associated with a high case fatality and can result in severe neurological sequelae.
Case Presentation Summary: A previously healthy 3 years-old boy was brought to an Emergency Department with a 4-day history of high fever, vomiting and frontal headache. On admission the child was febrile, with a temperature of 39ºC, pale with cold peripheries and had tonsillar exudates. He was haemodynamically stable but appeared unwell and had meningeal signs. A positive rapid antigen detection test (RADT) in pharyngeal swab confirmed GAS tonsillitis. Laboratory tests showed leucocytosis with neutrophilia and high C-reactive protein. A CT scan of the head showed opacification of the right mastoid and all paranasal sinuses. A lumbar puncture was performed and empiric intravenous antibiotic therapy with ceftriaxone and vancomycin was initiated for presumed bacterial meningitis. Examination of the cerebrospinal fluid (CSF) later revealed pleocytosis with 4828/mm^3 leucocytes (69% neutrophils), protein of 234,9 mg/dL and glucose of 25 mg/dL. The CSF Gram stain showed Gram-positive cocci in chains, and subsequently grew beta-haemolytic GAS. Blood cultures were negative. His antibiotics were de-escalated to intravenous ceftriaxone for 10 days. The clinical course was uneventful. He appeared to have a full recovery with no sequelae at discharge.
Learning Points/Discussion: Despite its sporadic occurrence, GAS meningitis should be considered as a cause of meningitis in previously healthy infants because of its frequent association with complications, sequelae and death.

PV0503 / #1142

CORTICOSTEROID ADMINISTRATION AND OUTCOMES FOR COMMUNITY ACQUIRED BACTERIAL MENINGITIS (CABM) IN GREECE (2010-2020).

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Backgrounds: CABM is a major cause of morbidity and mortality. Treatment with dexamethasone is controversial and may vary with age (restricted for neonates) and the pathogen. The aim is to investigate data on corticosteroid administration and outcomes, in children with CABM (2010-2020).
Methods: Medical records from children (2m to 15years) were collected and studied retrospectively, from 5 major paediatric hospitals/departments in Greece.
Results: Among the 263 laboratory confirmed cases, medical records were retrieved in 129 (51.5%). Among those, analysis of 76 patients medical records was carried out, age ranging 2 months to 15 years (median=3 years) as 51 were excluded for factors such as septicemia, age (<2 mo), other infections etc. Neisseria meningitidis was the leading cause (60.5%; 46/76) followed by S. pneumoniae (15,8%; 12/76). All cases received effective antibiotic treatment (mainly 3rd generation cephalosporins). One fatal case was recorded, while, complications were presented in 12 patients (15.8%), mainly neurological (66,6%), suffered ulcers (16%), amputated feet (8.3%), hearing impairment-middle ear effusion (8.3%). Half (52.6%) received corticosteroid treatment; dexamethasone (38), methylprednisolone (1) and hydrocortisone (1). Patients receiving corticosteroids were older (43.5 vs 24 months, p=0.039), had higher WBC and serum CRP, and higher WBC and protein levels in CSF. According to the results, there was a trend to less ICU admissions in the corticosteroid group (27,5% vs 33,3%), although not statistically significant.
Conclusions/Learning Points: Complications were recorded in 15.8% of CABM patients while case fatality rate was 1.3%. Corticosteroid administration did not result in statistically significant difference with regards to complications, as they were administered to older children with significantly higher inflammation markers. Use of corticosteroids in childhood CAMB remains still uncertain and controversial.

PV0504 / #2511

INFLUENZA A AND PNEUMOCOCCAL SYNERGY IN MENINGITIS – A PAEDIATRIC CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.C. CNS INFECTIONS

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Title of Case: INFLUENZA A AND PNEUMOCOCCAL SYNERGY IN MENINGITIS – A PAEDIATRIC CASE REPORT
Background: Synergistic influenza–bacterial co-infection represents a serious medical problem. Influenza A virus infection has been associated with pneumococcal transmission and disease. We describe a paediatric case of invasive pneumococcal disease after influenza A infection.
Case Presentation Summary: Previously healthy 6-year-old boy, fully immunized against pneumococcus, meningococcus and Haemophilus Influenzae, was brought to the emergency room with a 2-day fever, myalgias, anorexia, vomiting, and lethargy. The day before, he tested positive for Influenza A and all family members had flu-like symptoms. He was hemodynamically stable, pale and lethargic with signs of acute dehydration. The remaining physical exam was unremarkable with negative meningeal signs. The work-up revealed normal leucocytes with neutrophilia and C-reactive protein of 5.56 mg/dL. The patient was admitted for intravenous fluid therapy and antiviral treatment with oseltamivir. Several hours later, he worsened and developed meningeal signs. A lumbar puncture was performed and intravenous ceftriaxone, vancomycin and acyclovir were started. The cerebrospinal fluid (CSF) revealed bacterial meningitis with positive Streptococcus pneumoniae antigen. Although the brain scan was initially normal, he required to be entubated and subsequently admitted to the Paediatric Intensive Care Unit because of his deteriorating neurological state.The investigation revealed a Streptococcus pneumoniae serotype 11a which was not included in the vaccine. After several days, clinical improvement was observed with good evolution of the neurological deficits.
Learning Points/Discussion: In this case report, influenza A virus infection preceded a bacterial superinfection - pneumococcal meningitis. Although the patient was fully vaccinated with Portuguese schedule, this serotype was not included in the pneumococcal vaccine (PCV13).

PV0505 / #1731

PARACOCCIDIOIDOMYCOSIS WITH CLINICAL RECURRENCE IN THE ADOLESCENCE

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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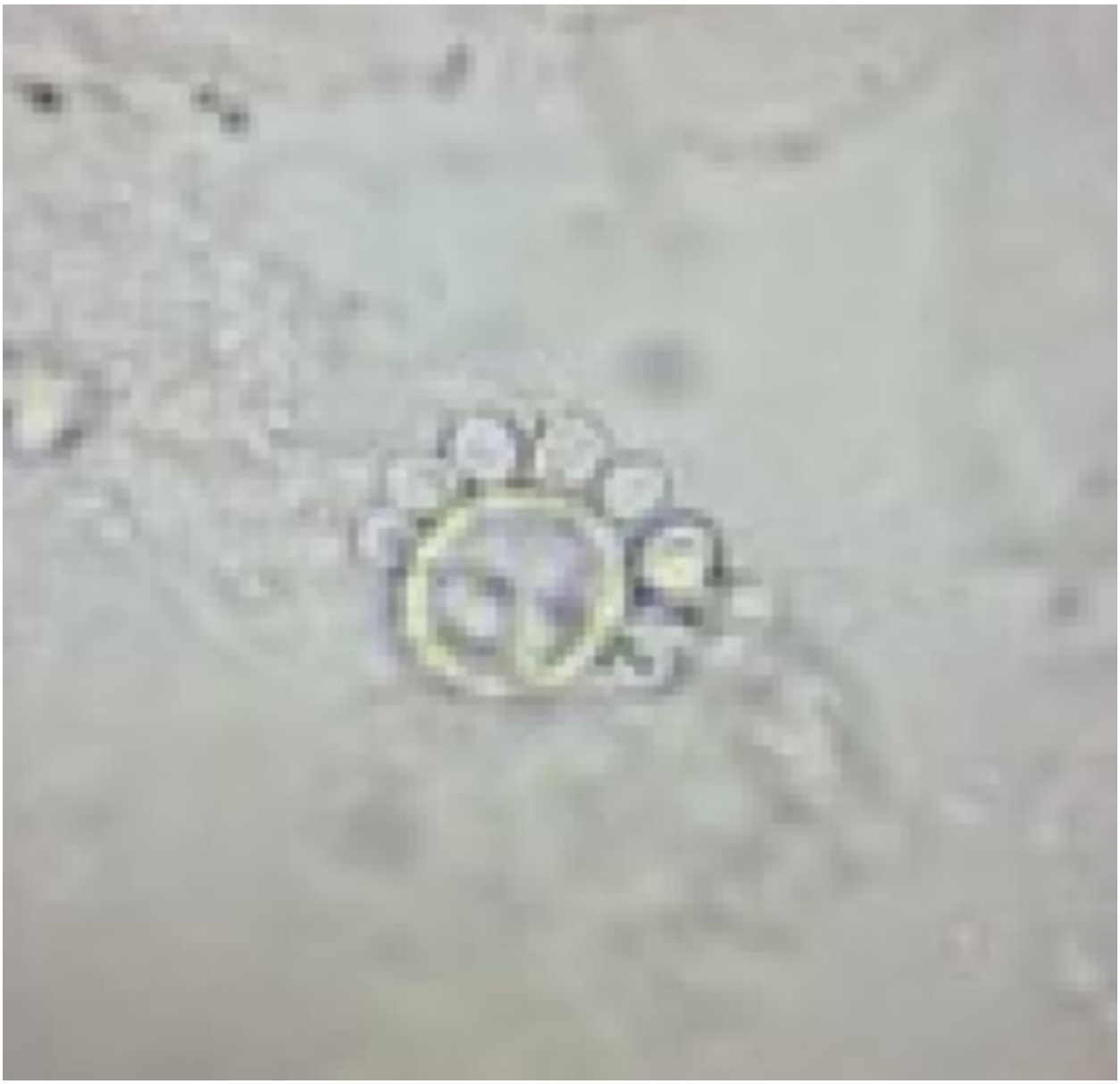
Title of Case: PARACOCCIDIOIDOMYCOSIS WITH CLINICAL RECURRENCE IN THE ADOLESCENCE
Background: Paracoccidioidomycosis is the most prevalent systemic fungal infection in Brazil, being found only in Latin America. Mainly caused by the microorganism Paracoccidioides Brasiliensis.,
Case Presentation Summary: A previously healthy 15-year-old adolescent with a history of 24kg weight loss in 5 months, chills ,night sweats, jaundice, choluria and acholic stools. She presented at the first evalution with painful and bulky cervical lymph node enlargement and intermittent fever which lasted for 2 weeks. Epidemiology: From a rural area, in the municipality of Cajamar- SP. On physical examination she was pale, emaciated, liver was palpable 6cm below the right costal margin and spleen about 4cm below left costal margin. Painful cervical lymph node enlargement, measuring 3 cm in diameter, not adhered to deep planes, and slightly hardened. She also had an inguinal lymph node enlargement in the right inguinal region with 12cm in diameter, not painful, fibroelastic and not adhered.
Laboratory tests: Hb 9.6 g/dL; L=11900/µL (1% metamyelocytes; 7% rods; 66% segmented; 19% lymphocytes); Platelets= 698,000/µL. Biopsy of the inguinal lymph node was performed with a positive result for Paracoccidioidomycosis in the anatomo pathological analysis (figure). The patient was hospitalized and received Lipid Complex Amphotericin 3mg/Kg/day for 21 days, followed by Itraconazole maintained for 12 months. After two months of treatment, she was readmitted due to an enlarged lymph node in the cervical region associated with local pain. Lipid Complex Amphotericin was restarted for 7 days with substantial improvement and oral treatment was
resumed.



Learning Points/Discussion: Paracoccidoimycosis is a systemic fungal infection, related to agricultural activities, with an insidious evolution that can cause severe sequelae. asymptomatic infection to the form of disseminated disease called the acute/subacute phase, with lethal outcome.

PV0506 / #1923

PROFILE OF POSITIVE BLOOD CULTURES IN A PEDIATRIC WARD SPECIALIZED IN INFECTIOUS DISEASES DURING A YEAR

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Although the identification of bacteremia in children is essential it could be challenging to recognise the signs. The aim of the study was to report the spectrum of bacteremia in children, as well as examine clinical characteristics, diagnostic and therapeutic parameters.
Methods: A single-tertiary center retrospective cohort study was performed on a sample of 2200 children admitted as suspected covid-19 cases from November 2021 to October 2022. Children with bacteremia were diagnosed through blood cultures.
Results: Only 2% of hospitalized children were diagnosed with bacteremia. 57% of patients were under the age of 1 year, male:female ratio was 1:3 and monthly distribution of cases was stable. All patients referred fever during their admission. Seventy percent of patients, 32/46 were observed to have bacteremia with gram positive bacteria (50% Staphylococcus species), followed by 13% E.coli. All Staphylococci, except one, as well as Enterococci were resistant to aminopenicillins. Third generation cephalosporins were mostly used as first line treatment, independently of pathogen. Moreover, 20% of patients had normal count of total white blood cells with lymphocyte type, findings predominantly of gram positive bacteremia. Elevation of procalcitonin was found more sensitive compared to c-reactive protein. Furthermore, except from blood cultures, in 33% of patients the pathogen was isolated either from urine, stool or cerebrospinal fluid cultures. Finally, 25% of patients had a co-infection with another confirmed pathogen. Sars-Cov2 was found to be the most common co-infection (7 cases).
Conclusions/Learning Points: This study reveals the limited number of pediatric bacteremia cases. Even though, it highlights that a high level of suspicion should be maintained to achieve early identification.

PV0507 / #2115

FEVER WITHOUT A SOURCE UNDER 3 MONTHS OF AGE: ANY PREDICTIVE FACTORS OF SERIOUS BACTERIAL INFECTION?

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Fever is one of the main complaints in children admitted to the Emergency Department. It can be a symptom of Serious Bacterial Infection (SBI), being the risk greater in children younger than 3 months. The aim of this study is to evaluate predictive factors of SBI under 3 months.
Methods: We conducted a cohort retrospective study from January 2020 to June 2022 in infants under 3 months who visited the Emergency Department due to fever without a source. Firstly, a bivariate analysis was made to assess the predictive value of clinical and laboratorial parameters. Posteriorly, a backward stepwise model of binary logistic regression was performed, considering the statistical significant variables, with the dependent variable being the presence or absence of SBI.
Results: A total of 292 patients were included, 160 (54.8%) of who were male. The mean age was 57.8 days (SD 22.3). 73 (25%) patients were diagnosed with SBI: 52 (71.2%) urinary tract infections, 13 (17.8%) occult bacteriemias, 8 (11.0%) meningitis, 3 (4.1%) pneumoniae, and 6 (8.2%) bacterial gastroenteritis. We found that classification according to the Rochester criteria, white blood cell count, neutrophil count, C-Reactive Protein (CRP), and procalcitonin values were statistically significantly different between the groups ($p < 0.001$). In the multivariate analysis for evaluating predictive factors to have SBI, CRP values ($p <0.001$; OR 1.045) showed significance (Hosmer-Lemeshow test: $x^2= 12.043$; $p=0.149$).
Conclusions/Learning Points: According to this study the CRP value is the most reliable parameter to predict SBI in this population. This data can be integrated in the evaluation of the patients under 3 months with fever without a source and help in the treatment and follow-up decision.

PV0508 / #1915

INFECTIVE ENDOCARDITIS CAUSED BY BARTONELLA QUINTANA ASSOCIATED WITH GLOMERULONEPHRITIS, HYPERGAMMAGLOBULINEMIA AND SPLENOMEGALY

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: INFECTIVE ENDOCARDITIS CAUSED BY BARTONELLA QUINTANA ASSOCIATED WITH GLOMERULONEPHRITIS, HYPERGAMMAGLOBULINEMIA AND SPLENOMEGALY
Background: Culture-negative endocarditis is a clinical challenge, whose main microorganisms are those of the Bartonella genus. We present the case of a girl with subacute infective endocarditis caused by Bartonella quintana.
Case Presentation Summary: A girl 6 years old with a diagnosis of perimembranous ventricular septal defect, without surgical correction. Consultation due to fever up to 102.2°F of 3 months of evolution and that recur at least 3 times a week. The physical examination highlights a holosystolic systolic murmur and splenomegaly. Normal hematological parameters on admission; CRP: 109 mg/L and ESR 93 mm/hr. Abdominal ultrasound was performed with bilateral renal inflammatory compromise, preserved renal size and splenomegaly up to 13 centimeters. Echocardiogram was done with a refractive image of 12 by 5 millimeters, mobile in the tricuspid valve. Two sets of Blood cultures were requested, both negative. CT angiography did not reveal pulmonary thromboembolism. Complete urine reveals microhematuria, proteinuria with a protein/creatinine ratio of 0.8 and a drop in creatinine clearance up to 35 milliliters/min/1.73 m2. The elevation of total IgG up to 3,182 mg/dL stands out. Starting antimicrobial therapy was ampicillin plus cloxacillin. Serology for Bartonella quintana was 1:8192. PCR whole blood for Bartonella is negative. Treatment was rotated to ceftriaxone associated with amikacin, but ceftriaxone should be discontinued after 3 weeks due to thrombocytopenia. Doxycycline was started with good tolerance, reversing the hematological alteration. There was regression of vegetation and normalization of renal function, which required temporary use of enalapril.
Learning Points/Discussion: Bartonella quintana endocarditis is a clinical challenge, associated with glomerulonephritis and splenomegaly. Require clinical suspicion and the use of doxycycline must to be considered as first line therapy.

PV0509 / #560

KINGELLA KINGAE BACTEREMIA: HARD TO CATCH, RISKY TO MISS

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: KINGELLA KINGAE BACTEREMIA: HARD TO CATCH, RISKY TO MISS
Background: Kingella kingae is a common colonizer of the oropharynx in children under 5 years. It has increasingly been recognized as a cause of invasive disease. Clinical signs and symptoms of infection are usually mild with slightly increased acute phase reactant levels, causing diagnostic delay. Most cases are benign but may evolve to endocarditis and osteoarticular disease.
Case Presentation Summary: A 2-year-old previously healthy boy was admitted with a 6-day history of fever, odynophagia, sialorrhea and diarrhea. On examination he was well, with a erythematous maculopapular rash and hyperemia of the oropharynx. On previous observations since the beginning of symptoms he had serial analytical evaluations with normal leukocyte and neutrophil counts, maximum C Reactive Protein of 13.3 mg/L, a negative rapid test for group A Streptococcus, normal chest X-ray and a negative blood culture. Analytical evaluation was repeated which revealed 11.000/uL leucocytes, 61% neutrophils and C Reactive Protein 10.6 mg/L. Urine rapid test was normal, and a new blood culture was collected. He was treated symptomatically. Three days later, the blood culture was positive for Kingella kingae, resistant to penicillin-G and susceptible to cefuroxime. He was afebrile and clinically well, so he completed 8 days of oral cefuroxime, with good clinical evolution. On follow-up he remained well, with no signs or symptoms of osteoarticular infection.
Learning Points/Discussion: Kingella kingae may cause bacteremia, with fever and maculopapular rash, though rare and difficult to diagnose. Upper respiratory inflammation and mucosal lesion probably facilitated Kingella kingae access to the blood stream. Although a benign course is to be expected, antibiotic treatment and clinical follow-up are crucial to prevent serious complications.

PV0510 / #307

CLINICAL CHARACTERIZATION OF PEDIATRIC INFECTIVE ENDOCARDITIS IN A TERTIARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Pediatric infective endocarditis (IE) is a diagnostic-therapeutic challenge, due to its low incidence and high morbimortality. We aimed to describe the epidemiological and clinical characteristics of patients with pediatric IE.
Methods: Single-center retrospective observational study. Patients <18 years old diagnosed with IE (modified Duke criteria) during the period 2012-2021 in an urban tertiary hospital with cardiac surgery (Spain) were included.
Results: Nineteen cases of IE were detected (10/19 definite IE; 9/19 possible IE). Epidemiological and clinical characteristics of the patients are detailed in Table 1. The most frequent location was the mitral valve (4/19) and Contegra-type devices (3/19). Etiological diagnosis was achieved in 14/19 (74%) of the cases. The majority were bacterial: S. epidermidis (4/13), S. aureus (3/13), S. viridans (2/13), E. faecalis (2/13), K. kingae (1/14) and S. pneumoniae (1/14); one case of C. albicans (1/14) was also detected. The most common diagnostic test was transthoracic echocardiography (TTE) (11/19). PET-CT allowed definitive diagnosis in 3 cases (3/19), all with high clinical suspicion but TTE without alterations. Median treatment duration was 6 weeks (p25-75; 5-9). In five cases (5/19) PET-CT was used to guide the end of treatment: 4 were negative and allowed treatment to be discontinued. Seven patients (7/19) required surgery. No patient died (median follow-up: 2.9
years).

Table 1. Clinical and epidemiological characteristics and complementary examinations of patients with IE.

	Acute NV IE	Subacute NV IE	Early VP IE	Late VP IE	All
N°	5	5	5	4	19
Epidemiology					
Woman	3 (60%)	1 (20%)	2 (40%)	2 (50%)	8 (42,1%)
Age	2,3 (0,5-10,9)	8,4 (4,1-12,5)	1,1(0,2-14,5)	5,1 (2,4-7,2)	5 (0,8-9,9)
History of heart disease	1 (20%)	2 (40%)	5 (100%)	4 (100%)	12 (63%)
Previous surgical intervention	0 (0%)	1 (20%)	5 (100%)	4 (100%)	10 (52,6%)
Cardiac device carrier	0 (0%)	0 (0%)	5 (100%)	4 (100%)	9 (47,4%)
Clinical					
Fever	5 (100%)	5 (100%)	5 (100%)	4 (100%)	19 (100%)
Tachycardia	2 (40%)	2 (40%)	3 (60%)	1 (25%)	8 (42,1%)
Heart murmur (new or changed)	1 (20%)	2 (40%)	0 (0%)	0 (0%)	3 (15,7%)
Heart failure signs	2 (40%)	2 (40%)	2 (40%)	1 (25%)	7 (36,8%)
Extracardiac infection.	2 (40%)	0 (0%)	0 (0%)	1 (25%)	3 (15,7%)
Embolism or infarction	3 (60%)	1 (20%)	2 (40%)	0 (0%)	6 (31,6%)
Diagnosis					
Altered TTE	5/5 (100%)	3/5 (60 %)	2/5 (60%)	1/4 (25%)	11 (57,9%)
Altered PET-CT	0/0 (0%)	0/0 (0%)	1/1 (100%)	2/2 (100%)	3/3 (100%)
Positive blood cultures	0,8 (0 - 1,5)	0,8 (0 - 1,5)	1,8 (1 - 2,5)	0,75 (0,5 - 1)	1 (0 - 2)

IE: infective endocarditis; NV: native valve; PV: prosthetic valve; TTE: transthoracic echocardiography.

Conclusions/Learning Points: Most of the patients in our series who developed IE had a history of operated congenital heart disease. The use of PET-CT has proven to be useful in the diagnosis of cases with clinical suspicion, but normal conventional diagnostic tests and/or to verify the resolution of the infection.

PV0511 / #2247

KINGELLA KINGAE - A RARE COMPLICATION OF A COMMON PATHOGEN

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: KINGELLA KINGAE - A RARE COMPLICATION OF A COMMON PATHOGEN
Background: Kingella kingae is a gram-negative coccobacillus belonging to the HACEK group and a common oropharyngeal colonizer of healthy young children. Occasionally, it may cause severe invasive infections, including infective endocarditis.
Case Presentation Summary: A 11-month-old boy, with no past medical history, was hospitalized for 10 days of fever (39.5ºC every 4hours), associated to 3 days of diarrhea and cough. At admission he was prostrated, pale, tachycardic but normotensive, with grade III/VI holosystolic heart murmur and normal pulmonary auscultation, without hepatomegaly or oral ulcers. Laboratory evaluation revealed leukocytosis with neutrophilia. C-reactive protein of 92.8mg/L and procalcitonin 5.23 ng/ml. Positive respiratory virus panel for enterovirus and parainfluenza 1. Kingella kingae was isolated in the blood culture. Transthoracic ultrasound identified a mitral valve vegetation, with perforation of the anterior leaflet, causing moderate-severe regurgitation. Treatment with ceftriaxone 100mg/kg/day, furosemide and captopril was started. On the 3rd day of admission, he presented with generalized hypotonia, inability to remain seated and left hemiparesis. No cranial nerves change. Cranial CT showed cortico-subcortical hypodensity in right frontoparietotemporal, inferior frontal and insular topography translating recent multifocal ischemic lesions. He was admitted to ICU, without respiratory or cardiovascular compromise or new neurological deficits, being apyretic after the 4th day of antibiotic. Anticoagulant therapy was delayed due to the risk of hemorrhagic transformation. He was subsequently transferred to a Cardiology unit and submitted to vegetationremoval surgery with mitral valve repair.
Learning Points/Discussion: We report a severe, fulminant K. kingae infective endocarditis that led to severe life-threatening complications. Although rare, the proportion of K. kingae endocarditis is rising, as reported in Israel, and occurs more frequently in young boys without a previous structural cardiopathy.

PV0512 / #1387

A CASE SERIES OF INVASIVE PNEUMOCOCCAL DISEASE (IPD) IN THE ERA OF PNEUMOCOCCAL CONJUGATE VACCINE (OCTOBER 2022-JANUARY 2023)

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Background: Although successive pneumococcal conjugate vaccines 7 and 13 (PCV) implementations have led to a significant reduction of pneumococcal disease burden including IPD, Streptococcus pneumoniae (pneumococcus) remains an important pathogen and a major cause of morbidity and mortality worldwide in childhood.
Methods: Aims: The presentation of patients' characteristics and pneumococcal treatment. Methods: We retrospectively analyzed data from the medical records of 5 patients with IPD treated in our Pediatric Department from October 2022 till January 2023.
Results: Five patients were included with a diagnosis of pneumococcal bacteremia and meningitis.2/5 were male,2 were siblings with a median age17months(range:5 months-9 years).Four out of 5 were hospitalized in our department with a milder course of disease. One patient presented with cardiac arrest due to septic shock and died at the emergency department.Four were fully vaccinated with PCV-13.All presented with fever, 50%with opthalmitis and one of them with vomiting,confusion and dehydration, while1/5had headache and nuccal rigidity.3/5had leukocytocis,1/5 significant anemia(Hemoglobin: 6,7gr/dl)1/5 elevated procalcitonin and5/5had elevated CRP values.Pneumococcus was isolated via blood culture or PCR in4/5patients and1/5from CSF. Its serotype was24B in2 and in the rest is still under investigation. One of the survived patients received a total of14days of iv and po antibiotic treatment (5/5 3rd generation cephalosporin, 2/5 combined with vancomycin) and 3 patients received10 days.
Conclusions/Learning Points: Conclusions: With the appearance of 13-valent pneumococcal conjugate vaccine (PCV13) the incidence of IPD has decreased dramatically, but at the same time serotype replacement was observed, with the appearance of new pneumococcal serotypes not included in the vaccines. A high index of suspicion is required to recognize the non-specific clinical manifestations of IPD so that the right treatment is administered. Prevention of the disease using newer PCVs is vital.

PV0513 / #404

THE OUTCOME OF CHILDREN ADMITTED WITH A NON-BLANCHING RASH

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: The differential diagnosis of a non-blanching rash in well appearing children is wide with the most sinister being bacterial sepsis. Approximately 10% of children with a non-blanching rash have meningococcal septicaemia. We aimed to study the diagnosis and outcome of children who were hospitalised with a non-blanching rash.
Methods: The clinical presentation, diagnosis, management, vaccination status and Length of stay (LOS) of children (0-16 years) admitted to Mater Dei Hospital, Malta between 2019-2021 with a non-blanching rash were analysed retrospectively. Comparisons were made using Chi-Square and Independent t-tests.
Results: Out of 140 children recruited, 23 were excluded due to incomplete data. Their mean age was 4.33 years (IQR = 1.17-5.50) and 66.67% were male. Febrile children most commonly had a viral illness (69.7%), whilst Henoch Schönlein purpura (23.5%) and immune thrombocytopenia (23.5%) were the most common diagnoses in afebrile children. None had septicaemia. The average LOS was 2.3 days (95%CI 1.46-3.13). There were no significant differences in LOS, management and meningococcal and pneumococcal vaccination status between febrile and afebrile patients. Similarly, there was no significant difference in blood results between febrile and afebrile children except for the mean CRP which was 22.88 (95%CI 13.6-32.2) and 6.54 (95%CI 1.62-11.5) respectively (p-value < 0.00001).
Conclusions/Learning Points: Well appearing children presenting with petechiae remain challenging to manage. Fever and a high CRP help distinguish infective from non-infective causes. Febrile children with petechiae would still merit a period of observation to exclude underlying septicemia.

PV0514 / #903

LEMIERRE SYNDROME WITH AN ATYPICAL PRESENTATION

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Lemierre syndrome with an atypical presentation
Background: Lemierre Syndrome (septic thrombophlebitis of the internal jugular vein) is a rare complication of an otorhinolaryngological infection that may lead to severe secondary lesions.
Case Presentation Summary: A previously healthy 15-year-old male presented with a 7-day history of fever, sore throat, and jaundice. Physical examination revealed swollen tonsils and hepatosplenomegaly. Laboratory analysis showed elevated acute phase reactants, cholestasis, thrombocytopenia, and coagulopathy. Microbiology tests for SARS-CoV-2, hepatitis, and Streptococcus pyogenes were negative. Urinalysis showed leukocyturia and nitrites and treatment with cefotaxime was started. The patient developed thoracic, cervical, and lumbar pain and his respiratory status
worsened requiring oxygen therapy. A new asymmetric tonsillar enlargement was detected, and blood cultures were positive for Fusobacterium necrophorum. A computed tomography (CT) scan showed a peritonsillar abscess of 3,3 x 2,9 x 5,5 cm, thrombosis of the internal jugular vein, and septic pulmonary embolisms.
After surgical drainage, the patient was changed to amoxicillin/clavulanate plus metronidazole and admitted to the Paediatric Intensive Care Unit. Magnetic Resonance Imaging (MRI) showed two extensive cervical and lumbar epidural abscesses, L5-S1 arthritis, and infiltration of paravertebral muscles. The patient respiratory status worsened requiring mechanical ventilation. A new CT scan showed progression of the septic embolisms without other long-distance complications. Antibiotic therapy was changed to meropenem, and anticoagulation was started. The patient gradually improved allowing extubation and a follow-up MRI showed improvement of musculoskeletal complications. After 32 days of hospital admission, he was discharged on oral amoxicillin and subcutaneous anticoagulation therapy.
Learning Points/Discussion: Few Lemierre Syndrome cases with musculoskeletal complications have been reported. Treatment should combine surgical source control if possible and long-term antibiotic therapy. Clinical suspicion, early diagnosis, and multidisciplinary management become essential to deal with this potentially lethal entity.

PV0515 / #1926

A PANORAMIC VIEW OF INVASIVE PNEUMOCOCCAL DISEASE OVER MORE THAN TWO DECADES: THE EFFECT OF VACCINATION AND COVID-19 ON PEDIATRIC CASES IN A SINGLE BRAZILIAN CENTER

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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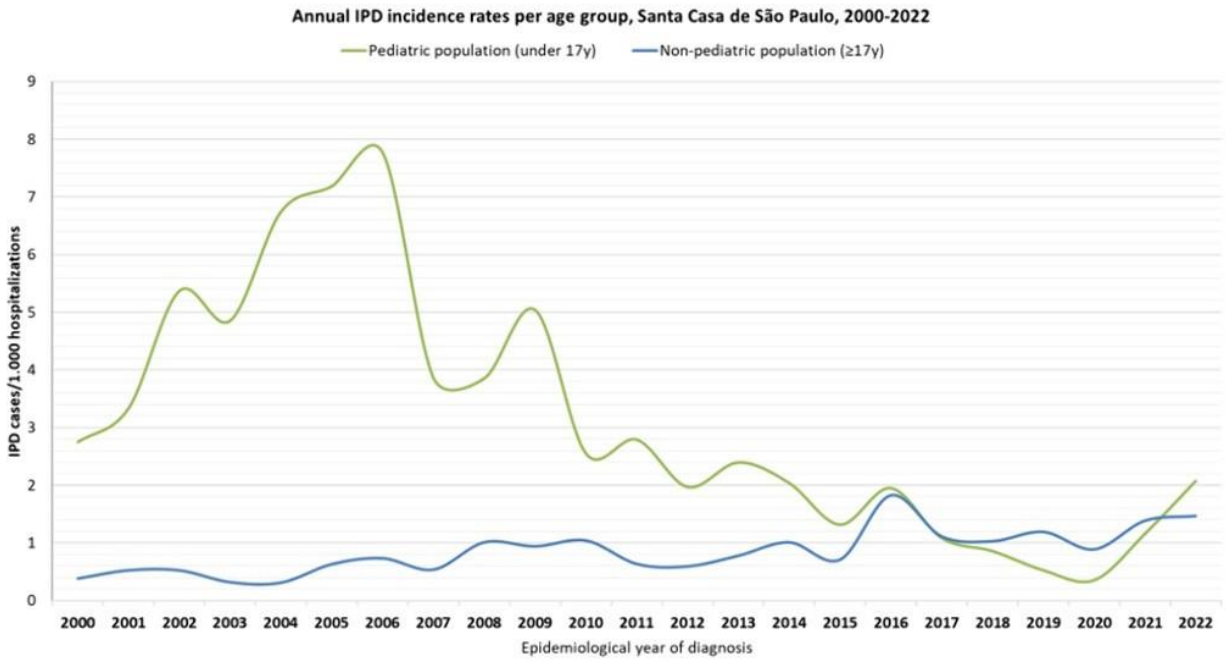
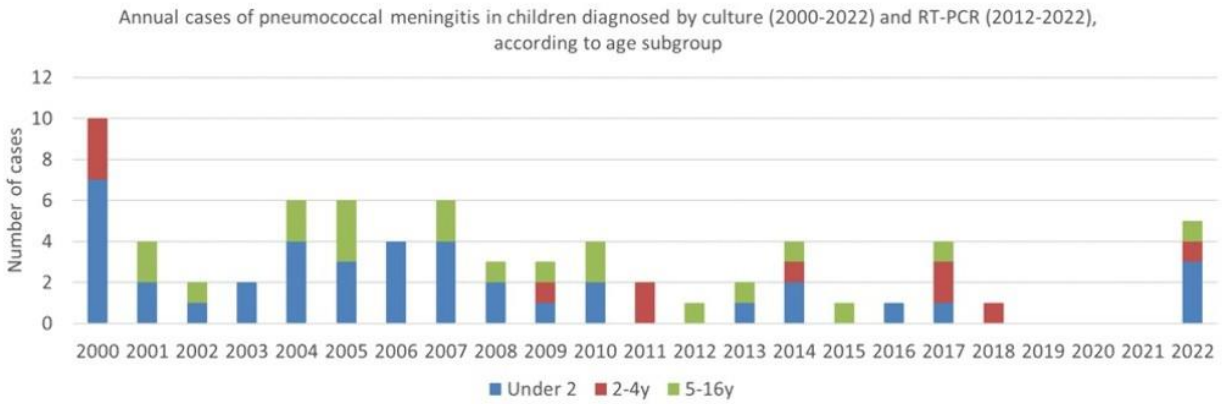
Backgrounds: Pneumococcal conjugate vaccine (PCV10) was introduced in the Brazilian National Vaccination Program in 2010 to all children under 2 years. We describe the effect of PCV10 vaccination and the COVID-19 pandemic on IPD over the last 22 years in a single tertiary center in Brazil.
Methods: In this hospital-based study, all cases of IPD (S. pneumoniae isolated in sterile fluids) from January 1st, 2000, through December 31st, 2022, were evaluated. Incidence rates per 1000 hospitalizations were analyzed according to age group and pre-vaccination period (2000-2009) versus post-vaccination period (2011-2022). RT-PCR was added as a routine diagnostic tool for meningitis in 2012.
Results: A total of 736 IPD episodes were evaluated. Incidence rates per 1000 hospitalizations dropped substantially among children after PCV10 until 2020 (2.79 to 0.4, average 1.53), but a sharp increase occurred during the 2nd and 3rd pandemic years (1.2 and 2.1, respectively). Seven years after PCV10 introduction, the incidence of adult IPD exceeded the pediatric, but rates trends drastically and unusually reverted in 2022. Since PCV10, 18.1% (62/342) of IPD episodes occurred in children, while 64.5% (231/358) of cases during the pre-vaccine era were pediatric. Among 170 meningitis cases, 21 occurred in children during the post-vaccine period – numbers in 2022 reached a 15-years record following COVID-19, exceptionally and exceedingly high among children under 2. Detection rates were significantly increased using RT-PCR in
CSF.





Conclusions/Learning Points: During this 22-year surveillance on IPD, IPD incidence shifted towards an evident adult predominance after the use of PCV10, but rates drastically and unusually reverted in 2022. Pneumococcal meningitis in children unusually increased after COVID-19, with molecular assay playing a substantial role in diagnosis.

PV0516 / #1306

INFANTILE INVASIVE MSSA INFECTION: A GOOD OUTCOME IS POSSIBLE

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Infantile Invasive MSSA infection: a good outcome is possible
Background: Invasive methicillin susceptible Staphylococcus aureus (MSSA) infections are an important cause of mortality and morbidity in neonates. Colonization of virulent strains of the mother or spread through NICU may provoke iMSSA infections to the newborn, usually through hematogenous dissemination. We present a complex case of a 22days old boy.
Case Presentation Summary: Our patient with a history of a 3day hospitalization in NICU for respiratory distress, was admitted for a 3day purulent umbilical secretion, without fever. The mother presented skin abscess. His vital signs were normal and he was in perfect general state. At the clinical examination, he presented reduced mobility of the right arm and left leg and eight reddish palpable nodules on his left thigh. His initial work up on admission revealed high inflammatory markers and the blood culture and the umbilical cord pus were positive for MSSA PVL negative. Ultrasounds and MRIs revealed multiple subcutaneous abscesses on the areas of left leg and right arm, septic arthritis of the right shoulder and an inferior spinal intracanal abscess. After multidisciplinary discussion, only the abscess of the right shoulder was evacuated on the 8th day of hospitalization. He received a 4week course of clindamycin and a 6week course of cloxacilline. At discharge, his physical examination and radiological control were strictly normal. Patient’s and his mother’s immunological work up were normal.
Learning Points/Discussion: Disseminated early life staphylococcal infections with a benign evolution are rare. The complexity of the genome, the role of its superantigens and toxins of SA are still understudied. Efficient screening and decolonization programs of pregnant women could possibly decrease invasive staphylococcal disease in neonates. Efficacy and cost effectiveness are yet to be studied.

PV0517 / #2193

INVASIVE GROUP A STREPTOCOCCAL INFECTION IN AN 8-MONTH-OLD INFANT: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Invasive Group A Streptococcal Infection in an 8-Month-Old Infant: A Case Report
Background: Streptococcus pyogenes (S.pyogenes), also known as group A streptococcus, causes a wide range of infections, including noninvasive and invasive diseases. Invasive infections are the most severe forms of presentation and are more common in younger children.
Case Presentation Summary: An 8-month-old, previously healthy boy was seen at the emergency department with a 2-day-history of fever, erythematous rash, irritability and poor oral intake. On examination, he was pale, had a maculopapular rash on the trunk, palms and soles, and scattered petechiae. After admission, the patient's condition worsened with hypoactivity, tachycardia and hypotension, requiring a fluid bolus. Later, erythematous lesions and swelling appeared on the third finger of the right hand, and the left wrist and arm. Blood tests revealed high inflammatory markers and treatment with ceftriaxone and clindamycin was started. S.pyogenes was isolated in the blood culture and the patient was diagnosed with S.pyogenes sepsis. As the antimicrobial susceptibility test revealed sensitivity to penicillin and clindamycin, ceftriaxone was switched to penicillin. On the first-day after admission, he presented signs consistent with arthritis of the right-knee confirmed by MRI. A diagnostic and therapeutic arthrocentesis was performed. S.pyogenes was also isolated in the synovial fluid. By day-11, due to persistent inflammatory signs, an MRI was done and showed multiarticular involvement, but no complications. The patient was discharged home 21 days after presentation, with oral amoxicillin to complete 4-weeks of antimicrobial therapy. Total resolution of the articular changes was observed in follow-up appointments.
Learning Points/Discussion: This case illustrates the importance of early identification and treatment of S.pyogenes infections in children, in order to prevent complications, postinfectious sequela and the high morbidity and mortality associated with invasive infections.

PV0518 / #1113

LONG-TERM FOLLOW-UP OF INVASIVE MENINGOCOCCAL DISEASE SEQUELAE IN CHILDREN: UPDATE ON SEINE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Few studies have considered the long-term (>1year) sequelae of invasive meningococcal disease in children. The SEINE study aims to include patients <18 years old who had invasive meningococcal disease (IMD), meningitis or purpura fulminans when <15 years old and >1 year before the date of inclusion. To establish a pathway for care, enrolled participants undergo a thorough medical, neurocognitive, and sensory evaluation.
Methods: Through the ACTIV meningococcal disease active surveillance network, 135 children who had IMD between 2010 and 2020 were identified at 32 hospitals in Paris area.
Results: Of these 32 sites, 6 are active centers accounting for 53 children eligible for inclusion; the remaining sites have deferred study participation, primarily due to the unavailability of their medical staff, who are busy managing major winter epidemics. Among these 53 children, 19 have been lost to follow-up—underscoring the challenge of maintaining contact with study participants' families—while records are missing for 7. At this time, 20 patients have been enrolled, some of whom are still undergoing examinations. While one child has a severe disability, the others attend regular schools. The preliminary data reveal frequent sensory impairments (i.e., loss of vision [7/17: 41%] or hearing [2/17: 12%]) as well as learning disabilities (attention disorders [4/17: 23%] and difficulties with spelling [10/16: 62%], reading [5/16: 31%], or logical/mathematical tasks [3/16: 19%]), despite WPPSI-IV and WISC-V scores indicating normal cognitive abilities.
Conclusions/Learning Points: The update of the SEINE study underlines the difficulties of implementing a study that requires recontacting families at a distance from the IMD and when the children are often no longer followed in hospital. The preliminary results illustrate the importance of neurocognitive and sensory follow-up and of screening for learning disabilities.

PV0519 / #907

INVASIVE GROUP A STREPTOCOCCUS AND INFLUENZA CO-INFECTION IN A 13-YEAR-OLD GIRL LEADING TO TOXIC SHOCK SYNDROME, SUBDURAL EMPYEMA, MENINGITIS, PAN-SINUSITIS AND PHARYNGITIS

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: INVASIVE GROUP A STREPTOCOCCUS AND INFLUENZA CO-INFECTION IN A 13-YEAR-OLD GIRL LEADING TO TOXIC SHOCK SYNDROME, SUBDURAL EMPYEMA, MENINGITIS, PAN-SINUSITIS AND PHARYNGITIS
Background: Streptococcus pyogenes, or group A Streptococcus, can cause a multitude of illnesses, of which acute pharyngitis is the most common. Invasive group A Streptococcal disease (iGAS) affecting otherwise sterile sites is rarer and associated with severe complications and deaths. WHO has recently reported increasing incidences of pediatric iGAS in Europe since late 2022.
Case Presentation Summary: A 13-year-old previously healthy Chinese girl who recently returned from United Kingdom presented with 3-days of coryzal symptoms, headache and otalgia, followed by right periorbital and facial swelling, incoherent speech and photophobia. Empirical ceftriaxone, vancomycin, metronidazole and oseltamivir was started. She required inotropic support in PICU. WBC was raised ($17.23x10^9$/L), with neutrophilia ($16.78x10^9$/L) and lymphopenia ($0.31x10^9$/L). CT brain and orbit revealed pan-sinusitis, preseptal cellulitis, subdural empyema and cerebral edema. MRI brain showed leptomeningeal enhancement. CSF cell count was $360x10^6$/L (91% neutrophils) and opening pressure was 54cmH2O. Emergency bilateral functional endoscopic sinus surgery, drainage of subdural empyema and external ventricular drain (EVD) insertion was performed. Cultures yielded Streptococcus pyogenes and PCR detected influenza A. CSF reassessment 6 days later on removal of EVD showed cell count $<1x10^6$/L. These findings were compatible with Streptococcal toxic shock syndrome (STSS), subdural empyema, meningitis, pan-sinusitis, pre-septal cellulitis and pharyngitis. Neurocognitive sequelae included left hemiplegia, frontal lobe and swallowing dysfunction. She completed course of oseltamivir and 6 weeks cefotaxime. Neurorehabilitation and reassessment MRI brain was arranged.
Learning Points/Discussion: iGAS disease can progress rapidly, causing life-threatening conditions and severe morbidity, especially when STSS occurs and PICU care is required. Timely initiation of antimicrobials and management of co-infections and complications was life-saving for this child.

PV0520 / #2213

AN ENTEROCOCCUS FAECALIS RE-INFECTION IN A NEWBORN

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: AN ENTEROCOCCUS FAECALIS RE-INFECTION IN A NEWBORN
Background: Enterococcus faecalis is a rare agent for neonatal sepsis and is an important cause of morbidity in neonates. The timing of the diagnosis and the treatment is of paramount importance to prevent complications in the short and long term.
Case Presentation Summary: A 2 months-old female, presented to the emergency room (ER) with a history of fever and irritability. She had been previously hospitalized at 15 days old with acute VSR bronchiolitis and Enterococcus faecalis urosepsis with meningitis and treated for 7 days with Cefotaxime, 10 days Gentamicin and 14 days Ampicillin. She was released 3 days before. At the ER she was hemodynamically stable, with vigorous crying, normal anterior fontanelle and no neurological deficit. At admission her blood test revealed leukocytosis with predominance of neutrophils, normal C-Reactive protein, urine and blood cultures revealed an Enterococcus faecalis. The cerebrospinal fluid (CSF) had 10949 cells (82% neutrophils) and the culture was positive to Enterococcus faecalis. She was hospitalized for 21 days, treated with ampicillin and gentamicin. During the hospitalization she did a cerebral MRI that was normal. She presented analytical improvement and repeated the lumbar puncture the day before being discharged, which revealed 31 cells and CSF and blood culture negative. At 5 months she is growing and developing well. She is waiting for immunological study results.
Learning Points/Discussion: Enterococcus faecalis is a Gram positive bacteria that normally acts as an opportunistic pathogen. Normally causes infection in patients that are hospitalized for a long time or that received antibiotic therapy. It is not the case of our patient. Therapy with broad spectrum antibiotics, during 21 days, resulted in complete recovery.

PV0521 / #921

PAEDIATRIC INFECTIOUS ENDOCARDITIS: 10-YEARS' EXPERIENCE AT A TERTIARY HOSPITAL IN SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Infective endocarditis(IE) is a rare disease in children and is associated to significant morbimortality. We describe the epidemiological, microbiological, and clinical features of IE episodes from a Spanish tertiary hospital in a 10-years' period.
Methods: A descriptive observational retrospective study was performed, including paediatric patients <16 years old with a definite or possible IE admitted to a tertiary hospital between January/2012-December/2021.
Results: 32 IE episodes were identified. Twenty-eight(87.5%) had congenital heart disease, 8(25.0%) were preterm neonates, 1(3.1%) immunocompromised and 6(18.8%) had other chronic disorders; in 11(34.4%) episodes >1 underlying condition was associated. Twenty(62.5%) patients had a central venous line. Microbiologic isolates were: 7(19.4%) coagulase-negative staphylococci, 6(16.7%) S.aureus, 4(11.1%) E.faecalis, 3(8.3%) viridans streptococci, 10(27.8%) non-HACEK Gram-negative bacteria, 1(2.8%) HACEK-group bacterium, 4(11.1%) fungi and 1(2.8%) C.burnetii. 30%(3/10) of IE episodes of patients colonized by multiresistant bacteria (MRB) were caused by those. There were echocardiographic findings in 27(84.4%) episodes: 21(65.6%) were right IE and 6(18.8%) left IE. The most common complication was septic embolism: 11(34.4%) episodes (9 pulmonary and 2 cerebral). 11(34.4%) episodes required surgical management. Inhospital mortality was 6.3%, all of them due to underlying condition and not to IE or its complications. Clinical features and complications of IE episodes caused by non-HACEK Gram-negative bacteria and caused by Gram-positive bacteria were compared, finding no significant
differences(Table1).

Table 1. Complications of IE episodes caused by non-HACEK Gram-negative bacteria and Gram-positive bacteria.

	Gram-positive bacteria (n=18*)	Non-HACEK Gram-negative bacteria (n=9*)	*p*
PICU admission, n (%)	13 (72,2)	9 (100)	0,080
Surgical management, n (%)	5 (27,8)	3 (33,3)	0,766
Septic embolisms, n (%)	4 (22,2)	3 (33,3)	0,535
Local extension of infection, n (%)	1 (5,6)	1 (11,1)	0,603
Heart failure, n (%)	2 (11,1)	3 (33,3)	0,161
Residual valve regurgitation, n (%)	5 (27,8)	1 (11,1)	0,091
Heart rhythm disturbances, n (%)	1 (5,6)	0 (0)	0,471
Neurological complications, n (%)	1 (5,6)	2 (22,2)	0,194
Acute renal failure, n (%)	3 (16,7)	1 (11,1)	0,702
Recurrences, n (%)	2 (11,1)	2 (22,2)	0,444
Mortality, n (%)	1 (5,6)	1 (11,1)	0,603

***4 IE episodes had >1 bacteria isolated (2 isolates per episode).**

Conclusions/Learning Points: Risk factors for developing IE, proportion of embolic complications and mortality were similar to those previously published. Proportion of IE episodes caused by non-HACEK Gram-negative bacteria was higher. A high percentage of children colonized by MRB had an IE episode due to those bacteria. There were no differences in clinical features and complications when comparing IE episodes caused by non-HACEK Gram-negative bacteria and those caused by Gram-positive bacteria.

PV0522 / #334

FEVER, LIMP AND SKIN LESIONS: WHEN THE CLUE IS AT HOME.

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Fever, limp and skin lesions: when the clue is at home.
Background: Endocarditis is a serious infection with a challenging diagnosis and treatment. Cases have been rising due to the increased survival in patients with heart diseases, immunodeficiencies or catheter carriers. However, 8-10% of these don't have any risk factor.
Case Presentation Summary: A 4-year-old female, healthy and properly vaccinated, presented fever and limp for 6 days and palm and soles lesions in the last 48 hours. She received treatment with amoxicillin-clavulanate for 3 days. Her mother had been recently discharged from the hospital due to an oncologic disease. She presented weakening, ecchymotic lesions in palm and soles, heart murmur and hypotension. Blood test showed leukocytosis 20000/ul, neutrophilia 15340/ul, thrombocytopenia 99900/ul, C-reactive protein 25.45mg/dl, procalcitonin 4.39ng/ml, troponin I 16.7ng/ml and NT-proBNP 1524pg/ml. With the presumptive diagnosis of osteoarticular infection and endocarditis, ceftriaxone and cloxacillin were started. Electrocardiogram, chest x-ray and hips ultrasound were normal. Echocardiography revealed a 10x15mm vegetation at mitral valve with mild to moderate mitral regurgitation. In the blood culture, Staphylococcus aureus grew and MALDI-TOF and FilmArray tests revealed methicillin resistance (MRSA). Therefore, treatment was changed to ceftaroline and daptomycin. Brain and hips magnetic resonance showed left hemicortex microinfarction and ilyopubic osteomyelitis. After obtaining the antibiogram, treatment was changed to vancomycin. The vegetation was surgically removed and MRSA grew in its culture. Treatment with vancomycin was completed for 6 weeks since the surgery, with periodic optimization of the antibiotic dose. Carriers study was performed, and MRSA was isolated in the mother's.
Learning Points/Discussion: Endocarditis must be suspected even in the absence of risk factors. It's important to monitor antibiotic levels to optimize treatment and remember MRSA in patients or relatives with epidemiological risk factors.

PV0523 / #2090

CAT SCRATCH DISEASE THROUGHOUT THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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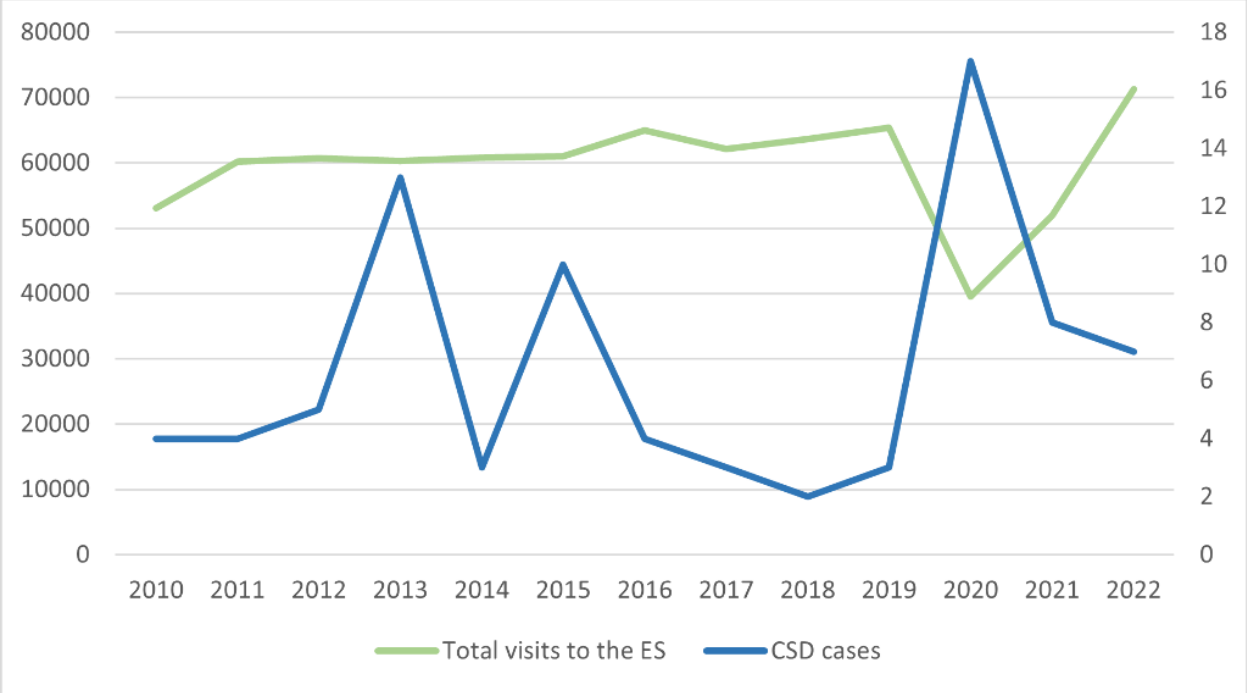
Backgrounds: Cats serve as the natural reservoir for B. henselae and Cat Scratch Disease (CSD) can result from a scratch or bite from an infected cat, as well as from exposure to cat fleas or via contact of cat saliva. Rare cases have occurred after exposure to dogs. An increase in CSD cases was observed in our community in 2020, probably related to increased time at home due to the COVID-19 pandemic restrictions. Our aim was to assess its incidence after progressive lifting of the restrictions and compare to pre-pandemic period.
Methods: Retrospective observational study of all cases of CSD diagnosed in a tertiary paediatric hospital from 2010 to 2022.
Results: 83 cases were identified, with annual distribution presented in figure, with a peak incidence in 2020. The median age was 8.9Y (0.6-17Y), 89.2% had contact with cats (in 70% kittens) with 50% having a scratch. Most presented with regional lymphadenopathy (88%), 71.2% of which with several enlarged lymph nodes. Ten had atypical presentation (median age 5Y), 3 in 2020: hepatosplenic disease with microabscesses (n=6), prolonged fever (n=3) and Parinaud's oculoglandular syndrome (n=1). All had a good
outcome.



Conclusions/Learning Points: An increase in CSD cases was observed in 2020, in contrast with the dramatic reduction of most infectious diseases and Emergency Service visits. The progressive lifting of the restrictions was accompanied by a reduction in the number of cases, similar to the prepandemic period.

PV0524 / #1405

HYPEREOSINOFILIA IN AN ASSYMPTOMATIC CHILD DUE TO VISCERAL LARVA MIGRANS: A PEDIATRIC CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Hypereosinofilia in an assymptomatic child due to visceral larva migrans: a pediatric case report
Background: Hypereosinophilia (≥1500 eosinophils/microL) may be present by allergic, infectious, inflammatory or neoplastic conditions. Toxocariasis is a common cause of eosinophilia caused by migrating Toxocara spp larvae, with humans being accidental hosts. Clinical manifestations range from asymptomatic to severe organ injury.
Case Presentation Summary: 3-year-old boy with global developmental delay, from a rural area, presented with incidental hypereosinophilia (5400/microL). He remained asymptomatic. Four weeks later the work-up revealed rising eosinophils (8500/microL), without cytopenias or other findings on peripheral blood smear. Stool exams and allergic screening were unremarkable. The hypothesis of toxocariasis was raised and diagnosis was confirmed by ELISA IgG for Toxocara canis and confirmatory immunoblot test. Hypereosinophilia persisted after 5 days of albendazole and a second course was administered. Systemic involvement was investigated with normal biochemical parameters, chest x-ray and echocardiogram. Abdominal ultrasound showed mild hepatomegaly, with slight hypertrophy of the left lobe, without focal lesions or splenomegaly. Eye evaluation was requested. Echinococcus and fascioliasis were excluded. He remained asymptomatic and the eosinophil count decreased. Reassessment 6-months later revealed worsening of hypereosinophilia (10000/microL) and hypoechoic hepatic lesions. Public Health and Pediatric Infecciology expert opinion were asked. After a longer treatment with anthelminthic therapy (5-day course mebendazole followed by 4 weeks albendazole) with no side effects, three smaller areas of signal change on MRI were detected and a new longer course of albendazole was performed. Hepatic focal lesions disappeared and eosinophil count slowly normalized.
Learning Points/Discussion: The main concern is the progression to visceral or ocular larva migrans. Public Health must be involved. Longer anthelminthic treatment may be required. Blood count eosinophils may have a delay to normalize.

PV0525 / #1128

CHARACTERISTICS OF STREPTOCOCCUS SPP. OTHER THAN STREPTOCOCCUS PNEUMONIAE CAUSING PEDIATRIC SEPSIS IN THE PAST 10 YEARS.

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Streptococcus spp. is one of the most common pathogens causing sepsis in pediatric infections, but other than Streptococcus pneumoniae, streptococci have not been reported to be well studied in clinical microbiology. We try to determine the clinical characteristics of streptococci other than Streptococcus pneumoniae isolated from pediatric sepsis patients in Japanese general hospitals during the past decade.
Methods: A cross-sectional study was conducted on 29 patients diagnosed with pediatric sepsis at a Japanese general hospital between 2013 and 2022.Medical records added to the clinical species were used for clinical characteristics. Streptococcus spp. isolated from children were identified by standard laboratory procedure. Antimicrobial susceptibility testing was performed by microdilution assay.
Results: The gender of the infected people was eleven males and eighteen females. By age group, fourteen were in the 0-1 age group, seven in the 1-3 age group, three in the 4-6 age group, and five in the 7-12 age group. The number of sepsis patients by year averaged 1 from 2013 to 2017. However, the number of patients increased to 6 in 2018, 4 in 2019, 5 in 2021, and 7 in 2022. The most frequently isolated Streptococcus species were Streptococcus mitis, Streptococcus agalactiae, and Streptococcus parasanguinis. Antimicrobial susceptibility testing showed thirteen penicillin-insensitive, twenty erythromycin-insensitive, eight clindamycin-insensitive, twelve minocycline-insensitive, and eight ciprofloxacin-insensitive resistant Streptococcus spp.
Conclusions/Learning Points: Our results suggest that the isolation of Streptococcus spp. in pediatric patients with sepsis is on the increase and that the non-susceptibility to antimicrobial agents, including penicillin, tends to be high. Thus, the trend of Streptococcus spp. in the clinical microbiology field should also be kept in focus in the future.

PV0526 / #1397

IMPACT OF SARS-COV-2 PANDEMIC ON PEDIATRIC INPATIENTS WITH INVASIVE GROUP A STREPTOCOCCAL INFECTIONS (IGAS)

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: To investigate the incidence, possible risk factors and clinical characteristics of iGAS, a potentially severe disease in children in Switzerland, over time, a national registry has been created.
Methods: Since 01.12.2017, inpatients < 17 yrs. with iGAS are reported to a national registry, the Swiss Pediatric Surveillance Unit (SPSU). Demographic data, clinical characteristics including outcome are collected via detailed questionnaire.
Results: In total, 165 iGAS-patients were reported between 01.12.2017 and 30.11.2022. Median age was 62 months (range 18 days to 16 11/12 years) and 55/165 (33%) were female. During pandemic, cases substantially decreased from 41 in 2019, to 18 and 16 cases in 2020 and 2021, respectively. After discontinuation of nonpharmaceutical interventions, a resurgence to a total of 29 cases was recorded in 2022 by end-November. Severe illness occurred in 76/165 (46%) iGAS-cases with need for ICU treatment, 41/77 (53%) patients required temporary ventilation, 44/77(57%) had catecholamines to maintain circulation and 90/165(55%) required surgery. A risk factor was identified in 32/165 (19%), with previous varicella infection being the most prevalent in 21 cases. Of 165 patients, 121(73%) had complete cure. Residuals occurred in 32/165(19%) and one death was reported in a 26-month-old previously healthy infant, representing a case fatality rate of 0.6 %. Risk factors or frequency and severity of residuals did not differ in the years before and during the pandemic.
Conclusions/Learning Points: In Switzerland, iGAS is again increasing after incidence had dropped during the SARS-CoV-2 pandemic. It mainly affects previously healthy children and is severe in almost half of the cases, though severity was comparable in both periods. Further surveillance is needed to determine changes in the incidence, severity and clinical presentation of iGAS.

PV0527 / #1878

A CRITICAL CASE OF MULTIFOCAL PYOMYOSITIS CAUSED BY METISILINE SENSITIVE STAPHYLOCOCCUS AUREUS TOGETHER WITH PERICARDITIS, SACROILEITIS AND ACUTE GENERALIZED EXANTHEMATOUS PUSTULOSIS IN A PREVIOUSLY HEALTHY ADOLESCENT

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: A CRITICAL CASE OF MULTIFOCAL PYOMYOSITIS CAUSED BY METISILINE SENSITIVE STAPHYLOCOCCUS AUREUS TOGETHER WITH PERICARDITIS, SACROILEITIS AND ACUTE GENERALIZED EXANTHEMATOUS PUSTULOSIS IN A PREVIOUSLY HEALTHY ADOLESCENT

Background: Pyomyositis which is predominantly caused by staphylococcus aureus, is primary pyogenic infection of the skeletal muscles. It can be seen at any age group and previously healthy children.Staphylococcus aureus is the most important cause of community-acquired skin, soft tissue or bone infections

Case Presentation Summary: This case represents an adolescant girl with pyomyositis of multiple muscles, causing sacroileitis and multiorgan failure because of sepsis. There was no medical history of trauma, infection, surgery or immunsupression.She described these progressive complaints for 1 week. Her physical examination revealed decreased breath sounds on basal areas of bilateral lungs, abdominal distension, edematous extremities. The pus aspirated from the abscess tested positive for meticilline sensitive Staphylococcus aureus. Despite proper treatment with parenteral antibiotics and surgical drainge, patient's fever persisted, and sepsis triggered hemophagocytic syndrome. The patient has transferred to pediatric intensive care unit with the diagnosis of hemophagocytic syndrome related to sepsis and received plasmapheresis, iv corticosteroid, broad spectrum antibiotics and renal replacement therapy. Also a new maculopapuler rash on her trunk and limbs was observed after meropenem infusionand and diagnosed with acute generalized exanthematous pustulosis , After clinical improvement the patient has transferred to pediatric infectious diseases ward back

Learning Points/Discussion: In conclusion, diagnosis of pyomyositis is generally difficult because of subtle symptoms and its low incidence, therefore treatment delay can rapidly cause fatal outcomes. Also, the absence of a comorbid disease should not mislead the physician if there is a suspicion of pyomyositis.

PV0528 / #2711

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS DUE TO GRAM-NEGATIVE BACTERIA IN CHILDREN WITH SHORT BOWEL SYNDROME – A RETROSPECTIVE STUDY FROM A UNIVERSITY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Background: Children with short bowel syndrome (SBS) receiving parenteral nutrition (PN) are predisposed to central line-associated bloodstream infections (CLABSI), which are often polymicrobial and more likely caused by gram-negative bacteria from the gut, suggesting a central causative role of intestinal translocation. Gram-negative bacteremia is known to carry a high rate of morbidity and mortality.
Methods: A 10-year (January 2012 – December 2022) descriptive single-centre retrospective chart review of all episodes of microbiologically confirmed Gram-negative CLABSIs in children with SBS on PN.
Results: In the analysed period, 16 children had 26 episodes of microbiologically confirmed gram-negative CLABSIs, of which 65.4% (17/26) were present in children with SBS. Out of all children with SBS, 62.5% (5/8) had more than one gram-negative CLABSI (2.1 per child). Of all CLABSIs, 19.2% (5/26) were polymicrobial, with 80% (4/5) of them occurring in children with SBS, with an incidence of 23.5% (4/17). The most frequently isolated pathogen was Klebsiella pneumoniae (29.2%, 7/24), followed by Klebsiella oxytoca (16.6%, 4/24), Escherichia coli (16.6%, 4/24), Raoultella (Klebsiella) ornithinolytica (8.3%, 2/24), Enterobacter cloacae (8.3%, 2/24), Proteus mirabilis (8.3%, 2/24), Proteus vulgaris (4.2%, 1/24), Enterobacter ausburiae (4.2%, 1/24) and Pseudomonas aeruginosa (4.2%, 1/24). Twenty-nine percent (5/17) of CLABSIs in children with SBS presented with signs of septic shock. The mean duration of antibiotic therapy was 21.3 ±9.3 days. No deaths were recorded.
Conclusions/Learning Points: Children with SBS had more gram-negative and more polymicrobial CLABSIs than other children, with more CLABSI recurrences. The need for long-term central venous access and the intestinal dysfunction associated with SBS drive the need for an intestinal failure-specific approach to prevent and treat infections in patients with SBS.

PV0529 / #2528

MULTIPLE CAUSES OF BELL PARALYSIS IN A TODDLER: WHICH ONE IS TO TREAT?

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: MULTIPLE CAUSES OF BELL PARALYSIS IN A TODDLER: WHICH ONE IS TO TREAT?
Background: Facial nerve palsy in children is uncommon. Management depends on etiology (bacterial, viral, inflammatory, neoplastic, traumatic or idiopathic).
Case Presentation Summary: We present a previously healthy and immunized 16-months boy admitted to hospital for elevated fever. During hospitalization he developed bilateral secretory otitis and progressive neurologic signs (left peripheral facial palsy, nystagmus); no clinical signs of otomastoiditis. Laboratory findings included positive EBV, HSV, CMV and Paramyxovirus IgM; only EBV infection was confirmed by PCR on blood. Blood count and inflammatory markers were always normal. Head CT showed signs of bilateral otitis media complicated with mastoiditis. Brain MRI showed a voluminous mass in the parotid region which according to the US was recognized as inflammated parotid gland with increased dimension and multiple lymphadenopathies. Linear impregnation of the left facial nerve was also shown by MRI. Otomastoiditis was treated with Ceftriaxone, Vancomycin and Prednisone with progressive improvement of clinical conditions and resolution of nystagmus. Due to impossibility to rule out HSV co-infection and in the attempt to treat EBV infection, acyclovir was also administered. Even though physiotherapy rehabilitation with the Cabot method was promptly started, the paralysis partially persisted four weeks after hospital discharge.
Learning Points/Discussion: Facial nerve palsy in children has multiple causes. Differential diagnosis is essential to establish proper treatment. In case of viral infections, the role of antiviral treatment is still unclear. Few cases of facial palsy by EBV infection have been described, but none of them with identification of etiopathogenesis. In our case, there was radiological evidence of inflammation of the VII nerve in its intraparotid portion as result of gland inflammation due to EBV infection. Rehabilitation outcomes are unpredictable.

PV0530 / #2215

MULTICENTRE STUDY OF PEDIATRIC INVASIVE STAPHYLOCOCCUS AUREUS INFECTIONS IN PORTUGAL

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: The global burden of S. aureus community-acquired and healthcare-associated infection poses a significant challenge for clinicians worldwide. The aim of this study was to characterize invasive disease by this agent in Portuguese children from a clinical and microbiological point of view.
Methods: 7-year, observational, retrospective, multicentric study of infected children with identification of S. aureus in a biological sample from a usually sterile site. Clinical survey and microbiological characterization.
Results: Total of 394 cases (reported from 20 hospitals), with S. aureus isolated more frequently in blood cultures (295; 74.3%), followed by abscess drainage (58; 14.6%) and synovial fluid (15; 3.7%). Global incidence – 21.1 cases/100 000 children. Main clinical presentations were bacteremia/sepsis (36%), osteoarticular infection (21%) and skin abscess (14%). Male predominance (60.7%), median age of 3.9 years (30.8% < 1YO, 45.2% ≥ 5YO), 36% with comorbidities, hospital admission in 92.2%, 14.7% in critical care. There were reported complications in 53 cases (13.3%) with 7 deaths. Oxacillin resistance rate was 30.3 vs. 10.1% and clindamycin 30.5 vs. 20.6%; respectively, in healthcare-associated and community-acquired species. Susceptibility testing influenced antibiotic therapy change in 33.7% of methicillin susceptible staphylococcus aureus (MSSA) species. MRSA infections occured more frequently in healthcare-associated infections and in younger children. Molecular characterization is being undertaken.
Conclusions/Learning Points: Invasive disease by S. aureus was present in every age bracket, predominantly in children with or above 5 years old and in skin and soft tissue and osteoarticular infections. Antibiotic therapy was adjusted by the antibiogram result in only 1/3 of MSSA cases. Oxacillin resistance rate in community-acquired infections was higher than reported in other European countries.

PV0531 / #720

FREQUENCY, CLINICAL AND MICROBIOLOGICAL CHARACTERISTICS, AND OUTCOMES OF PRIMARY BACTEREMIA BY STREPTOCOCCUS PNEUMONIAE IN CHILDREN TREATED AT COLOMBIAN TERTIARY CARE CENTERS 2017 - 2022

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Invasive pneumococcal disease (IPD) is a common cause of morbidity and mortality among children, with a case fatality rate of about 10% in children under 5 years. The frequency of primary bacteremia is 20% of the IPD in children under 2 years.
Methods: Observational, descriptive, longitudinal study. Data were obtained from medical records of patients under 18 years diagnosed with primary bacteremia by pneumococcus and treated in Neumocolombia network hospitals in 2017-2022 (10 hospitals of Bogotá, and 4 hospitals of Cali, 2 of Medellín and 1 of Cartagena). A univariate analysis was performed using frequency and bivariate tables with non-parametric Kruskal-Wallis (preliminary data).
Results: 344 cases of IPD, 74(21.5%) diagnosed with primary bacteremia. 55.4% of the patients were male. Median age was 30 months (IQR 9 - 55). 40.5% of the patients were under the age of 2; lethality was 10.8% (8/74) under 18 years and 20%(6/30) under 2 years of age, 39% had complete immunization with PCV10 (schedule 2+1) and 58% had at least one dose. Serotyping was obtained in 44(59%). The most frequent serotype was 19A, followed by 6C and 23B, (43%, 11.3% and 6.8%, respectively). Resistance to erythromycin was 50%, to clindamycin 33.8%, penicillin 20.5% and ceftriaxone 10%. 33.7% of the children were admitted to the ICU. The average hospital stay was 12.3 days, and 9.2 days in the ICU.
Conclusions/Learning Points: Primary bacteremia by S. pneumoniae in Colombia has a 20% case fatality rate in children under 2 years, the most frequent serotype being 19A, high resistance to antibiotics was found. Colombia changed to PCV 13 in July 2022

PV0532 / #2203

LISTERIOSIS AT AN ATYPICAL AGE, WHAT TO THINK ABOUT ?

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Listeriosis at an atypical age, what to think about?
Background: Listeriosis is a rare but serious invasive infection with a case-fatality rate of 16-20%. It is caused by Listeria monocytogenes and is usually transmitted by ingestion of contaminated food. It typically affects pregnant women, newborns, the elderly and immunosuppressed patients. It is very rare in immunocompetent persons.
Case Presentation Summary: We present a case of a 6-year-old female with a pathological history of recurrent respiratory infections. She was brought to the emergency department due to fever associated with frontal headache and decreased appetite. No respiratory symptoms associated. Later on she began to have liquid diarrhea, without blood, mucus or vomiting. No epidemiological context or suspicious food/water consumption was identified. Due to clinical signs of dehydration, a blood analysis and culture were performed and revealed mild hypokalemia(3,4mmol/L), leukocytosis(13200/uL) with a predominance of neutrophils and an elevated C-Reactive Protein(53,30mg/L). Subsequently, the blood culture isolated Listeria monocytogenes and antibiotic therapy with ampicillin and gentamicin was started for 14 days, following the exclusion of central nervous system involvement. The infection was reported to public health authorities. After both clinical and analytical improvement, she was discharged with instructions for follow-up, at which time she initiated treatment with immunoglobulin for suspected Common Variable Immunodeficiency.
Learning Points/Discussion: The authors consider it extremely important to share their findings as the number of Listeria infections is increasing in Europe. In these cases early initiation of antibiotic therapy is crucial and, in order to protect those at risk of severe illness, promptly notifying is essential. Given the rarity of this condition in immunocompetent children, the exclusion of immunodeficient children is mandatory. The authors also aim to highlight the importance of food safety.

PV0533 / #459

CYTOKINE PROFILE IN SEPSIS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: The first barrier of immune defense against pathogens is the complement system, acute phase proteins, cytokines, monocytes, macrophages, neutrophils and NK cells, etc.
Methods: Purpose of the study: to determine the cytokine profile (IL-1β, IL-2, IL-4, IL-6, IL-8, IL-10, TNF-α) in patients with sepsis and to evaluate the possibility of using the studied immunological parameters in the early diagnosis of bacterial sepsis. The study included 18 patients with sepsis (main group) who were treated at the City Children's Infectious Clinical Hospital and the 3rd City Children's Clinical Hospital in Minsk in 2022. In patients of the main group, the study of cytokines was carried out twice - at the diagnosis of "sepsis" (n=18) and in dynamics after 7 days (n=16).
Results: It was found that in the group of children with sepsis, the initial period of the disease proceeds against the background of a significant increase in the concentration of cytokines in the blood - TNF-α, IL-6 and IL-8 ($p<0.05$ compared with the control). The greatest changes were found in IL-6 values, the values of which exceeded the control values by 10 times, the median of which was 108.6 pg/ml (in the control group - 7.25 pg/ml). Studies in the dynamics of the course of sepsis against the background of antibiotic therapy revealed a significant decrease in the median of inflammatory cytokines: TNF-α, IL-6, $p<0.05$
Conclusions/Learning Points: The study revealed an immune imbalance, manifested by an increase in the blood concentration of some inflammatory cytokines (TNF-α, IL-6 and IL-8) in the absence of growth of others (IL-1β, IL-2, ID-4, IL- 10), which undoubtedly requires further detailed study and comparison with other markers of bacterial inflammation.

PV0534 / #521

CLINICAL PRESENTATION OF EBV INFECTION IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Epstein-Barr virus(EBV) is a human herpesvirus that is ubiquitous in nature, and most of the world population is infected. Infectious Mononucleosis(IM) is the most common clinical syndrome caused by EBV. IM most often begins insidiously, with vague malaise, followed several days later by fever, sore throat, swollen posterior cervical lymphnodes and fatigue. Some patients experience an abrupt influenza-like onset with fever, chills, body-aches and sore throat.
Methods: Because primary EBV infection is usually asymptomatic in children or produces an acute illness that is often not recognized as being to EBV, a study was conducted to explore clinical presentation of primary EBV infection in albanian children. In the study were enrolled 107 children aged 0-14years old, hospitalized in the Pediatric Infectious Disease Ward in the University Hospital Center "Mother Teresa" in Albania, during 2015-2018. Diagnosis was performed based on positive immunoglobulin M of EBV viral capsid antigen. In the typical presentation of IM were included all cases presented with the classic triad(fever, pharyngitis, lymphadenopathy), all other cases were considered atypical.
Results: 63% of children presented with typical IM and 37% presented with atypical IM. In the age-group 0-2years 56%of cases were typical IM, and 44% of cases were atypical IM. In the age-group 2-6years 57% of cases were typical IM, and 43% of cases were atypical IM. In the age-group 6-14years 74% of cases were typical IM, and 26% of cases were atypical IM. Median age in typical IM was 5.7years and median age in atypical IM was 4.9years.
Conclusions/Learning Points: The risk of developing Infectious Mononucleosis after primary EBV infection correlates with the age of the child. Young children often present with atypical or a partial IM syndrome. Although classic IM occurs too.

PV0535 / #1913

DENGUE-ASSOCIATED HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS IN A MICHIGAN TODDLER: THE IMPORTANCE OF TRAVEL HISTORY

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: DENGUE-ASSOCIATED HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS IN A MICHIGAN TODDLER: THE IMPORTANCE OF TRAVEL HISTORY
Background: Hemophagocytic lymphohistiocytosis (HLH) is a potentially fatal hyperinflammatory syndrome causing progressive immune-mediated organ damage. It can be inherited (familial) or acquired (infectious or cancerous triggers). Dengue afflicts 390 million people annually, but it is rarely complicated by HLH. In the 2012-2013 dengue epidemic in Puerto Rico, HLH incidence was 0.56/100,000 children/year; 80% were dengue-associated. This is very rarely diagnosed in the contiguous United States.
Case Presentation Summary: A three-year-old boy developed persistent fever, chills, and a back rash two weeks after returning from an extended stay in India where he had several undiagnosed febrile illnesses. He was hospitalized on day 8 of fever and had hyponatremia, hypoxemia, hepatosplenomegaly, hepatitis, and thrombocytopenia, with progressive declines in his white blood and neutrophil cell counts, high ferritin, and low fibrinogen. Interleukin-2 receptor level was 8690 pg/mL on day 13. He met the HLH-2004 diagnostic criteria and had an H-score of 264 (Table). Dexamethasone 10 mg/m²/day was started on day 12 of fever and gradually tapered over 5 weeks, with complete clinical recovery and gradual laboratory parameter normalization within 4-6 weeks. Dengue IgM and IgG were first measured on day 10 of fever and were positive at 7.84 and 23.34 immune status ratio (ISR), respectively (threshold positive >2.84). When repeated on day 39, IgM and IgG levels were 3.26 and 23.7 ISR, respectively. Serum dengue NS1 antigen was negative when tested on day 18 of fever. Familial HLH gene tests and a search for other infectious triggers were unrevealing.

Table. H-SCORE CALCULATIONS FOR HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS

	Laboratory/Clinical Parameter (H=highest; L=lowest)	Points
Hemoglobin (g/dL)*	7.8 (L)	+34
White blood cell count (bil/L)	2.6 (L)	
Platelet count (bil/L)*	36 (L)	
Aspartate aminotransferase (U/L)	3437 (H)	+19
Ferritin (ng/mL)*	19675 (H)	+50
Fibrinogen (mg/dL)*	62 (L)	+30
Triglycerides (mg/dL)*	273 (H)	+44
Hepatosplenomegaly*	Present	+38
Known immunosuppression	Absent	+0
Temperature*	40.1°C (H)	+49
Bone marrow examination*	Not done	+0
Interleukin-2 receptor (pg/mL)*	8690 (H)	Not included in H-score calculation

Total H-Score: 264 points; HLH probability >99%
*Findings that meet the HLH-2004 diagnostic criteria
https://www.mdcalc.com/calc/10089/hscore-reactive-hemophagocytic-syndrome

Learning Points/Discussion: Dengue as an HLH trigger should be considered in those with history of travel to endemic areas. Early recognition and treatment allows for faster recovery.

PV0536 / #2108

AGE AND PATHOGEN DISTRIBUTION IN COMMUNITY BLOODSTREAM INFECTIONS AMONG PEDIATRIC PATIENTS: CENTRAL GREECE, 2010-2022

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Backgrounds: Management of bloodstream infections (BSI) among pediatric patients depends, along with the severity of disease, on age and etiologic agent.
Methods: This is a study among pediatric patients hospitalized due to BSI at the University General Hospital of Larissa, Greece, from January 1st 2010 to December 31st 2022.
Results: During the 13-year study period, a total of 25,522 children were hospitalized; 161 children had ≥1 positive blood cultures within the first 48 hours after admission that indicated true bacteremia. The median age of the patients was 18.9 months [Interquartile range (IQR): 2.8 -72.8 months]. The median incidence rate of hospitalized bacteremia cases was 6.7 per 1000 admissions per year. Pathogens which were considered as "contamination", such as coagulase negative Staphylococcus or Streptococcus viridans, were not included in the study unless detected in two subsequent blood samples obtained during hospitalization. In two cases two different pathogens were isolated from the same blood sample; in total 163 pathogens were analyzed. The proportion of the isolated pathogens by age group revealed characteristic variability, mainly among children aged 3 months-<5 years old.
(Table).

	0-2 mos n=40	3-11 mos n=29	12-59 mos n=43¶	5-11 yrs n=32	≥12 yrs n=17
Staphylococcus aureus, n=32	6 (15.0)	4 (13.8)	7 (15.6)	8 (25.0)	7 (41.2)
Escherichia coli, n=26	14 (35.0)	4 (13.8)	5 (11.1)	1 (3.1)	2 (11.8)
Streptococcus pneumoniae, n=20	1 (2.5)	4 (13.8)	7 (15.6)	8 (25.0)	
Brucella spp., n=19			6 (13.3)	8 (25.0)	5 (29.4)
Streptococcus agalactiae, n=15	13 (32.5)	1 (3.5)	1 (2.2)		
Streptococcus pyogenes, n=10			5 (11.1)	4 (12.5)	1 (5.9)
Klebsiella pneumoniae, n=8	4 (10.0)	2 (6.9)	2 (4.4)		
Neisseria meningitides, n=7		3 (10.3)	2 (4.4)	2 (6.3)	
Salmonella spp., n=7	1 (2.5)	3 (10.3)	3 (6.7)		
Enterobcter spp., n=5		1 (3.5)	4 (8.9)		
Haemophilus influenzae, n=4		1 (3.5)	2 (4.4)	1 (3.1)	
Pseudomonas aeruginosa, n=4		4 (13.8)			
Yersinia enterocolitica, n=2		1 (3.5)	1 (2.2)		
Enterococcus faecalis, n=1		1 (3.5)			
Campylobacter spp., n=1	1 (2.5)				
Staphylococcus haemolyticus, n=1					1 (5.9)
Candida kefyr, n=1					1 (5.9)

¶*Two pathogens isolated in the same blood culture in two patients*

Conclusions/Learning Points: Knowledge on the most common etiologic agents according to their age,

along with the severity of the clinical manifestations, constitutes the most crucial guide for the empiric management of bacteremia cases prior to isolation of the specific pathogen.

PV0537 / #2075

INVASIVE GROUP A STREPTOCOCCUS DISEASE, TWO RECENT CASES

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: Two recent cases
Background: Group A Streptococcus (GAS) is commonly associated with pharyngitis/scarlet fever. Sometimes, it can cause a severe infection: invasive GAS disease (iGAS). Since September/2022, European countries have been reporting an increase of these cases among children.
Case Presentation Summary: 1: A healthy 5-year-old boy, presented with four days of viral upper airway symptoms and one hour of fever and stridor. Physical examination revealed severe upper respiratory distress. Oxygen, corticosteroid, adrenaline, and ceftriaxone were administered. Intubation was very difficult and only an ETT 3 could be placed with the sensation of airway obstruction without apparent epiglottitis. Laboratory values showed leukocytosis, neutrophilia, and renal dysfunction. The blood culture (BC) isolated GAS. A neck-CT was performed. to exclude parapharyngeal abscess but a subglottic stenosis was identified. Later, a micropapular rash appeared on his thorax and furfuraceous desquamation on his fingers. Laryngitis complicated with sepsis was assumed. Recovery took 10 days. 2: A healthy 2-year-old girl, presented with three days of fever and breathing difficulty. Physical examination revealed respiratory distress, hypoxemia, and a decrease in the vesicular murmur with crepitations. She was diagnosed with pneumonia and started on ceftriaxone, vancomycin and oxygen. She became prostrated, tachycardic, with petechial rash. Laboratory values showed leukopenia, neutropenia, lymphopenia, hyponatremia, hypokalaemia, thrombocytopenia, coagulation dysfunction and metabolic acidosis. The BC was negative. She developed sepsis and was transferred to the UCI. A chest-ultrasound showed an empyema. The pleural fluid culture was negative, and the PCR detected GAS. She improved in the following days.
Learning Points/Discussion: iGAS should be suspected in children with severe respiratory syndromes, especially if a preceding viral infection is present. Negative BC should not exclude the diagnosis as it can also be achieved through PCR of other sterile sites.

PV0538 / #421

BORRELIOSIS: AN EMERGING ZOONOSIS IN PORTUGAL

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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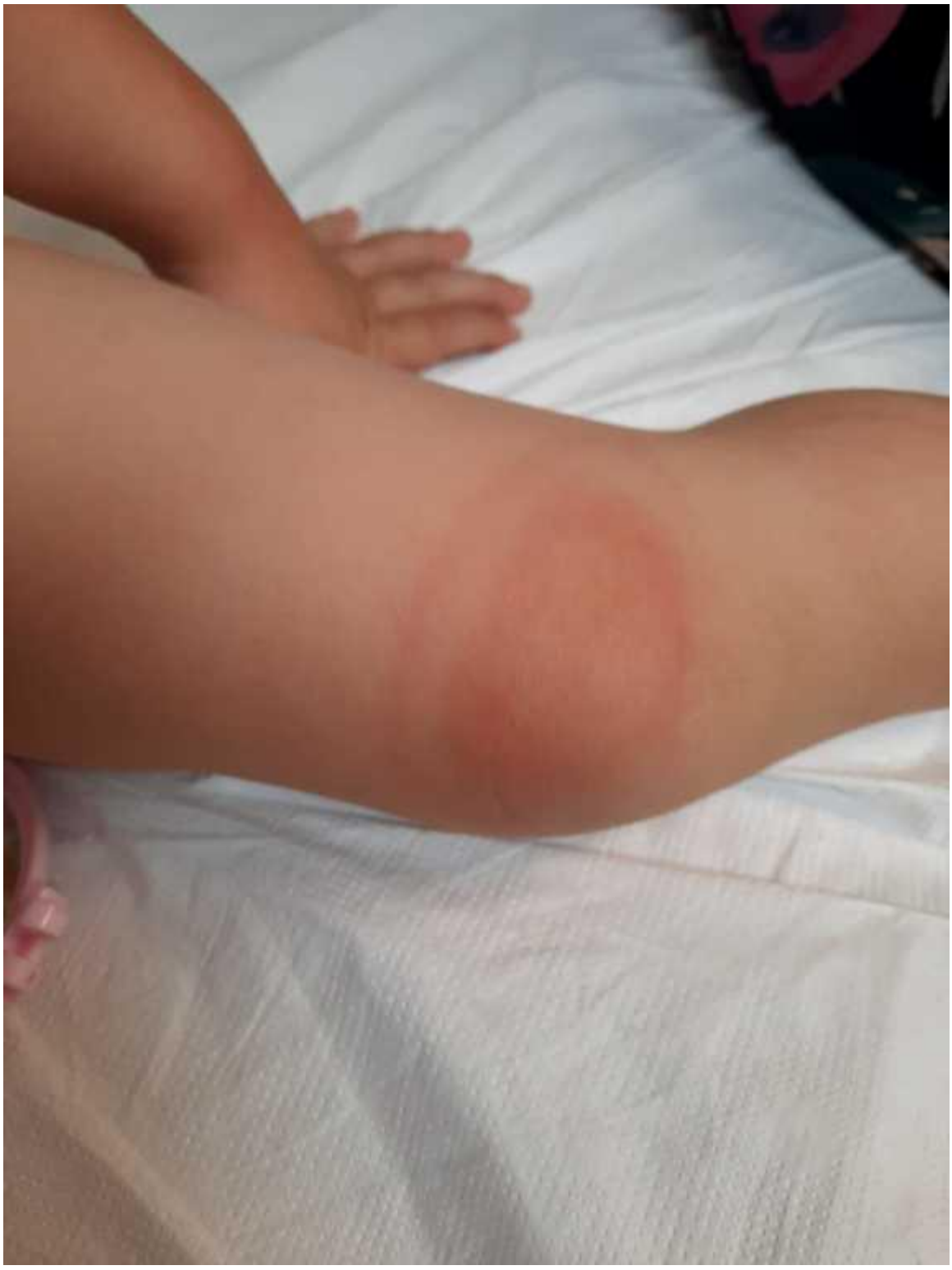
Title of Case: BORRELIOSIS: AN EMERGING ZOONOSIS IN PORTUGAL
Background: Lyme disease (LD) is a spirochaetal infection caused by the Borrelia burgdorferi (Bb) sensu lato complex, transmitted by Ixodes ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. It is more prevalent in regions with moderate climates; however, its geographic distribution is expanding, and cases have been reported throughout Europe, which can, in part, be explained by the increase in migratory movements and trips to endemic areas. In Portugal, LD incidence seems to be rising, particularly in northern and central regions.
Case Presentation Summary: A healthy two-year-old boy living in Portugal was brought to an Emergency Department due to appearance of non-pruritic erythematous skin lesions on the legs, arms, abdomen and face. Lesions had been expanding gradually over the previous week. Fever and other systemic symptoms were denied and parents did not recall a history of insect bite. The mother reported that they had been in Brittany about 2 weeks before the appearance of the lesions. On physical examination, the boy presented several erythematous annular lesions, flat and without scale, with a central macula: the first to appear was on the left knee, with 15 cm in diameter, the remaining were also annular, with around 10 cm in diameter. The lesions found on the patient were compatible with erythema migrans. Diagnosis was later supported by IgM and IgG antibody positivity on ELISA serology testing and treatment with oral amoxiciline was initiated for 14



days.

Learning Points/Discussion: LD has a broad spectrum of clinical manifestations which, associated with its low incidence in Portugal, requires a high level of clinical suspicion for diagnosis. This case highlights the importance of epidemiologic history as a diagnostic clue.

PV0539 / #1221

BRAND NEW HABITS, SAME OLD DISEASES

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: BRAND NEW HABITS, SAME OLD DISEASES
Background: Typhoid or typhoid fever is the most severe and systemic manifestation of Salmonella typhi infection.
Case Presentation Summary: S., 17 years old girl, went to Emergency department because of abdominal pain, fever and diarrhea after consumption of raw fish. Blood exams revealed marked increase of C-reactive protein (CRP 123 mg/L) and the ultrasound (US) of the abdomen showed dilation and thickening of bowel loops. Prescribed Azithromycin for 6 days, with no benefit and appearance of severe bloody diarrhea. Because of worsening, exams were repeated and revealed leukocytosis (WBC 29260/ul), low platelets (PLT 35000/uL), mild anemia (Hb 7,3 gr/dL), hyponatremia (Na 121 mEq/L) and hypoalbuminemia (2,3 gr/dL). The CT scan showed ascites with marked thickening of the colon. Antibiotic therapy with Piperacillin-Tazobactam and Metronidazole was promptly started, with Albumin, Furosemide, total parental nutrition and two blood transfusion. Bilateral pleural effusion with atelectasis required pleural drainage and high-flow oxygen therapy. Cardiac US revealed mild dilatation of coronary arteries with normal functionality. Abdomen CT-scan and color-doppler US showed a non-occluding thrombosis at the origin of the superior mesenteric vein. Acetylsalicylic acid therapy was undertaken for 30 days. After 48 hours of intensive care, girl was transferred to our unit and showed clinical and laboratory improvement, reduction of pleural and ascitic effusions and apyrexia. Stools slowly improved, although bloody evidence remained until 15 days from discharge. Microbiological tests revealed positive anti-typhoid antibodies (O-positive antigen 1:640); cultures from stools and blood samples resulted negative along with antibodies against Brucella, Epstein-Barr virus, Adenovirus and Coxsackievirus.
Learning Points/Discussion: Salmonella typhi infection must be considered in the differential diagnosis when clinical presentation (fever, hematic diarrhea, abdominal pain) and anamnesis (raw fish ingestion) are suspected for typhoid fever also in low-incidence countries.

PV0540 / #1858

CASE SERIES OF INVASIVE SALMONELLOSIS IN A TERTIARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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Title of Case: CASE SERIES OF INVASIVE SALMONELLOSIS
Background: Salmonella enterica, a common pathogen in gastrointestinal infections, can also cause invasive infections such as bacteraemia or focal infections. We retrospectively reviewed invasive Salmonella enterica infections in children under 18 years from June 2012 to October 2022.
Case Presentation Summary: We obtained 14 cases (64% male) with a median of 11 years. 9 cases were non-typhoidal serotypes (NTS) and 5 typhoidal serotypes (TS). Of the latter, 3 had travelled to endemic areas. 4 had sickle cell disease, 1 advanced HIV and 1 suspected chronic granulomatous disease. Fever (12/14) was associated in 8 cases with digestive symptoms and in 5 with osteoarticular symptoms. 4 cases were diagnosed with bacteraemia due to NTS and 4 due to TS. The second most frequent diagnosis was osteoarticular infection (6/14). Third generation cephalosporin was the empirical treatment in 8/14 and targeted treatment in 12/14, switching to amoxicillin-clavulanic acid in case of oral therapy. 11/14 were sensitive to the tested antibiotics, 2 resistant to ampicillin and co-trimoxazole, and 1 to quinolones.
Learning Points/Discussion: An increased incidence of invasive Salmonella infections has been described. In our series, it's striking that almost half of the cases (6/14) occurred in 2022. The number of patients with risk factors (9/14) is also noteworthy. Regarding the history of travel to an endemic area, it is to be noted that none had received vaccination against typhoid fever. It could be an option in patients with underlying pathology travelling to endemic areas, especially in those visiting friends and relatives. Resistance to antibiotics has increased, most troublingly to quinolones and third generation cephalosporins in Southeast Asia. In our series we have detected few resistances: of those found, 2 out of 3 were imported TS.

PV0541 / #1999

CATHETER-RELATED BLOODSTREAM INFECTIONS (BSI) IN CHILDREN WITH SHORT BOWEL SYNDROME (SBS): A SINGLE-CENTER STUDY

E-Posters Viewing
E-POSTER VIEWING: AS07.D. SEPSIS, SYSTEMIC AND MULTI-ORGAN INFECTIONS

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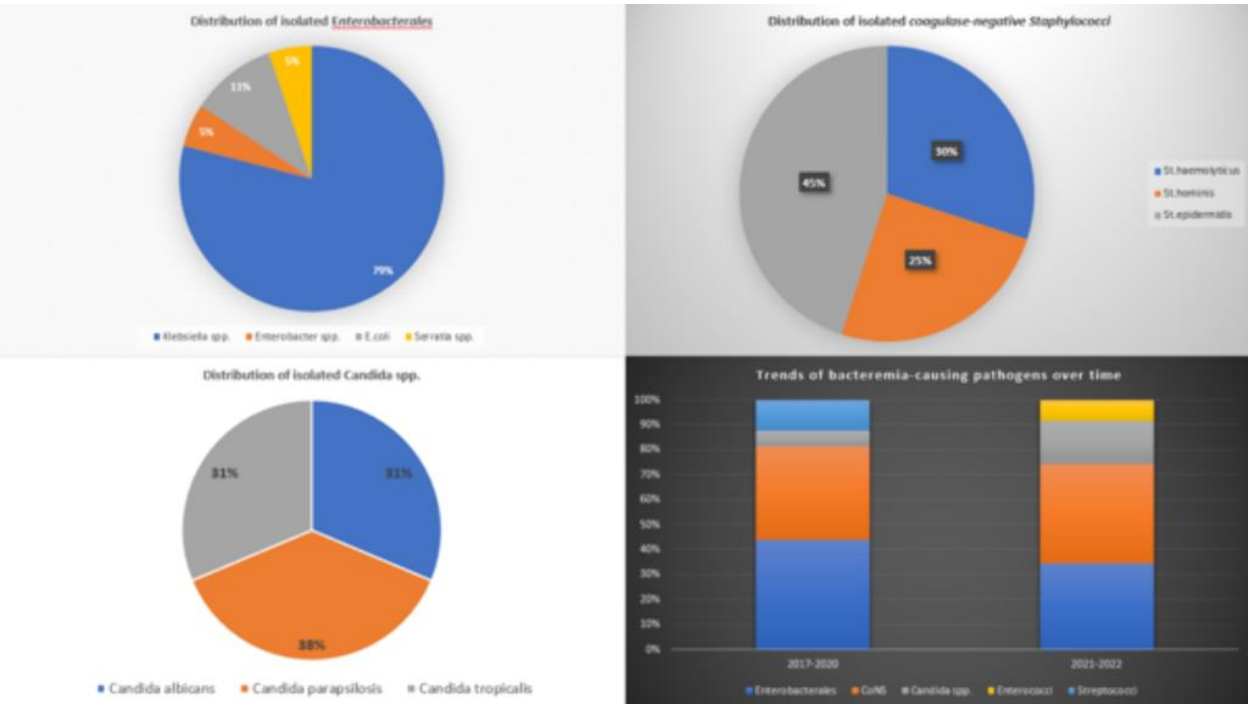
Backgrounds: Although parenteral nutrition (PN) is life-saving in children with SBS, it possesses risks for central venous catheter-associated BSI. We investigated the incidence of such infections and possible risk factors in our department.
Methods: We reviewed the medical records of patients with SBS hospitalized between 1/1/2017-31/12/2022. Variables recorded were sex, primary cause of SBS, presence of ileocecal valve, length of remnant small bowel (percentage of the predicted, according to postconceptional age/weight at the time of surgery), duration of ileostomy/parenteral nutrition/central venous catheterization. Episodes of BSI (bacteremia/fungemia) per 1000-inpatient-days (in the presence of central venous catheter) and their trends over time were also recorded.
Results: Eight patients (4 males) were included. Mean age was 3.3 years (SD: 2.4). Ileocecal valve was removed from all cases. Mean length of remnant bowel was 44% (SD: 35) of predicted, whereas mean duration of ileostomy / parenteral nutrition / central venous catheterization was 128.6 (SD: 134.9) / 236.1 (SD: 165.1) / 262.6 (SD: 165.3) days respectively. A total of 51 bloodstream infections and a mean of 6.4 infections per patient (SD: 1.475) were recorded. Mean number of confirmed BSIs per 1000-inpatient-days was 30 (SD: 26). Median number of central-venous catheter changes was 2 (IQR:3). Isolated microorganisms were Enterobacterales [19/51(37.3%)], coagulase-negative staphylococci (CoNS) [20/51(39.2%)], Candida spp. [7/51(13.7%)], Enterococcus spp. [3/51(5.9%)], Streptococcus spp. [2/51(3.9%)]. A 2-fold-increase in BSIs was noted from 2021 to 2022, compared to 2017-2020, with concomitant statistically significant increase of CoNS and Candida infections. Strong correlation was found between number of BSIs and duration of ileostomy/PN [correlation coefficient: 0.776 (p-value: 0.024)/0.898 (p-value: 0.002) respectively].



Conclusions/Learning Points: Catheter-related BSIs in patients with SBS are common and potentially life-threatening complications. Protracted dependence on PN and ileostomy are associated with recurrent episodes.

PV0542 / #1848

PYOMYOSITIS ASSOCIATED WITH ABSCESS FORMATION CAUSED BY STREPTOCOCCUS PNEUMONIAE IN CHILDREN: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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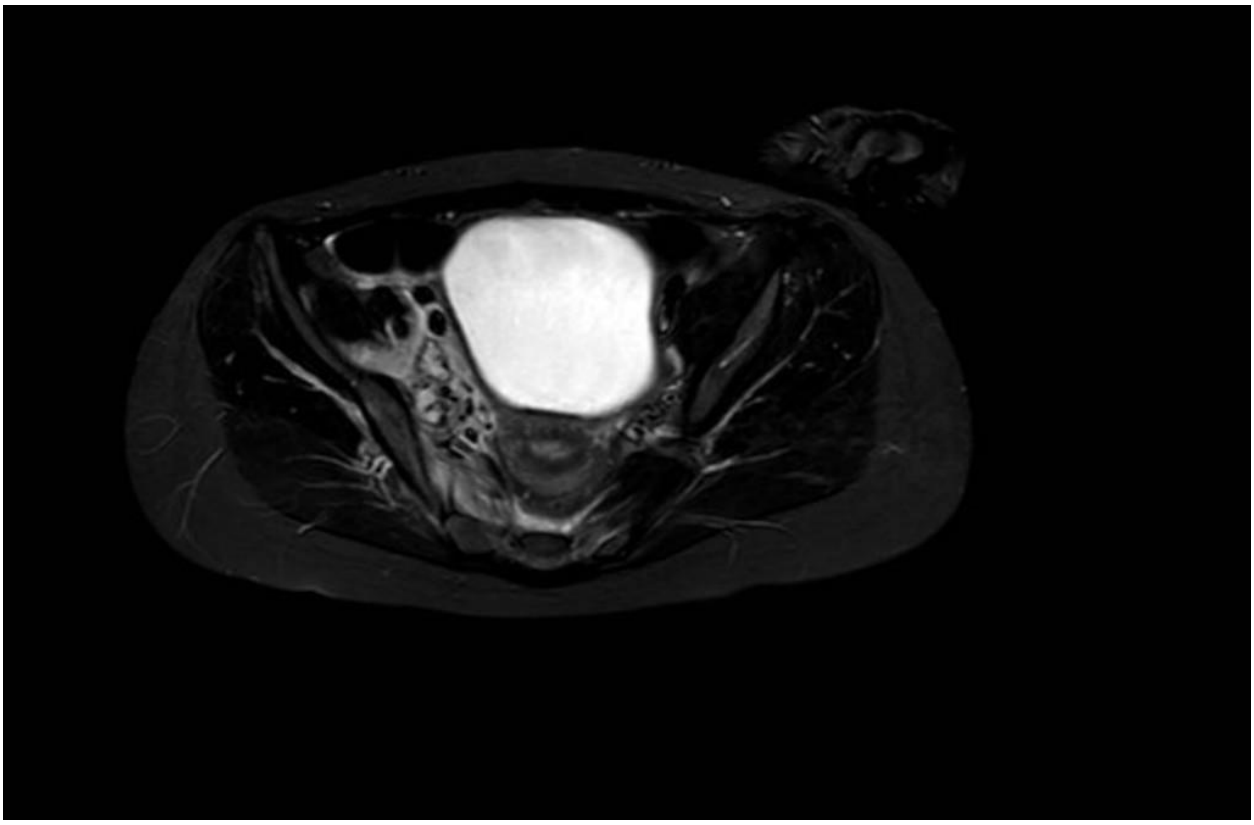
Title of Case: Pyomyositis associated with abscess formation caused by streptococcus pneumoniae in children: a case report
Background: Pyomyositis is an unusual and potential severe bacterial infection in children. Staphylococcus Aureus is the first causative agent (70-90%), following by Streptococcus Pyogenes. Streptococcus Pneumoniae rarely caused invasive muscular infections. We describe a case of complicated pyomyositis caused by Streptococcus Pneumonia in a healthy 12 year old female.
Case Presentation Summary: Patient presented hypothensive with a high fever for five days associated with right hip and abdominal pain. The blood exams showed neutrophilic leukocytosis with high level of inflammatory markers (CRP 46,17 mg/dl; Procalcitonin 25,8 ng/ml). The abdomen ultrasonography was unremarkable. Computed tomography (CT) of the abdomen and right hip revealed complicated pyomyositis of iliopsoas, piriformis and internal shutter muscles associated with marked signs of suppuration (figure 1). The patient was admitted to our paediatric care unit and initially treated with intravenous Ceftriaxone (100mg/kg/die) and Vancomycin (60mg/kg/die). On day 2, a multisensitive Streptococcus Pneumoniae was isolated from the blood culture, and Vancomycin was discontinued. She was successively treated with IV Ceftriaxone for 3 weeks, then continued with oral Amoxicillin for a total of 6 weeks of therapy. The follow up showed a complete resolution of the pyomyositis and iliopsoas abscess after 2
months.



Learning Points/Discussion: Pneumococcus pyomyositis associate with muscular abscess is a rare deep muscular infection in healthy children. Clinical presentation can mimic other pathologies (like osteomyelitis or septic arthritis), so many times is hard to identify. The risk factors include story of recent trauma and immunodeficiency, not present in our case report. The treatment of choice is IV antibiotic, although in literature there is no agreement regarding duration of therapy, and when indicated abscess drainage.

PV0543 / #1447

2 1/2-MONTH-OLD MALE WITH COUGH, CORYZA AND INABILITY TO EXTEND THE RIGHT LOWER LIMB

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: 2 1/2-MONTH-OLD MALE WITH COUGH, CORYZA AND INABILITY TO EXTEND THE RIGHT LOWER LIMB
Background: Septic arthritis though presents infrequently in infancy, still can be challenging in terms of diagnosis and treatment.
Case Presentation Summary: A 2 1/2 month-old boy was admitted with inability to extend the right lower limb.Symptoms presented five hours prior to the emergency department attendance.He had cough and coryza for a week and low grade fever(maximum temperature of 37.7oC) five days prior to the presentation.He had normal hip radiograph,but the ultrasound of right hip revealed fluid in the joint. On admission, the patient was clinically well, with right hip being on flexion,abduction, external rotation,with decreased range of movements and tender on handling. The inflammatory markers were not raised (WBC: 16,470/μL, CRP:13mg/L, ESR:18).He was started on intravenous cefotaxime and clindamycin. On day four of admission, a repeat ultrasound and an arthrocentesis were performed.The blood culture revealed methicillin-sensitive Staphylococcus aureus (MSSA) and antibiotic therapy was switched to cloxacillin. The synovial fluid microscopy showed raised white cell count with neutrophilia, but there was no bacterial growth. The patient completed 14 days of intravenous antibiotic therapy and during the admission remained clinically very well, afebrile, with progressive improvement of the range of motion of right lower limb.He was discharged with oral co-amoxiclav in order to complete 6 weeks of antibiotic treatment in total. Orthopedic team has reviewed the patient two weeks post-discharge and during the clinical examination the right hip had full range of motion.
Learning Points/Discussion: The prompt diagnosis and appropriate management of septic arthritis is of outmost importance, as it can prevent significant complications of the joint involved.

PV0544 / #881

PYOMYOSITIS: A CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: PYOMYOSITIS: A CASE SERIES
Background: Pyomyositis is a primary infection of the skeletal muscle commonly affecting the lower limbs. It occurs by seeding in the muscle, during transient bacteremia.
Case Presentation Summary: Our aim was to characterise pyomyositis' epidemiology, diagnosis setting, treatment and outcome in paediatric patients. Retrospective, unicentric study of children and adolescents diagnosed with pyomyositis in a tertiary care paediatric hospital, from June 2008 to June 2022. Predisposing factors, clinical, laboratory and radiological results, treatment and evolution were analysed. 27 patients were identified, 74% male, median age of 8 years old [2;13]. The most common predisposing factors were trauma (33%) and intense physical activity (33%). Pain (100%), fever (63%) and limited range of movement (ROM) (59%) were the most frequent symptoms, with a median onset of 6 days [2;10] and 52% were diagnosed at the first Emergency Department visit. The lower limb was the most affected site (86%), specially the hip muscles (46%). All patients had altered inflammatory parameters (median CRP 98.8 mg/L; median ESR 40 mm/h). MRI had 100% sensitivity, whereas 40% of ultrasounds were inconclusive. Blood cultures were positive in 36%, MSSA was the most common organism isolated (28%), but in 60% of patients no agent was identified. Most patients were treated with intravenous flucloxacillin plus clindamycin (52%) for a median 14 days [9;17] and median total duration of 28 days [19;39]. Drainage was performed in 6 patients. All patients improved without ROM limitation at 6-month follow-up.
Learning Points/Discussion: Pyomyositis is difficult to diagnose, since symptoms can be nonspecific. Nevertheless early diagnosis and treatment were essential. MSSA was the most isolated organism, as in other series, but in 60% no agent was identified, probably related to low drainage rate.

PV0545 / #725

CORRELATION BETWEEN THE RESULT OF CULTURES AND MOLECULAR PANEL FILM ARRAY™ IN A COHORT OF PEDIATRIC PATIENTS WITH BONE AND JOINT INFECTIONS IN BOGOTA (COLOMBIA).

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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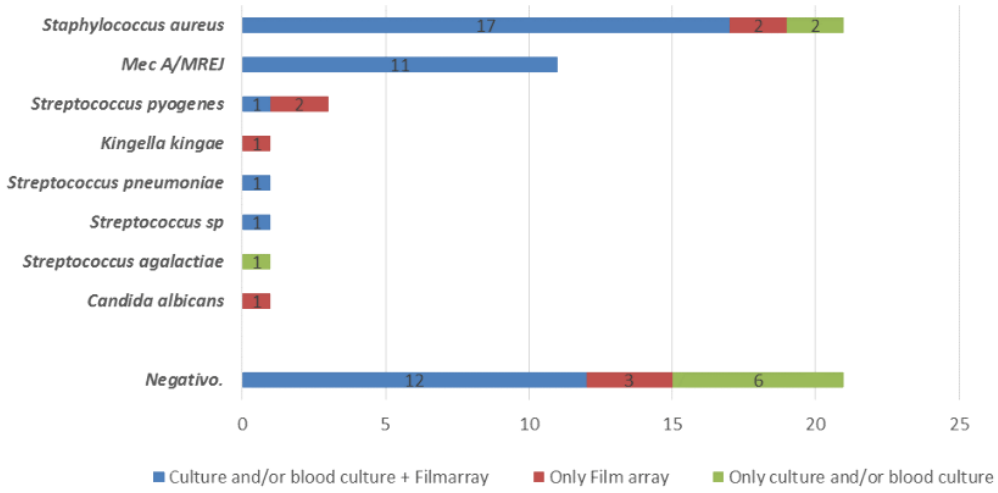
Backgrounds: Bone and Joint Infections (BJI) have high morbidity. Staphylococcus aureus meticilin resistent(MRSA) has increased. Culture-based diagnosis is limited to recovering fastidious bacteria and in detecting polymicrobial infections. Alternatively, molecular methods offer a promising improvement for the diagnosis of BJI with reduced time to result. The aim of the study was to determine the correlation between culture results and the Film array™(FA) molecular panel in a cohort of pediatric patients with BJI.
Methods: Descriptive study. Patients admitted with BJI between July 1, 2019 and 31 December 2020 at HOMI, Fundación Hospital pediatrico La Misericordia, in Bogotá(Colombia). Blood cultures and synovial fluid samples were taken. Samples were kept at -70°C. On September 2022, BJI panel Film array™ was performed in sinovial fluid.
Results:

Graphic 1: Microorganisms isolated in culture/blood culture and/or film array™



38 patients were included. 23(60%) were positive by culture/Blood culture. The most frequent microrganism were Staphylococcus aureus 19(82,6%), 11(57,9%) were MRSA. Other microorganisms isolates were Streptococcus pyogenes, Streptococococcus pneumoniae, Streptococcus viridans, Streptococcus agalactiae. 24(63%) were positive by FA, 20 positive detections were concordant with culture, there were 6 additional isolates (2 S. aureus, 2 S. pyogenes, 1 Kingella kingae and 1 Candida spp) and 3 false negative (2 S. aureus and 1 S. agalactiae). Two patients with coinfection were detected, one with methicillin-susceptible Staphylococcus aureus(MSSA) + Streptococcus sp and another with MSSA + Streptococcus pyogenes. All MRSA were detected. (Graphic 1). In 27(71%) patients the etiology was documented by any method.
Conclusions/Learning Points: These results showed overall good correlation between BJI panel Film array and culture. Moreover, compared to culture, the BJI panel allowed the detection of more positive

samples (+11%) and more polymicrobial samples. There was adequate correlation of resistance genes (Mec A).

PV0546 / #2672

CERVICAL ARTHRITIS: AN UNUSUAL PRESENTATION OF BARTONELLA HENSELAE INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: Cervical arthritis: An Unusual Presentation of Bartonella henselae infection
Background: Cat scratch disease (CSD) is usually caused by Bartonella henselae and is typically benign, commonly presenting with regional lymphadenopathy. Skeletal involvement is rare in CSD and most commonly involve the vertebrae.
Case Presentation Summary: A previously healthy 10-year-old immunocompetent female, presented with 8 days of high-fever, cervicalgia and torticollis. At examination, she presented good general condition, slightly reddened tonsils, left painful cervical tumefaction, no hepatomegaly or palpable adenomegalies. Initial laboratory evaluation showed no leukocytosis and CRP of 74mg/L. Neck ultrasound showed cellulitis and a right intramuscular paravertebral collection. Neck CT excluded parapharyngeal infection. Neck MRI evidenced posterior C4-C5 septic arthritis, piomyositis and small abscesses on the semispinalis capitis muscle. She was treated with flucloxacillin and clindamycin for 14 days with gradual improvement, but torticollis and cervical adenomegalies persisted. Bartonella henselae infection was confirmed by serology in two consecutive samples with IgG titer1024 and negative IgM) after 1 and 5 weeks of the onset of symptoms PCR was performed after antibiotic treatment and was negative. She reported frequent contact with kittens, and in one of the cats Bartonella infection was also confirmed. Antibiotherapy was switched to doxycycline and rifampicine with an improvement of the clinical condition.
Learning Points/Discussion: B. henselae C4-C5 osteoarthritis is rare, and should be considered in patients with unusual presentation, with systemic symptoms, back pain and cat contact. Diagnosis, antibiotic choice and duration of therapy remain challenging. MRI is essential for early diagnosis and complication prevention. The prognosis is generally good.

PV0547 / #923

HEXAPOD EXTERNAL FIXATOR INFECTIONS IN CHILDREN. DESCRIPTIVE STUDY 2014-2022.

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: HEXAPOD EXTERNAL FIXATOR INFECTIONS IN CHILDREN. DESCRIPTIVE STUDY 2014-2022.
Background: Correction of limb deformity or shortening and complex fractures in children can be managed with distraction osteogenesis technique using hexapod external fixators. Retrospective descriptive and inferential study of all pin site infections in hexapods placed in children <18 years from 2014 to 2022.
Case Presentation Summary: Forty-seven hexapod external fixators were placed in 38 patients, 22 (46.8%) were female. The mean age at placement was 13.1 (± 3.1) years, involving tibia+fibula in 27 (57.4%) of the cases. The median number of pins/needles per hexapod was 7.00 [6.0;10.5] and the median treatment length was 191 [156;251] days. In 37/47 (78.7%) an infection was suspected on 1 or more occasions; a statistically significant higher infection rate was observed in those with longer hexapod treatment (196 vs 152 days; P=0.026). Empirical antibiotics were started on 53 occasions, mainly first generation cephalosporins. Fifty cultures showed growth in 42 (84.0%), MSSA isolated in 29/42 (69.0%) and coagulase-negative staphylococci in 7/42 (16.7%). MRSA was not identified in any case. The time from surgery to the first infection was 34.0 [27.0;57.0] days. Most infections were grade 2 (81.1%). The empirical antibiotic was changed on 15/50 (30.0%) occasions, due to poor clinical response in 6/50 (12.0%) and resistance in 4/50 (8.0%). The median time on antibiotics was 21.0 [16.0;35.0] days. The hexapod was removed due to infection in 1/37 (2.7%) case and in 3/37 (8.1%) a pin had to be removed.
Learning Points/Discussion: Infections in hexapods are very frequent, in general they are mild with a good response to oral antibiotics. MSSA is the most frequent causative microorganism in our setting, therefore a first-generation cephalosporin is an adequate empirical therapy.

PV0548 / #1305

Q FEVER CHRONIC OSTEOMYELITIS IN A PEDIATRIC PATIENT AND ADVERSE EFFECTS OF TREATMENT WITH FLUOROQUINOLONES: A CASE REPORT.

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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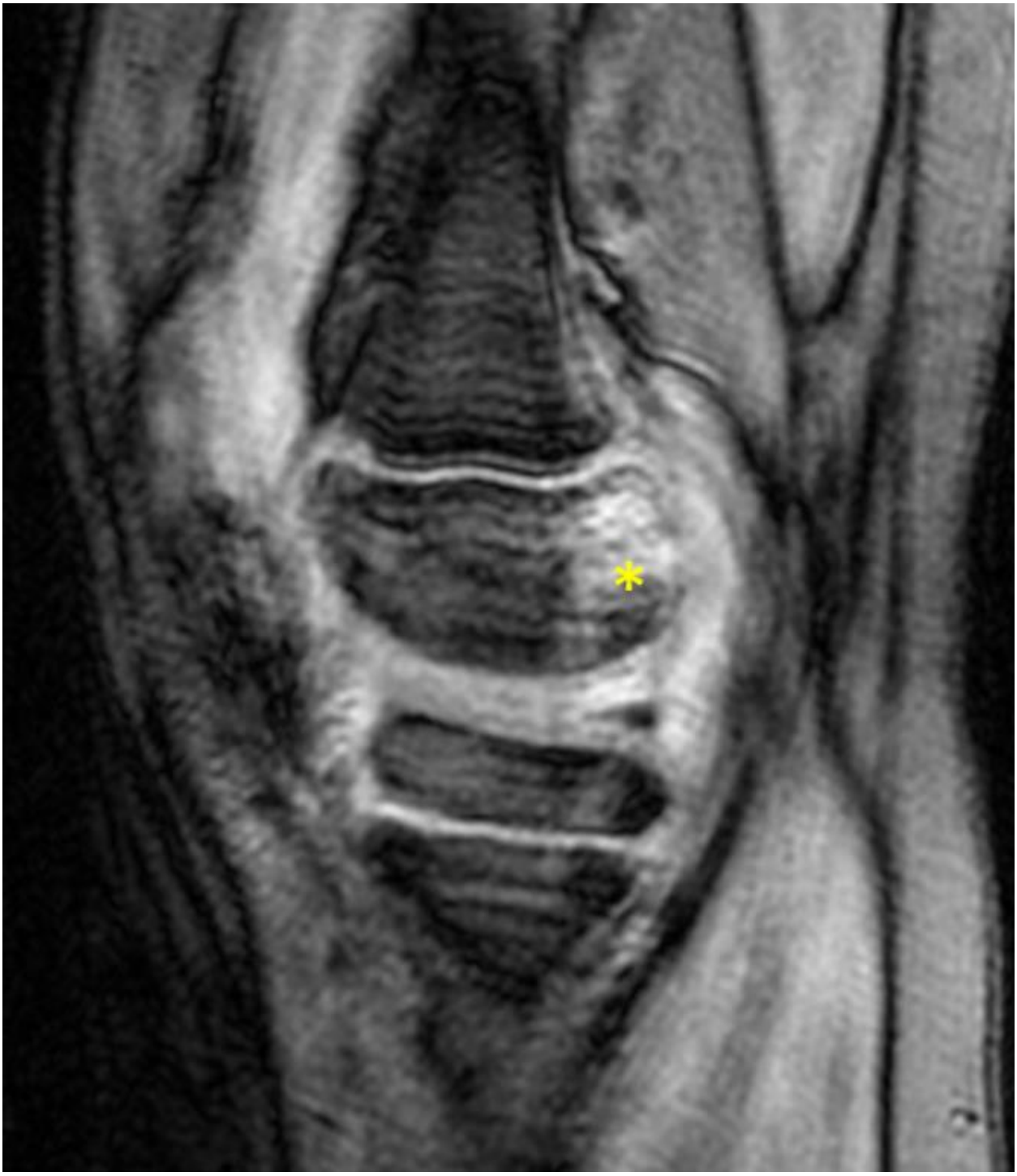
Title of Case: Q FEVER CHRONIC OSTEOMYELITIS IN A PEDIATRIC PATIENT AND ADVERSE EFFECTS OF TREATMENT WITH FLUOROQUINOLONES: A CASE REPORT.
Background: Q fever chronic osteomyelitis is a rare (1-2% of infections by Coxiella burnetti) and underreported disease. Although the clinical spectrum includes a wide range of manifestations, most patients are asymptomatic. Farm animals are the main reservoirs, and transmission to humans usually occurs via inhalation of contaminated aerosols.
Case Presentation Summary: A previously healthy 8-year-old female patient came to hospital in February 2022 with swelling and pain in her left knee and a 2-week intermittent fever. She had a history of septic arthritis on the same knee in 2019. Despite living in a rural environment, she had no contact with livestock nor drinking unpasteurized milk. Blood test revealed negativity of acute phase reactants (6890 leukocytes, 2330 neutrophils, 271.000 platelets, CRP 2.3mg/L, ESR 14mm/h). Results of CT showed compatible signs with chronic osteomyelitis. The diagnosis was confirmed by detecting an elevated anti-phase I IgG titer (1:16384) in serological tests. On the second day of treatment with Ciprofloxacin and Rifampicin, she experienced acute pain in her right achilles tendon. In suspicion of tendinitis as an adverse side effect, treatment was replaced by Cotrimoxazole, with good clinical evolution afterwards. Currently, anti-phase I IgG titers have decreased
(1/1024).



Learning Points/Discussion: This diagnosis should be discarded in cases of chronic relapsing or multifocal osteomyelitis, particularly if there is a history of exposure to livestock. The optimum treatment is challenging, although the combination of two antimicrobials, one of them being a fluoroquinolone, is considered the best choice. Due to fluoroquinolone´s disabling adverse side effects, such as tendinopathies, the European Medicines Agency recommends the discontinuing of treatment at the first sign of any adverse effect.

PV0549 / #2186

CHRONIC OSTEOMYELITIS IN FRONTAL BONE AS A COMPLICATION OF GUNSHOT WOUND: A CASE REPORT.

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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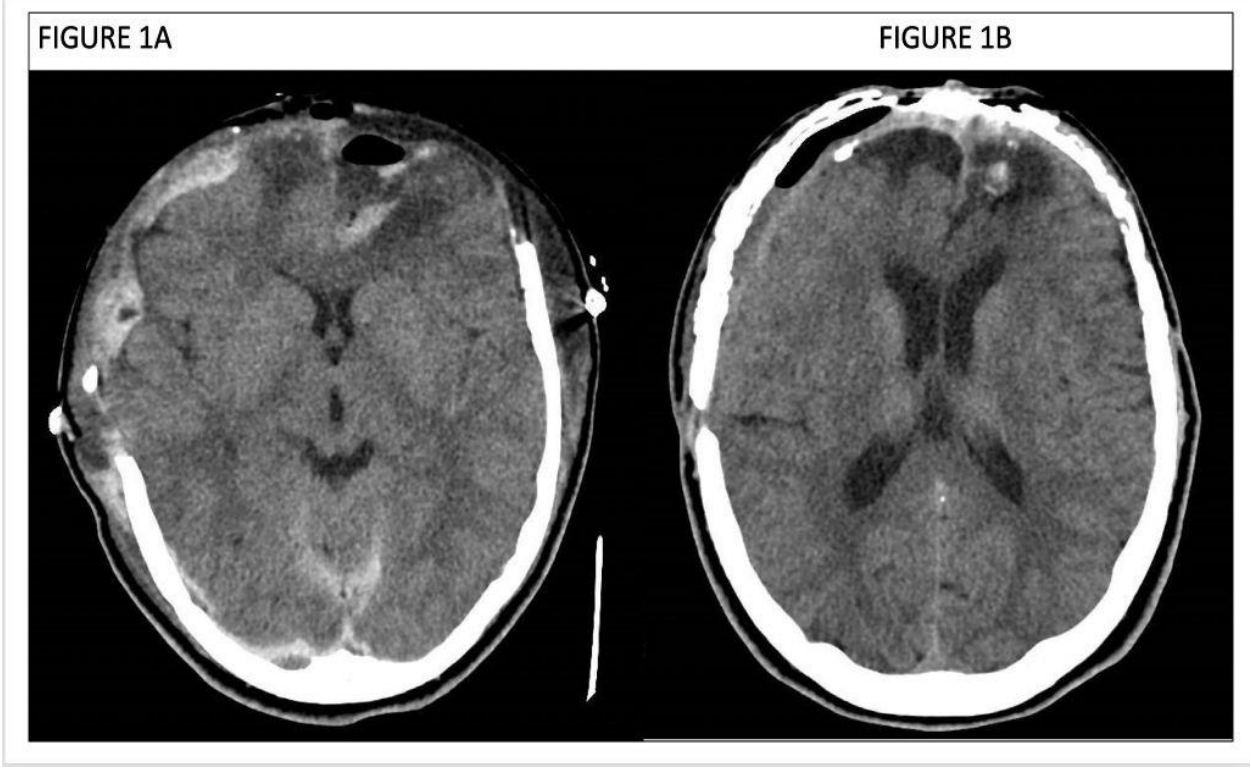
Title of Case: CHRONIC OSTEOMYELITIS IN FRONTAL BONE AS A COMPLICATION OF GUNSHOT WOUND: A CASE REPORT.
Background: Gunshot wounds (GSW) are rare in Paediatrics. Therapeutic management and their complications are not well established, since there are hardly any cases described. Very limited review of the literature is focused on military scenarios and countries at risk of war. We describe a case of osteomyelitis secondary to a GSW in a developed country.
Case Presentation Summary: A previously healthy 14-year-old patient was admitted to hospital after a head trauma caused by a GSW. CT showed multiple fractures of both frontal bones and the left frontal sinus with a parenchymal hematoma (Figure 1A). A left frontal lobectomy and a bone graft were performed through a decompressive frontal craniectomy. Amoxicillin-clavulanic was used as surgery prophylaxis with favorable evolution. Five months later, he was readmitted due to leakage of purulent fluid through the surgical wound. Clinically afebrile, he presented a generalized seizure. The blood test showed leukocytosis (12.630uL) with neutrophilia (8890uL) and CRP 13.3mg/L. CT revealed signs of osteomyelitis in the frontal graft and a sub-periosteal abscess (Figure 1B). After craniectomy, bone resection, and a drainage, empirical ceftazidime and vancomycin were started. Methicillin-sensitive S.aureus was isolated in the bone culture. Therefore, treatment was optimized with intravenous cloxacillin during a month, with good clinical evolution afterwards. Currently, he is pending of a cranial prosthesis.
Learning Points/Discussion: Chronic osteomyelitis as result of a GSW is uncommon. The duration of antibiotic therapy ranges from 4-6 weeks if the resection of the grafted material is complete. Treatment can be sequenced orally if adequate bioavailability of the

antimicrobial.



PV0550 / #105

EPIDEMIOLOGIC STUDY OF PEDIATRIC PYOGENIC ARTHRITIS (RECENT 20 YEARS): AN UPDATE

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Backgrounds: Although septic arthritis is rare disease, it is very important to keep the possibility of septic arthritis in mind. The doctors have to diagnose and manage the disease without delay because of various complications; destruction of the growth plate or cartilage, sepsis, death. The author presents the epidemiology of pediatric septic arthritis in the last 20 years.
Methods: Between March 1997 and December 2019 for 22 years, all patients under 17 years of age hospitalized Ajou Hospital with a diagnosis of septic arthritis were treated by surgical operation. Firstly, we select the patients who complain of the clincal symptoms. Among the patients, we apply inclusion criteria. We include the patients at least satisfied 2 inclusion criteria; 1) wbc≥10,000/μl, 2) CRP≥1.2mg/dL, 3) fever(≥37.8 ˚C). We define the septic arthritis that the patients' official image reading (MRI) is closely septic arthritis or identification of bacteria in patients' joint fluid or blood is positive.
Results: Among 92 subjects, as there were 55 boys and 37 girls(the gender ratio 1.48 to 1). The highest ratio in incidence of the septic arthritis was in age category of 1-6 years (29.3%). In the anatomical location of septic arthritis, we demonstrated the hip as the most common(52.2%), followed by knee(27.2%). When analyzing the frequency of causative bacteria, the Methicillin sensitive staphylococcus aureus group (MSSA) was the most common(19.8%), followed by MRSA(12.1%). When osteomyelitis was accompanied, the course of treatment was longer by about 10 days.
Conclusions/Learning Points: Septic arthritis is rare disease at a young ages, but pediatrician always has to keep the possibility of septic arthritis in mind because of severe sequela. Therefore, When treating a patient who complained of joint pain, the doctor must be taken for septic arthritis.

PV0551 / #657

EVALUATION OF PEDIATRIC SEPTIC ARTHRITIS AND OSTEOMYELITIS CASES

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Backgrounds: Childhood septic arthritis and osteomyelitis is an emergency clinical condition that can cause irreversible damage.The aim of this study was to evaluate the clinical and epidemiological features of pediatric patients presenting with septic arthritis and osteomyelitis.
Methods: Pediatric patients who were followed up at Eskişehir Osmangazi University Faculty of Medicine between 2017-2022 due to septic arthritis and osteomyelitis were included in the study. Epidemiological and clinical features were evaluated retrospectively.
Results: The mean age of 23 pediatric cases were 102(13-204) months and fifteen (65%) of the cases were male. 13 of the cases had septic arthritis and 10 of them had osteomyelitis.In septic arthritis cases, 61% had involvement in the knee joint, 30% in the hip joint, and 9% in the elbow joint. In osteomyelitis cases, 50% had ankle involvement, 30% had knee joint involvement, and 20% had hip joint involvement.While joint puncture was performed in 9 of 13 septic arthritis cases, leukocyte count of joint fluid was 67,340(8000-146,000)/mm3. In the joint fluid culture of septic arthritis cases, Staphylococcus aureus growth was found in 2 cases and mycobacterium tuberculosis in 2 cases. In the cultures of osteomyelitis cases; Staphylococcus aureus in 1 case, S.pyogenes in 1 case, and enterobacter in 1 case. Antibiotic treatment was given to all 23 cases, brucellosis treatment was given to 3 cases, and anti-tuberculosis treatment was given to 2 cases. The mean duration of treatment was 14 days (7-28) parenterally and 21 (7-42) days orally.
Conclusions/Learning Points: Septic arthritis and osteomyelitis in children are emergencies that require prompt diagnosis and treatment. For this reason, septic arthritis and osteomyelitis should be kept in mind, especially in children presenting with monoarthritis, and their diagnosis and treatment should be done quickly.

PV0552 / #1023

A PREVIOUSLY HEALTHY 3-YEAR-OLD MALE WITH SEVERE SKELETAL INFECTION BY MSSA AND CLINICAL MANIFESTATIONS OF INCOMPLETE KAWASAKI DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: We present a toddler with severe skeletal infection by methicillin-susceptible S.aureus(MSSA), associated with bacteremia, which manifested features of Staphylococcal scalded skin syndrome(SSSS) and Kawasaki disease(KD).
Background: Staphylococcus aureus can cause a multitude of different diseases, either by direct tissue invasion or toxin-mediated. Some strains produce superantigens, leading to an activation of the host immune system.
Case Presentation Summary: A previously healthy 3-year-old male, with a recent history of leg injury, presented with high-grade fever for five days and rash. On admission, physical examination was remarkable for polymorphous rash, erythema and edema of palms and soles, erythematous lips and strawberry tongue. The patient had elevated CRP, anemia, hypoalbuminemia and hyponatremia. Blood cultures developed MSSA and the patient presented progressive, cutaneous erythema and desquamation, considered to be a toxin-mediated manifestation; thus, he was treated with intravenous cloxacillin and clindamycin. After 24hours of treatment, clinical examination revealed antalgic position of the left lower limb and restriction of motion of the hip. Ultrasonography and MRI demonstrated septic arthritis of the hip joint with femur pandiaphysitis. The patient underwent multiple surgical drainages. Because of persistent fever and the severity of skeletal infection, rifampicin was added and intravenous immune-globulin(IVIG) was administered, on high clinical suspicion of PVL-positive strain infection. In the 15th day of fever, incomplete KD was suspected as he developed periungual desquamation of the hands and feet, alongside with thrombocytosis. The echocardiogram revealed Z-score of the coronary arteries>2 and the patient was treated with IVIG 2g/kg and aspirin to which he immediately responded. The patient was discharged after 40 days of hospitalization with cardiologic, rheumatologic and orthopedic follow-up.
Learning Points/Discussion: This case shows the complexity of differential diagnosis and the consequent necessity of constant vigilance and review in clinical practice.

PV0553 / #2211

PYOMYOSITIS: AN UNCOMMON CAUSE OF HIP PAIN

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: Pyomyositis: An uncommon cause of hip pain
Background: Pyomyositis is an uncommon bacterial infection of striated muscle, usually acquired by hematogenous route and most frequently caused by Staphylococcus aureus. If not treated properly, it can progress rapidly to a high-risk clinical situation and, possibly, death.
Case Presentation Summary: We present a 5-year-old healthy boy who presented to the Pediatric Emergency
Department (ER) with a 4-day history of fever, up-to 38.8ºC every 8h, as well as cough and rhinorrhea. On the 3 rd day he started complaining of left hip pain, which firstly resolved with non-steroidal anti-inflammatories. Over the last 24h, pain began worsening, and the child refused to walk, which led him to the ER.
At admission, physical exam showed worsening pain with external rotation movement of the hip and wide-based gait, as well as swollen tonsils. The rest physical exam was unremarkable.
Investigation began with a hip ultrasound, that showed no signs of synovitis. Analytically, white-blood-cell count was normal, but erythrocyte sedimentation and C-reactive protein were elevated (71mm/h and 37.4mg/L respectively). Given the suspicion of osteoarticular infection, an Magnetic resonance (MRI) was performed, revealing pelvic myositis, which affected the gluteus maximus and extended to the trochanteric bursa, with am hypoenhanced lesion of 14x11mm.
He was admitted to the Pediatric ward for endovenous flucloxacillin and clindamycin, completing 4 weeks of treatment.
On day 21 of treatment, we performed another MRI, showing size reduction of the lesions. Before discharge, an ultrasound was performed, with complete resolution of the infection.
Learning Points/Discussion: Given the rarity of pyomyositis, diagnosis requires a high suspicion, particularly in
healthy individuals, and must be confirmed by MRI. Treatment requires long courses of antibiotics, and the prognosis is usually favorable.

PV0554 / #558

CLAUDICATION IN PAEDIATRIC AGE - A RARE CAUSE

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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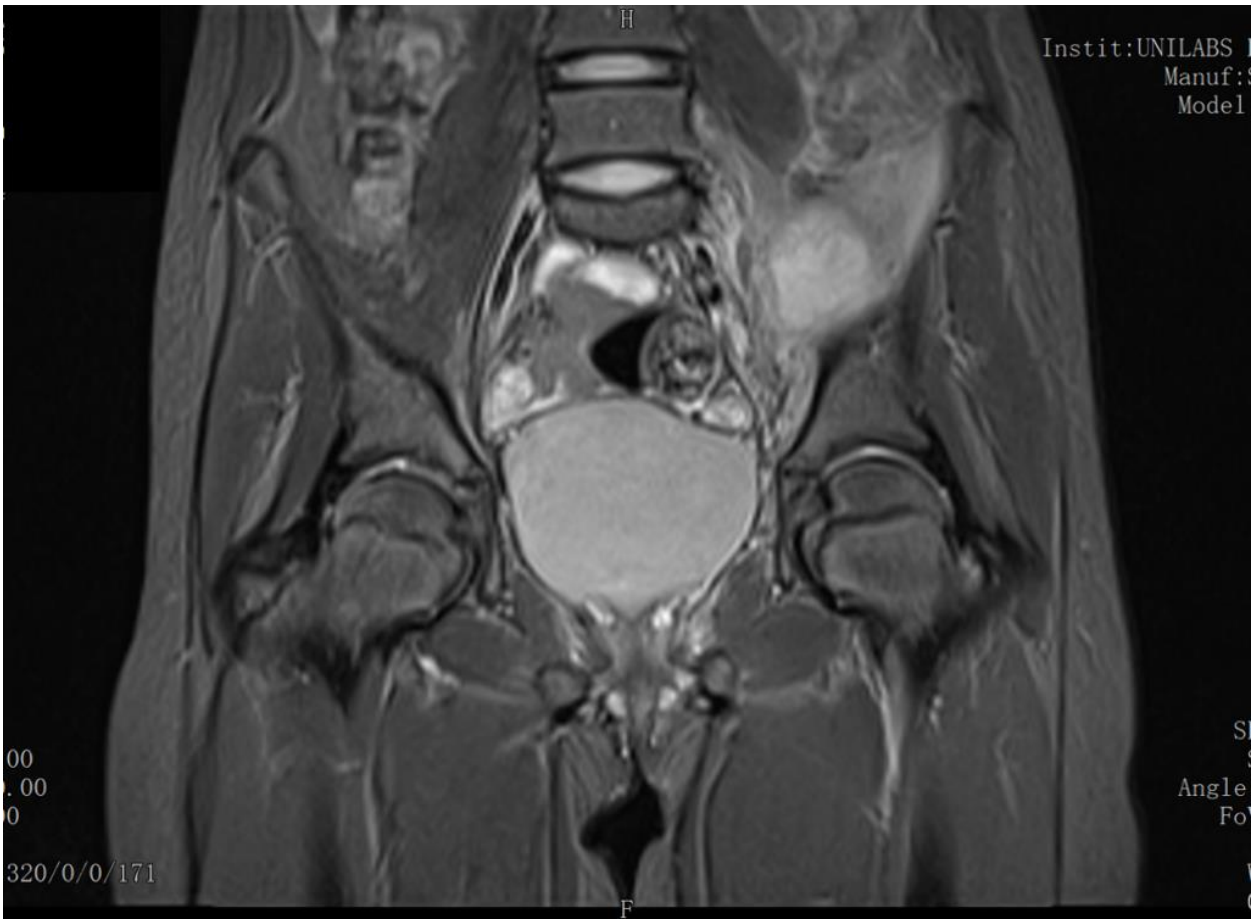
Title of Case: CLAUDICATION IN PAEDIATRIC AGE - A RARE CAUSE
Background: Claudication is a relatively common complaint in childhood and its etiology ranges from benign and self-limiting to potentially life-threatening conditions that must be identified and managed promptly.
Case Presentation Summary: A previously healthy 11-year-old girl was taken to the emergency department for gait claudication, progressively worsening pain in the left gluteal region for 4 days and 1 day of fever, maximum 39.0ºC. There was no history of local trauma or recent infections. On physical examination, she presented a reasonable general appearance and pain with left thigh movements. The blood sample revealed leukocytes of 12990/uL, an absolute neutrophilia and CRP of 201.8 mg/L. Two blood cultures were collected. The hip CT scan revealed a slight effusion of both hip joints, without liquid periarticular collections. She was evaluated by Orthopaedics and admitted in the Paediatric ward for multidisciplinary surveillance, pain control and intravenous antibiotic therapy with flucloxacillin due to a suspected diagnosis of sacroiliitis. The MRI confirmed a left sacroiliitis as well as a psoas abscess with a maximum diameter of 4.0 cm. A methicillin-sensitive Staphylococcus aureus was isolated from the blood culture. Given the good clinical response 96 hours after antibiotic therapy initiation, it was decided to maintain a conservative approach through 3 weeks of intravenous treatment, with a favorable clinical and analytical evolution. The reassessment MRI showed total regression of the abscess.



Learning Points/Discussion: There are few cases described showing a conservative approach in the management of psoas abscess, with most cases being managed through percutaneous surgical approach. The diagnosis requires a high degree of clinical suspicion, a multidisciplinary assessment and prompt empiric antibiotic therapy initiation. Clinical and analytical evolution may guide the need for surgical intervention.

PV0555 / #604

METHICILLIN-SUSCEPTIBLE STAPHYLOCOCCUS AUREUS (MSSA) AS THE CAUSE OF A SEVERE AND COMPLICATED OSTEOARTICULAR INFECTION (OAI) PRESENTED IN AN 11-YEAR OLD PATIENT.

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: Methicillin-Susceptible Staphylococcus Aureus (MSSA) as the cause of a severe and complicated osteoarticular infection (OAI) presented in an 11-year old patient.
Background: S.aureus is the main etiologic agent of OAIs in paediatric patients. MSSA and MRSA - notably PVL–positive - are a leading cause of morbidity.
Case Presentation Summary: An 11-year-old male without prior medical history presented to our Paediatric's Department due to 3-day history of fever, left knee pain and limping. On admission, he had left thigh and knee inflammation signs and a generalized pustular rash. Left lower limb MRI revealed femoral pandiaphysitis. Abdominal and chest CTs showed multiple lung and intestinal septic emboli. Triplex vascular ultrasound detected extensive thrombosis of left deep femoral vein. An MSSA lukF/S-PV (-), clfA (+), hla (+), sea (+), sec (+), seb (-), eta (-), etb (-), hlb (-), fnb (-) strain was isolated from multiple blood, synovial fluid and intraoperational bone specimens cultures. Clinical response to cloxacillin and clindamycin was poor with fever for four weeks and treatment was enriched with linezolid. The patient had undergone repeated surgical management. Due to the severe and non responsive to treatment infection, an immunology workup was presented and celiac disease was serologically diagnosed. The patient was discharged after 45 days of IV antibiotics and PO cloxacillin was to be continued for 3 months. Due to a recurrence of fever and inflammation signs, a repeat plain X ray and MRI showed involucrum formation of the femoral diaphysis.
Learning Points/Discussion: Although PVL - negative S.aureus infections could have a favorable prognosis, there are difficult cases to handle due to host's comorbidities and other than PVL toxin profiles. Unlike adults, literature does not support that celiac disease could lead to immunosuppression in children.

PV0556 / #282

A CASE SERIES OF CHILDREN DIAGNOSED WITH BRODIE ABSCESS IN A SINGLE INSTITUTION

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: A CASE SERIES OF CHILDREN DIAGNOSED WITH BRODIE ABSCESS IN A SINGLE INSTITUTION
Background: Brodie abscess (BA) is a subacute osteomyelitis characterised by intraosseous abscess formation. The number of paediatric patients with BA reported in the literature is low and the therapeutic approach varies among healthcare professionals. We describe the clinical characteristics, treatment and outcomes of children with BA in our setting.
Case Presentation Summary: The 12 children in this study were diagnosed with BA between January 2010 and November 2022 in St. Joan de Déu Hospital, a tertiary care paediatric hospital in Barcelona, Spain. Figure 1 shows the clinical characteristics of the patients. Nine (75%) were female and median age was 7 years (interquartile range (IQR) 2.5 - 10.5). Median time to diagnosis was 5 months (IQR 1 - 9). Pain was the most frequent symptom (75%) and tibia the most frequent location (50%). All patients had a plain radiography and an additional imaging study (computed tomography or magnetic resonance). All patients received antibiotic therapy and all but one had surgery as first approach. Seven (58.3%) intraoperative cultures were positive, six of them with Staphylococcus aureus (one methicillin-resistant). Antibiotic regimes were mainly anti-staphylococcal penicillins and first generation cephalosporins. Median duration of antibiotic treatment was 5 weeks (IQR 4.0 - 7.1), and median time to switch-to-oral treatment was 6 days (IQR 3.5 - 10). No patient required a second surgery.
Learning Points/Discussion: Clinical presentation and microbiology were similar to that reported in the literature. The combination of surgical and medical treatment was successful in all cases. Parenteral treatment was shorter in most recent patients, but total antibiotic course duration was variable. The optimal antibiotic treatment of BA after surgery needs to be

clarified.

Year of diagnosis	Gender	Age (years)	Time-to-diagnose (months)	Bone	Bone segment	Symptoms	Diagnose CRP (mg/L)	Diagnose ESR (mm/hr)	Invasive procedure	ATB bead	Intraoperative Culture	Total ATB duration (weeks)	Switch to oral (days)	Complication
2010	F	2	1	Femur	Epiphysis	Limp, swelling, fever	8.3	7	Curettage	No	Negative	4.5	10	No
2011	F	1	1	Tibia	Meta-epiphysis	Limp, swelling	4	N/P	Percutaneous biopsy	No	Negative	4.0	5	No
2015	M	1	11	Ulna	Diaphysis	Pain, swelling	4.6	24	Curettage	No	MSSA	6.0	14	No
2016	F	5	0,4	Tibia	Meta-epiphysis	Pain, limp	1.2	N/P	Curettage in 2nd time	No	MSSA	4.5	10	Conservative treatment failure
2016	F	12	2	Tibia	Metaphysis & transphyseal	Pain, limp	3.1	N/P	Curettage	No	Negative	12.0	7	No
2019	M	13	1	Scapula	Neck	Pain, swelling	156	N/P	Curettage	No	MSSA	5.5	10	No
2021	M	9	24	Tibia	Metaphysis	Pain, swelling, limp	N/P	N/P	Curettage & bone substitute	Yes	MSSA	3.0	N/A	No
2022	F	11	3	Tibia	Metaphysis	Pain, limp	N/P	13	Curettage & bone substitute	Yes	Negative	3.0	5	No
2022	F	5	5	Radius	Metadiaphyseal junction	Swelling	2.1	6	Curettage & bone substitute	Yes	MRSA	7.5	4	No
2022	F	8	6	Radius	Meta-epiphysis	Pain, swelling	11.7	9	Percutaneous biopsy	No	Negative	12.0	2	No
2022	F	9	9	Tibia	Metaphysis	Pain, limp	4	3	Curettage & bone substitute	Yes	*C.acnes* & *F.magna*	4.0	2	No
2022	F	4	6	Radius	Metaphysis	Pain, swelling	1.1	N/P	Curettage & bone substitute	Yes	MSSA	4.0	N/A	Adverse reaction to oral ATB

Figure 1. **Patients of our series**
M = male; F = female; CRP = c-reactive protein; ESR = erythrocyte sedimentation rate; ATB = antibiotic; N/P = not performed; N/A = non applicable; MSSA = methicillin-susceptible *Staphylococcus aureus*; MRSA = methicillin-resistant *Staphylococcus aureus.*

PV0557 / #548

PASTEURELLA MULTOCIDA: FROM CAT'S MOUTH TO OSTEOARTICULAR INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: A case of Pasteurella multocida osteoarticular infection
Background: Skin and soft tissue infections are frequent in children. Although uncommon, Pasteurella multocida is a microorganism to consider specially after dog and cat bites or scratches.
Case Presentation Summary: A previously healthy and fully immunized 12-yo female was observed in Emergency Department (ED) due to intense pain, inflammatory signs, and difficulty in mobilizing the right hand's 4th finger after being bitten by her domestic cat. After a normal hand radiography she was discharged with oral flucloxacillin and ambulatory dressing care. After two weeks, she returned to ED due to fever, progressive worsening of inflammatory signs and frequent purulent collections' drainage, even after changing the antibiotic therapy to amoxicillin-clavulanate. Laboratorial workup did not show elevated inflammatory parameters. Due to suspected proximal interphalangeal joint (PIA) septic arthritis, she underwent surgical cleaning and debridement and intravenous ceftriaxone and clindamycin, with a very favorable clinical and laboratorial evolution. After isolation of a multi-sensitive P. multocida, on the purulent drainage, antibiotherapy was de-escalated to Benzylpenicillin. She completed three weeks of intravenous antibiotic therapy and was discharged with oral amoxicillin-clavulanate. After an MRI documenting osteomyelitis, she prolonged antibiotherapy completing two months. Serial clinical, laboratorial, and radiological evaluations demonstrated progressive recovery. Currently, she has no limitation on her daily activity, but maintains PIA ankylosis due to bone destruction in consequence of osteoarticular infection.
Learning Points/Discussion: Animal bites are usually self-limiting and easily treated with oral antibiotics. When the bite is deeper, as in case of cat's sharper teeth, it can cause deeper infections by penetrating inoculation. This case demonstrates that P. multocida osteoarticular infection should be considered in cases of direct animal contact. Prompt intravenous antibiotics and surgery, have an important role in prognosis and long-term sequelae.

PV0558 / #1979

TEMPORO-MANDIBULAR JOINT ANKYLOSIS OF INFECTIOUS ORIGIN AT THE YAOUNDE UNIVERSITY TEACHING HOSPITAL: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: TEMPORO-MANDIBULAR JOINT ANKYLOSIS OF INFECTIOUS ORIGIN AT THE YAOUNDE UNIVERSITY TEACHING HOSPITAL: A CASE REPORT
Background: Temporomandibular joint (TMJ) ankylosis is a pathologic condition in which the mandible is fused to the mandibular fossa by bony or fibrotic tissues. The most common cause of TMJ ankylosis is trauma; however, other causes exist, including infectious (which has decreased since the advent of antibiotics), inflammatory, and congenital.
Case Presentation Summary: A 09-year-old girl was referred to us for management of a significant reduction in the mouth opening. Four years ago, the patient had several teeth extracted, which would have been followed by a local infection and suppuration and a progressive reduction of the mouth opening. Clinically the patient presented with a mandibular hypoplasia and a limited mouth opening A CT scan revealed a bilateral fibrous TMJ ankylosis with Topazian classification type 1. The diagnosis retained was a post-infectious Bilateral fibrous TMJ ankylosis
Learning Points/Discussion: Infections of dental origin might contaminate the joint both through the hematogenous route and through diffusion from close proximity, particularly from a secondary jaw osteomyelitis. Treatment of pediatric cases of TMJ ankylosis involves a lot of factors among which patient motivation and mandibular growth Given that the main complication is a re-ankylosis, Postoperative rehabilitation is essential and has to be started early.

PV0559 / #975

SECONDARY MANDIBULAR OSTEOMYELITIS WITH A PATHOLOGICAL FRACTURE: A CLINICAL CASE

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

Zilefac Brian Ngokwe, Ntep Ntep David Bienvenue, Nokam Kamdem Gimel Stephane, Bengondo Messanga Charles
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Title of Case: SECONDARY MANDIBULAR OSTEOMYELITIS WITH PATHOLOGICAL FRACTURE: A CLINICAL CASE
Background: Pathological mandibular fractures, which occur in areas where bone has been weakened by an underlying pathological process, are uncommon, accounting for less than 2% of all mandibular fractures. Pathological fractures are typically determined by surgical interventions (third molar removal and implant placement), occur as a result of osteomyelitis, osteoradionecrosis (ORN), and bisphosphonate-related osteonecrosis of the jaw (BRONJ), are idiopathic, or are facilitated by cystic lesions, benign, malignant, or metastatic tumors
Case Presentation Summary: We present a case of a 13-year-old male patient who developed right facial swelling and limited mouth opening after a tooth infection, as well as multiple purulent cutaneous fistulas and a bird's profile (mandibular hypoplasia) An intraoral examination revealed generalized calculus and dental mobility in quadrants 3 and 4. We carried out an orthopantomography which revealed a mandibular body fracture and the diagnosis of secondary mandibular osteomyelitis with pathological fracture was retained. Sequestrectomy was performed, along with the placement of a reconstruction plate and sutures.
Learning Points/Discussion: Pathological mandibular fractures are complicated and difficult to treat due to their varied etiology and peculiar local and general conditions. Clinicians are frequently confronted with patients who have severely infected bone. Early detection and treatment are critical for reducing patient morbidity.

PV0560 / #956

MAXILLARY OSTEOMYELITIS AND ORBITAL CELLULITIS IN A CHILD WITH OSTEOPETROSIS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: MAXILLARY OSTEOMYELITIS AND ORBITAL CELLULITIS IN A CHILD WITH OSTEOPETROSIS: A CASE REPORT
Background: Osteopetrosis is a rare hereditary bone disorder characterized by an increase in bone density and reduction of marrow spaces. Maxillary osteomyelitis and orbital cellulitis are uncommon complications.
Case Presentation Summary: A 7-year-old boy was brought to hospital due to swelling on the left side of face and eye for 1 month before admission. Patient had fever accompanied by pain when chewing. Physical examination showed pale, left orbital proptosis and edema on left side of face, palatal defect, gangrene of radix and pulp. Laboratory examination revealed pancytopenia, increased CRP and procalcitonin level. Culture obtained from necrotic palatal defect revealed growth of Citrobacter freundii and Streptococcus alpha-hemolytic which were sensitive to ampicillin sulbactam. Skeletal survey showed sclerotic and increased density of skull, spine, pelvis, and appendicular bone; Erlenmeyer flask deformity of both femur; “bone-in-bone” appearance of metacarpal bone; “hair-on-end” appearance in bilateral ilium superior; and “sandwich” vertebrae. Computed tomography of the paranasal sinuses was suggestive of maxillary osteomyelitis and left orbital cellulitis. Treatment included high-dose intravenous ampicillin sulbactam and debridement of necrotic bone. After 2 months, the patient came without active infection.
Learning Points/Discussion: Diagnosis of osteopetrosis is often delayed due to rarity of the disease, lack of clinical suspicion, and depends mainly on radiographic examination. Maxillary osteomyelitis and orbital cellulitis are serious complications of osteopetrosis related to odontogenic infection and its management is challenging.

PV0561 / #304

SPONDYLODISCITIS: A CLINICAL AND IMAGING PITFALL IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: Spondylodiscitis: a clinical and imaging pitfall in children
Background: Spondylodiscitis (SD) is an uncommon disease in children, with a significant risk of complications when diagnosis is delayed.
Case Presentation Summary: Three cases, aged from 18 months to 3 years, were lately diagnosed in our department with lumbosacral SD in which the clinical diagnosis were challenging and radiological findings misleading. The clinical presentations were evocative of SD. They presented with limping, lumbar or tight pain. Refusal of the potty was found in each of them but none had fever neither inflammatory syndrome. First, a negative bone scintigraphy (BS) ruled out BJI diagnosis. In front of the persistence of symptoms, MRI was then performed, and confirmed SD. A 7.7-day-mean delay was observed between negative BS and antibiotic start.
Learning Points/Discussion: The objective of the cases was to discuss respective strengths and weaknesses of clinical pictures, BS, and MRI for the diagnosis of SD in children. Blood samples are known to be non-contributive. For imaging strategies, BS is rather easily available for children, and is very useful when the clinical examination signs and/or pain are poorly localized, and thus should not be excluded from the diagnostic tree. Possibility of false negative results are demonstrated in our cases. When the clinical picture is evocative, the risk of false negative makes MRI imperative. As stated by ESPID guidelines, MRI remains the reference diagnostic tool for SD, despite limited availability and frequent requirement of a general anesthesia. Precise and careful physical examination justifies going further than BS, and going beyond MRI accessibility difficulties. In our cases initial BS have misguided the diagnostic approach. The delay in diagnosis confirmation created diagnostic wandering, major anxiety in the parents and postponement of treatment

PV0562 / #1556

DIPLOPIA IN A 10-YEAR-OLD BOY WITH RETROPHARYNGEAL ABSCESSES

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Title of Case: DIPLOPIA IN A 10-YEAR-OLD BOY WITH RETROPHARYNGEAL ABSCESSES
Background: Retropharyngeal abscesses may extend to adjacent sites and cause serious complications. Clival involvement is extremely rare.
Case Presentation Summary: A 10 year-old boy, presented with frontal oppressive headache, photophobia, posterior neck pain and stiffness. Afebrile. He was hospitalized for suspected meningitis and empirical antibiotherapy (cefotaxime and vancomycin) was started after a failed LP. Diplopia appeared 48 hours later, due to bilateral sixth nerve paralysis. CT scan and MRI revealed retropharyngeal abscesses with prevertebral extension and probable clival osteomyelitis, later confirmed by scintigraphy. Metronidazole was added and surgery with transoral approach was performed; the purulent drainage resulted positive for Streptococcus intermedius. A second LP ruled out meningitis while showing a high opening pressure. In the following 2 weeks, due to clinical and radiological worsening, he was operated twice, via both cervical and transoral access. Mycotic and mycobacterial infections were ruled out. Afterwards, he remained afebrile, with persistent, yet improving, sixth nerve paralysis, and evidence of glossopharyngeal nerve involvement, of uncertain post-surgical or infectious nature. Last follow-up MRI, after 6 weeks of IV therapy, revealed reduction until disappearance of the abscesses, and improving clival involvement. Therefore, oral switch to amoxicillin and metronidazole was made to complete 3 to 6 months of treatment.
Learning Points/Discussion: Our case is noteworthy given the little evidence regarding clival osteomyelitis as a complication of retropharyngeal abscess particularly in children. Clinicians must remain alert and consider this eventuality especially when documenting cranial nerves involvement. Since this is an area of difficult surgical access, a multidisciplinary management and early treatment with antibiotics with optimal bone penetration are crucial, as well as strict follow-up given the high risk of complications and relapses.

PV0563 / #2216

EPIDEMIOLOGICAL, CLINICAL, MICROBIOLOGICAL CHARACTERISTICS, AND OUTCOME OF CHILDREN WITH PRIMARY AND SECONDARY PYOMYOSITIS: SPANISH MULTICENTER STUDY (RIOPED NETWORK)

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Backgrounds: Primary pyomyositis (PP) is not frequently diagnosed in children since it often accompanies osteoarticular infections (secondary pyomyositis-SP). Therefore, there is a scarce of guidelines for its management in children. The aim of this study was to evaluate epidemiological, clinical and microbiological characteristics of children with PP and compared them with those with SP.
Methods: Retrospective, multicenter study to evaluate children with PP admitted to 12 hospitals in Spain from 2015-2022. Medical charts were reviewed and children with the diagnosis of PP were included. SP were obtained from the RioPed network database located in a RedCap Platform from the same period of time. Children with PP were compared with those with SP.
Results: 180 children with pyomyosytis were evaluated (68 PP; 112 SP). Children with PP were younger (39.0[17.3-91.0] vs 76.0[22.0]134.0 months). There was a trend of higher rate of risk factors (54.5% vs 40.6%; p=0.077) and decrease mobility (89.0 vs 79.4%;p=0.084) in children with SP. A bacterial isolate was obtained in 49.7% (80/161) of cases (PP 26.9% vs SP 65.0%;p<0.001), being MSSA (62.5%), S. pyogenes (11.3%) and MRSA (10.0%) the most common isolates. SP received more frequently an MRI (96.4 vs 74.6%; p<0.001) and surgical treatment (83.9 vs 16.1%;OR 95% CI:5.03[2.33-10.82]). They also recieved more days of hospitalization (13[9-19] vs 8[7-15];p<0.001) and antibiotic therapy (38.0[28.0-42.7] vs 28[21.0-36.0];p<0.01). Sequelae were more often reported in the SP group (21.0 vs 4.4%;OR 95% CI:5.75[1.65-20.03]).
Conclusions/Learning Points: In this study children with PP were younger than those with SP, but with better clinical outcome, less surgery and less rate of sequelae.An isolate was more frequent in SP, being S. aureus/S. pyogenes the most common bacteria . These findings may help the clinicians to better manage these rare infections.

PV0564 / #708

WHEN ACNE GOES FURTHER THAN THE SKIN: AN UNEXPECTED CASE OF NATIVE CHRONIC VERTEBRAL OSTEOMYELITIS CAUSED BY CUTIBACTERIUM ACNES.

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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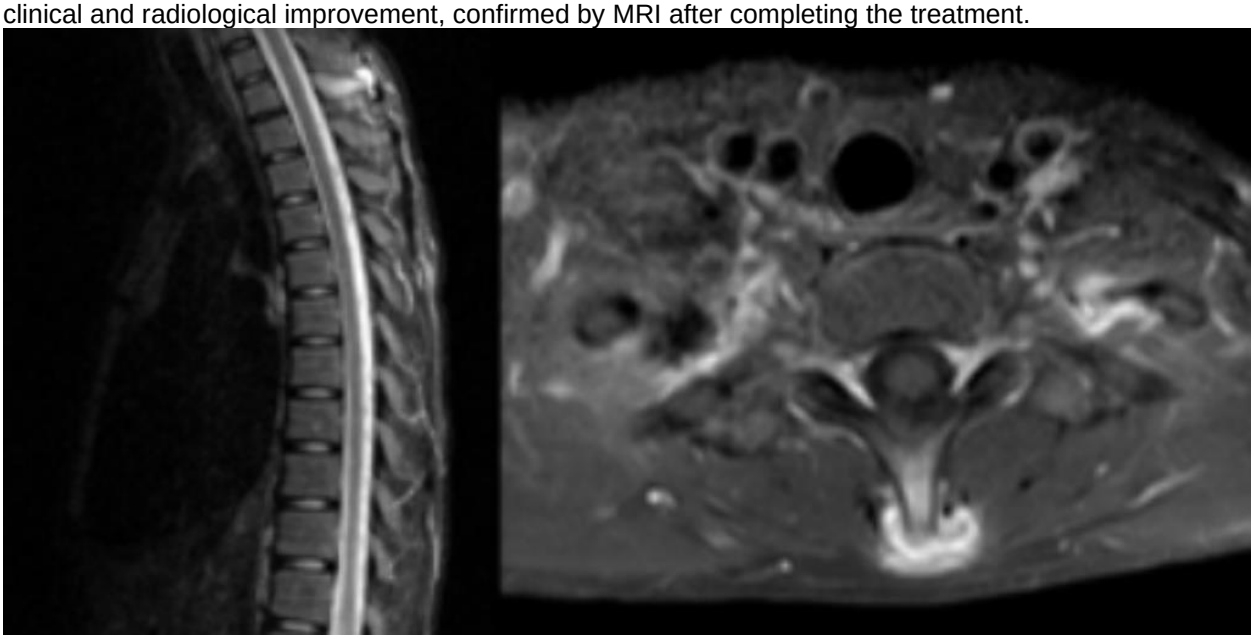
Title of Case: When acne goes further than the skin: an unexpected case of native chronic vertebral osteomyelitis caused by Cutibacterium acnes.
Background: Cutibacterium acnes (C. acnes) is an anaerobic gram-positive bacteria that is a part of the normal flora of skin. It is mainly known for its pathogenesis in acne vulgaris, but has also been recognized as a cause of medical device-related infections, and most common in immunocompromised patients.
Case Presentation Summary: A 14-year-old male with a medical history of juvenile acne and autoimmune neutropenia, presented to the emergency department with a 4-week history of pain in the upper dorsal region, without fever. Comedonal acne on face and back, without any other signs around the painful area. Blood test showed neutropenia (ANC 1.000/uL) with normal values of CRP and ESR. A cervical and thoracic spine MRI showed a nodular image of soft tissue at the tip of the spinous process of D1 (14x18x17mm), that eroded the cortex of the spinous process, associating mild underlying bone edema, indicative of osteomyelitis in D1 spinous process. Bone and nodule biopsies were performed guided by CT scan. Two samples of the nodule culture were positive for C. acnes, and the bone histology showed bone trabeculae surrounded by fibrous tissue and chronic inflammatory cellularity. The patient received a single dose of G-CSF and ampicillin, continuing with amoxicillin for a total of 3 months, with clinical and radiological improvement, confirmed by MRI after completing the treatment.



Learning Points/Discussion: Risk factors for vertebral osteomyelitis caused by C. acnes are usually associated with a history of surgical intervention. Nevertheless, immunocompromised patients including neutropenia should be taken into consideration, especially as the clinical manifestations could be more subtle and inflammatory markers are usually negative.

PV0565 / #1973

OROPHARYNX KINGELLA KINGAE PCR AND OSTEOARTICULAR INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS07.E. SKELETAL INFECTIONS

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Backgrounds: Kingella Kingae (KK) is the most common cause of septic arthritis and osteomyelitis in children aged 6 to 48 months. Osteoarticular infections (OAI), are a challenging diagnosis due to subtle clinical and laboratory findings. If untreated, OAI can evolve into serious complications for the child's bone development.
Methods: We analyzed the relationship between the identification of oropharynx KK polymerase chain reaction (PCR) and the diagnosis of acute OAI in children at a level 2 hospital. This retrospective descriptive study included all children which, between June/2018 and December/2022, underwent KK survey in the oropharynx and presented symptoms of OAI. Data analysis was done using Microsoft Excel and Software R.
Results: Twenty-seven children with average age of 2.9 years were studied (40.7% female, 59.3% male). The lower limbs were the most affected (92.6%), especially the knee (7), the coxofemoral (7) and tibiotarsal (6) joints. The prevalent symptoms were gait claudication (88.9%), pain (66.7%) and fever (63%). Hospitalization was required in 16 cases (59%) where a significant majority were females (p-value=0.0076). We found statistically significant relationship between children with positive oropharynx KK and OAI diagnosis (p-value=0.085). All these children were treated with antibiotics for an average of 21 days.
Conclusions/Learning Points: OAI have an impact on children's lives leading to hospitalization in the majority of cases. The primary affected joints were the extremities of the long bones, namely the lower limbs, which is in accordance with the literature. Oropharynx KK PCR is an accessible method that confirms the etiological diagnosis and should be routinely performed in all children younger than 4 years with clinical manifestations of OAI.

PV0566 / #778

WHEN CHICKENPOX IS NOT SO BENIGN

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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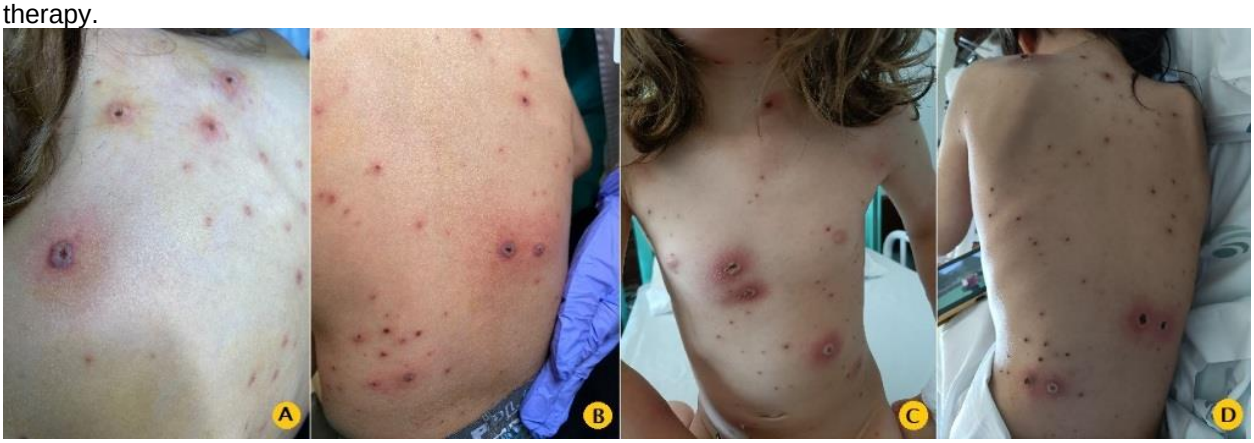
Title of Case: When chickenpox is not so benign
Background: Chickenpox usually runs a benign course. Although, rarely, complications may occur.
Case Presentation Summary: A previously healthy 6-year-old boy presented to the emergency department (ED) with fever for the last five days. Six days prior he had developed a papulovesicular rash in his chest and abdomen that later progressed to his legs, arms and face. He was examined by his primary-physician 3 days before admission and, based on previous contact with a child with chickenpox and in the absence of immunization against varicella-zoster virus (VZ), was started on oral acyclovir. On admission, skin lesions with a necrotic centre and surrounding erythema were noted (Fig 1A,B). Micropapular and crusted lesions were also present. Laboratory investigation showed no major findings. The patient was started on oral and topical antibiotic therapy and discharged. He returned to the ED 3 days later for maintaining the complaints. On admission he appeared ill and uncomfortable and had multiple infected postulated painful lesions (Fig 1C,D). His blood tests showed elevated inflammatory markers, anaemia and hypoalbuminemia. The patient was admitted to the ward and started on intravenous flucloxacillin, clindamycin and acyclovir. In the absence of any clinical improvement, flucloxacillin was switched to linezolid and the patient improved. Serological and DNA testing were positive for VZ. Staphylococcus aureus was isolated from the purulent material collected from an abdominal lesion. Patient was discharged after completing 10 days of intravenous antibiotic and antiviral therapy.



Learning Points/Discussion: Varicella gangrenosa, a type of necrotizing fasciitis, is a complication of chickenpox. Recommended treatment includes acyclovir and antibiotics with effective streptococcal and staphylococcal coverage. Debridement is often required. Although rare, it is potentially life-threatening, and therefore its recognition and timely treatment are crucial.

PV0567 / #2063

ORBITAL CELLULITIS – AN EXUBERANT MANIFESTATION WITH POSSIBLE OPHTHALMOLOGICAL ENVOLVMENT

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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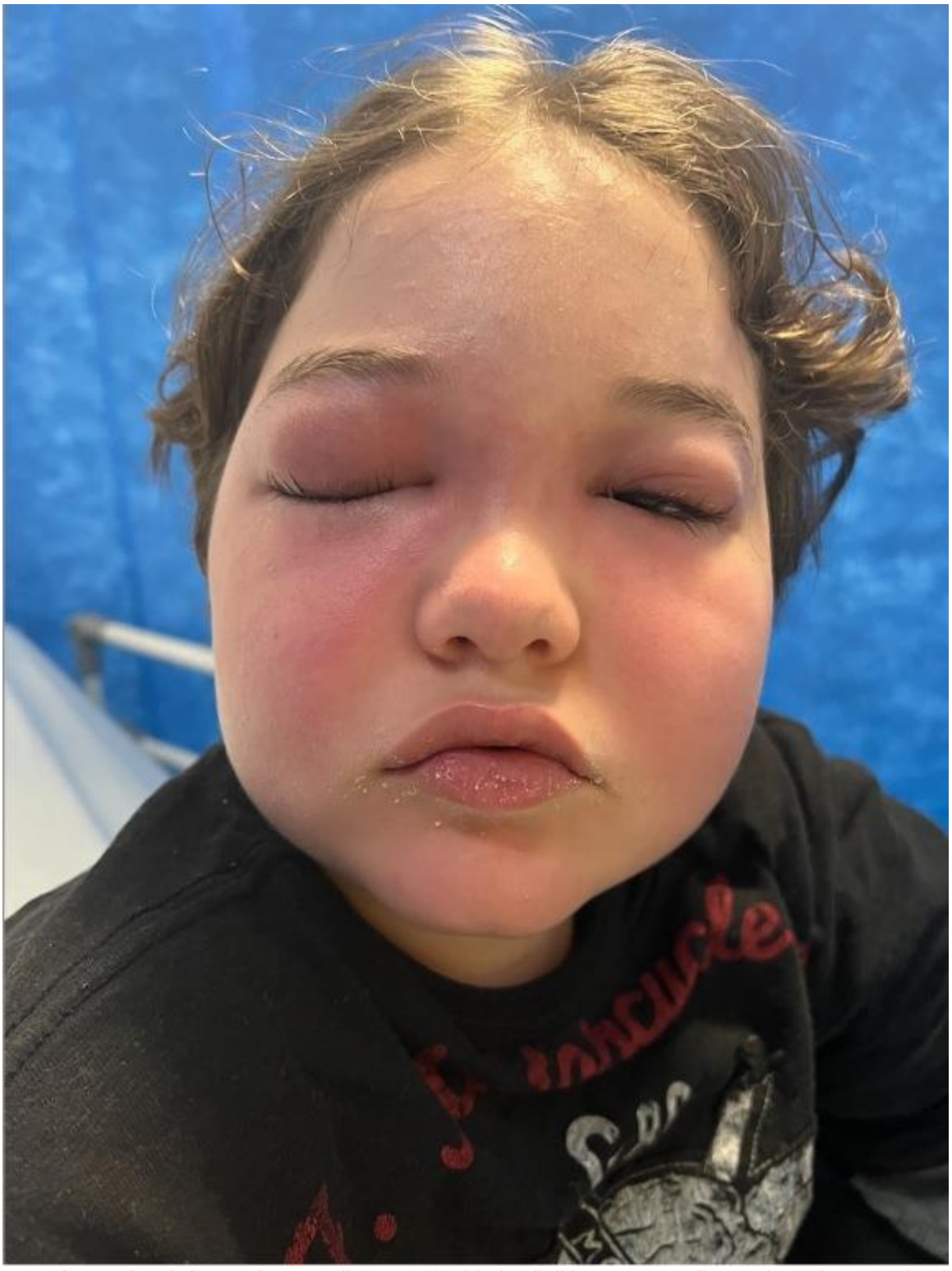
Title of Case: ORBITAL CELLULITIS – AN EXUBERANT MANIFESTATION WITH POSSIBLE OPHTHALMOLOGICAL ENVOLVMENT
Background: Orbital cellulitis is an infection that affects the orbital fat and extraocular muscles and is more common in young children. One of the main differential diagnosis is periorbital cellulitis, which can have similar clinical manifestations. However, the correct diagnosis is crucial, since orbital cellulitis can have severe consequences, especially ophthalmological and intracranial.
Case Presentation Summary: We present a case of a male 9 years-old child, with Attention Deficit and Hyperactivity Disorder. He presented to the Emergency Department with fever and bilateral eyelid swelling and erythema with 30 hours evolution. He was firstly evaluated at the beginning of clinical manifestations, medicated with flucloxacillin and completed one day of treatment. At observation, he presented exuberant bilateral upper and lower eyelid swelling and erythema, more evident in the right side with incapacity to open the eye, and swelling and erythema of the right malar area (Figure 1). Computed Tomography Scan showed acute pansinusitis, fat densification and postseptal extension of the infectious process in the right side, with superior ophthalmic vein dilation. He was observed by Ophthalmology with no apparent ocular involvement and with daily evaluation needed. He was admitted to the pediatric ward and started treatment with Ceftriaxone, Clindamycin and systemic corticotherapy. He was apyretic since the beginning of treatment and showed progressive improvement of the swelling and erythema. No other ophthalmological alterations were detected. He completed 10 days of intravenous treatment and 14 in total.



Learning Points/Discussion: In all cases of orbital cellulitis, a correct diagnosis and prompt beginning of treatment is essential to a favorable clinical evolution and absence of severe complications. Ophthalmological involvement and its potential consequences should always be one of the major concerns.

PV0568 / #2081

EXUBERANT MANIFESTATION OF VARICELLA – A CLINICAL CASE

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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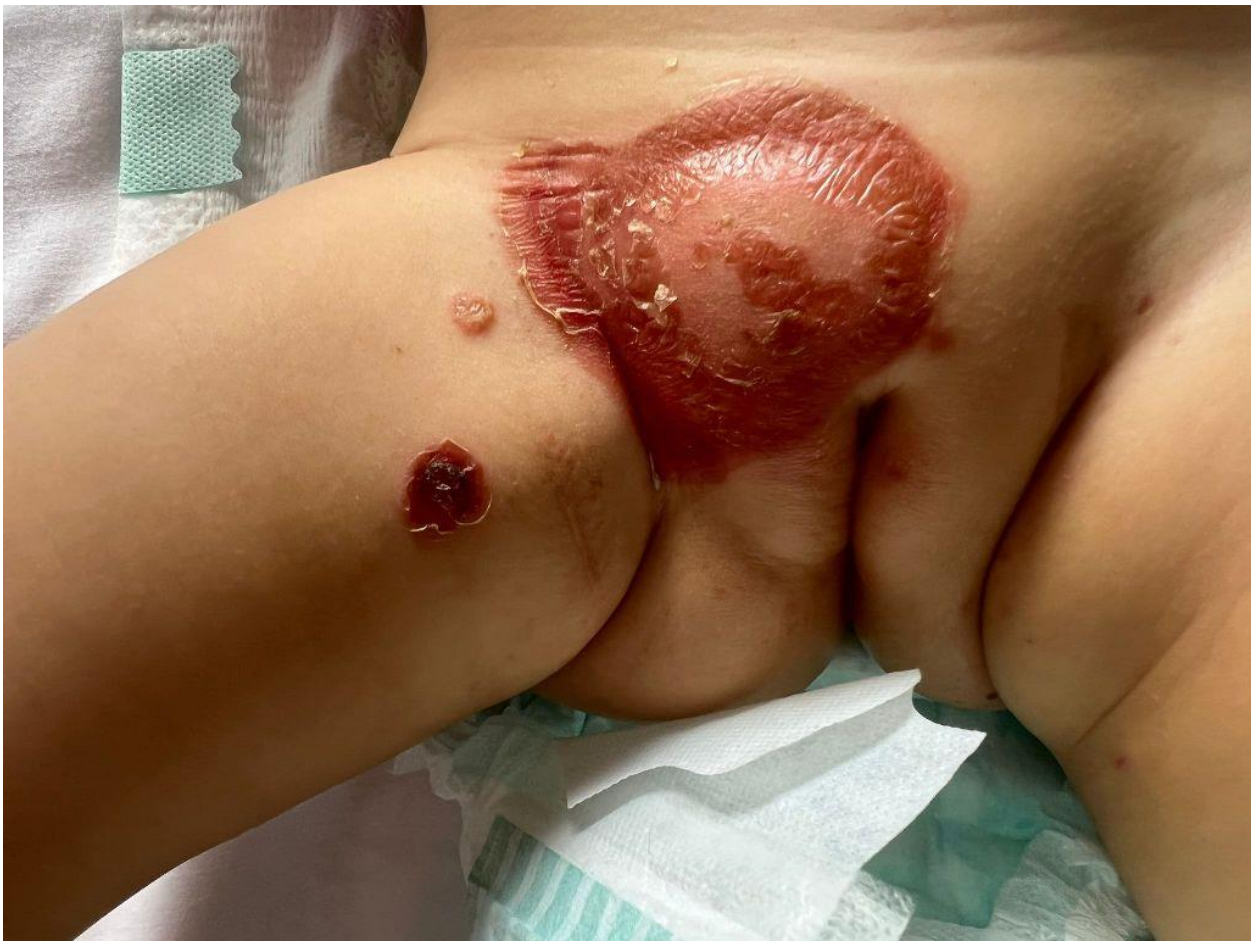
Title of Case: EXUBERANT MANIFESTATION OF VARICELLA – A CLINICAL CASE
Background: Chickenpox is a common infectious disease in childhood caused by primoinfection with the varicella-zoster virus (VZV). Although generally considered a benign and self-limited disease, complications can occur in 2 to 5% of cases, being bacterial over-infection the most frequent.
Case Presentation Summary: We describe a case of a female 13-months-old child, with a diagnosis of chickenpox 10 days prior to the observation. Portuguese National Vaccination Programme is updated without other vaccines. Evaluated at the Emergency Department (ED) with large erythematous lesions in both axillae and right inguinal region with 4 days of evolution (Fig 1) and 24 hours of fever. The previous chickenpox lesions had a favorable evolution until then. Well appearing at physical examination and with multiple scattered lesions with a pink base, exudative at the centre and desquamative at the edges. The two largest had a major diameter of 10 cm with more erythematous areas, located in the left axillae and right inguinal area. Multiple vesicles in healing phase scattered over the body. She was admitted to the pediatric ward with intravenous amoxicillin/clavulanic acid and topical bacitracin. The exudate of the lesion was positive for VZV. Apyretic since day 3 and favorable evolution of the lesions, with adequate healing. Completed 7 days of intravenous antibiotherapy and 10 in total. A follow-up consultation was scheduled.



Learning Points/Discussion: This case shows an exuberant manifestation of a common pathology in pediatric age. Although the majority of over-infections only require oral treatment, the more severe ones involve intravenous treatment and exclusion of the main differential diagnosis.

PV0569 / #1442

ACTINOMYCES TIMONENSIS SP. IN A HEALTHY CHILD WITH RECURRENT CUTANEOUS ABSCESSES

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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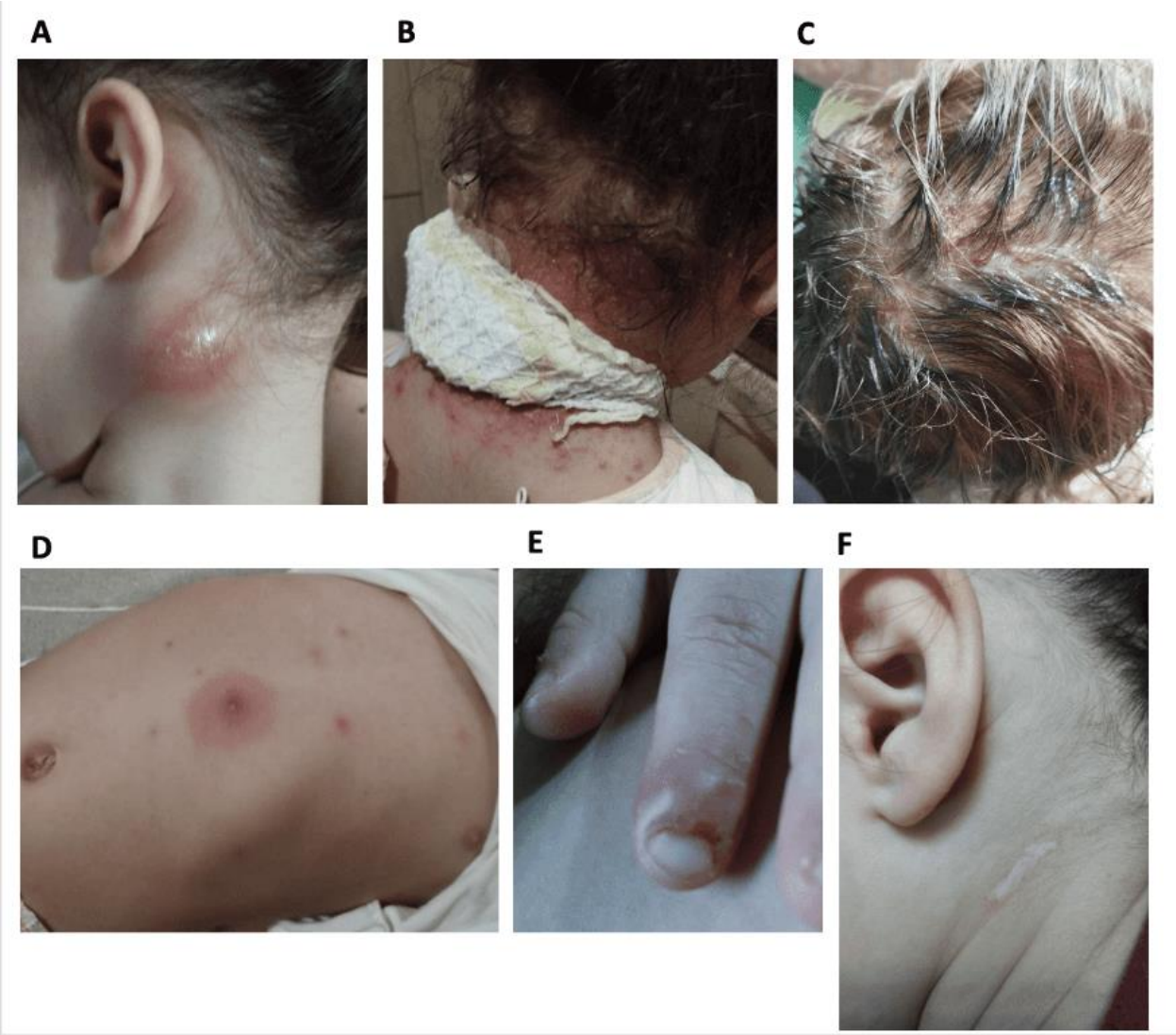
Title of Case: Actinomyces Timonensis sp. in a healthy child with recurrent cutaneous abscesses
Background: Actinomyces Timonensis is a novel species of the genus Actinomyces that was isolated in humans only once in a 13-year-old girl with sacroiliitis and long history of osteo-articular condition.
Case Presentation Summary: We present the case of a 2-year-old girl with 5-months history of recurrent cutaneous abscesses resistant to multiple antibiotic therapy. Before our assessment a subcutaneous mass of 30 mm x 25 mm in left cervical region required surgical drainage. Personal and family medical history was non-significant. She was afebrile and systemically well, physical examination showed multiple furuncles on her chest and neck, impetiginized skin lesion of the scalp and cutaneous infection of distal phalanges of hand’s
fingers.



White blood cell count was in the normal range and C-reactive protein level was negative. No alteration was found in immunological exams. The cultural analysis performed on a superficial swab of the lesion revealed the presence of A. Timonensis. The identification was performed with mass spectrometry, MALDI-tof MS. A. Timonensis was susceptible to clindamycin, meropenem, penicillin G, piperacillin-tazobactam and vancomycin, but resistant to metronidazole, similarly to the strain previously isolated. Conditions predisposing to cervicofacial actinomycosis like dental caries, trauma or immunocompromised state were not found in our patient. Infection was treated with three weeks of intravenous antibiotic therapy with teicoplanin, replaced by meropenem after determination of antimicrobial susceptibility, followed by two weeks of oral clindamycin, with total regression of skin lesions and no recurrence observed for a six-month follow-up period.

Learning Points/Discussion: Actinomycosis due to novel strain such as A. timonensis may represent a novel antimicrobial entity involving even immunocompetent children with recurrent abscesses. A prompt diagnosis may ensure an appropriate therapeutic management.

PV0570 / #342

ORIGIN AND METABOLIC REWIRING OF DERMAL MACROPHAGES DRIVE IMMUNITY AND IMMUNE MEMORY IN BACTERIAL INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Backgrounds: The skin needs to tune immunity to colonizing, sporadically invading and chronically infecting bacteria. Conceptionally, a flexible response machinery is required to accommodate the dynamic challenges of efficient antimicrobial defence and restoration of tissue homeostasis. Dermal macrophages critically provide immunity against the skin colonizer and opportunistic pathogen Staphylococcus aureus, as well as to Mycobacterium spp. causing chronic infections.
Methods: Here, we dissected the impact of origin, cell-intrinsic mechanisms and micro-environmental cues on macrophages in localized dermal infections by adapting metabolic profiling, single-cell transcriptomics, fate mapping, and high resolution imaging.
Results: We found that in acute staphylococcal infection, cell intrinsic metabolic rewiring is required for the resolution of infection and acquisition of innate immune memory– largely irrespective of macrophage origin. This rewiring program relied on GM-CSF produced by distinct T-cell subsets and hypoxia conditioning the dermal microenvironment, thus metabolically diverting macrophages away from a homeostatic M-CSF and HIF-1alpha dependent program. Mechanistically, the expression of IRG1 and generation of itaconate were essential for tight immune control. In contrast, dermal (and soft tissue) immunity to chronic infection with Mycobacterium spp. heavily depended on incoming, i.e. monocyte-derived macrophages and their intrinsic differentiation programs, which steered antibacterial activity, diversification of macrophage subsets and tissue repair. This contrasts homeostasis, where barrier tissue macrophages display profound plasticity in filling microanatomical niches even in the absence of incoming macrophages.
Conclusions/Learning Points: In summary, during bacterial skin infections dermal macrophages receive complex, and infectious agent specific exogenous and endogenous cues that allow for cycling between fierce antimicrobial activity, resolution of inflammation and immune memory.

PV0571 / #760

QUANTIFYING THE RATE OF VARICELLA ASSOCIATED COMPLICATIONS

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Backgrounds: Varicella (chickenpox) is an infectious disease caused by the varicella-zoster virus (VZV) affecting both children and adults. Varicella symptoms are usually considered mild, however differing complications with widespread and systemic manifestations can occur. This study systematically reviews and quantifies varicella complication rates.
Methods: Two databases (Embase and MEDLINE), congress abstracts, and reference lists of systematic reviews were searched to identify evidence on varicella complications. Healthy/immunocompetent/immunocompromised individuals who developed viral/breakthrough varicella infection were included. Outcome of interest was the percentage of patients with varicella-associated complications. Proportional meta-analyses were performed using a random-effects model. Subgroup analysis, sensitivity analysis, and heterogeneity and publication bias tests were performed.
Results: Of the total 2030 records identified, 78 papers fulfilled the meta-analysis eligibility criteria. Complications were categorized into 14 clinically relevant sub-groups. Overall, the percentage of patients with any varicella complication was 25.29% (95% confidence interval [CI] 22.09–28.64). The most frequent types of complication in patients with varicella were severe varicella (22.42%; 95% CI, 10.13–37.77), skin-based complications (20.12%; 95% CI, 15.48–25.20) and infection-based complications (10.03%; 95% CI, 7.47–12.90) (Table 1). All other pooled complication subgroup rates ranged from 0.5% to 10%. Observations suggested that complications were generally more prevalent in children and patients hospitalized for varicella. There was substantial heterogeneity in all subgroups (94%–100%) (Table 1) and publication bias was
observed.

Table 1. All complications summary table

Complication Category	Related studies (reference number)	Sample size	Complication rate, % (95% CI)	Heterogeneity				
				I^2, %	p value	Eggers Statistic*	Eggers p value	E-Value
Cardiovascular	11	68,474	0.55 (0.08–1.33)	95.27	p<0.01	3.23	0.01	23.47
ENT	31	844,966	5.50 (4.45–6.65)	98.99	p<0.01	5.05	p<0.01	7.79
Gastrointestinal	35	100,423	6.73 (4.17–9.84)	99.49	p<0.01	2.50	0.02	6.97
Genitourinary	18	70,622	1.17 (0.55–1.99)	93.78	p<0.01	0.93	0.37	16.48
Haematological	42	88,317	4.97 (3.47–6.70)	98.28	p<0.01	5.42	p<0.01	8.10
Infection	49	832,335	10.03 (7.47–12.90)	99.71	p<0.01	2.84	p<0.01	5.60
Liver	24	73,826	2.51 (1.19–4.27)	98.18	p<0.01	4.94	p<0.01	11.64
Musculoskeletal	34	219,416	1.54 (1.06–2.11)	97.33	p<0.01	6.52	p<0.01	14.53
Neurological	69	946,841	6.74 (5.56–8.02)	99.51	p<0.01	7.04	p<0.01	6.98
Ocular	23	81,903	2.09 (1.44–2.84)	93.66	p<0.01	3.22	p<0.01	12.59
Other	37	857,466	5.04 (4.05–6.12)	99.05	p<0.01	3.08	p<0.01	8.14
Respiratory	70	877,770	8.17 (6.88–9.55)	99.28	p<0.01	6.40	p<0.01	6.28
Severe Varicella	12	4,665	22.42 (10.13–37.77)	99.15	p<0.01	-0.93	0.37	3.45
Skin	63	274,142	20.12 (15.48-25.20)	99.86	p<0.01	5.05	p<0.01	3.71

CI, confidence interval; ENT, eat, nose and throat
*Eggers Statistic not possible with less than 10 studies

Conclusions/Learning Points: Results suggest that differing types of varicella-associated complications could be frequent, impacting quality of life, healthcare resource utilization and budgets. These data can inform and raise awareness of the health and economic burden of varicella disease.

PV0572 / #2047

ONYCHOMADESIS IN CHILDREN AS A LATE COMPLICATION OF HAND-FOOT-MOUTH DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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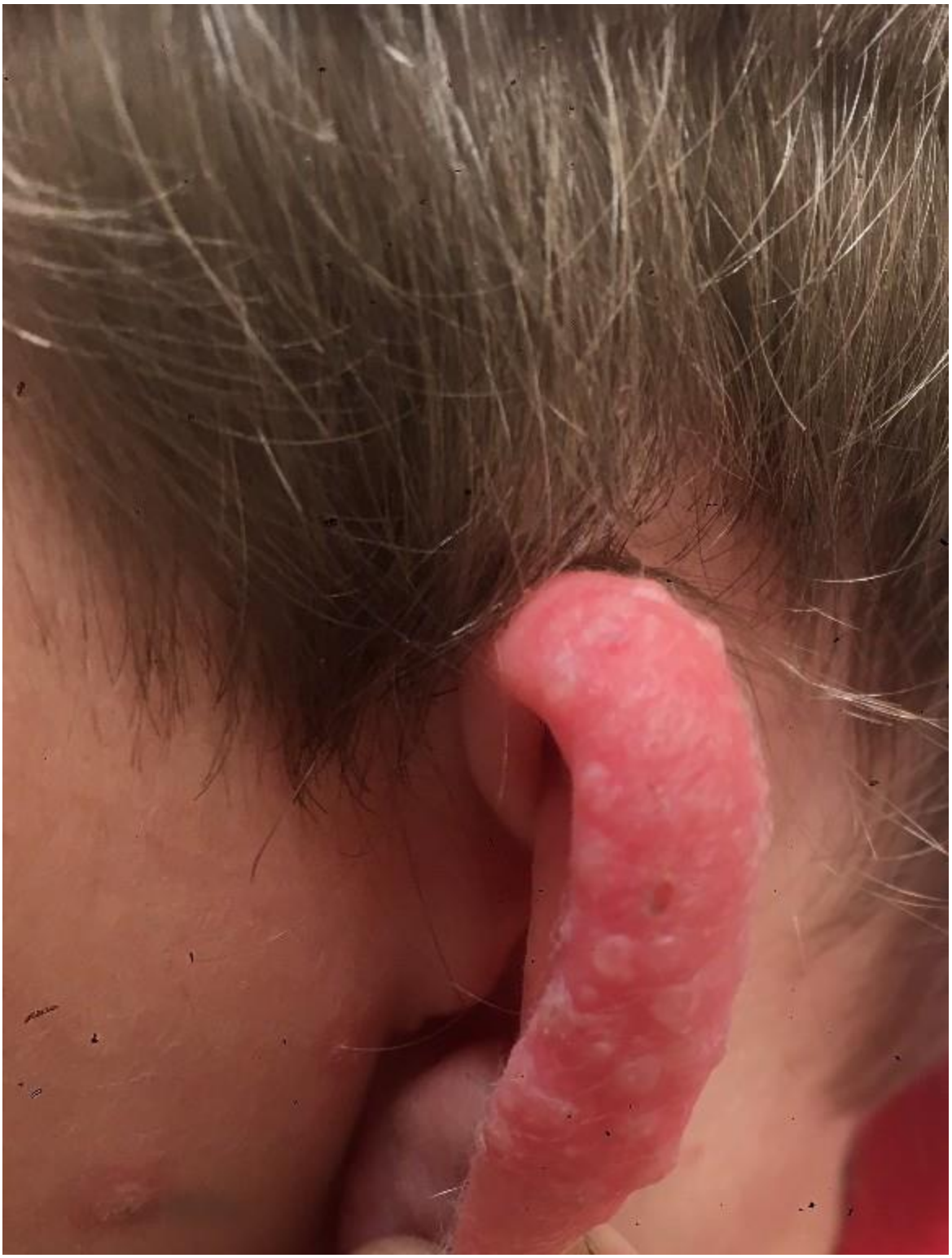
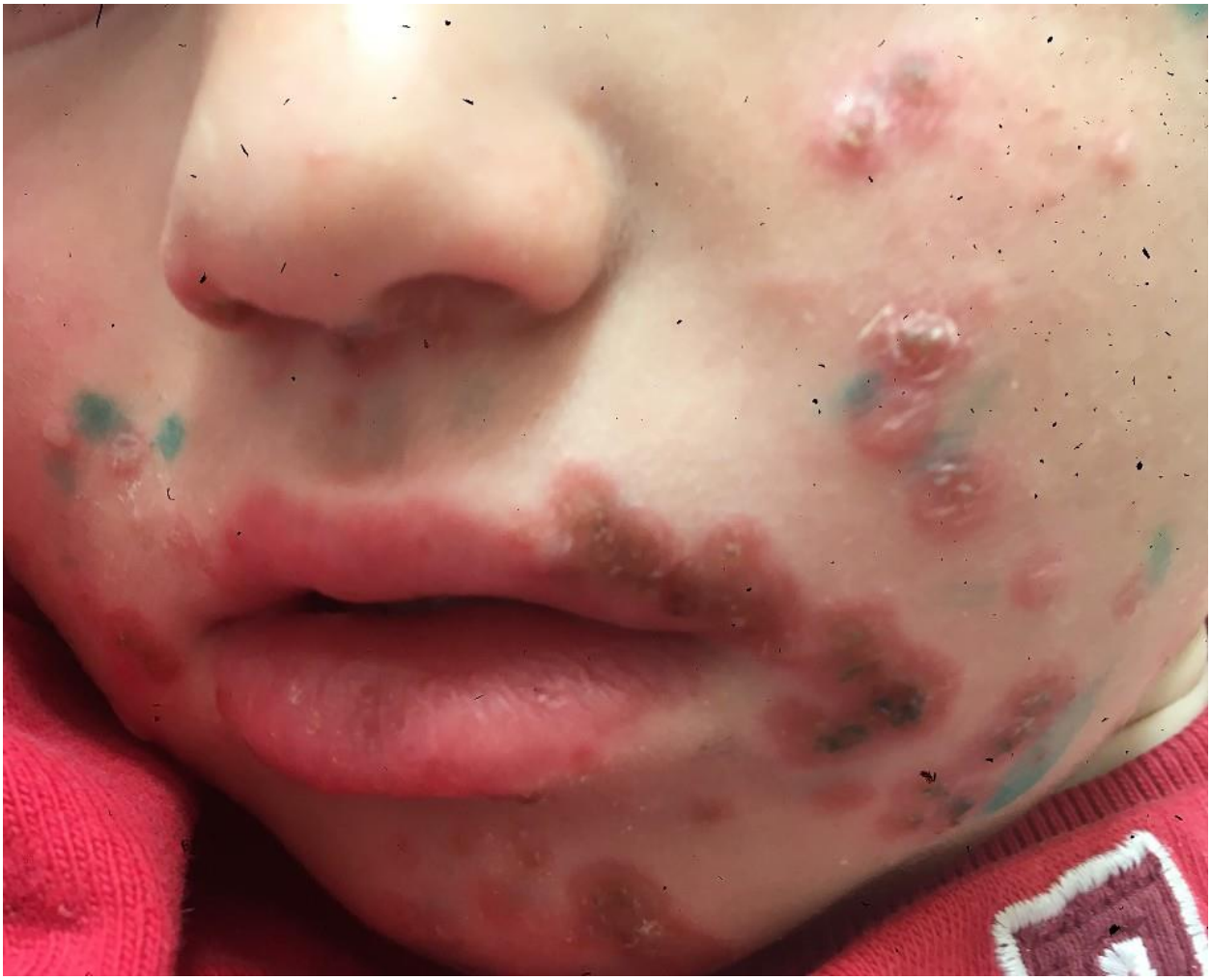
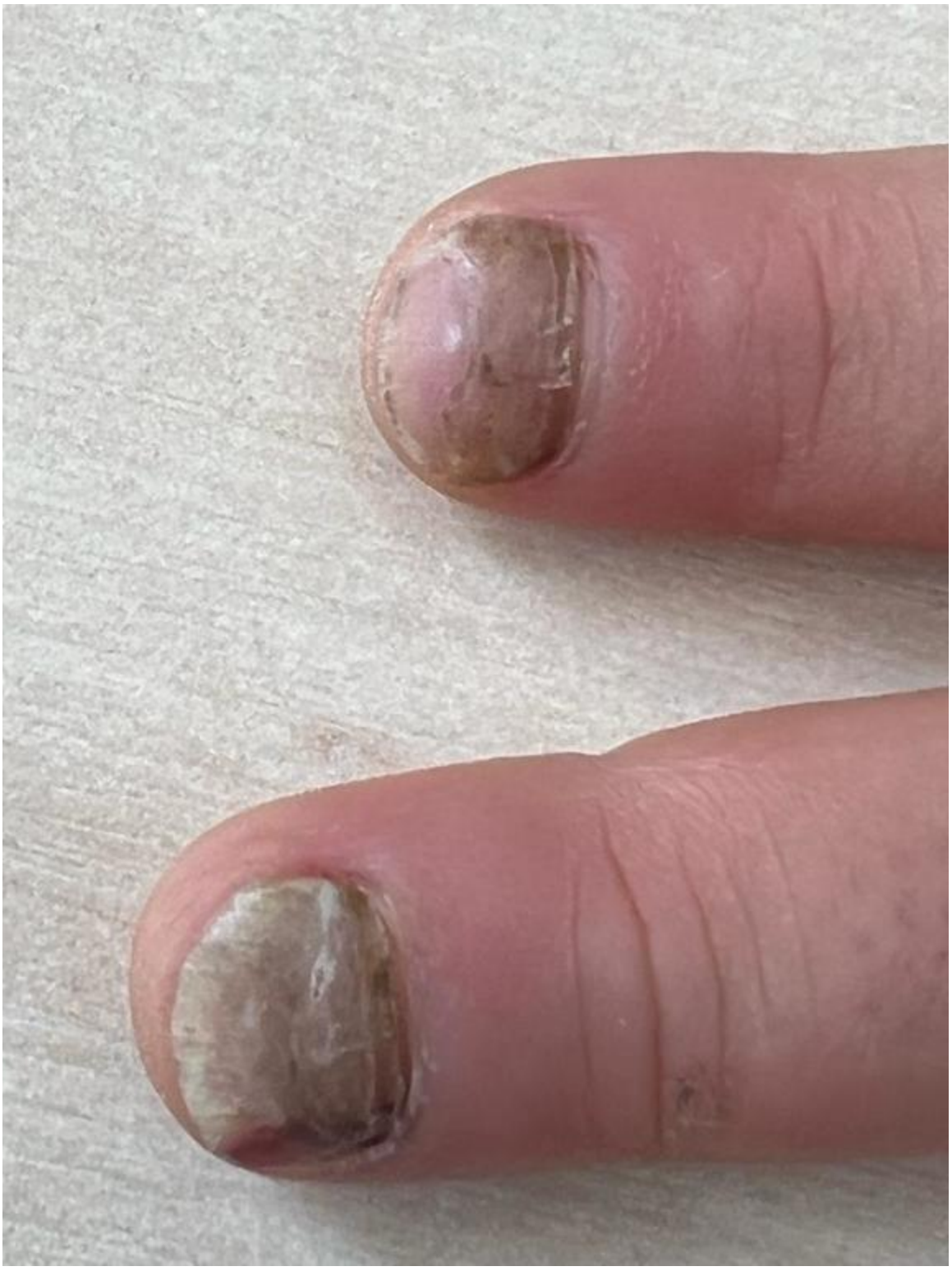
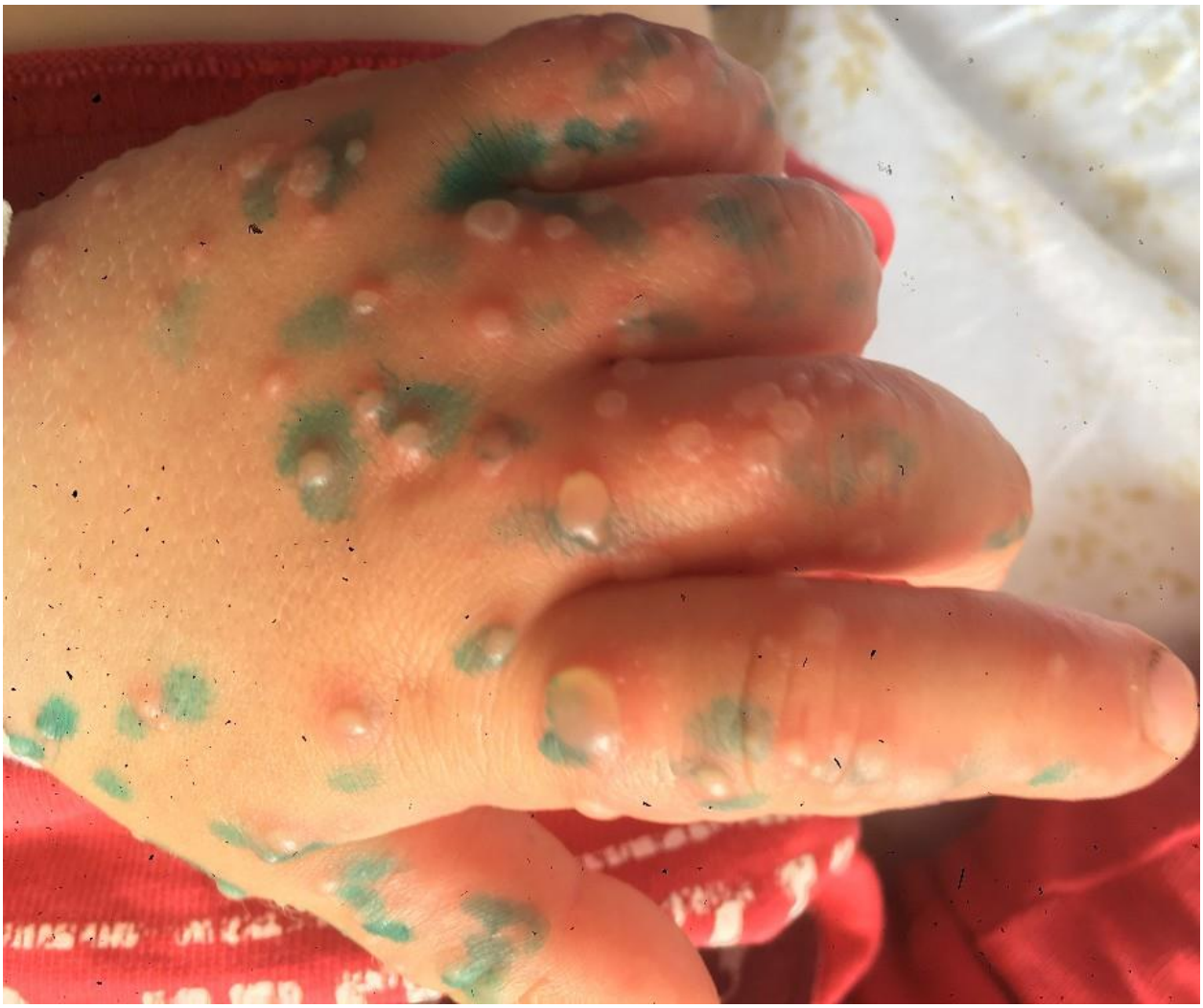
Title of Case: Onychomadesis in children as a late complication of hand-foot-mouth disease
Background: Hand, foot, and mouth disease (HFMD), caused by an enterovirus is common in children under 5 years, especially in the last decade. The illness is usually not serious, but is very contagious and it spreads very easily. It is characterized by clinical diversity, the severity varies from mild to severe. Complications are not common, although there is a rare but noteworthy complication - Onychomadesis. Nail abnormalities range from leukonychia and Beau lines to partial or complete nail shedding. The pathogenesis is not fully understood.
Case Presentation Summary: The patient, a 4-year-old girl, came to us with complaints-changes in her nails. The patient referred to different doctors, but an accurate diagnosis was not given. In dynamics, the situation became complicated, the damage increased and spread to other fingers as well and later resulted in complete nail shedding. The temperature was normal. Objective examination showed no changes in the internal organs (Fig.N1, 2, 3) According to the parent's narration and description, 5 weeks ago she had HFMD (Fig. N4,5). After 3 days of fever, the condition improved, she had rash of medium intensity, which disappeared without a trace in 8 days. Symptomatic therapy had been administered. It was re-examined after 80 days, when the process was completely resolved and the child had healthy nails. In the case of Onychomadesis of other etiology, long-term local therapy is considered.









Learning Points/Discussion: Onychomadesis is a rare complication of HFMD which appears 5 weeks after the onset of the disease, and should be known to pediatricians and family physicians, as well as to dermatologists, because in this case, no additional special treatment is considered, since it is a self-limiting process.

PV0573 / #2225

PARINAUD OCULOGLANDULAR SYNDROME

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Title of Case: Parinaud Oculoglandular Syndrome
Background: Parinaud Oculoglandular Syndrome is an atypical presentation of Cat Scratch Disease (CSD), described in 2 to 8 percent of patients. It is characterized by unilateral granulomatous follicular conjunctivitis and ipsilateral preauricular, submandibular or cervical lymphadenopathy. It should be considered in differential diagnosis of preauricular, submandibular or cervical lymphadenopathies for early antibiotic treatment, resulting in faster time-to-recovery and fewer visits to emergency room.
Case Presentation Summary: A healthy 9-year-old boy presented with 2 days left conjunctival injection with no purulent discharge. Viral conjunctivitis was assumed and he was treated with symptomatic measures. After 7 days, the was a worsening of conjunctivitis with additional left-sided palpebral and facial edema, pain and night sweats, associated with a palpable painful preauricular lymphadenopathy. Lab results showed no alterations and assuming reactive lymphadenopathy he was treated with anti-inflammatory medication. One week later presented with no improvement. Neck ultrasound revealed intraparotid enlarged lymph nodes without parotid gland alterations. Given the history of kittens at home and the preauricular lymphadenopathy with previous ipsilateral conjunctivitis, the diagnosis of CSD was considered. A 5-day course of azithromycin was empirically performed. Serologies showed positive IgM and IgG for Bartonella henselae. One month later he presented clinically well, the ocular alterations and the majority of the lymphadenopathies had resolved, with only the persistence of a small lymphadenopathy of about 1-2cm.
Learning Points/Discussion: Parinaud Oculoglandular Syndrome is a treatable pathology, without sequels, that should always be considered in a child or adolescent with preauricular lymphadenopathy and ipsilateral conjunctivitis. The diagnosis is confirmed by serology and the treatment consists in azithromycin in immunocompetent patients, which shortens the course of the disease.

PV0574 / #1747

DERMATOPHYTOSES AMONG PAEDIATRIC OUTPATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Backgrounds: Dermatophytoses are caused by keratinophilic fungi belonging to the genera Microsporum, Trichophyton, and Epidermophyton. Transmission of dermatophytes may occur by direct contact with infected humans or animals or indirectly, by contact with contaminated fomites. Most common clinical manifestations are tinea capitis, tinea corporis, tinea pedis, and tinea unguium (onychomycosis).
Methods: This is a descriptive analytical study. We used laboratory records of outpatients in Canton Sarajevo whose samples were analysed for dermatophytes in the Microbiology Laboratory of the Institute for public health of Canton Sarajevo in the period 01.01.2022-31.12.2022. The samples were examined under microscope for hyphae and conidia, and cultured on Sabouraud dextrose agar and Dermatophyte agar (Liofilchem).
Results: Among 92 positive dermatophyte cultures of outpatients, 21 (22,8%) were among paediatric population aged <18 years old, more often females (n=13, 61,9%). The predominant sample was skin scraping (12 cases, 57,1%) followed by scalp scraping (6 cases, 28,6%) and nail scraping (3 cases, 14,3%). The most common isolated dermatophyte was Microsporum canis (n=11, 52,4%). Median age was 9 years old (min. 1, max. 18 years old).
Conclusions/Learning Points: It is necessary to improve the surveillance of dermatophytoses, especially in the paediatric population.

PV0575 / #146

UNDERSTANDING DIAPER DERMATITIS: IN THE BEGINNING WAS UREASE

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Backgrounds: Diaper dermatitis (DD) / Incontinence Associated Dermatitis (IAD) is skin inflammation caused by urinary/faecal exposure. DD is the most common dermatologic disorder of infancy: at least one episode occurs for most children. Mechanistically, there are several gaps in understanding of the pathogenesis of DD, involving a complex interaction of infective agents (Figure 1). Urease-positive faecal bacteria, including Proteus mirablis (P. mirabilis), catalyse the conversion of urea into ammonia. The resulting increase in skin pH activates faecal enzymes and can cause infections, predominately by Candida albicans and Staphyloccous aureus. Furthermore, pro-inflammatory cytokines are released. It is hypothesised that by inhibiting urease activity, the positive feedback of pathogenic agents may be halted. Impedance Spectroscopy, a non-invasive measure of skin barrier function, was applied in an in vivo human model
(EP22107).

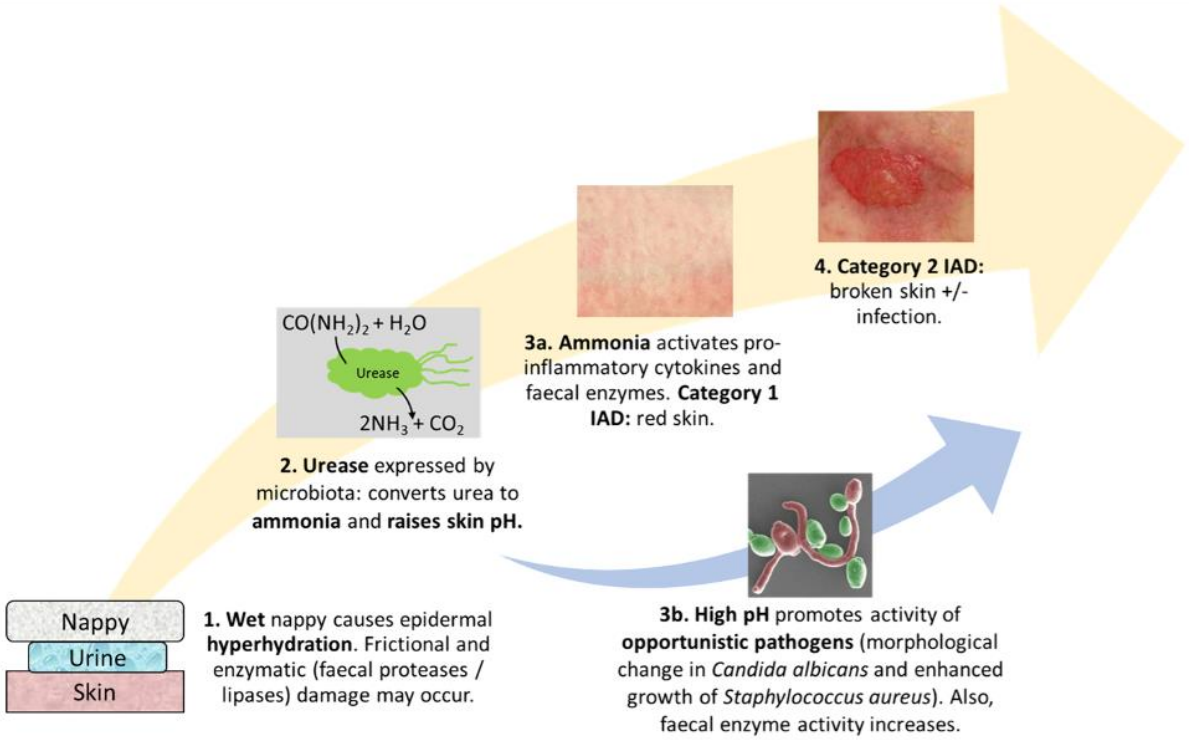

Figure 1. Schematic showing the contributing factors in Diaper Dermatitis (DD) / Incontinence Associated Dermatitis (IAD). Wet skin is susceptible to hyperhydration and frictional/enzymatic damage. Commensal bacteria express urease which catalyses the conversion of urea to ammonia, raising the skin pH. The high pH promotes further bacterial growth and increases protease activity. This also causes morphological change in commensal *Candida albicans* and increased growth rate of *Staphylococcus aureus*, promoting skin degradation.

Methods: Healthy human volunteers (N = 8) were inoculated with artificial urine, urease-positive P. mirablis (B4) and urease inhibitors (25% v/v Nasturtium officinale, 5 mM Lithostat - a urease inhibiting drug). After 4 h, skin integrity was assessed using impedance spectroscopy, pH, transepidermal water

loss (TEWL), stratum corneum moisture and erythema.
Results: Skin impedance decreased ($p < 0.001$) and pH increased ($p < 0.0001$) in the presence of P. mirablis. Lithostat reduced the changes in impedance ($p < 0.001$) and pH ($p < 0.001$) caused by P. mirabilis, preventing ammonia-induced damage. Nasturtium officinale may serve as an anti-inflammatory.
Conclusions/Learning Points: DD is a common, complex condition which involves the interplay of faecal/dermal bacteria, yeasts, and enzymes. This work attempts to further our understanding of DD pathogenesis; urease was identified as a potential pharmacological target for inhibition. Skin impedance spectroscopy may have future value in objectively diagnosing DD, including darker skin tones where erythema is less visible.

PV0576 / #2113

HERPES ZOSTER WITH AN UNCOMMON DISTRIBUTION IN A CHILD

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Title of Case: HERPES ZOSTER WITH AN UNCOMMON DISTRIBUTION IN A CHILD
Background: Varicella-zoster virus(VZV) is a member of the herpesvirus family and causes varicella after primary infection. The virus then establishes latency in the dorsal root ganglia and its reactivation results in herpes zoster(HZ), with a typical distribution along a specific dermatome. Although the rash can occur in any dermatome, thoracic and lumbar dermatomes are most often involved.
Case Presentation Summary: A previously healthy 4-year-old boy presented to the emergency department(ED) with history of a painful rash for 3 days. The rash started on the right shoulder and progressed down the arm to the forearm. On the day of presentation to the ED, he also complained of headache and vomiting. No history of fever or other symptoms. No history of recent contact with anyone with a rash or varicella-like illness. History of varicella at 1 month of age without complications. On ED, he had a vesicular rash on his right shoulder and anterior side of the right arm and forearm, with few scattered vesicles on the thenar region of the right hand, consistent with involvement of C5/C6 dermatome. No evidence of meningeal irritation or any neurologic deficit. The diagnosis of HZ was assumed. The child improved with analgesia, oral ondansetron and rehydration solution. He was discharged and treated with acyclovir 20mg/kg every 6 hours during 7 days, with complete regression of the lesions.
Learning Points/Discussion: HZ can be found in all age groups, but its incidence increases with age. Exposure to the VZV during the first year of life is a risk factor for the development of HZ during childhood. The authors bring this case to aware to this unusual distribution that can be found in HZ.

PV0577 / #1441

A CASE OF MASTOIDITIS CAUSED BY STREPTOCOCCUS INTERMEDIUS WHEREIN EARLY DIAGNOSIS OF LUPUS ANTICOAGULANT-HYPOPROTHROMBINEMIA SYNDROME ALLOWED PROMPT SURGICAL DRAINAGE

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Title of Case: A CASE OF MASTOIDITIS CAUSED BY STREPTOCOCCUS INTERMEDIUS WHEREIN EARLY DIAGNOSIS OF LUPUS ANTICOAGULANT-HYPOPROTHROMBINEMIA SYNDROME ALLOWED PROMPT SURGICAL DRAINAGE
Background: Lupus anticoagulant (LA) is transiently produced in children following viral infection, and rarely bacterial infection, and results in abnormal coagulation. In particular, the presentations of patients with lupus anticoagulant-hypoprothrombinemia syndrome (LAHPS), which is LA-positive, range from asymptomatic to presenting with severe bleeding.
Case Presentation Summary: A 3-year-old girl presented with no specific medical history. Her left posterior ear was swollen, and she was on an oral antibiotic therapy that was prescribed by a local doctor. A contrast-enhanced CT scan of her head and face showed mastoiditis, an abscess in the posterior part of the auricle, and destruction and lysis of the pyramidal bone. Apuncture culture revealed Streptococcus intermedius and anaerobic bacteria. Although considered an indication for emergency otolaryngological surgery, the patient’s coagulation test showed a marked prolongation of activated partial thromboplastin time, which is a contraindication for surgical intervention. A cross-mixing test showed a positive LA pattern, which ruled out the possibility of coagulation factor deficiency. Furthermore,since no abnormal bleeding tendency was noted, surgical drainage could be performed promptly without neurological sequelae.
Learning Points/Discussion: LAHPS is often reported to occur after viral infections, but in the present patient, it was thought to have occurred after a bacterial infection. When prolonged coagulation is observed in a child with an infection that requires surgical intervention, it is important to promptly rule out coagulation factor deficiency through a cross-mixing test, to avoid delayed surgical intervention.

PV0578 / #985

STAPHYLOCOCCAL SCALDED SKIN SYNDROME DUE TO METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Title of Case: Staphylococcal scalded skin syndrome due to methicillin resistant Staphylococcus aureus: a case report.
Background: Staphylococcal scalded skin syndrome (SSSS), also known as Ritter disease, is a rare, toxin-mediated desquamating skin disease caused by Staphylococcus aureus strains, affecting children up to five years old. Diagnosis is essentially clinical, and early onset of anti-staphylococcal drug therapy is required.
Case Presentation Summary: A five-year-old boy, previously healthy, presented to an emergency room (ER) with odynophagia and serous rhinorrhea for three days, and a maculopapular rash, affecting axillary and inguinal folds for a day. He was apyretic. Rapid-antigen detection test for group A Streptococcal was positive and he was discharged with Amoxicillin. The next day, he returned to the ER because he was not tolerating antibiotics, showing generalized erythema, skin pain, and erythematous blisters on the forehead and perioral region. At the admission, he was afebrile, looking ill and complaining of pain at the touch. Vital signs were normal. Despite vast skin lesions, inflammatory markers were not elevated. SSSS was considered, and antibiotic treatment was initiated intravenously with penicillin G, flucloxacillin and clindamycin, after hemoculture and nasopharyngeal swab culture collections. He remained stable, and the pain was manageable. The culture from the nasopharyngeal swab grew methicillin-resistant Staphylococcus aureus, and hemoculture was negative. Penicillin G and flucloxacillin were discontinued after five days. The patient was treated for ten days with clindamycin and showed progressive clinical improvement with lesion regression.
Learning Points/Discussion: Although with appropriate treatment, signs and symptoms of SSSS usually resolve completely within three weeks without long-term sequelae, it might also have a severe clinical course due to loss of skin barrier. A high index of suspicion is essential for making an accurate diagnosis so that the treatment is started promptly and appropriately.

PV0579 / #2600

A RARE CASE OF PRIMARY CUTANEOUS ASPERGILLOSIS IN A PREMATURE INFANT

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Title of Case: A RARE CASE OF PRIMARY CUTANEOUS ASPERGILLOSIS IN A PREMATURE INFANT
Background: Primary cutaneous aspergillosis (PCA) is a rare and a life-threatening fungal infection in premature infants. Various predisposing factors increase the risk of neonatal PCA, including extreme prematurity, low birthweight, immature immune system, use of broad-spectrum antibiotics, and immature skin barrier. We herein present a rare case of PCA caused by Aspergillus flavus in a premature infant.

Case Presentation Summary: A male preterm infant was delivered by cesarean section at 23^{+6} weeks of gestation with a birth weight of 595g.On the 7th day of life, he developed erythematous plaques covered with thick, white scales on his back.These lesions enlarged and extended to the entire back of the patient within 24 h.Laboratory studies were unremarkable.The white skin scales were removed from his back, and treatment with empirical intravenous piperacillin-tazobactam and amphotericin B deoxycholate was started for presumed nosocomial sepsis and fungal infection. Direct microscopic examination of skin scraping lesion revealed branched fungal septate hyphae. Blood, cerebrospinal fluid, and endotracheal aspirate cultures were negative. There was no evidence of disseminated fungal infection in echocardiogram, ophthalmologic examination, abdominal and cranial ultrasound. Skin samples were inoculated on Sabouraud dextrose agar. After 48 hours of incubation, mold colonies were observed in all culture plates. The mold was eventually identified as Aspergillus flavus.All skin lesions resolved after 21 days of amphotericin B treatment, with no scarring. A search for possible sources of infection in our NICU was undertaken by the hospital infection control team, with no positive results.
Learning Points/Discussion: PCA may cause extensive tissue destruction and systemic illness in premature infants.Our case highlights that early diagnosis and treatment are of critical importance in reducing progressive and systemic infection.

PV0580 / #1536

PRIMARY CYTOMEGALOVIRUS INFECTION IN AN INFANT PRESENTING WITH ISOLATED VESICULAR SKIN LESIONS

E-Posters Viewing
E-POSTER VIEWING: AS07.F. SKIN INFECTIONS

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Title of Case: PRIMARY CYTOMEGALOVIRUS INFECTION IN AN INFANT PRESENTING WITH ISOLATED VESICULAR SKIN LESIONS
Background: Cytomegalovirus (CMV) infection can cause diverse clinical presentations, from asymptomatic infection to life-threatening disease, occasionally resulting in long-term disability. Neonates infected during pregnancy and immunocompromised individuals tend to have the most severe disease manifestations. Currently, there are only few reports of isolated cutaneous CMV, especially in children.
Case Presentation Summary: A five-month-old male infant was admitted to our hospital with yellow, crusting skin lesions on the right ear and scalp. The patient was born at 30+0 weeks-of-gestation, and was discharged in good condition after an uncomplicated 9-week NICU stay. The infant was fed with non-pasteurised breast milk and showed no signs of infection in the first weeks following discharge. At five months, the baby developed vesicular lesions on the scalp without any systemic features. PCRs on viral swabs of the vesicular fluid were negative for herpes simplex virus (HSV) and varicella zoster virus, but positive for CMV. Bacterial culture of the fluid showed co-infection with Staphylococcus aureus, treated with topical fusidic acid. Ophthalmologic examination, cranial ultrasound and brainstem evoked response audiometry revealed no abnormalities. Serial blood tests did not show raised inflammatory markers. The skin lesions resolved after 3 weeks without CMV-specific treatment. Additionally, the mother had CMV IgG antibodies (92U/ml) at the child's birth, which slightly increased after five months (114U/ml).
Learning Points/Discussion: CMV infection should be considered in infants presenting with vesicular skin lesions that morphologically resemble HSV infection. It remains uncertain whether the patient had acquired the CMV infection congenitally via the haematogenous route, or in the postnatal period via breastmilk. Currently, most immunological investigations are still pending, but to date laboratory results did not suggest an underlying immunodeficiency.

PV0581 / #915

SEXUALLY TRANSMITTED INFECTIONS IN ADOLESCENTS IN TWO TERTIARY HOSPITALS IN MADRID (SPAIN).

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Backgrounds: Sexually transmitted infections (STI) have increased in recent years becoming a growing public health issue. Its incidence in adolescents has doubled in Spain. Objective: to describe STI diagnosed in patients younger than 18 years attended in our setting over the last 6 years.
Methods: Retrospective multicenter study, including STI diagnosed in two tertiary hospitals in Madrid, between 2016-2022. Clinical-epidemiological data were collected from medical-history. Microbiological tests, performed according to symptoms/exposure history, included: PCR for N.gonorrhoeae(NG) and C.trachomatis(CT) in urethral/cervical/oral/rectal/pharyngeal samples; PCR for herpes simplex-1/2 (HSV) or human papilloma virus (HPV) in scrapped samples and syphilis serological test.
Results: There were 185 STI diagnosed in 140 adolescents, as shown in table 1. A 33.5% were asymptomatic, diagnosed after sexual risk behaviors. All HSV and HPV consulted for skin lesions. CT was detected more frequently in females than males (70 vs 31, $p<0.05$), while NG was more frequent in men (43 vs 32, $p<0.05$). No significant differences in age were found. Twenty females (24%) were admitted because of pelvic inflammatory disease (PID): median age 16 years(RIC16-18); 7 NG, 7 CT and 6 CT-NG coinfections. Only 64 (45.7%) adolescents were followed up in pediatric infectious disease consultation, median of 6 months(RIC 3-12). An upward trend was observed with higher number of STI diagnosed between 2019-2022 (excluding 2020 due to COVID lockdown) (114 cases) as compared to 2016-18 (63
cases).

Table 1. Sexually transmitted infections characteristics

Patient´s Characteristics (N 140)	
Age	
Median (RIC)	17 years old (RIC 16-17)
< 15 years old	19 (14%)
Female	84 (60%)
Place of Birth	
Spain	67(47.8%)
Latin America	42 (30%)
STI diagnosed (N 185)	
C trachomatis	101
N gonorrhoeae	75
Syphilis	5
HSV	3
HPV	1
Coinfections	
CT-NG	43
Coinfection with *Ureaplasma urealyticum*	13
Coinfection with *Mycoplasma hominis*	12

Conclusions/Learning Points: C.trachomatis and N.gonorrhoeae are the main STI diagnosed in adolescents in our setting, but other preventable STI have occurred. To note, one in four adolescent females had a severe STI (PID), requiring hospitalization. In addition, one third of STI were asymptomatic, reflecting a larger number of STI undiagnosed in adolescents.

PV0582 / #1965

THE IMPORTANCE OF SEXUALLY-TRANSMITTED INFECTIONS IN ADOLESCENT GIRLS

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Backgrounds: Pelvic inflammatory disease (PID) is a complication frequently seen in women with sexual transmission infections (STI). If not treated, PID can cause women's reproductive health problems. The aims of this study were to describe the characteristics and the management of PID cases in patients under 18 over the last six years in Madrid.
Methods: Retrospective multicentric study including all STI diagnosed in two tertiary hospitals in Madrid, Spain, between 2016-2022. Clinical and epidemiological data were collected, as well as PID management and follow-up. Microbiological test included PCR for N. gonorrhoeae (NG), C. trachomatis (CT), Mycoplasma hominis (MH), Ureaplasma urealyticum (UU) and Mycoplasma genitalium (MG) in cervical samples and serological test for HIV and T. pallidum infections.
Results: Out of 84 female patients diagnosed with a STI over the study period, 23.8% (n=20) developed PID (median age 16 years [RIC 15-17]). All patients were symptomatic, most commonly presenting with abdominal pain (70%), genital pain (50%) and abnormal vaginal discharge (25%). Only 10% had fever. There were 13 NG infections and 13 CT infections (6 were NG-CT co-infections). Other detected pathogens in co-infection included 5 MH, 4 UU and 2 MG. There were no cases of HIV or syphilis. Imaging tests were performed in 90% of patients, 72% were abnormal. All patients received combined antibiotic therapy, 10% required surgery. There were complications in 35%: 4 bilateral tubo-ovarian abscesses, 2 pyosalpinx, 1 peritonitis, 1 ileocolitis. 70% were followed-up in Paediatric Infectious disease unit, having 10% of them STI recurrence.
Conclusions/Learning Points: PID is a serious complication of STI, usually due to NG and/or CT infections, with a high risk of hospitalization and secondary complications. High clinical suspicion is needed for early diagnosis and prevention of new STI.

PV0583 / #971

PELVIC INFLAMMATORY DISEASE – AN INCREASING INCIDENCE OR IMPROVED DIAGNOSIS?

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Backgrounds: Pelvic inflammatory disease (PID) is an infection of the female upper genital tract. Sexually active adolescents present the highest risk and diagnosis is challenging due to nonspecific or absent symptoms. In 2022 we implemented a hospital protocol regarding PID. We report the prevalence and characteristics of PID in adolescents at a general hospital.
Methods: Retrospective study of clinical files of adolescents aged 11-18 years diagnosed with PID in the Emergency Department between 2015-2022.
Results: Pelvic Inflammatory Disease was diagnosed in 6 adolescents, 1 in 2015, 6 in 2022. Median age was 16,6 years-old [16-17]. All presented abdominal pain (n=7), 4 had cervical purulent discharge and 3 had fever. A sexually transmitted disease (STD) agent was detected in all cases, 6 by urine PCR and 1 by vaginal/endocervical swab culture. Co-infection was detected in 4 cases (3 with Neisseria gonorrhoeae and Chlamydia trachomatis; 1 with N. gonorrhoeae, C. trachomatis and Ureaplasma urealyticum), 2 cases had solely N. gonorrhoeae and 1 had C. trachomatis. As per protocol, serologies for other STD were requested in all cases, one of which was positive for syphilis. 5 patients were hospitalized, with variable empiric antibiotic therapy. Complications included 3 tubo-ovarian abscesses and 1 Fitz-Hugh-Curtis Syndrome. Median time of hospitalization was 4.6 days [2-8]. All adolescents were referred to Adolescent and Gynecology appointments, with a favorable outcome.
Conclusions/Learning Points: PID diagnosis clearly rose in 2022 which may have been due to increased awareness from clinicians, reinforcing the relevance of hospital protocols. Other factors may have contributed, like a higher prevalence of STD and increased diagnostic sensitivity with PCR methods. Co-infections were frequent, emphasizing the importance of a broad spectrum empiric therapy and screening for other STD to avoid missed testing opportunities.

PV0584 / #2188

PELVIC INFLAMMATORY DISEASE IN ADOLESCENTS – EXPERIENCE OF A PORTUGUESE HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Backgrounds: Pelvic inflammatory disease (PID) is an infection of the upper genital tract in females, including endometritis, salpingitis, tubo-ovarian abscesses, and pelvic peritonitis. Sexually transmitted infections (STIs), such as Chlamydia trachomatis and Neisseria gonorrhoeae, cause most PID cases. Sexually active adolescents are at higher risk for developing PID and subsequent sequelae.
Methods: Retrospective observational study of paediatric patients hospitalized at a secondary care paediatric department diagnosed with PID between January/2015-December/2022. Data included patient risk factors and symptoms; clinical, laboratory and imagological findings; STIs testing and treatment.
Results: We identified 10 patients hospitalized with DIP, 1 of them with 2 admissions, with a median length of 5 days. Median age was 16 years. All adolescents were sexually active, without or inconsistently using barrier methods. The most frequent symptoms were lower abdominal pain (91%), fever (82%), increased vaginal discharge (73%), vomiting (54%) and dysuria (45%). The bimanual pelvic examination was positive in 91% of the adolescents. All had leucocytosis with increased CRP (median 12,6 mg/dL). The ultrasound established the diagnostic in 9 cases, 1 required abdominal TC and 1 laparoscopy. An infectious agent was identified in 36% of the cases (2 Chlamydia trachomatis, 3 Neisseria gonorrhoeae). All were tested for STIs, 1 presenting with condyloma lata. 54% were complicated PID, all tubo-ovarian abscesses. Most completed triple antibiotic treatment for at least 14 days. In 4 cases the partner was treated.
Conclusions/Learning Points: DIP is associated with long-term sequelae, including infertility and chronic pelvic pain, requiring a high level of clinical suspicion and appropriate patients and their partners' treatment. The results point out some risk behaviours in adolescence. Clinicians should provide counselling regarding safe sexual behaviours and STIs prevention and screening, including Chlamydia trachomatis and Neisseria gonorrhoeae.

PV0585 / #1053

ANTIMICROBIAL RESISTANCE AND NEISSERIA GONORRHOEAE TREATMENT IN PEDIATRICS: A CONCERN AS OF RIGHT NOW?

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Backgrounds: Neisseria gonorrhoeae infections are a serious health problem worldwide. Increasing resistance levels to azithromycin and ceftriaxone are being reported in multiple studies.
Methods: Patients with confirmed Neisseria gonorrhoeae infections were included, from a tertiary Paediatric Hospital between 2017 and 2021. Demographic, clinical and microbiological data were collected.
Results: Thirty cases were identified, 24 (80%) were males. The mean age was 16.6 ± 0.97 years. In males, dysuria was the most common symptom (79.1%). Females were mostly asymptomatic (66.7%). Co-infections were frequent (60%), most commonly with Chlamydia trachomatis (n=17), followed by Syphilis (n=2). Cultural testing, with antimicrobial sensitivity studies, were only possible in 13 of the 30 cases. Resistant to quinolones was found in 5/13 (38%) cases, 1 with concomitant resistance to azithromycin. No isolates were resistant to cefixime or ceftriaxone.
Conclusions/Learning Points: Neisseria gonorrhoeae infections can be asymptomatic, especially in females, raising the question about the need for periodic testing, especially of risk populations. Culture identification of strains is fundamental for establishing the epidemiological picture of each territory and establishing the best empirical treatment in each case.

PV0586 / #1690

5 YEARS OF SEXUALLY TRANSMITTED INFECTIONS IN ADOLESCENTS IN TWO PAEDIATRIC UNITS IN PORTUGAL – TWO CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Title of Case: 5 YEARS OF SEXUALLY TRANSMITTED INFECTIONS IN ADOLESCENTS IN TWO PAEDIATRIC UNITS IN PORTUGAL – TWO CASE SERIES
Background: Sexually Transmitted Infections (STIs) are a health care concern worldwide. Adolescents are at special risk as they are prone to high-risk sexual behaviors. Objectives/methods: We aim to describe two pediatric populations from a level two and a level three Paediatric Hospitals in Portugal, with confirmed STI between January 2018 and November 2022 (5 years).
Case Presentation Summary: Tertiary hospital: 53 adolescents, ages between 12 and 18 (median of 17 year old), 33 (62%) of them male. The most prevalent STI was Chlamydia trachomatis (CT) n=33 (62%), followed by Neisseria gonorrhoeae (NG) n=30 (57%). Other STIs also identified were syphilis n=6, hepatitis B virus n=3, human immunodeficiency virus (HIV) n=1 and Trichomonas vaginalis (TV) n=1. Coinfection was identified in 19 cases (36%): CT/NG n=15, CT/NG/syphilis n=2, CT/syphilis n=1 and NG/TV n=1 Level two hospital: 25 adolescents, ages between 13 and 18 (median of 17 years old), 16 of them female (64%). The most prevalent STI was also CT n=13 (50%), followed by NG n=10 (38%). Coinfection CT/NG was diagnosed in 4 cases (15%). Other STIs also identified were syphilis n=4, HIV n=1 and TV n=1.
Learning Points/Discussion: These two case series show similarities regarding the types and distribution of the STIs identified, reflecting similarities in sexual practices between adolescents from two different social contexts. It also underlines the importance of the consideration of STIs in early age groups, as some infections were diagnosed before 14 years old. Prevention and early diagnosis and treatment of STIs should be the focus of future discussion in order to decrease the impact of these diseases.

PV0587 / #1296

NEONATAL CONJUNCTIVITIS DUE TO NEISSERIA GONORRHOEAE: A CASE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Title of Case: Neonatal conjunctivitis due to Neisseria gonorrhoeae: a case study
Background: In this study, two cases of neonatal conjunctivitis are reported. The cases appeared as a result of maternal transmission following a sexually transmitted infection in the mother.
Case Presentation Summary: The study concerns two newborn babies aged 22 and 25 days old consulting at the level of the pediatric emergency room of the hospital Nafissa Hamoud Algiers. The newborns have been reported as not reponsding to any antibiotic or medical treatment. Conjunctival swab samples were received at the Biology laboratory of the CHU Hussein dey The samples received were subjected to microscopic examination after staining and culture according to the usual techniques. The test results have shown Cocci in the form of coffee beans, the infection with Neisseria gonorrhoeae is, therefore, strongly suspected, the two newborns are put on ceftriaxone while awaiting the bacteriological results After 48 hours a fine culture is obtained, the Gram, the orientation examinations as well as the gallery confirm the diagnosis of conjunctivitis due to Neisseria gonorrhoeae, the antibiogram is then carried out according to CLSI standards, the reading of the latter finds a association of resistance of isolated strains to Penicillin G, tetracycline and ciprofloxacin, only ceftriaxone remains active against these strains The evolution was favorable for the 1st newborn under ceftriaxone, while the 2nd newborn presented an abscess of the cornea engaging his visual prognosis
Learning Points/Discussion: Self-medication of sexually transmitted infections has increased the resistance of Neisseria gonorrhoe and raised fears of the appearance of toto-resistant strains

PV0588 / #2614

SECONDARY SYPHILIS IN AN ADOLESCENT – THE IMPORTANCE OF RECOGNIZING SIGNS AND SYMPTOMS

E-Posters Viewing
E-POSTER VIEWING: AS07.G. STDS

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Title of Case: SECONDARY SYPHILIS IN AN ADOLESCENT – THE IMPORTANCE OF RECOGNIZING SIGNS AND SYMPTOMS
Background: Syphilis is a predominantly sexually transmitted infection of worldwide importance caused by the bacterium Treponema pallidum. Within the last few years, an increase in its incidence has been reported in Europe, including among adolescents. It develops in different stages classified as primary, secondary, latent, and tertiary syphilis. Of those, secondary syphilis, which is characterized by the presence of systemic symptoms, appears within weeks after an untreated and often asymptomatic primary infection. If not properly treated, long-term health consequences are possible.
Case Presentation Summary: A 15-year-old female adolescent, diagnosed with borderline personality disorder and medicated with fluoxetine, quetiapine, lamotrigine, and lorazepam, presented to our pediatric emergency department with one-month history of left vulvar swelling and macular palmar rash. Additional symptoms were nausea, vomiting, and feeling fatigued over the course of two weeks. When questioned, she recalled a painless vulvar lesion a few weeks prior to the onset of symptoms and confirmed being sexually active and having multiple partners. On physical examination, a condyloma lata was observed on the left labia majora, as well as multiple macular lesions on both palms. The patient was diagnosed with secondary syphilis after positive treponemal and nontreponemal tests and treated with intramuscular penicillin. Other sexually transmitted infections were excluded.
Learning Points/Discussion: Early diagnosis and prompt treatment of syphilis are crucial to avoid complications and prevent its progression to irreversible stages. In an adolescent with a high-risk sexual behavior, it is important to consider this diagnosis and take an active role in preventing the spread of this disease, educating patients on safer practices, promoting testing, and providing treatment to partners.

PV0589 / #1618

THE ROLE OF HOST IMMUNITY AND PATHOGEN VIRULENCE IN THE “NEW” RSV EPIDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is an important pathogen of early childhood, with significant morbidity and mortality. The COVID-19 pandemic reduced the transmission of viral respiratory pathogens, which may result in the increase of an immunologically naïve population and lead to more severe RSV epidemics.
Methods: Retrospective cohort study including hospitalized RSV respiratory infections in four time periods: April 2019 to March 2020 (group 1), April 2020 to March 2021 (group 2), April 2021 to March 2022 (group 3), and April 2022 to March 2023 (group 4), in a level II Portuguese hospital.
Results: Until December 2022, a total of 270 patients were included, 61 in group 1, 0 in group 2, 78 in group 3, and 131 in group 4. No statistical differences were found between demographic and clinical characteristics at admission, including WARM score. Hypoxemia was significantly higher in group 3 ($p=0.018$; $\eta 2=0.030$ vs group 4). There were no differences regarding ICU transfer or type of respiratory support needed, with the exception of high flow nasal cannula that was more used in group 4 when compared to both group 1 ($p=0.004$) and 3 ($p=0.036$), with a medium effect size ($\eta 2=0.045$).
Conclusions/Learning Points: Hospitalization roughly doubled in group 4 despite no changes seen in disease presentation. This increase can more likely be explained by immunological factors of the host rather than by the pathogen’s virulence. Therefore, the reported increase in health services burden caused by RSV infections appears to be related to a higher disease incidence. In line with literature reports, there were no RSV hospitalizations during the peak of the COVID-19 pandemic (group 2).

PV0590 / #1235

NIRSEVIMAB IMMUNISATION DID NOT ALTER THE DISTRIBUTION OF NON-RSV VIRUSES RELATIVE TO PLACEBO IN A PIVOTAL PHASE 3 CLINICAL STUDY (MELODY)

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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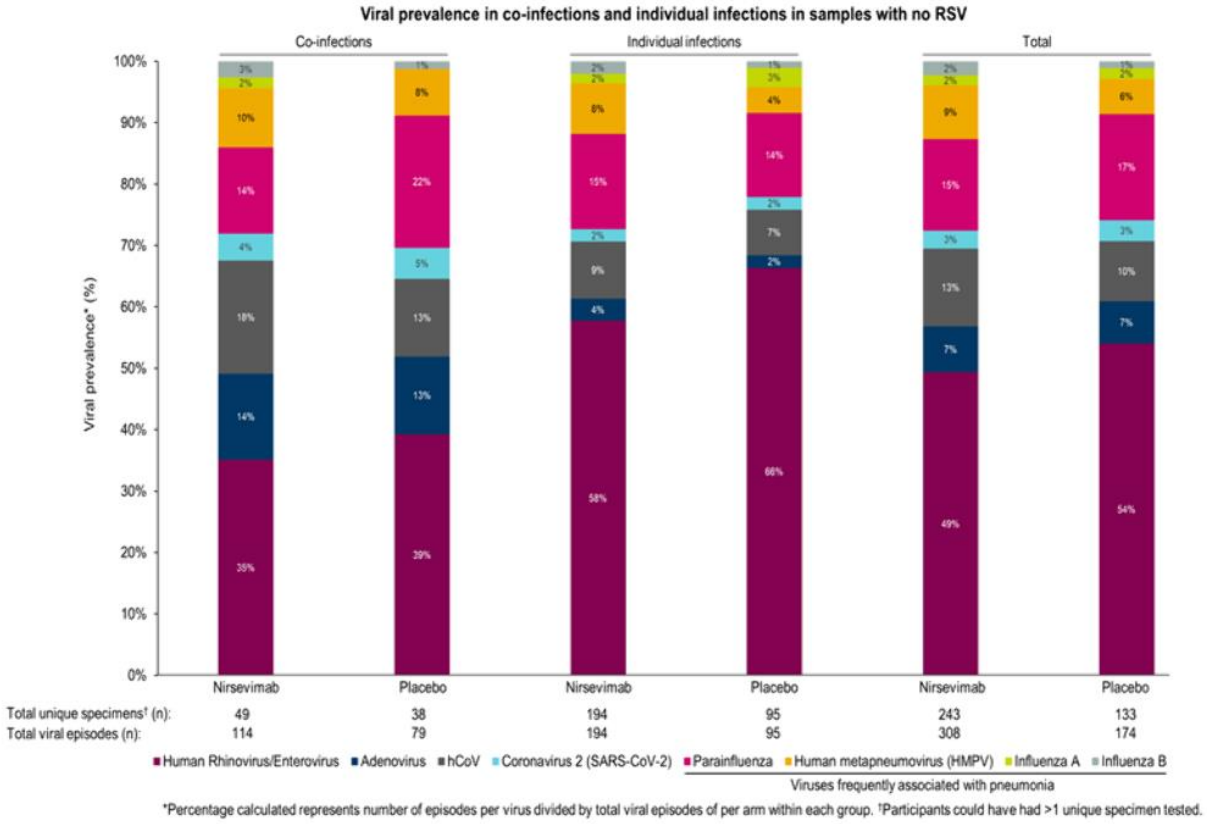
Backgrounds: Nirsevimab, an extended half-life monoclonal antibody to the respiratory syncytial virus (RSV) fusion protein reduced medically attended (MA) RSV lower respiratory tract infection (LRTI) by 74.5% in MELODY (primary cohort), a pivotal trial in healthy late-preterm and term infants. A post-hoc analysis showed nirsevimab reduced the risk of all-cause MA LRTI by 51.5%. Given the already well-characterised benefit of nirsevimab in preventing RSV disease, we examined the distribution of other respiratory viruses between nirsevimab and placebo participants.
Methods: MELODY randomised 3012 participants 2:1 to nirsevimab or placebo. Infants were dosed prior to their first RSV season and followed for up to 530 days. Nasal swabs were collected from infants presenting with an LRTI. All samples were tested in the Biofire® Respiratory 2.1 Panel for 21 non-RSV pathogens.
Results: As of August 2022, 518 MA-LRTI specimens from 418 infants harboured respiratory viruses. Excluding the 142 cases associated with RSV, 127/376 were associated with ≥1 virus frequently associated with pneumonia: Parainfluenza, Human metapneumovirus (HMPV), and Influenza . These were balanced by treatment arm and represented 15%, 9%, and 4%, of episodes among nirsevimab and 17%, 6%, and 3% among placebo recipients respectively. Specimens were detected with a single virus more frequently than multiple co-occurring non-RSV viruses and were balanced between nirsevimab (194/243 [79.8%]) and placebo (95/133 [71.4%]). The most frequently detected non-RSV viruses were rhinovirus/enterovirus, parainfluenza, and seasonal coronaviruses, regardless of treatment arm. Frequency of specific viral infections, particularly Influenza and HMPV may have been reduced by the COVID-19 pandemic occurring during the
study.



Conclusions/Learning Points: This multinational clinical dataset to characterise non-RSV LRTIs in infants and young children suggests that distribution of non-RSV viruses was not impacted by nirsevimab.

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PV0591 / #2485

ADENOVIRUS INFECTIONS, A MIMIC OF BACTERIAL INFECTIONS?

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Background: Adenovirus is a common cause of respiratory infections in children. This infection can cause significant morbidity and develop into severe complications. Some clinical presentations can mimic bacterial infection making difficult to distinguish between the two which can lead to unnecessary antibiotic use and hospitalizations.
Methods: Retrospective study of paediatric patients with acute respiratory infections in whom nasopharyngeal aspirate samples were collected and came positive for adenovirus. We included data between January 1sts 2019 and December 31st, 2022. Demographic information, symptoms, laboratory findings, therapeutics and clinical outcomes were analysed.
Results: Adenovirus was detected in 87 samples; median age was 1.6 years old. Viral coinfection was detected in 68%, with RSV, rhinovirus and influenza being the most commonly found. The main clinical symptoms were fever and cough. Fever presented in 78% and lasted more than 5 days in 22% of cases. The main diagnoses were upper airway infections, bronchiolitis and pneumonia. X-ray was performed in 69%, with 45% showing bilateral infiltrate and 15% lobar hypodensity. Laboratory tests were performed in 72 cases, 42% showing PCR >5 mg/dl and 43% leucocytosis (>15000/uL). There were 61% admissions into the paediatric department, 19% receiving antibiotic treatment for suspected bacterial infection: four cases had otitis, four pneumonia sobreinfection and seven were initially treated for occult bacteremia. There were two cases transferred for intensive care.
Conclusions/Learning Points: This study demonstrates that the heterogenous presentation and laboratory findings can often mimic bacterial infections. The findings merit further studies that offer paediatricians an informed decision to proceed with early diagnosis and appropriate management of adenovirus infections. In order to improve outcomes and reduce risk of complications, making it essential for paediatricians to have access to accurate and timely diagnostic tools.

PV0592 / #1358

THE ROLE OF HUMAN BOCAVIRUS ON RESPIRATORY TRACT INFECTIONS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The Human Bocavirus (HBoV) is one of the most commonly detected virus, causing mild to severe upper or lower RTI in children mainly under 5-year-old. It may also present with gastroenteritis, conjunctivitis and rarely encephalitis. The present study aimed to o describe the clinical profile of HBoV infections, estimate the prevalence of co-infection with other respiratory viruses, evaluate the non-respiratory signs and symptoms in children.
Methods: The characteristics of patients aged 0-18 years who admitted to the Marmara University Departments of Pediatrics in two years and HBoV was detected in nasopharyngeal samples were analyzed retrospectively. We investigated the demographic features, the frequency of coinfections and their effects on the clinic, and the rate of non-respiratory symptoms.
Results: Forty-five children were enrolled. There were 21 (46.7%) males and 26 24 (53.3%) females with the median age of 31 months (min-max:2-205 months). The coinfection rate with other respiratory viruses was 28.9% (n:13). Co-infection with RSV was 6.7% and Human Metapneumovirus was 6.7%. Pneumonia was found to be significantly higher in patients with coinfection (p=0,038)(Table 1). The most common complaints were fever (73.3%, n:33), cough (60%, n:27), rinorrhea (22%, n:10) and diarrhea (13%, n:6).The need for inhaler therapy was associated with prolonged hospital stay (p: 0.026). Encephalitis developed in one case and dilate cardiomyopathy in one case.

Table 1. Coinfeciton and pneumonia relation

		Pneumonia		Total Number	p
Co-infeciton		Yes	No		
	Yes	8	2	10	0,038
	No	20	6	26	
Total Number		28	8	36	

Conclusions/Learning Points: In children, HBoV usually presents with upper respiratory tract symptoms, but patients who have co-infection with other viruses are more likely to develop lower respiratory tract infections.

PV0593 / #666

UNRAVELING THE ROLE OF RESPIRATORY PATHOGENS IN ACUTE CHEST SYNDROME IN CHILDREN WITH SICKLE-CELL DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Acute chest syndrome (ACS) is a life-threatening complication of sickle-cell disease (SCD). Although respiratory pathogens are usually detected in children admitted for ACS, their role in triggering the disease is unknown. The aim of this study was to take advantage of the unprecedented recent dynamics of respiratory pathogens following nonpharmaceutical interventions (NPIs), to unravel their respective role in ACS epidemiology.
Methods: This cohort study used an interrupted time-series analysis of patient records from a national surveillance system. All children younger than 18 years with SCD hospitalized for ACS in France between January 2015 and May 2022 were included. The monthly incidence of ACS per 1,000 children with SCD over time was analyzed by quasi-Poisson regression model. The circulation of 12 respiratory pathogens in the general pediatric population over the same period was included in the quasi-Poisson regression model to assess the fraction of ACS attributable to each respiratory pathogen.
Results: Among the 55,941 hospitalizations of children with SCD, 2306 episodes of ACS were included. We observed a significant decrease in ACS incidence after NPIs implementation in March 2020 (-29.5%; 95% CI, -46.8% to -12.2%; P = .001), and a significant upraise after NPIs lifting in March 2021 (24.4%; 95% CI, 7.2% to 41.6%; P = .007). Over the study period, Streptococcus pneumoniae accounted for 30.9% (95% CI, 4.9% to 56.9%; P = .02) of ACS incidence, and influenza 6.8% (95% CI, 2.3% to 11.3%; P = .004), while other respiratory pathogens had a minor role.
Conclusions/Learning Points: This COVID-19 pandemic related NPIs allowed us to unravel the important contribution of respiratory pathogens, mainly S. pneumoniae and influenza, to the burden of childhood ACS, highlighting the potential benefit of vaccine prevention in this vulnerable population.

PV0594 / #1771

CHARACTERISTICS OF ADENOVIRUS INFECTION IN CHILDREN IN A TERTIARY CARE HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Adenovirus infection is common in childhood. However little is known of the clinical characteristics of children admitted to hospital as both inpatient and outpatient.
Methods: Between Jan 2020-Feb 2022, hospitalized pediatric cases detected Adenovirus by PCR in respiratory tract samples were enrolled in the present study. Clinics and diseases courses of the patients were analyzed.
Results: During the study period, 199 children with adenovirus infection were admitted to our hospital. While 21 (10.5%) patients were inpatients, 178 (89.5%) patients were outpatients. The median age was 3 years (IQR:1-7) in inpatient group and 2 years (IQR:1-4) in outpatient group. Of the outpatients, 76.4% had no underlying diseases whereas 71.4% had underlying diseases in inpatient group (p=0.001). The common diagnosis was respiratory tract infection in both groups. Gullian barre syndrome (n=1), myocarditis (n=1), and multisystemic inflammatory syndrome (n=1), were detected in inpatient group. Two patiens had severe, seven patients had moderate and four patients had mild liver injury. The median white blood cell, CRP, sedimentation, thrombocyte count, procalcitonin level were not statisticaly different between inpatient and outpatient groups. Of all, 5 (23.8%) patients in inpatient group had multiple viral infection, 57 patient (32%) among outpatient group had viral coinfection (p=0.30). Rhinovirus (15%) and bocavirus (9.5%) were the most common pathogens responsible for co-infection. No patient died in this

Table 1: Demographic and clinical data of all patients

	Inpatient group (n=21)	Outpatient group (n=178)	p value
Age, years (median, IQR)	3 (1-7)	2 (1-4)	0.34
Female, n (%)	8 (38.1)	70 (39.3)	0.49
Underlying diseases, n (%)			**0.001**
No disease	6 (28.6)	136 (76.4)	
Immunodeficiency	1 (4.8)	7 (3.9)	
Malignancy	2 (9.5)	8 (4.5)	
Neurometabolic	5 (23.8)	4 (2.2)	
Prematurity	1 (4.8)	1 (0.6)	
Cardiac	4 (19)	2 (1.1)	
Pulmonary	2 (9.5)	12 (6.7)	
Renal	0	1 (0.6)	
Others	0	7 (3.9)	
Clinical diagnosis (n, %)			NA
Upper Respiratory tract infection	6 (28.6)	125 (70.2)	
Lower Respiratory tract infection	10 (47.6)	45 (25.3)	
Encephalitis	0	0	
Sepsis	0	0	
Gastroenteritis	2 (9.5)	8 (4.5)	
MIS-C	1 (4.8)	0	
Gullian Barre	1 (4.8)	0	
Myocarditis	1 (4.8)	0	
White blood cell median (IQR)	10500 (6800-16400)	13350 (10400-16050)	0.20
CRP mg/dL median (IQR)	1.3 (0.3-8.7)	2.4 (0.8-6.1)	0.45
Sedimentation mm/hour, median (IQR)	28 (10-35)	22 (8-41)	0.79
ANS cell/mL, median (IQR)	6380 (3300-9300)	7920 (4740-9800)	0.21
ALS, cell/mL median (IQR)	2500 (1400-4900)	3600 (2400-5400)	0.10
Thrombocyte, cell/mL median (IQR)	258 (120-363)	306 (236-380)	0.07
Procalcitonin, median (IQR)	0.18(0.04-0.64)	0.2 (0.08-0.51)	0.66
ALT U/L, median (IQR)	16 (12-43)	16 (11-23)	0.65
AST U/L, median (IQR)	35 (27-54)	35 (29-45)	0.95
Coinfection			0.30
Only Bocavirus	16 (76.2)	121 (68)	
Multiple virus	5 (23.8)	57 (32)	
Mortality	0	0	NA

population.

Conclusions/Learning Points: Our findings suggest that having underlying disease seems to be a risk factor for hospitalization. Adenovirus is one the important cause of liver injury in childhood.

PV0595 / #874

EPIDEMIOLOGY OF RESPIRATORY SYNCYTIAL VIRUS-RELATED HOSPITALIZATION OVER A 8-YEAR PERIOD IN ITALY: EVALUATION OF SEASONALITY, AGE DISTRIBUTION AND COMPARISON BETWEEN PRE AND POST-PANDEMIC ERA

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Underlying comorbidities increase the risk of contracting severe RSV infection, but most infections still occur in previously healthy children. The outbreak of COVID-19 contributed to modify the natural epidemic course of common respiratory infections. We aimed to evaluate the epidemiologic data of the pediatric population hospitalized due to RSV in the pre and post COVID-19 pandemic years to support the development of the best preventive strategies.
Methods: This observational study retrospectively evaluated all children aged 0-18 years old hospitalized in Florence, Empoli, Prato and Pistoia with a diagnosis of RSV infection from September 2014 to April 2022. The study analyzed and compared the RSV seasonal trend, its distribution according to age and the clinical and laboratory data in two different period: before the COVID-19 pandemic (September 2014-March 2020) and after the beginning of the pandemic (March 2020-May 2022).
Results: In the pre-pandemic period 834 children were hospitalized, while in the post-pandemic period 433. In the pre-pandemic period RSV started in November, had a peak in January and had a variable end in spring. In 2020-2021 season no cases of RSV were detected until May 2021. The 2021 epidemic spread of RSV started in mid-September, with a number of cases 3 times higher than the previous years. More than 70% of children in pre-pandemic season were under 1 year old. In post-pandemic population, 56.8% of the children were under 1 year old.
Conclusions/Learning Points: Most of the hospitalizations happened in previously healthy children, underlining the need to protect all infants. Since the post-pandemic data showed that infection can affect also older children, pediatricians should search for RSV in all children with respiratory symptoms. Epidemiological studies are needed to evaluate which prevention strategy might be the most useful.

PV0596 / #2224

RESPIRATORY VIRUSES IN CHILDREN BEFORE AND DURING THE COVID-19 PANDEMIC IN A PORTUGUESE HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in 2020, seems to have changed the frequency and seasonality of some of the other respiratory viruses. The aim of this study is to analyze the pattern of respiratory viruses in the pediatric respiratory samples of a portuguese tertiary hospital before and during de coronavirus disease (COVID-19) pandemic.
Methods: Polymerase chain reaction results of influenza virus A (FluA), influenza virus B (FluB), respiratory syncytial virus (RSV), rhinovirus (RhinoV), bocavirus (BocaV), adenovirus (AdenoV), human metapneumovirus (MPV), enterovirus (EnteroV) and parainfluenza virus (PIV) 1-4 of pediatrics respiratory samples between 2019 and 2022 were retrospectively analyzed.
Results: There was a decrease in the frequency of all respiratory viruses from March 2020 until the Spring of 2021. During this period there were no positive samples for most of the viruses surveyed, except for AdenoV and RhinoV. The variations observed between 2019 and 2022 were significant ($p<0,005$) for FluA, FluB, RSV, BocaV and RhinoV. There was a change in the seasonality of RSV and BocaV. Of the total RSV positive samples in 2021 (n=168), 50.6% were in the second and third quarters of the year. In 2019, the lowest number of positive samples (6.6%) were in this period. For BocaV positive samples in 2021 (n=35), 80% of them were in the third and fourth quarters, while in 2019 the majority of positive samples (68.75%) were in the first and second quarters.
Conclusions/Learning Points: In the pediatric population analyzed there was a change in the dynamics of respiratory viruses with the emergence of SARS-CoV-2, which is in line with other studies. Further research is needed to understand the consequences in the clinical presentation of children.

PV0597 / #860

SEVERE VIRAL LOWER RESPIRATORY TRACT INFECTIONS IN A TUNISIAN PEDIATRIC INTENSIVE CARE UNIT SENTINEL SARI CENTRE: EPIDEMIOLOGICAL AND CLINICAL FEATURES

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Severe acute respiratory infection (SARI) is a leading cause of morbidity and mortality in children world wide. It can take a severe clinical form that needs a management in pediatric intensive care unit (PICU). The aim of this study is to identify the pathogen profile of children admitted in intensive care.
Methods: Prospective study in which were enrolled all patients hospitalized for SARI during the period between octobre 2021 and Mai 2022.
Results: During the study period, 155 infants were admited to the PICU for SARI which represent 36.4% of all hospitalized patients. Median age was 40 days and sex ratio was 1.76. Forty four patients (28%) had comorbidities. The median value of the Wang score was 10. In 72.2% of participants (n= 112), the causative viral pathogen was Respiratory Syncytial Virus, followed by Rhinovirus 23.8% (n=37) and non COVID Human Corona virus 12.2% (n=19). The detection rate of two or more viruses was 30.3% (n= 47). Bacterial co-infection was recorded in 21.2% of patients (n= 33), and the mostly detected bacterial agents were Heamophilus Influenzae (8.3%, n= 13), Moraxella Catarrhalis (5.1%, n= 8) and Streptocoque Pneumonae (4.5%, n= 7). Staphylocoque Aureus was only recorded in 3 patients (1.9%). Mechanical ventilation was performed in 91 patients (58.7%) with median duration of ventilation of 5 days and median duration of stay in PICU was 6 days. The overall mortality rate was 2.5% (deceased= 4).
Conclusions/Learning Points: Viral infection is the leading cause of SARI with a predominance of RSV. Our population study is very young (median age: 40 days) which may explain that SARI is associated with an increased morbidity (Mechanical ventilation rate 58.1%).

PV0598 / #755

A SYSTEMATIC REVIEW ON THE BURDEN OF RSV-RELATED HOSPITALIZATIONS IN CHILDREN UNDER 6 YEARS OF AGE IN ITALY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is the leading cause of hospitalizations due to respiratory infections. All infants are at risk of severe disease and hospitalization due to RSV, while this risk is even higher in premature infants and those having co-morbidities (i.e., congenital heart disease). The aim of this systematic review is to assess the burden of RSV-related hospitalizations in children aged 0-5 years old in Italy.
Methods: A search string was applied to PubMed, Embase, Scopus and International HTA databases in the time frame January 2000 - July 2022 concerning studies in English/Italian languages.
Results: From initial 20,845 records, 8 articles were selected and analysed. Among the general population, 88.8% of RSV-positive hospitalization involved patients <1 year of age. In another study, among RSV-positive hospitalized children 0-5 years old, 81.6% were <1 year, 62.5% were <3 months and 41% were <30 days old. In a retrospective study involving children ≤1 year of age, the proportion of infants admitted for RSV-induced ALRI in the three RSV epidemic seasons was 71.6%-80.8% in full term infants aged <6 months, while it was 48.2%-63.3% in those <3 months. Instead, the proportion of infants admitted for RSV infection was 50%-81.8% in preterm infants aged <6 months and <3 months. RSV-A and RSV-B infections varied across the epidemic seasons considered, although RSV-A seemed to be more frequent (particularly in preterms).
Conclusions/Learning Points: All infants at their first RSV season showed to be at higher risk of severe infection and hospitalization, regardless gestational age at birth, compared to older children (1-5 years old). Collected data on hospital-related RSV infection among children in Italy may enrich the understanding about this disease, being a useful tool to assess the most effective preventive measures.

PV0599 / #1326

SOME INFECTIONS AND AUTOIMMUNE HEMOLYTIC ANEMIA – TWO CASES PRESENTATIONS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Title of Case: Some infections and autoimmune hemolytic anemia – two cases presentations
Background: Autoimmune hemolytic anemia is an acquired form of hemolytic anemia in which autoantibodies target red blood cell membrane antigens, inducing cell rupture (lysis). Is rare in children with an estimated incidence of 0.2 per million individuals below 20 years of age.
Case Presentation Summary: Case presentation: two cases without history of present illness addmitted in our hospital for hemolytic anemia triggerd by infectious disease. First case is a 17 years girl, hospitalised initialy with fever, hepatosplenomegaly, laterocervical adenopathy, tonsilitis. She presented positive serology for Ebstein barr infection (IgM VCA > 160 Ui/ml). After 3 days she presented sudently extreme skin pallor, jaundice, astenia, tachycardia and repeted hemoglobin was 6 g/l from 11 g/l three days earlier, indirrect bilirubin elevated. She was refered to hour hospital. Biological examination revealed elevated ferritin, LDH, low haptoglobin, negative IgM parvovirus B19 serology, and positive IgM mycoplasma. Indirect Coombs test was negative. Evolution after red blood cell transfusion, corticotherapy and antibiotherapy (macrolides) was favorable. The second case is a 3 years boy with a recent episode of acrocianosis a frigore treated with hydrocortizon hemisuccinat for 5 days. After another 5 days of acalmia he presented fever, extrem skin pallor, was tested positive for influenza A with hemoglobin 4.7 g/L (from 11 g/L one week earlier) and referenced to our hospital. SARS COV2 IgG were positive. No compatible red blood cells packages could be found. The corticotherapy was started (dexamethasone). He recoveres slowly. After 5 days hemoglobin was 7.8 g/L.
Learning Points/Discussion: Conclusion: Double infection (Epstein Barr and mycoplasma) or Influenza after covid increases the risk of haemolitic anemia. This cases respond to corticotherapy.

PV0600 / #745

ECONOMIC BURDEN AND HEALTHCARE MANAGEMENT OF RSV BRONCHIOLITIS IN ITALIAN PEDIATRIC HOSPITALIZED PATIENTS: A SYSTEMATIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is a frequent cause of acute lower respiratory infection that leads to a significant global disease burden for children under 5 years of age. Infants with RSV infection often require hospitalization, admission to intensive care units (ICU) and mechanical ventilation. Healthcare utilization and economic expenses due to RSV could be considerably high, impacting workload and normal functioning of neonatal/paediatric wards during RSV season. The aim of this systematic review is to describe the economic burden and healthcare management of RSV bronchiolitis in inpatients aged 0-5 years old in Italy.
Methods: A specific search string was applied to PubMed, Embase, Scopus and International HTA Database. Inclusion criteria comprised English/Italian languages and publication date between January 2000 and July 2022. Studies were subdivided into groups considering the reported symptoms/diagnosis (bronchiolitis, acute respiratory infections, …).
Results: Among the 20,845 records retrieved, 12 articles resulted eligible for our study and referred to bronchiolitis. Most of the reported costs for bronchiolitis are related to hospitalisation, diagnostic tests, and other medical procedures. The mean cost per inpatient for bronchiolitis was higher in case of RSV-positive infants (5,753.43 ± 2,041.62 euros), while children <3 months of age accounted for most of the annual cost. The length of stay in hospital ranged from 3.4 to 5.8 days, higher in case of ICU admission. Comparing severity of disease, a tendency toward longer hospitalization and longer oxygen therapy were detected in RSV-positive patients when compared with RSV-negative children.
Conclusions/Learning Points: The collection of evidence on healthcare utilization for RSV bronchiolitis could be crucial for an appropriate prevention strategy to manage paediatric RSV-related disease in the future in Italy.

PV0601 / #1135

THE IMPACT OF COMORBIDITIES ON CLINICAL OUTCOMES OF CHILDREN HOSPITALIZED WITH RESPIRATORY ILLNESS IN THE PRE-COVID-19 ERA IN THE VALENCIA REGION OF SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Presence of comorbidities are associated with higher risk of complications and poorer clinical outcomes related to respiratory illnesses. However, available data among pediatric population are limited. We investigate the characteristics of paediatric hospitalizations considering viral aetiology and frequency of complications by presence of comorbidities
Methods: A multicentre prospective observational study within the Valencia Hospital Surveillance Network for the Study of Influenza and Other Respiratory Viruses Diseases (VAHNSI) framework was conducted during 8 pre-COVID influenza seasons (2011/2012 to 2018/2019) in 4-10 hospitals covering 21-46% of total inhabitants of the Valencia Region of Spain (around 5M). Patients <18 years hospitalized with respiratory complaints were included in the study if they met the ECDC ILI-case definition (≥5 years) or if the respiratory symptoms had an onset within 7 days prior to admission (<5 years) and were tested by RT-PCR for 8 respiratory viruses. Demographics and clinical information were used to describe the cases, with Chi-square or non-parametric tests were used to compare patients by presence of comorbidity
Results: 26% of children reported at least one comorbidity at admission. The majority (80.9%) had at least one complication during the hospitalization, regardless the presence of underlying conditions. Children with comorbidities were twice as likely to be admitted to ICU. RSV was the main detected pathogen (23.1%).
Conclusions/Learning Points: Most children hospitalized for respiratory illness did not have pre-existing risk conditions. The use or availability of treatments and vaccines are currently limited for most respiratory viruses. Additional efforts are needed for greater dissemination of evidence-based recommendations to prevent respiratory illness and their complications among the pediatric population.

PV0602 / #1620

THE POST PANDEMIC RESURGE OF RESPIRATORY SYNCYTIAL VIRUS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: After COVID-19 restrictive measures relaxing, increased hospitalization for bronchiolitis in 2021-2022 season was observed. Aim of the study is analyzing RSV hospitalization among infants during the actual epidemic season in Italy.
Methods: We enrolled children aged less than 12 months admitted for bronchiolitis to Pediatric Unit, Bambino Gesù Children's Hospital, Rome, Italy from 1st October- 31 December 2022.
Results: 103 patients entered the study. In 95% there was no prematury or comorbidities. RSV was the main agent (64,1%), followed by Rhinovirus (33,0%), Parainfluenza (11,7%), Influenza (11,73%). Main findings were: - length of hospitalization (LOS) was 6 days, higher in RSV-patients compared to non-RSV ones (mean 6,68 ±3,19 days vs 5,08 ±3,89 days; p 0,001). - oxygen supplementation in 79 patents (76,6%), mostly RSV-patients ($p < 0.00001$). - Intensive Care Unit (ICU) occupation by 11 patients (10,6%) mostly RSV-patients (p 0,049). Comparing this actual season to our previous pre-pandemic data, main findings were: - LOS, higher in 2022 (mean 6,11 ±3,52 days vs 4,68 ±2,24 days, p 0,001) as well as oxygen supplementation (76,6% vs 37,2% $p < 0.00001$) and in particular the use of high-flow nasal cannulas (30,09% vs 19,56%, p 0,017). -percentage of patients admitted to ICU , higher in 2022 (11,65% vs 3,58% p 0,0019), as well as the ICU occupation time (mean 9,73 ±2,45 days vs 6,53 ±1,89 days, p 0,001). This data are even more evident in RSV group (93,93% vs 44,28%, $p< 0.00001$). -age, as patients in 2022 were older than in 2017 (mean 99,82 ±71,88 days vs 48,95 ±67,41 days p 0,007).
Conclusions/Learning Points: During the actual epidemic season, RSV seems to be more virulent and aggressive on infants. Extensive protection for infants is advisable.

PV0603 / #1826

NONENVELOPED RESPIRATORY VIRUSES THROUGHOUT THE PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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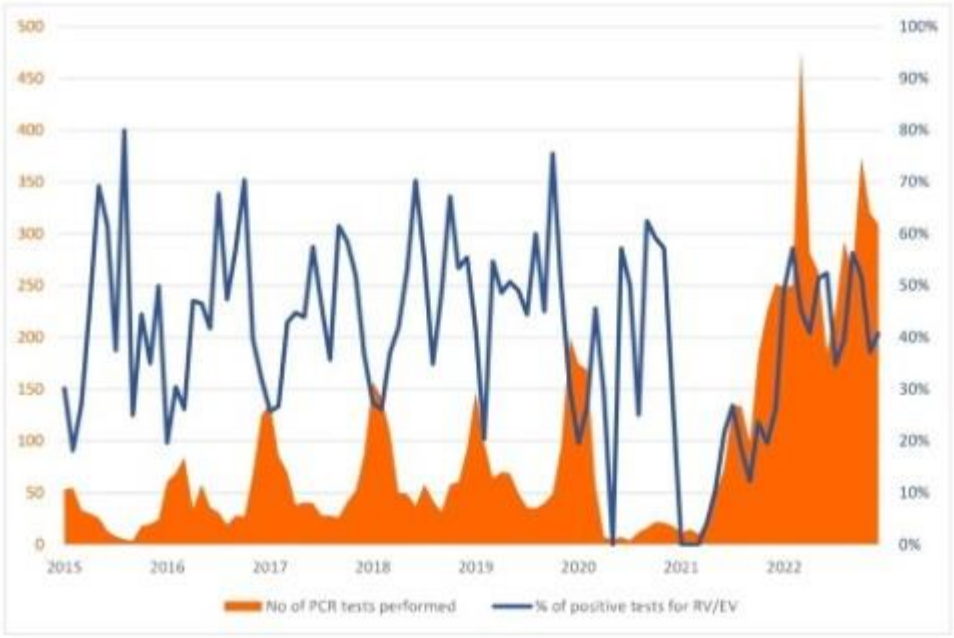
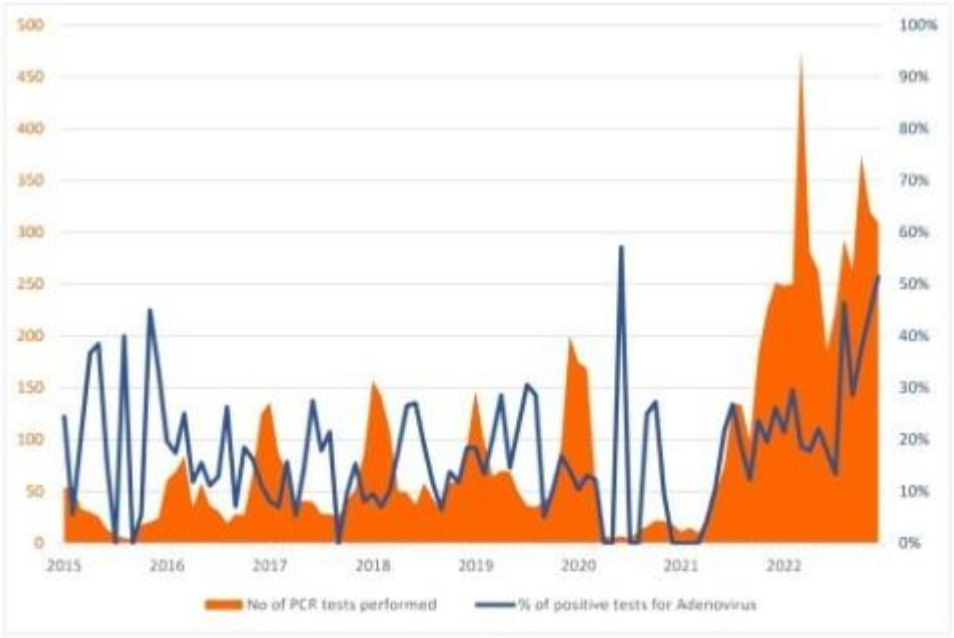
Backgrounds: The implementation of non-pharmacological interventions to decrease transmission of respiratory viruses (RV) during the pandemic led to a marked reduction of respiratory infections, although with some reports that not all RV were affected in the same way, with some persistence of non-enveloped viruses (adenovirus, rhinovirus). The timing of resurgences of RV was also very heterogeneous. The aim of this study is to describe adenovirus and rhinovirus/enterovirus detection before and throughout the pandemic.
Methods: Retrospective and descriptive analysis of all adenovirus and rhinovirus/enterovirus detections by PCR (FilmArray respiratory panel) in nasopharyngeal samples, from children with acute respiratory infections as part of routine care, in a paediatric tertiary hospital, from January 2015 to December 2022.
Results: The proportions of positive tests for adenovirus and rhinovirus/enterovirus over time are presented (figure). Co-infection was a frequent finding for





both.

Conclusions/Learning Points: Unlike other respiratory viruses that normally have a clear seasonality, despite a reduction, adenovirus and rhinovirus/enterovirus infections did not disappear with the COVID-19 pandemic and there was an early return to pre-pandemic levels, although with less fluctuation. Even greater enhancement of infection prevention strategies would be required to prevent transmission of these viruses.

PV0604 / #128

INFLUENZA A INFECTION AND NEUTROPENIA IN AN INFANT

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Title of Case: Influenza A infection and neutropenia in an infant
Background: Several infections can cause transient neutropenia in children otherwise healthy. Viral infections such as influenza is an important etiology of neutropenia with spontaneous recovery in children. We present the case of a child with transient neutropenia associated with influenza A.
Case Presentation Summary: A 3-months-old male infant presented at the emergency room in September 2022 with a one day history of fever (39°C), cough and coryza. 39 weeks of gestational age with 3,560 grams of weight at birth. He has the diagnosis of interventricular communication. Vaccinations were up to date according to the Argentinian calendar. His mother had received influenza vaccine during the pregnancy. Physical exams revealed a systolic murmur 2/6, heart rate 135 pm, respiratory rate 40 pm, oxygen saturation 98% with room air. Laboratory test: leukocytes 3310/µL (neutrophils 496/µL, 15%; lymphocytes 1423/µL, 43%) , procalcitonin <0.05 ng/mL. A nasopharyngeal aspirate was performed at the emergency room. X-Ray chest with no lung infiltration. Because of severe neutropenia he was admitted to the pediatric floor, blood cultures were drawn and ceftriaxone was started at 80 mg/kg. On the first day of hospitalization, we received a positive PCR- Influenza A and oseltamivir treatment was started. A second blood test showed leukocytes 5600/µL (neutrophils 280/µL, 5%; lymphocytes 4592/µL, 82%). Blood smear and abdominal US were normal. No abnormal findings suspect oncology disease were present. Because he had no clinical abnormal findings and had a favorable evolution, he was discharged six days later with ambulatory follow- up. In a hemogram at two weeks, neutropenia was resolved spontaneously.
Learning Points/Discussion: Influenza infection is a differential diagnosis of transient neutropenia in healthy children during flu season.

PV0605 / #130

ACUTE MYOSITIS CAUSED FOR INFLUENZA B: REPORT OF TWO CASES

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Title of Case: Acute myositis caused for influenza B: report of two cases
Background: Acute myositis is a common condition in children. It can be caused by some viruses such as influenza A and B. Generally, children have a history of upper respiratory symptoms in the last week, associated with headache, fever, and malaise with a favorable evolution. We present two cases of myositis associated with influenza B.
Case Presentation Summary: Case 1: a 14-year-old girl with no clinical history of interest who consulted in October 2022 for fever and myalgia with difficulty walking for 3 days, associated with cough and runny nose. The admission laboratory showed an increase in CPK 8,788 U/L, thrombocytopenia, lymphopenia and increased transaminases. Aspiration of nasopharyngeal secretions was performed with detection of influenza B virus. She remained hospitalized for five days for symptomatic treatment (pain and hyperhydration) with good clinical evolution, with no complications. Case 2: a 10-year-old girl with no pathological history who consulted in October 2022, due to a two-day history of symptoms consisting of fever, arthralgia, myalgia, and nasal congestion. Laboratory was requested, which reported CPK 1,311 U/L, platelet count in the lower limit, mild increase in ALT. A nasopharyngeal aspirate with influenza B isolate was requested. Due to a mild clinical picture, outpatient management with oral analgesia and hyperhydration was decided. After six days, there was clinical resolution of the condition and normalization of CPK values.
Learning Points/Discussion: Influenza B infection should be taken into account as a differential diagnosis of myositis in pediatrics. The probable modification of the viral seasonal pattern must be taken into account. Management can be performed on an outpatient or hospital basis, taking into account the clinic and the laboratory.

PV0606 / #364

RHABDOMYOLYSIS DUE TO INFLUENZA TYPE B AND RSV TYPE B CO-INFECTION: A CLINICAL CASE

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Title of Case: Rhabdomyolysis due to Influenza type B and RSV type B co-infection: a clinical case
Background: Paediatric rhabdomyolysis is related to different aetiologies, nonetheless viruses remain the most common cause. Timely diagnosis is critical for a proper clinical management.
Case Presentation Summary: A previously healthy eight-years-old boy presented to our paediatric emergency department with a five days history of fever associated with coryza, vomiting, headache, myalgia with limited extension of lower limbs, painful walking, and cough. At home, he was treated with ibuprofen, steroids and cefpodoxime, with scarce fluid and food intake. At arrival, he showed normal vital signs, croup, pale skin, dry mucosae, normal cardiac and abdominal examination, painful lower limbs with limited walking, without signs of arthritis. He was initially treated with adrenaline inhalers, and performed laboratory investigations which showed significant increased creatine phosphokinase (CPK 9334 U/l, normal value 38-174), liver enzymes (aspartate aminotransferase, AST 564 U/l – normal value 1-38, alanine aminotransferase, ALT 156 U/l – normal value 1-41), with renal function, cardiac enzymes, electrolytes and coagulation in normal ranges. He was therefore admitted to our ward to perform intravenous hyper-hydration (NaCl 0.9%) and cardiac monitoring. The anti -inflammatory treatment and steroids were suspended. A respiratory virus panel performed on nasal swab resulted positive for Influenza type B and RSV type B. The muscles enzymes progressively decreased until normalisation and he improved until full recover.
Learning Points/Discussion: Rhabdomyolysis is a potentially life threatening condition. Most common causes are infective, usually showing good prognosis. Viral infections combined with overuse of ibuprofen, steroids and decreased oral intake can trigger this condition. Criteria for admission to an intensive care unit are signs of acute kidney injury, electrolytes imbalances, abnormal ECG and disseminated intravascular coagulation, not present in this boy.

PV0607 / #1943

SEVERITY OF RSV BRONCHIOLITIS BEYOND THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The COVID-19 pandemic changed the seasonality of respiratory infections, including RSV bronchiolitis. The aim of this study is to assess changes in the severity of RSV bronchiolitis, before (2016-2020) and throughout (2021; 2022) the pandemic.
Methods: Retrospective observational study of all children < 24 months, with bronchiolitis and a positive PCR test for RSV in nasopharyngeal secretions, attending a tertiary paediatric emergency service, from 2016-2022, comparing demographics, clinical characteristics and management.
Results: RSV was not detected from April 2020 to May 2021. The 2021 season occurred between June and October and the 2022 season started in September. The characteristics and comparison of the 3 groups are presented in the
table.

Table. Demographics, clinical characteristics and management of RSV bronchiolitis cases before (2016-2020) and throughout (2021; 2022) the COVID-19 pandemic.

	2016-2020 n=401	2021 n=231	2022 n=179	p
Median age (months)	2.0±4.7	9.0±6.7	5.0±5.4	**p<0.01**
Sex (female)	197 (49%)	112 (48%)	79 (44%)	p=0.525
Comorbidities				
Prematurity	41 (10%)	6 (3%)	14 (8%)	**p=0.010**
Congenital heart disease	10 (2%)	2 (1%)	0	**p=0.010**
Admitted cases	341 (85%)	70 (30%)	75 (41%)	**p<0.001**
Median age (months)	2.0±4.4	3.5±6.2	3.0±4.7	**p=0.014**
Median duration (days)	3±3.6	2.0±6.1	3.0±4.2	p=0.189
Oxygen therapy	240 (70%)	43 (61%)	49 (65%)	p=0.284
Laboratory tests	147 (43%)	16 (23%)	13 (17%)	**p<0.001**
X-Ray	139 (41%)	25 (36%)	17 (23%)	**p=0.013**
Antibiotic treatment	39 (12%)	12 (17%)	10 (13%)	p=0.424
PICU	41 (12%)	2 (3%)	5 (7%)	**p=0.039**

Conclusions/Learning Points: In the 2021 epidemic, that occurred outside the usual season, children with bronchiolitis were older, with fewer comorbidities and admitted cases seemed to be less severe. In 2022, the season started earlier and, despite being closer to the prepandemic pattern, cases were still less severe.

PV0608 / #2070

FIRST REPORT OF TRANSIENT HEPATIC TRANSAMINASE ELEVATION DURING METAPNEUMOVIRUS INFECTION IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Human metapneumovirus (MPV) is known as one of the leading causes of viral respiratory tract infections in children. There are limited number of studies mentioning hepatic transaminase elevations in adults during disease course of MPV infection. Here, we want to draw attention to increase in transaminases that may possibly be associated with MPV in our pediatric cohort.
Methods: Pediatric cases who admitted to our tertiary care hospital between January 2020-January 2022 and whose nasopharyngeal swab samples positive for MPV were included. Respiratory tract multiplex polymerase chain reaction panel was used to isolate respiratory viruses. Clinical and laboratory characteristics were collected from the hospital recording system.
Results: Of all 149, median age was 35 months (Q1-Q3: 18.5-65). Presenting clinical diagnosis was upper respiratory tract infection in 78 (52.3 %) and pneumonia in 56 (37.6%) of the patients. Underlying disease was recorded in 52 (34.8%) patients. Twenty-two cases (14.7%) were hospitalized with median length of stay 9 days (Q1-Q3: 4-15) and 15 (10%) of them needed respiratory support. There were 5 (3.3%) cases with increased alanine (ALT) and aspartate (AST) transaminases; however, 2 of them had previously known transaminase elevations, they were above 2x and 4x the upper limit of normal (ULN). During MPV infection, they increased to 6x ULN in both of the patients. Transaminases were above <2x the upper limit of normal (ULN) in 2 patients, >5x ULN in a patient who had 1113 and 1413 U/L values of ALT and AST, respectively with spontaneous resolution.
Conclusions/Learning Points: MPV is a relatively new respiratory pathogen and may cause hepatic transaminase elevations in children, especially with underlying diseases. Close monitorization of ALT and AST is needed to demonstrate the actual relation between MPV and hepatic involvement.

PV0609 / #1815

RESPIRATORY SYNCYTIAL VIRUS INFECTION, BEFORE AND AFTER COVID-19 – TRENDS AND CHALLENGES

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is the main cause of bronchiolitis in children. Morbidity is significantly higher in premature infants and patients with pre-existing comorbidities. We aimed to identify epidemiological changes in RSV infection trends during COVID-19 pandemic.
Methods: We conducted a retrospective study from March 2018 to June 2022 assessing RSV infection prior to and during the COVID-19 pandemic (sex distribution, age of admission, seasonal peak, hospital length of stay and prevalence of respiratory failure).
Results: 486 patients were included: 309 pre-pandemic (March 2018- February 2020) and 177 during COVID-19 pandemic (March 2020- June 2022). We report a significant reduction in RSV incidence in the second group and a significant statistical increase during summer and autumn in the pandemic period ($p<0.01$) - most likely caused by the lifting of restrictions in Romania. There was no statistical difference in sex distribution (57.9% vs 60.5% boys) between these two groups, but the average age was significantly higher during the pandemic period (5.76 vs 7.83 months, $p=0.054$). A possible explanation might be a significantly higher admission rate for older patients with neurologic comorbidities, patients which were particularly challenged in terms of respecting control measures for SARS-CoV-2 transmission. The average length of hospital stay (7.59±5.25 vs 7.49±3.99 days, $p=0.82$) and the prevalence of respiratory failure (69.6% vs 77.4%, $p=0.074$) were similar. Premature birth was associated with a significant risk for both.
Conclusions/Learning Points: During the COVID pandemic, the RSV infection was significantly less common, was not modified according to gender, hospital stay and associated respiratory failure, but the incidence increased with age. Our study also highlights the importance of spacing measures in the prevention of other respiratory infections as RSV, not only SARS-CoV2 infection.

PV0610 / #786

REGIONAL DISEASE BURDEN ESTIMATE OF RESPIRATORY SYNCYTIAL VIRUS IN CHILDREN IN WESTERN PACIFIC AND SOUTH EAST ASIA REGIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is an important cause of bronchiolitis and pneumonia in infants globally. In Western Pacific and South East Asia Regions, RSV has been shown to be one of the most important pathogens among lower respiratory tract infection (LRTI) in children, however, its burden is largely underestimated.
Methods: We conducted a systematic review and meta-analysis examining the incidence of RSV in infants in Western Pacific and South East Asia Regions using random effects models. Included in this analysis were original observational studies involving infants <5 years and reporting the proportion of RSV among children with acute respiratory infections (ARI), and/or incidence.
Results: A total of 4,403 studies were identified from the initial search, after screening titles, abstracts, and full-text review, a total of 143 studies met pedefined eligibility criteria and were included in the analysis. The proportion of RSV among all respiratory trac infection was 21.4% (95% CI, 17.9-25.1), while the proportion of RSV among lower respiratory tract infection was 27.7% (95% CI, 6.3-25.4) in children in Western Pacific and South East Asia Regions between 1970 and 2021. By countries, the highest proportion was in Myanmar (50.0%; 95% CI, 47.5-52.4%) and New Zealand (45.3%; 95% CI, 37.2-56.4%), followed by Singapore (37.1%; 95% CI, 36.0-28.3%), Vietnam (35.5%; 95% CI, 19.3-53.6%) and South Korea (31.7%; 95% CI, 18.2-47.1%).
Conclusions/Learning Points: The burden of RSV-associated respiratory infection among children in Western Pacific and South East Asia Regions is substantial. While new prophylactic interventions will target the children for protection in coming years, efforts to improve preventive strategies and expand immunoprophylaxis in Western Pacific and South East Asia Regions could lead to increase protection against RSV-associated diseases.

PV0611 / #677

AUTUMN 2022, UNPRECEDENTED BRONCHIOLITIS PEAK IN FRANCE SUPPORTS THE IMMUNITY DEBT CONCEPT

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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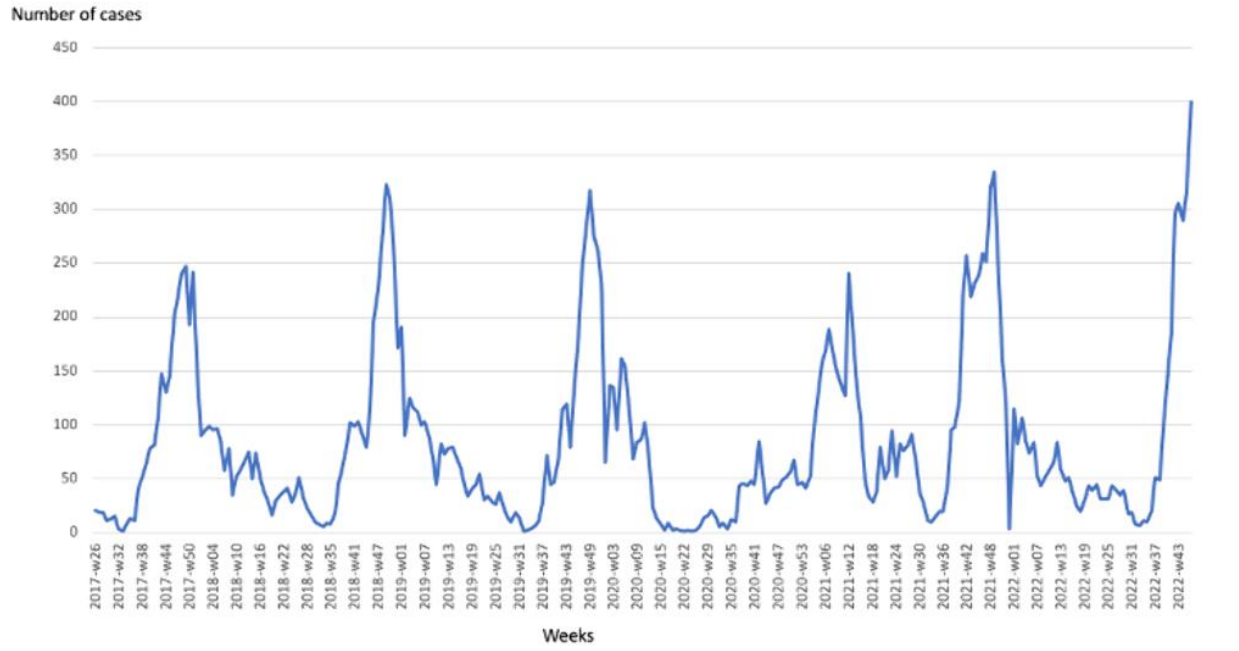
Backgrounds: Non pharmaceutical interventions (NPIs) implemented during the COVID- 19 pandemic have led also to a dramatic decrease of many pediatric infectious diseases. Early, the concept of immunity debt raised concerns about a rebound of the diseases after lifting barrier measures and many polemics in social media ensued.
Methods: The Pediatric and Ambulatory Research in Infectious diseases (PARI) study, with 125 pediatricians using the same software, was set up in France to appraise the trends of infectious diseases. From July 2017 to November 2022, the electronic medical records of children with an infectious disease were automatically extracted. Point-of-care tests such as combo tests (SARS-CoV-2, RSV, and influenza) were distributed to participating pediatricians.
Results: From the beginning of the surveillance, we observed for the year 2022, a deep and 6-week earlier outbreak of bronchiolitis. During the week 46/2022, the highest weekly number of bronchiolitis cases (n=401) was reported. During this outbreak, RSV positive rapid test accounted for 65.4% CI95% [61.7, 69.0]. No significant change in the age distribution between 2017 and 2022 was observed, children aged ≤3 months, 4-6, 7-12 and ≥13 months accounted for 11.2%, 26.4%, 30.7% and 31.7%, respectively.
Conclusions/Learning Points: In the context of new epidemic patterns of bronchiolitis and overload of hospital emergencies, wards and intensive care units, the health care system responses should be quickly adapted. Targeted NPIs around the youngest children should be implemented to protect them and counterbalance the consequences of immune debt. Our data underline the interest of implementation of immunoprophylaxis and/or RSV

vaccines.


Number of cases
450
400
350
300
250
200
150
100
50
0
2017-w26
2017-w32
2017-w38
2017-w44
2017-w50
2018-w04
2018-w10
2018-w16
2018-w22
2018-w28
2018-w35
2018-w41
2018-w47
2019-w01
2019-w07
2019-w13
2019-w19
2019-w25
2019-w31
2019-w37
2019-w43
2019-w49
2020-w03
2020-w09
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2020-w22
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2020-w41
2020-w47
2020-w53
2021-w06
2021-w12
2021-w18
2021-w24
2021-w30
2021-w36
2021-w42
2021-w48
2022-w01
2022-w07
2022-w13
2022-w19
2022-w25
2022-w31
2022-w37
2022-w43
Weeks

PV0612 / #655

CLINICAL AND VIROLOGICAL SURVEILLANCE OF ENTEROVIRUS D68 IN PAEDIATRIC PATIENTS ATTENDED IN A TERTIARY HOSPITAL BETWEEN 2021-2022 IN BARCELONA (CATALONIA, SPAIN)

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Enterovirus D68 (EV-D68) has been linked to outbreaks of lower respiratory tract infections (LRTI) and neurological complications. An increase in EV-D68 cases has been observed during 2021-2022. This study aims to describe clinical and virological characteristics of paediatric patients with EV-D68 laboratory-confirmed infection in a tertiary hospital in Barcelona (Catalonia, Spain).
Methods: Between September 2021-November 2022, respiratory samples from <16-year-old patients with a suspected viral infection that attended a tertiary hospital in Barcelona were collected. Detection of EV and other respiratory viruses was performed by a specific real-time multiplex reverse transcription assay (Allplex Respiratory Panel Assay, Seegene, South Korea), and phylogenetic analysis of the partial viral protein 1 coding region (WHO protocol) was carried out for genetic EV characterisation. Clinical information was retrospectively retrieved after EV-D68 laboratory-confirmation.
Results: A total of 13,142 specimens were received, of which 1,192 (9.1%) were laboratory-confirmed for enterovirus. Up to 230 (19.3%) viruses were typed as EV-D68, majorly belonging to the B3-clade (226/230; 98.3%). Median age was 3 years (IQR 1-4) and 60.0% were male. The most common clinical presentation was LRTI (139/230, 60.4%) followed by upper respiratory tract infections (70/230, 30.4%). Overall, 73/230 (31.7%) EV-D68 cases required hospitalisation, with LRTI as the main cause of hospital admission (56/73, 76.7%). Seven cases required intensive care admission, all of them due to LRTI. One patient (0.4%) presented with myelitis and remains with sequelae. Viral co-detections were observed in 112/230 (48.7%) samples, most commonly with rhinovirus (79/112, 70.5%) followed by adenovirus (17/112, 15.2%).
Conclusions/Learning Points: Respiratory EV-D68 infection was most commonly associated with LRTI in our series. Despite its low frequency, the concern of neurological complications underlines the importance of a continued enterovirus surveillance.

PV0613 / #2079

ARE POST-PANDEMIC BRONCHIOLITIS MORE FREQUENT AND SEVERE?

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Acute bronchiolitis is one of the main causes of hospitalization in Pediatrics, especially in infants. Typical infection outbreak occurs during the winter months and can cause severe symptoms, especially in small infants. Post COVID 19 pandemic, the epidemiology and severity of bronchiolitis were affected. The aim of our study is to compare the frequency and severity of pre and post-pandemic admissions for acute bronchiolitis.
Methods: Retrospective study of hospitalized pediatric patients with bronchiolitis in 2019 (pre pandemic) and 2022 (post pandemic) in a level II hospital. Demographic, clinical, and microbiological data were collected. Patients with immunodeficiency and chronic heart, neurologic or systemic disease were excluded.
Results: In 2019 81 children were admitted for bronchiolitis (0,3% of all emergency department visits) versus 101 in 2022 (0,3%). In our sample 44% were girls, median age 3 months (9 days-2 years), with similar age distributions between both groups. The median length of stay was 4 days. RSV was identified in 84 patients total (46,52%). In 2022 more infants needed supplemental oxygen (73,3% vs 39,5%, $p<0,0001$), there was a higher need of CPAP (8,9% vs 1,2%, $p=0,023$) and mechanic ventilation (2,0% vs 1,2%, $p=0,645$). [GC1] In 2022, 88,9% of patients that required CPAP were 3 months or younger. Furthermore, there was increased admission to intensive care in 2022 (8,9% vs 2,5%), with the majority being one month or younger (63,6%).
Conclusions/Learning Points: In our sample post-pandemic infants hospitalized with bronchiolitis had a higher need of oxygen and non-invasive ventilation, but there was no statistical difference in mechanical ventilation. Our results are similar to the few previous published studies. It is hypothesized that the pandemic restrictions led to an immunological debt, resulting in increased frequency and severity of bronchiolitis.

PV0614 / #2085

THE CHANGING PATTERN OF ADENOVIRUS INFECTION AMONG CHILDREN ADMITTED IN PORTUGUESE HOSPITAL: BEFORE AND AFTER COVID-19 LOCKDOWN PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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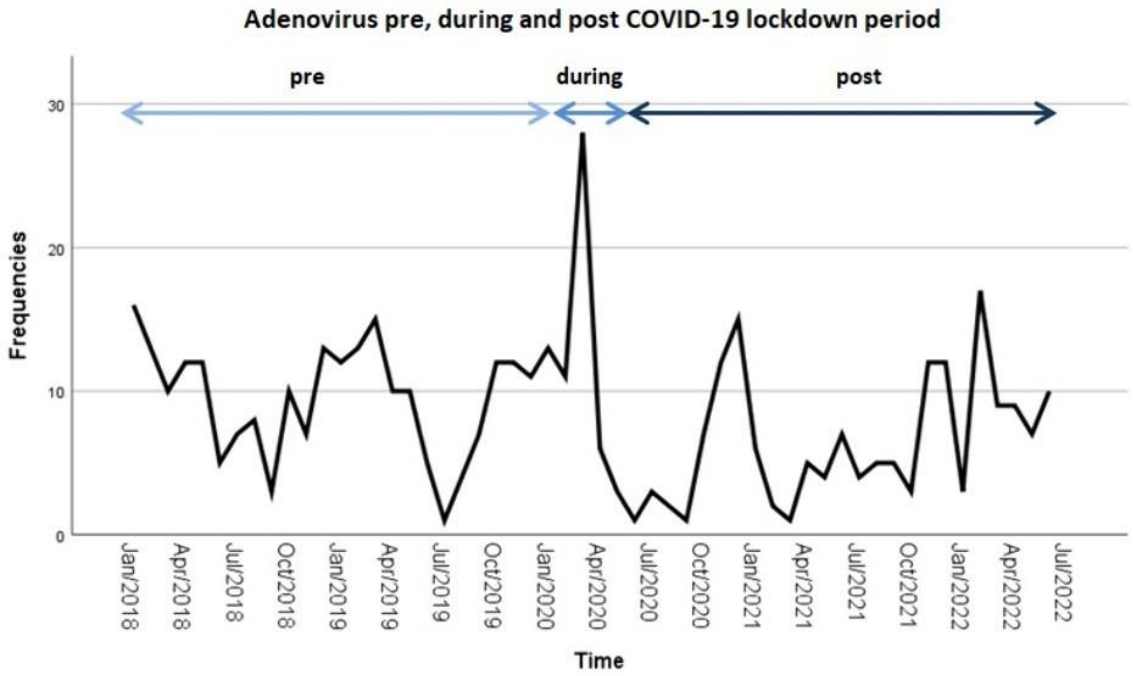
Backgrounds: Human adenoviruses (AdV) can cause infections at any age but most commonly in pediatric population. We aim to study the impact of COVID-19 lockdown period on AdV infection in children admitted in a Portuguese tertiary hospital.
Methods: Single center, retrospective, study of AdV identification in respiratory samples collected from children admitted from Jan/2018 to Jun/2022. Demographic, clinic, laboratorial and evolution data were analyzed and compared in 3 groups: pre, during (Feb/2020 – May/2020) and post COVID-19 lockdown period.
Results: We identified 451 children with AdV-positive, with median age of 20 months [P25;P75], 55,9% male, 85,8% <5 years, 53,4% in pre-lockdown, 10,6% during and 35,9% in post-lockdown. Most (83,8%) had co-infection with another agent. Positivity rate of AdV-infection significantly decreased after lockdown (p-value <.001), with 13,8% pre-COVID-19 and 9,0% post-COVID-19, more significantly in the female group (p-.01). There was no significant difference between age groups. Median length of stay was 5 days before COVID-19 and 4 days after COVID-19. Regarding seasonality, we observed an increase of AdV infections from October to March in both periods. During COVID-19 lockdown the rate of nosocomial AdV infections decreased (2,1%) when compared with pre (14,5%) and post (15,4%) COVID-19 (p < .01). Respiratory symptoms were less frequently reported post lockdown (p-.006), however gastrointestinal symptoms increased (p-.019), without difference in transaminases values. Also, no difference was shown in clinical presentation such as fever and neurological symptoms among patients before and after nonpharmaceutical interventions (NPIs)
launched.



Conclusions/Learning Points: Children under 5 years old were the main population for AdV infections in inpatients. The NPIs significantly decreased the transmission of community respiratory viruses, as well as AdV-infections. Clinical presentation with less respiratory and more gastrointestinal symptoms appears to have been influenced by COVID-19.

PV0615 / #1610

SALIVA EPIGENETICS AS A BIOMARKER FOR RSV INFECTION SEVERITY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory Syncytial Virus (RSV) is the principal cause of acute lower respiratory infections (ALRI) in young children, and it is associated with significant morbidity and mortality in childhood. The majority of infants with RSV admitted to the hospital are healthy and lack identifiable predisposing risk factors for severe disease. The main aim of the present study is to disentangle the host molecular factors associated with RSV infection severity using an epigenomics approach to non-invasive samples.
Methods: We recruited 16 infants admitted to the hospital for an RSV infection. Eight of them had a severe infection requiring PICU admission and mechanical ventilation, while the remaining eight infants presented mild symptoms, with only few days of hospitalization. DNA was extracted from saliva samples collected upon admission and the Illumina methylation EPIC BeadChip was performed for epigenetic analyses
Results: A linear model adjusted for age was used to examine the association between DNA methylation and RSV disease severity. We identified a panel of differentially methylated positions (DMPs) that allows clustering infants suffering a severe infection from those having mild symptoms. The gene set analysis, performed with all CpGs and with CpGs within promoters revealed significant enrichment for pathways involved in the expression and translocation of olfactory receptors (FDR<10^{-5}), olfactory signaling and transduction pathways (FDR<10^{-4}), and biological processes involved in olfactory receptor activity (FDR<10^{-3}).
Conclusions/Learning Points: DNA methylation pattern in the saliva of infants with RSV infection may discriminate severe (PICU) from mild (hospitalized) impairment. Saliva as an accessible proxy of the host response may be useful for further investigation and search for biomarkers.

PV0616 / #1362

MOLECULAR DIAGNOSIS OF ATYPICAL PNEUMONIA IN PEDIATRIC INPATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Antibiotics are frequently prescribed to children with atypical pneumonia, although viruses cause the majority of cases. Our aims are to describe the aetiology of atypical pneumonia in children, using molecular biology techniques, and to analyze whether these techniques influence antibiotic consumption and hospital stay.
Methods: Prospective study of children under 14 years admitted for atypical pneumonia and tested with a respiratory panel (FilmArray® 2plus) in October 2019-June 2022 (except March-November 2020), in the first 72 hours of admission. Patients with positive RT-PCR for respiratory syncytial virus (RSV), influenza, or SARS-CoV-2 were excluded. Comparison with historical controls (2017-18), with similar clinical characteristics but no etiological study.
Results: We included 64 patients and 50 controls, with a median age of 26 months in both groups. The respiratory panel was positive in 58 patients (91%), 27 of which (47%) were coinfections (Table). Most children (92% cases, 84%controls, p=0.237) had hypoxemia. Seven cases (11%) and five controls (10%) were admitted to the Intensive Care Unit. The median length of stay (IQR) was 4 (3-6) days in cases and 3 (2-4.3) in controls (p<0.001). There were no differences in total antibiotic consumption (83% of cases and 86% of controls). Antibiotics were prescribed to 41% of cases and 72% of controls at hospital discharge (p=0.001). Ampicillin was the most commonly prescribed antibiotic among patients (44%, vs. 18% in controls, p=0.005), whereas azithromycin was the most common in the control group (19% in patients vs. 48% controls,
p=0.001).

Table. Respiratory panel results in chilren with atypical pneumonia

Microorganism	Positive samples (%)*	Coinfections (%)
Rhinovirus	25 (39)	21 (84)
Metapneumovirus	22 (34)	11 (50)
Enterovirus	13 (20)	13 (100)
Parainfluenza	10 (16)	3 (30)
Adenovirus	10 (16)	9 (90)
Bocavirus	7 (11)	4 (57)
VRS	6 (9)	3 (50)
Coronavirus OC43	4 (6)	3 (75)
Coronavirus HKU1	3 (5)	2 (67)
Influenza	1 (1,5)	1 (100)
Bordetella parapertussis	1 (1,5)	1 (100)
Mycoplasma pneumoniae	1 (1,5)	1 (100)

Conclusions/Learning Points: We detected at least one respiratory virus in more than 90% of children admitted for atypical pneumonia. In addition to molecular diagnosis, other interventions are needed to reduce antibiotic consumption in these patients.

PV0617 / #596

INFLUENZA MORBIDITY AND MISSED OPPORTUNITIES FOR INFLUENZA VACCINATION IN HIGH-RISK CHILDREN: EXPERIENCE FROM A TERTIARY PEDIATRIC CLINIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Influenza is a highly infectious acute respiratory viral infection. Influenza serious sequelae and hospital admissions, more common in high-risk populations, can be prevented by vaccination. We aimed to describe morbidity during the current seasonal influenza wave in a pediatric population and estimate the “missed” opportunities of vaccination in a subgroup of high-risk children.
Methods: An ongoing prospective observational study was conducted. Children (<18 years) with confirmed Influenza (A / B) that presented at the Pediatric ER of “Attikon” University Hospital (Athens, Greece) during the period 1/10/2022 – 10/01/2023 were enrolled, irrespectively to whether they were hospitalized or not. Influenza infection was confirmed by either antigenic or molecular assay in nasal swab. Demographic and clinical characteristics were recorded.
Results: 122 children (48.4% male) were included, with a mean (SD) age of 9.34 (4.06) years, while 18/122 (14.8%) had underlying diseases. Ten children (8.2%) were hospitalized, with a mean (SD) length of hospital stay of 4.7 days (2.67); 30% of them were diagnosed with pneumonia and hypoxia. Among non-immunized children, hospitalization rate was 7.7% among healthy and 17.6% among those with underlying disease (p=0.196). None of the vaccinated children required hospitalization. Overall, 7/104 (6.7%) healthy children and 2/18 (11.1%) children with underlying diseases presenting with influenza were previously vaccinated (p=0.6). Univariate analysis indicated that children with underlying diseases in which, according to NIP, vaccination was indicated, had longer mean hospitalization length of stay (8.83 vs 4.07 days, p=0.01), as did children younger than 2 years old (8.25 vs 4.07, p=0.023).
Conclusions/Learning Points: Missed opportunities of influenza vaccination among high-risk children were identified indicating that more educational efforts are needed. Additionally, vaccination of young children 6months – 2 years needs to be discussed.

PV0618 / #1893

HUMAN METAPNEUMOVIRUS INFECTION IN CHILDREN HOSPITALIZED WITH RESPIRATORY TRACT DISEASE - CLINICAL FEATURES AND MANAGEMENT

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Human metapneumovirus (hMPV) is a leading cause of acute respiratory illness among children worldwide. We aim to describe demographic characteristics, impact of the disease, and therapy used in this population.
Methods: Retrospective study conducted at a secondary hospital, including children < 5 years of age hospitalized between 2018 and 2022 with acute respiratory infection caused by hMPV. Data were collected from medical records and analyzed through SPPS; p values <0.05 were considered statistically significant
Results: Included 22 patients, 13 male, mean of age 15,1 months (SD 13,6; interquartile range IQR 1-59.0). Mean hospitalization time 5,6 days (SD 3,6). Comorbidities (prematurity, recurrent wheezing, Trisomy 21 and cardiovascular disease) among 12 (54,5%). Most frequent cause of hospitalization: hipoxemia (9, 40,9%) and eating difficulties (8, 36,4%). More than 50% presented with cough, fever, eating difficulties and respiratory distress. Most common diagnosis were bronchiolitis (14; 63,3%) and pneumonia (7; 31,8%). 18 (81,8%) were treated with salbutamol, 14 (63,6%) supplemental oxygen, 10 (45,5%) corticosteroids, 10 (45,5%) antibiotics and 6 (27,3%) chest physiotherapy. Mean hospitalization time was statistically significant in patients who realized supplemental oxygen (p=0,002) and chest physioterapy (p=0,001). Viral co-infection presented in 8 patients; complications in 11 (50%), namely acute otitis media, atelectasis and bacterial superinfection. There was no statistically significant association between patients with previous comorbidities and development of complications or with patients with viral co-infection.
Conclusions/Learning Points: This study showed information about the effects of hMPV infections in young children. In this group, the therapeutic intervention as well as the mean hospitalization time with supplemental oxygen and chest physioterapy longer than other therapies, highlight to the severity of this pathogen and its high morbidity in respiratory infections.

PV0619 / #1102

SENTINEL SURVEILLANCE OF SEVERE ACUTE RESPIRATORY INFECTIONS IN SERBIA IN 2021-2022 INFLUENZA SEASON

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Sentinel surveillance of severe acute respiratory infections (SARI) was implemented in Serbia in November 2009. Six sentinel hospitals in 3 cities participated in the SARI surveillance system. Three of them are child hospitals. The aim of this study is to provide a review of sentinel surveillance of SARI among children population in Serbia in 2021-2022 influenza season.
Methods: Both epidemiological and virological data were collected on a weekly basis during all round of year. Influenza surveillance has been done in accordance with professional and methodological guidance for epidemiological surveillance of influenza for the current season. Intensive care units (ICUs), pediatric and respiratory disease wards were all represented. For laboratory confirmation of influenza, Real time polymerase chain reaction (RT-PCR) was used.
Results: Start of influenza season was registered in week 50/2021 Influenza activity peaked between weeks 12/2022 and 15/2022, with the positivity rate higher than 35%. A total of 143 SARI cases were reported with 100% recorded age. Of these, 59% were 0-4 years old and 41% were 5-14 years old. Among these cases, 130 (91%) respiratory specimens were collected during the surveillance period. The number of positive samples was 34 (26%). The highest proportion of laboratory-confirmed influenza cases was 47% in week 14/2022. All three influenza viruses were confirmed: A(H1)pdm09, A(H3) and type B. A(H3) viruses predominated, accounting for 53% of all sentinel SARI detections. There no were death associated to influenza.
Conclusions/Learning Points: Existing the high match between SARI hospitalizations and the percentage of influenza testing and influenza positive samples indicates the adequacy of sentinel SARI surveillance in Serbia. Integration epidemiological with laboratory surveillance highlights the importance of maintaining and improving national influenza surveillance capacity especially in the frame of International Health Regulations.

PV0620 / #1552

INFLUENZA-RELATED HOSPITALIZATIONS IN CHILDREN DURING THE OMICRON WAVE

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The COVID-19 pandemic has significantly changed the circulation of respiratory viruses and especially influenza viruses. The aim of this study was to monitor and characterize pediatric cases hospitalized for influenza since the onset of the omicron wave in Romania.
Methods: We present data from a multicenter prospective epidemiological study monitoring influenza virus circulation among patients hospitalized for ILI/SARI. We included in the analysis all non-COVID-19 pediatric cases tested for influenza by RT-PCR between January and May 2022 and hospitalized in the largest infectious disease hospital in Romania.
Results: A total of 135 children, non-COVID-19, were hospitalized for ILI/SARI symptoms. Median age was 4 years (IQR:2-9years), and male predominated (56.3%,n=76).The influenza positivity rate was 29.6%(n=40). The A/H3 subtype predominated in 36 of the cases (only 3 A/H1 cases and 1 A/no subtype ca0se).The majority of influenza cases were identified in March (28 cases/52 children tested) and April (10 cases/27 children tested). We identified 5 cases of co-infection: rhinovirus (4) and adenovirus (1). In addition 21.5%(n=29) of children tested were negative for influenza but positive for other respiratory viruses: rhinovirus (n=16), respiratory syncytial virus (n=7), adenovirus (n=3), metapneumovirus (n=2), parainfluenza (n=1). All influenza cases had a favourable outcome, with a median duration of hospitalisation of 5 days (IQR:4-6days). This was significantly higher compared to that of patients tested negative ($p<0.05$). Age under 2 years increased need for hospitalization by 1 day ($p=0.008$).
Conclusions/Learning Points: We identified a 29.6% positivity rate of influenza among children hospitalized for influenza in the first 5 months of 2022. Continuous monitoring of viral circulation, especially in the pediatric population, is essential and the use of multiplex PCR testing can be a useful tool for diagnostic and therapeutic as well as epidemiological purposes.

PV0621 / #1548

IMMUNOPROPHYLAXIS WITH PALIVIZUMAB IN A LEVEL II HOSPITAL.

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is a highly contagious virus that can lead to severe infections, particularly in children who are at high risk. Palivizumab, a monoclonal antibody, is used to prevent severe lower respiratory tract disease caused by RSV in high-risk children. Objective: characterize cases of prophylaxis with palivizumab in high-risk children under 2 years at a level II hospital, and determine the incidence of RSV respiratory disease in these children.
Methods: Retrospective descriptive study that included patients under 2 years who were indicated for prophylactic immunization with palivizumab over a period of 10 seasons (2012-2013 to 2021-2022).
Results: A total of 42 patients were included, with male predominance (54.8%) and within the age range 0-5 months (69%). The primary reason for performing immunoprophylaxis was gestational age $\leq 28^{+6}$ weeks in 42.9% of cases, followed by congenital heart disease in 28.6% of cases. The season with the highest number of infants undergoing immunoprophylaxis was 2012-2013 with 9 (21.4%) individuals. No respiratory disease was detected in the months following inoculation in 26 (61.9%) cases. Of the 16 (38.1%) individuals who developed an infection, a nasopharyngeal aspirate was performed using polymerase-chain-reaction (PCR) in 12 (75%), and of these 2 (12.5%) tested positive for RSV. Admission to the pediatric service was required in 10 (62.5%) cases, with one case requiring intensive care.
Conclusions/Learning Points: The majority of individuals didn't contract respiratory disease in the following months. Those who did develop an infection, hospitalization was required, mostly caused by an agent other than RSV. Since the risk of infection in these children remains high, complementary environmental control measures are recommended. Future studies are also needed to optimize timing of palivizumab's administration as the seasonality of RSV appears to have modified.

PV0622 / #1720

RESPIRATORY VIRUSES DETECTED IN ASYMPTOMATIC CHILDREN AND CHILD CARE WORKERS IN DAY CARE CENTERS DURING THE SARS-COV-2 PANDEMIC (10/2020-07/2021)

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Screening tests for early detection of SARS-CoV-2 infections in asymptomatic children and child care workers (CCW) in day care centers (DCC) were frequently established during the pandemic. Non-pharmaceutical measures directed against SARS-CoV-2 affected the circulation of other viral pathogens. We investigated screening samples in DCC for the presence of SARS-CoV-2 and other respiratory viruses.
Methods: Respiratory samples from asymptomatic children aged 1-6 years and CCW were collected in DCC in Würzburg (Germany) at one day each in October and November 2020, and in February, May, June and July 2021. Samples were tested for SARS-CoV-2 and 17 other respiratory virus using PCR/multiplex PCR (FTD-21™). The cycle threshold value indicated viral load (<25 high/25-35 medium/>35 low).
Results: A total of 474 samples were collected, including 336 (70.9%) samples from 150 children and 138 (29.1%) from 58 CCW. Overall, 79/474 (16.7%) samples were virus-positive (19.6% in children, 9.4% in CCW), with 87 detections overall (50.6% rhinovirus, 26.4% adenovirus, 8.0% endemic coronavirus, 4.6% enterovirus, 3.4% parainfluenzavirus, 2.3% RSV, 2.3% bocavirus, 1.1% parechovirus, 1.1% SARS-CoV-2; no influenzavirus or human metapneumovirus [hMPV]). Children showed a higher proportion of rhinovirus than CCW (11.9% vs. 2.9%; p=0.001). RSV, bocavirus, parechovirus and SARS-CoV-2 were found only in children. Parainfluenzavirus, RSV and parechovirus were detected only during the summer season. Viral load was high/medium/low in 1.1%/41.4%/57.5% of 87 detections.
Conclusions/Learning Points: Respiratory viruses were detected in 17% of samples from asymptomatic DCC participants, despite pandemic preventive measures. Rhinovirus and adenovirus predominated. Unusually, RSV, influenzavirus, hMPV and parainfluenzavirus were not detected during the winter season 2020/21. Further studies are needed on the relevance of high/medium/low viral load in asymptomatic children regarding virus transmission.

PV0623 / #1127

ACUTE RESPIRATORY INFECTIONS IN THE PRE-PANDEMIC ERA: ANALYSIS OF EMERGENCY ROOM SURVEILLANCE DATA IN A REFERRAL HOSPITAL FOR CHILDREN IN ITALY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: In order to reduce the burden of acute respiratory illness in the community, the implementation of clinical-epidemiological surveillance systems is strongly recommended by the World Health Organization and the European Center for Disease Control and Prevention.
Methods: Since 2007, an Emergency Department Syndrome surveillance system has been active at “IRCCS G. Gaslini”, the children's Reference Hospital in the Liguria region (Northwest Italy). Influenza-Like Illness (ILI) and Lower Respiratory Tract Infections (LRTI) are the two monitored syndromes. In this study, we performed a comprehensive analysis of the surveillance data collected over a period of 7 years (2013-19) in the pre-pandemic era.
Results: During the study period, there were an average of 1190 ILI and 830 LRTI annually (Figure 1). The window of maximum incidence of respiratory infections was between December and March, with a peak in December (13.73%) and February (12.60%) for ILI and LRTI, respectively. Most cases were registered between 1 and 3 years of age (55.77% of ILI and 46.77% of LRTI) and among male children (55.59% of ILI and 55.43%). With regards to hospital admissions, most of them were registered among children with LRTI (24.28% vs. 4,62%). Multivariate logistic regression showed that, in comparison to those with ILI, they had 4 times the chances of being admitted at the hospital (aOR 4.16 95% CI 3.66-4.73; p<0.001). Age and sex were not statistically significant predictors of hospital

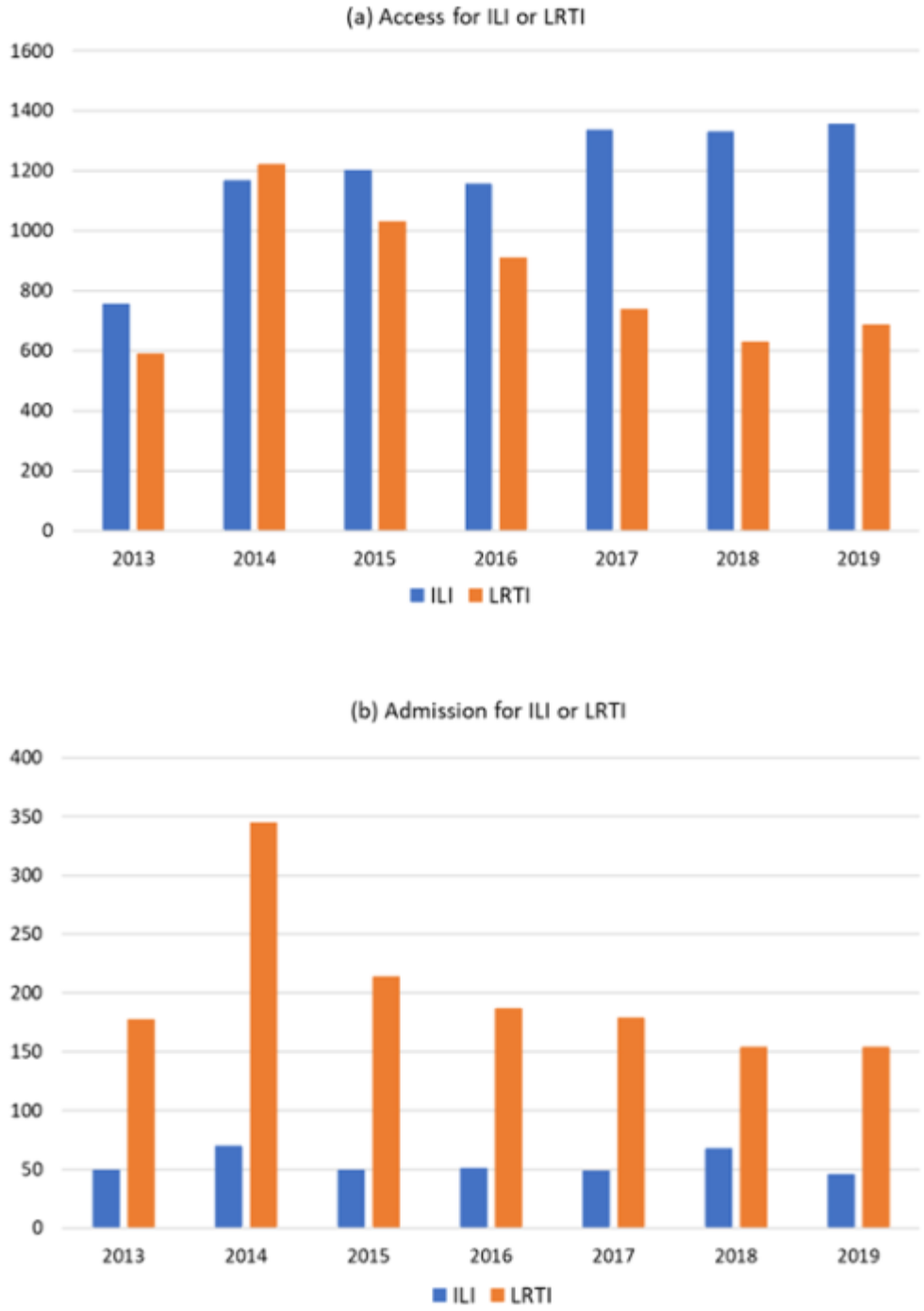

Figure 1 - IRCCS G. Gaslini syndromic surveillance, 2013-2019

admission.

Conclusions/Learning Points: Syndromic surveillance systems worldwide need to be adapted to new COVID-19 indicators. However, an accurate analysis of the pre-existing epidemiological panorama is necessary in order to draw accurate comparisons and understand the additional burden that this pandemic has placed on pediatric hospitals.

PV0624 / #1411

FLU BEYOND THE COVID-19 PANDEMIC: A LATE SEASON A(H3) RESURGENCE, OF SHORT DURATION AND HIGH-TEST POSITIVITY RATE

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Influenza virus (IV) is a major cause of infection in children. The COVID-19 pandemic led to a dramatic reduction in respiratory infections but, with the lifting of non-pharmaceutical interventions, there was a resurgence of many pathogens. The aim of this study was to characterise the resurgence of IV in the paediatric population.
Methods: All cases of IV infection detected by PCR in nasopharyngeal samples collected as part of routine testing in the ER of a tertiary pediatric hospital, from 2015 to 2022, were analysed.
Results: There were 1173 detections (952 IV type A, 320 H1N1, 624 A(H3) and 221 type B). The distribution by month and year is shown in figure 1. The beginning of the pandemic interrupted the 2019-20 epidemic, with IV remaining undetectable until February 2022, when a new epidemic started, dominated by
A(H3).

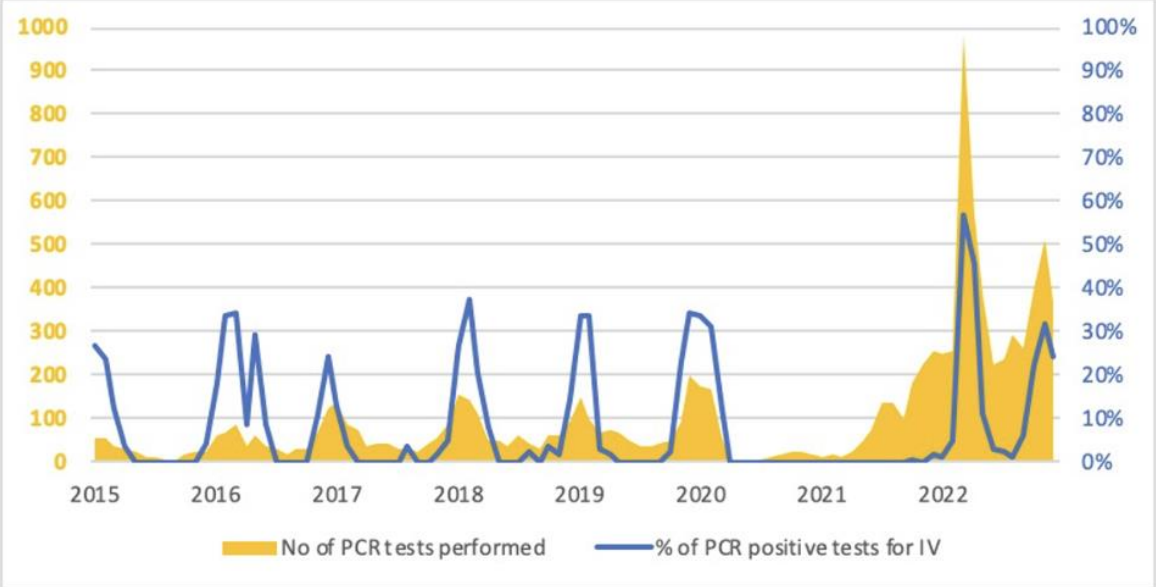

Figure 1. Number of PCR tests performed and proportion of positive tests for IV.

Conclusions/Learning Points: The COVID-19 pandemic interrupted IV circulation for 2 years. The resurgence occurred later than for other viruses, with an unusually late epidemic, of shorter duration, and with exceptionally high proportion of positive samples, followed by a further epidemic, 6 months later, earlier than observed in previous epidemics in this community.

PV0625 / #2163

INCREASE IN INCIDENCE OF BORDETELLA PARAPERTUSSIS IN CENTRAL PORTUGAL IN 2022

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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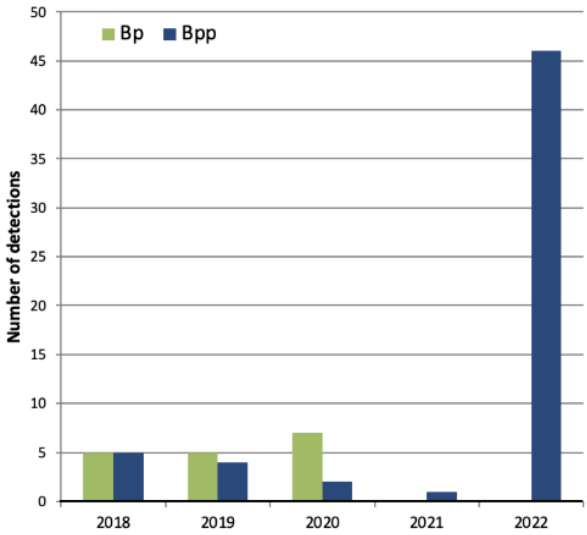
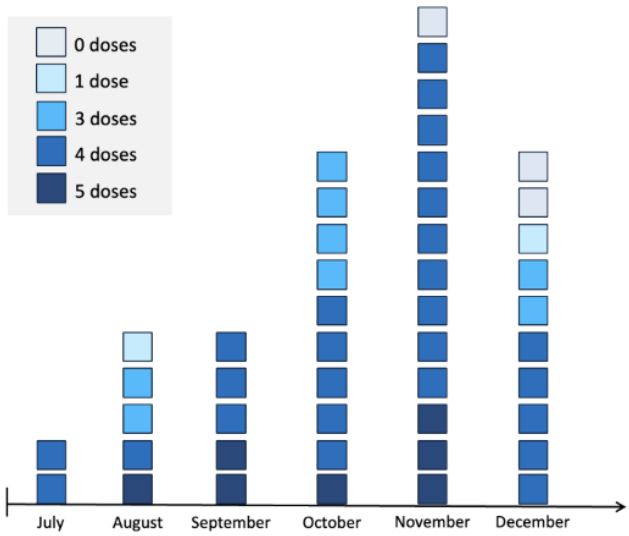
Backgrounds: Bordetella parapertussis (Bpp) can cause a pertussis-like illness, but less severe or asymptomatic, with < 5% following the classic disease symptoms. Pertussis maternal vaccination was introduced in the Portuguese NIP in 2017, with coverage rates >90% and with infant vaccination rates >95%. It is unclear whether acellular pertussis vaccines provide any protection against Bpp infection.
Methods: Observational, retrospective, descriptive study, including all cases with Bordetella detection by PCR in nasopharygeal samples from 2018 to 2022, in a tertiary paediatric emergency service that admits an average of 60,000 children/year. The decision to perform the test was made by the physician who observed the patient. A more detailed analysis of Bpp cases was performed.
Results:



Distribution of Bp and *Bpp* cases between 2018 and 2022



Distribution of *Bpp* cases in 2022 and vaccination status

Since 2018, there were 75 Bordetella detections: 17 B. pertussis (23%) and 58 Bpp (77%), with distribution shown in the figure. In 2022, there was an unusual number of detections of Bpp; with distribution presented in the figure. All children were appropriately vaccinated for their age, and 3 were aged <2M. The mean age was 2,9Y (≤6M n=6; 7-18M n=12 and >18M n=40). 40% cases lived in the hospital's county. Co-detection with respiratory viruses occurred in all but one child, mainly rhinovirus/enterovirus (63.8%), adenovirus (58.6%) and parainfluenza virus (27.6%). The most frequent diagnosis were nasopharyngitis (n=24, 41.4%), bronchopneumonia (n=9, 15.5%) and cough (n=6, 10.3%, two with whooping cough). Most children had no comorbidities. 22% (n= 13) were admitted, with a mean hospital stay of 2.9 days.
Conclusions/Learning Points: An increase in incidence of Bpp in central Portugal in 2022 was

observed, mainly in children fully vaccinated. Only two patients presented with whooping cough. Co-detection of Bpp with other respiratory viruses questions its clinical significance.

PV0626 / #1982

THE EFFECTS OF COVID 19 ON THE EPIDEMIOLOGY OF COMMON RESPIRATORY INFECTIONS IN CHILDREN: A SINGLE-CENTER ANALYSIS OF THE PAST 4.5 YEARS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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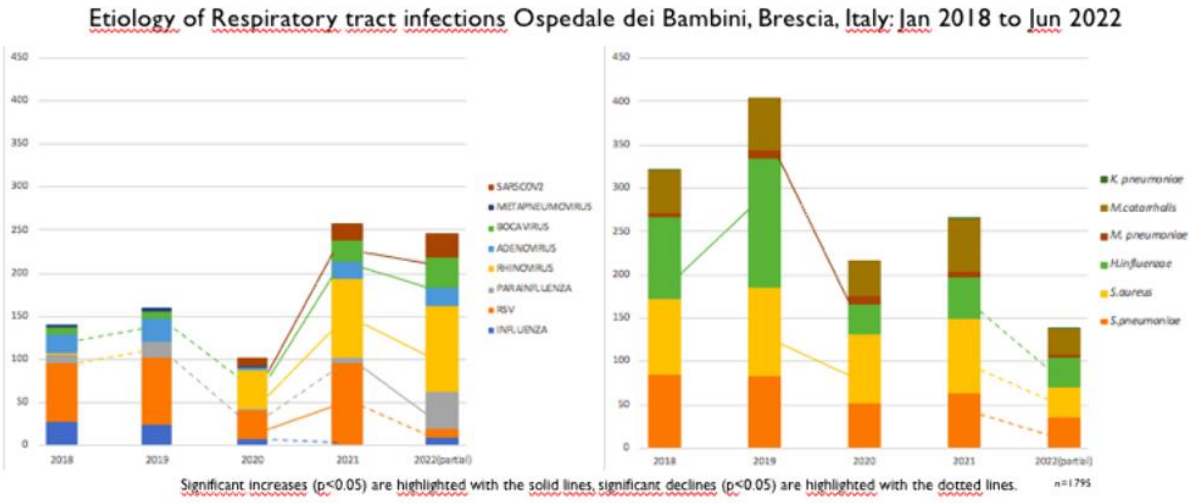
Backgrounds: Recent scientific literature has shown that the preventive and control measures used during the COVID19 Pandemic impacted heavily on the spread of other pathogens causing acute respiratory tract infection in children.
Methods: We retrospectively analyzed data from all patients admitted to the University Children's Hospital in Brescia between January 2018 and June 2022, who had at least one respiratory pathogen identified (PCR or culture) on nasopharyngeal swab or aspirate.
Results: Hospitalizations, gender and age distribution, and comorbidities of the 1795 children included remained constant over the study-period. While the most frequent bacteria, S.pneumoniae, S.aureus, H.influenzae and M.catarrhalis, decreased slowly but significantly over time, the incidence of viral pathogens increased showing a much more differentiated variation pattern during the study period: RSV peaked between October and December 2021, while Influenza since the beginning of the SARS-CoV-2 Pandemic was not observed until June 2022. The most frequent viruses in 2018 and 2019 were RSV, Influenza Virus, and Adenovirus, whereas from 2020 there was a marked increase of Rhinoviruses. Also, Bocavirus, so far rarely identified, was the third most frequent pathogen in 2021 and 2022, preceded only by Rhinovirus and RSV in 2021 and by Rhinovirus and Parainfluenza Virus in the first six months of 2022. A significant increase in co-infections was also
observed.



Conclusions/Learning Points: We observed significant changes in the etiology of acute respiratory infections, especially the absence of the Influenza, and the increase of RSV, rhinovirus, whose increase has already been described, or bocavirus about which little is published to date. It will be important to

study the new epidemiology of respiratory infections to better understand community transmission and to establish timely and effective preventive measures.

PV0627 / #2471

COMPARISON OF MODERATE AND SEVERE CHICKENPOX CASES IN POST-COVID-19 ERA: A RETROSPECTIVE STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Background: Chickenpox is an infection caused by the varicella-zoster virus. It causes an itchy rash with small, fluid-filled blisters. Complications include bacterial infections of the skin, soft tissues, joints, sepsis, dehydration, pneumonia, encephalitis, toxic shock syndrome, Reye's syndrome in children taking aspirin during chickenpox.
Methods: We retrospectively used medical records of patients infected with varicella zoster virus from the Isolation Unit of Muratsan University Hospital from 2021 and 2022. Overall, we included 87 patients with chickenpox and shingles.
Results: Of 87 cases 54(62%) were from 2022 and other 33(38%) from 2021. Severity of the disease was moderate in 51(58.6%) patients, severe in 31(35.6%), and extremely severe in 5(5.8%) patients. Male-to-Female was 3:2(52/36). Total number of complicated cases were 26 (30%) of which 19 were in 2022 and 7 in
2021.

COMPLICATIONS	NUMBER OF CASES
Superficial Skin Infection	10
Phlegmon	5
Cellulitis	5
Cerebellitis and Ataxia	2
Pneumonia	1
Immune thrombocytopenia	1
Respiratory failure	1
Meningism	1

In 2021, Cases of skin infections were 2(6%), and 16(29.6%) in 2022. Of 26 complicated cases, 18 were male. Average length of hospital stay was 7.1 days and for complicated cases 9.2 days vs non-

complicated cases 6.2
days.

Averages of laboratory data during admission are depleted in the table below.

Lab	Severe/extremely severe	Moderate	P-value
HGB, g/l	125	122	<0.436
Neutrophils, $x10^9$/l	7.25	3.89	**<0.004**
Lymphocytes, $x10^9$/l	2.90	4.13	**<0.003**
PLT, $x10^9$/l	297	280	<0.561
ESR, mm/h	18.4	15.7	<0.273
CRP (at admission), mg/l	51.2	19.8	**<0.029**
CRP (at discharge), mg/l	3.68	7.80	<0.110
Glucose, mmol/l	5.59	5.31	<0.319
ALT, U/l	32.7	19.80	<0.265
AST, U/l	40.7	33.9	<0.364
Albumin, g/l	32.0	34.1	<0.518

Treatment: 69 out of 87 received Acyclovir, with an average of 5.33 days of treatment. We added antibacterial treatment to 50 complicated cases: Ceftriaxone-22cases(average-6.4 days), Metronidazole-15 cases (severe-11.4days, moderate-7.25days), Amoxicillin-Clavulanate-12cases (severe cases-6.5days,moderate-3.7 days), Azithromycin-12 cases, Amikacin, Cephalexin-4 cases each, TMP-SMX, Cefepime, Ciprofloxacin, Meropenem, Vancomycin-2 cases each. in six cases surgery was required. 7 (14%) Antibiotic resistance cases had received hyperbaric oxygen therapy(average-15.6days).
Conclusions/Learning Points: Comparing complications of chickenpox in the post-covid-19 era we have noted a dramatic increase in skin infection after varicella zoster infection. High absolute neutrophil and CRP counts were associated with these complications as suspected. Antibiotic resistance cases have longer duration of stay. Hyperbaric oxygen therapy is an option for treatment in these cases.

PV0628 / #1658

UTILITY OF THE RSV-CLASS CLINICAL ASSESSMENT SEVERITY SCORE FOR THE ASSESSMENT OF VIRAL AND HOST RSV DISEASE SEVERITY RISK FACTORS.

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Despite the substantial burden of respiratory syncytial virus (RSV) infections in infants and young children, validated tools for the systematic assessment of disease severity are lacking. We recently developed the RSV-CLASS Clinical Assessment Severity Score. This study aims to validate the score for assessing host and viral risk factors for severe disease.
Methods: Data of 339 RSV-positive children <3 years collected in winter seasons 2017-2020 was used for validation. RSV infection was confirmed with RT-PCR. Clinical data was obtained using a standardised questionnaire. The RSV-CLASS was calculated assigning one point each for clinical symptoms cough, rales, tachypnoea, and wheezing. The outcome LRTI was chosen as a proxy for severe disease
Results: The median age was 3.2 months, and 55.5% were male. With an RSV-CLASS score value of three or four, 97.9% and 100% of the children, respectively, were admitted with LRTI and classified correctly. The respective Area under the curve (AUC) was 0.87. More than half of the patients (64.3%) were aged <6 months, and their RSV-CLASS AUC was 0.82. Most children were previously healthy, but 14.2% had one or more diagnoses associated with a higher risk for severe disease. These children were younger ($p<0.001$), hospitalised longer ($p<0.002$), and had lower RSV-CLASS values ($p<0.003$), and their RSV-CLASS AUC was 0.86. We recently investigated the correlation of viral risk factors with disease severity and did not report significant correlations with the length of hospitalisation or signs of respiratory failure. The RSV-CLASS supports this, with no correlation of RSV subtype ($p=0.588$) and viral load ($\rho=-0.037$, $p=0.492$) with disease severity.
Conclusions/Learning Points: The RSV-CLASS is a tool for the assessment of RSV disease severity with a very convincing AUC when calculated for host and viral risk factors.

PV0629 / #2102

WHAT COULD WE IMPROVE IN BRONCHIOLITIS MANAGEMENT? CHANGES WITH COVID-19 PANDEMIA

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Systematic use of genome amplification tests has modified the diagnostic and therapeutic management of bronchiolitis. One of its main advantages is the appropriate use of antimicrobials and reduction of complementary tests performed. We compared management of bronchiolitis before and after COVID-19 pandemic.
Methods: Retrospective cross-sectional study of patients with bronchiolitis were stratified in two groups according to COVID-19 pandemic: pre-pandemic period (PREP) and post-pandemic period (POSTP). Respiratory panel was performed on all patients POSTP. Only RSV antigen test was used in PREP. We compared disease severity and differences in diagnosis and treatment between both periods.
Results: 155 patients were included: 100/155 (64.5%) PREP and 55/155 (35.5%) POSTP. Severity score of POSTP was higher (median IQR: 7 [6-8]) than PREP (median IQR: 6.2 [4-8]; p=0.009). The frequency of RSV detections was higher in PREP (69/116 [59.5%] vs 47/116 [40.5%]; p=0.002) than POSTP. Chest radiograph (61% vs 39%), blood test (31% vs 69%) and blood culture (56 vs 44%) were used less in POSTP than PREP, with no significant differences. Although no differences were observed in use of albuterol, epinephrin and hypertonic saline were used less in PREP (97% vs. 3%; p=0.0001 and 88.4% vs. 11.6%; p=0.0001, respectively). Duration of hospitalization, oxygen requirement, type and duration were comparable between both groups.
Conclusions/Learning Points: Severity of bronchiolitis was higher in POSTP. Use of epinephrin and hypertonic saline has been lower in this group following the recommendations of the latest clinical practice guidelines. RSV detection was lower in POSTP, possibly due to changes in respiratory viruses circulation. Despite the innumerable advantages of respiratory panels, lager sample size is needed in our center to evaluate its diagnosis and therapeutic utility.

PV0630 / #418

MAY COINFECTION WITH HUMAN BOCAVIRUSES BE PROTECTIVE FOR SEVERE DISEASE OR NOT?

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Human bocaviruses (HBoVs) are recently described as human emergent viruses, so there is limited information on the clinical characteristics. This study aimed to investigate the clinical features of HBoVs infections in children.
Methods: Between May 2021-2022, hospitalized pediatric cases detected HBoV by PCR in respiratory tract samples were enrolled in the present study. Clinics and diseases courses of the patients were analyzed.
Results: Human bocavirus was detected in 77 children. While 10 (13%) patients were admitted in to the pediatric intensive care unit (PICU), 67 (87%) patients were hospitalized in inpatient wards. The median age was 2.5 years (min-max 0-7) in PICU group and 2 years (min-max 0-9) in others. All of the patients had underlying diseases in PICU group. The common diagnosis was pneumonia (85.7%). The mean absolute neutrophil count was 7300 cell/mL in non-PICU and 12500 cell/mL in PICU groups (p=0.005). The mean procalcitonin level was 0.12 ng/mL (IQR: 0.74-0.41) in non-PICU group and 1.44 ng/mL (IQR: 0.6-3.8) in PICU group (p=0.01). Of all, 35 (52.2%) patients in non-PICU group had multiple viral infection, only one patient (10%) among PICU group had viral coinfection (p=0.01). Rhinovirus (24.7%) and influenza (2.5%) were the most common pathogens responsible for co-infection. One patient died in PICU

Table 1: Demographic and clinical data of all patients

	Non-ICU group (n=67)	ICU group (n=10)	p value
Age, years (median, min-max)	2 (0-9)	2.5 (0-7)	0.78
Female, n (%)	31 (46.3)	4 (40)	0.71
Underlying diseases, n (%)			0.16
No disease	22 (32.8)	0	
Cardiac	3 (4.5)	2 (20)	
Immunodeficiency	3 (4.5)	0	
Renal	3 (4.5)	0	
Gastrointestinal	2 (3)	0	
Pulmoner	15 (22.4)	4 (40)	
Oncologic	3 (4.5)	1 (10)	
Neurologic	11 (16.4)	1 (10)	
Endocrin	3 (4.5)	2 (20)	
Hematologic	2 (3)	0	
Clinical diagnosis (n, %)			0.41
Respiratory tract infection	58 (86.6)	8 (80)	
Encephalitis	1 (1.4)	0	
Sepsis	3 (4.4)	2 (20)	
Gastroenteritis	1 (1.4)	0	
MIS-C	3 (4.4)	0	
White blood cell median (IQR)	10500 (8000-15500)	13900 (10800-20100)	0.07
CRP mg/dl, median (IQR)	1.5 (0.6-3.7)	1.2 (0.4-2.3)	0.68
Sedimentation mm/hour, median (IQR)	15 (6-31)	7.5 (2-11)	0.78
ANS cell/mL, mean (sd)	7300 (4400)	12500 (8500)	**0.005**
ALS, cell/ml, median (IQR)	2300 (1500-3500)	1730 (950-2700)	0.20
Thrombocyte, cell/mL mean (sd)	338 (122)	400 (219)	0.20
Procalcitonin, median (IQR)	0.12 (0.74-0.41)	1.44 (0.6-3.8)	**0.01**
ALT U/L, median (IQR)	17 (13-28)	29 (19-74)	0.03
AST U/L, median (IQR)	37 (29-48)	43 (36-104)	0.16
Urea mg/dl, median (IQR)	10.7 (7-13.2)	18.9 (9.6-27.4)	**0.02**
Creatinin mg/dl,, median (IQR)	0.31 (0.26-0.38)	0.36 (0.28-0.66)	0.11
Coinfection			**0.01**
Only Bocavirus	32 (47.8)	9 (90)	
Multiple virus	35 (52.2)	1 (10)	
Lenght of hospital stay, day (median, min-max)	7 (1-90)	6.5 (1-33)	0.95
Mortality	0	1 (10)	NA

group.

Conclusions/Learning Points: Human bocavirus infection is predominantly affects infants and the rate of PICU admission is high. Coinfections with HBoVs seem likely reduce the risk of PICU admission. More studies with large populations are needed to evaluate the impact of viral coinfections.

PV0631 / #1101

VIRAL PATHOGENS OF ACUTE LOWER RESPIRATORY TRACT INFECTIONS IN OUTPATIENT INFANTS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Up-to-date population-based data on viral etiology of acute lower respiratory tract infections (LRTI) in outpatient infants are lacking in Germany. Non-pharmaceutical preventive measures during the SARS-CoV-2 pandemic led to strong fluctuations in the circulation of viral pathogens, including RSV. This study aims to determine the incidence and etiology of acute LRTI in outpatient infants during the winter season 2022/2023.
Methods: Since November 2022, all infants <2 YOA from Würzburg diagnosed with acute LRTI are recorded in seven (44%) pediatric primary care practices in Würzburg. Oropharyngeal swabs for PCR testing on SARS-CoV-2 and 17 other viruses are collected on a pre-defined day every week.
Results: During the first 8 weeks of surveillance, 197 infants with acute LRTI were registered (on average 3-4 infants per practice and week); 52 infants provided respiratory samples. Median age was 14 months (IQR 8-18). Acute LRTI was diagnosed most frequently by abnormal auscultation (84.3%) and stridor/wheezing/grunting (53.8%); 97% of the children had bronchitis/bronchiolitis, 5.6% laryngotracheitis and 1.5% pneumonia. Overall, 73 viral pathogens were detected in 49/52 (94.2%) infants: RSV (32; 43.8%), endemic coronavirus (12; 16.4%), influenza virus (11; 15.1%), rhinovirus (7; 9.6%), adenovirus (5; 6.8%), bocavirus (3; 4.1%), parainfluenza virus (2; 2.7%), human metapneumovirus (1; 1.4%). Co-detections were observed in 19/49 (39%) infants (15x 2 viruses, 3x 3 viruses, 1x 4 viruses).
Conclusions/Learning Points: With the current population of 5500 infants in Würzburg, the monthly incidence of acute LRTI was estimated as 40/1000 infants <2 YOA (95% CI 37-44); 44% of the LRTIs were associated with RSV. SARS-CoV-2-associated LRTI were not detected so far, despite the contagious omicron variant and reduction of preventive measures.

PV0632 / #1852

STOP RSV: SURVEILLANCE TOWARDS PREVENTING PAEDIATRIC INCIDENCE OF RESPIRATORY SYNCYTIAL VIRUS (RSV) ATTRIBUTABLE RESPIRATORY TRACT INFECTION – PREMATURITY, CO-MORBIDITIES, HEALTHCARE UTILIZATION AND MEDICATION PRESCRIPTION

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory Syncytial Virus (RSV) is the most frequent cause of childhood lower respiratory tract infections (LRTI). Surveillance data of bronchiolitis found 4.6% infants <1 year old attend hospital leading to 1:10 PICU admissions. Data on i) laboratory confirmed RSV cases (in primary, secondary and tertiary care) including hospital Emergency Department discharges, ii) health economic impact and iii) burden to families, are needed to inform strategies for preventive therapies.
Methods: The STOP-RSV study (ISRCTN:41075797) recruits children <3 years old with LRTI symptoms from primary, secondary and tertiary care. A nasal swab is tested on a multiplex respiratory viral panel using Biofire/Panther systems. On days 14 and 28 after inclusion parents complete EQ5 D3L and PeDS QL questionnaires and medical records are collected. In this mid-term analysis (n= 723, December 2021 - August 2022) results on prematurity, co-morbidities, healthcare utilization and medication prescription are presented. This study is funded by a collaborative agreement with Sanofi / AstraZeneca.
Results: Recruits: n=723 of which 18% were born premature <37 weeks (7% <35 weeks) Proportion Underlying Co-morbidity: 22% (78% no underlying co-morbidity noted) Health Care Utilization: 92% of hospital attendances had a previous Primary Care Consultation. Medication: (at time of symptoms): 25% antibiotics, 29% inhalers and 14% corticosteroids. 3% previously administered Palivizumab.
Conclusions/Learning Points: A high proportion of children <3 years old with LRTI symptoms in primary, secondary and tertiary care with confirmed RSV do not have any significant co-morbidity. Medication was frequently prescribed including antibiotics – this is a significant cost and AMR burden. The majority of those attending hospital had a prior primary care consultation indicating the high healthcare burden of this diagnosis.

PV0633 / #525

CHILDREN HOSPITALIZED WITH INFLUENZA IN A PEDIATRIC HOSPITAL IN ARGENTINA DURING THE YEARS 2019-2022: WHAT CHANGED AFTER THE COVID-19 PANDEMIC?

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: During 2020 and 2021, influenza detection remained below expectations in all regions of the world. In Argentina, in 2022 we observed an uninterrupted circulation of influenza throughout the year with a large increase in cases in spring and summer. Our objetive was describe patterns of circulation during the last 4 years and the clinical characteristics and evolution of children hospitalized with Influenza.
Methods: Observational, retrospective study that included all patients hospitalized in a third level pediatric hospital in Argentina with detection of influenza virus by Inmunofluorescense or real time polymerase chain reaction (PCR) during 2019-2022.
Results: Data from 136 patients were analized. In 2019: 39 cases (92% Influenza A, FLU A), in 2022: 97 (56% FLU A). In 2020 and 2021 there were no influenza hospitalizations. In 2019, 87% of hospitalizations occurred in autumn-winter while in 2022 only 38% occurred in those months. Age: 55 months (SD 46). Comorbilidities for influenza: 58%, of this only 25% were vaccinated for Influenza. The most frequent clinical form was acute lower respiratory infection in 63%, 12.5% had atypical manifestations. 14.7% of patients required intensive care, it was more frequent in younger children ($p = 0.002$). The length of stay was 9.7 days (SD 9.9) and was longer in unvaccinated compared with vaccinated children ($p=0.04$). 18% had experienced complications, one patient died.
Conclusions/Learning Points: Our study shows that in 2022 there were 2.5 more hospitalizations because of influenza compared to 2019. In 2019 most infections occurred in winter and in 2022 most occurred in spring-summer. FLU A largely predominated in 2019, while in 2022 the detection of FLU A and Influenza B (FLUB) was similar. Most hospitalized children had comorbidities and most were not vaccinated for influenza.

PV0634 / #1105

INFLUENZA A IN CHILDREN COMPLICATED BY ENCEPHALITIS – CASE PRESENTATION

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Title of Case: Influenza A in children Complicated by Encephalitis – case presentation
Background: Influenza is an acute respiratory illness caused by influenza viruses type A, B, rarely C, which occurs in annual epidemics. Although it is generally a self-limiting and uncomplicated illness in healthy children, it can be burdened by severe complications and high mortality in immunocompromised children.
Case Presentation Summary: This paper presents the case of a girl aged 5 years,with a history of previous neurological impairment, admitted to the Institute of Infectious Diseases Professor Doctor"Matei Bals" for14 days, with the diagnosis of Influenza type A complicated with acute encephalitis.The onset of the disease was 5 days prior to admission with respiratory manifestations, to which she associated in evolution fever and eating disorders.She was evaluated at the on-call room, where the diagnosis of influenza type A was established (rapid test - antigen) and she received home treatment with Oseltamivir and symptomatic. Because in evolution she presents bradylalia, bradiphsia, drowsiness, she was admitted in to our clinic.The neurological consultation revealed a child with partial temporo-spatial disorientation, who responds with delay to simple questions, does not recognize family members, bradylalic, bradypsychic, with repetitive gestures, maintaining orthostatism, showing wide-based gait and imbalance, with absence seizures lasting less than 30 seconds. EEG is performed, which shows a slow EEG with presence of symmetrical delta waves and lumbar puncture shows clear, hypertensive CSF with normal parameters. The diagnosis of influenza is confirmed by RT-PCR from nasal secretions. The treatment instituted was: etiological, brain depleting, pathogenic, human immunoglobulins and symptomatic under which the patient's evolution is slowly favourable.
Learning Points/Discussion: The favourable response to immunoglobulins and corticosteroids supports the involvement of an immune mechanism in the encephalopathic
reaction in this case.

PV0635 / #1219

CHARACTERISTICS OF CHILDHOOD INFLUENZA – SEASON 2022 - 2023

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: With the decline in the number of COVID-19 cases and the abandonment of most epidemiological preventive measures, in the autumn of 2022 we are witnessing an explosion in the number of cases of childhood viroid. Influenza is a condition we are currently facing being responsible for the majority of paediatric viroid admitted.
Methods: In this presentation we aim to analyse the clinical and epidemiological features of influenza in children in the 2022 - 2023 season. We conducted a retrospective clinical study of pediatric cases of influenza admitted to the Clinical Section IX Infectious Diseases-Pediatrics of the National Institute of Infectious Diseases "Prof. Dr. Matei Balș" in the period November 2022 - January 2023. In these cases we analysed demographic parameters (age, sex), clinical picture of the disease, clinical form of the disease as well as the type of influenza virus. The diagnosis of influenza was established on clinical, epidemiological and laboratory criteria (RT-PCR from nasopharyngeal secretions).
Results: During the period analysed we recorded 284 cases of influenza in children. The majority of cases were influenza type A (84.8%), originating from family or community outbreaks (91.9%) in the age group 1-4 years (35.9%). We did not record any deaths in the cases studied and the most common clinical form of illness was moderate, complicated with interstitial pneumonia. Severe forms of disease were recorded in infants (0 - 1 year) complicated with acute respiratory failure, sepsis and acute dehydration syndrome.
Conclusions/Learning Points: Influenza is a condition that can take on severe clinical forms of disease especially in young children, where complications can evolve rapidly with risk of death. Vaccination is the most effective method of prevention alongside epidemiological measures (avoidance of crowding, wearing a mask).

PV0636 / #940

EPIDEMIOLOGICAL AND CLINICAL CHARACTERISTICS OF PATIENTS HOSPITALIZED WITH HUMAN METAPNEUMOVIRUS (HMPV) INFECTION IN ISRAEL, 2015-2021: A RETROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Data regarding disease characteristics of patients hospitalized with human metapneumovirus (hMPV) infection across different age groups is limited.
Methods: This is a single-center, retrospective cohort study, including all pediatric and adult patients hospitalized with laboratory confirmed hMPV at Sheba Medical Center during January 2015-August 2021. The case analysis was completed according to patient age (four groups; 0-2, 3-17, 18-59 and ≥60 years), and to defined time periods (pre and during the COVID-19 pandemic). Univariate analysis was conducted to compare age groups and to identify differences in demographics, comorbidities and clinical characteristics during hospitalization.
Results: 990 patients diagnosed with hMPV were enrolled, of them 253 (25.6%), 105 (10.6%), 121 (12.2%) and 511 (51.6%) belonged to age groups 0-2, 3-17, 18-59 and ≥60 years, respectively. Male patients constituted a majority in age groups <18. Patients <18 years experienced high levels of comorbidities with immunodeficiency (14.4%) and malignancies (29.9%). The majority (37/39, 94.9%) of all bronchiolitis cases were diagnosed in patients aged 0-2 years. A greater proportion of patients >18 years were diagnosed with pneumonia, while no differences between the age groups were recorded in patients with asthma exacerbation. A greater proportion of patients diagnosed with viral coinfection were <18 years and were more likely to be co-infected with RSV and adenovirus. The highest percentages of ICU admission were recorded among patients <18 years, with 13.8% of patients aged 0-2 and 17.1% of patients aged 3-17.
Conclusions/Learning Points: While acute bronchiolitis was diagnosed mainly in very young patients, pneumonia was more likely to be diagnosed in older patients. Patients < 18 experienced high levels of ICU admission.

PV0637 / #1667

EVALUATION OF THE CHANGE IN THE EPIDEMIOLOGY OF RESPIRATORY VIRUSES WITH THE PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Acute respiratory tract infections are one of the leading causes of childhood death and morbidity. Seasonal respiratory viruses are the most common cause. The COVID-19 pandemic has altered the epidemiological distribution and clinical characteristics of respiratory viruses. We wanted to look into the epidemiological and clinical changes in pandemic respiratory tract virus infections.
Methods: Between December 2018 and February 2022, Eskişehir Osmangazi Patients with nasopharyngeal PCR samples who were followed up on with a diagnosis of respiratory tract infection at the University of Medicine's Pediatrics Clinic were evaluated retrospectively. The cases were evaluated before the pandemic (before March 2020), during the first year of the pandemic (March 2020-March 2021), and after the pandemic (March 2021-February 2022) when the restrictions were relaxed
Results: The study included 567 cases in which nasopharyngeal PCR was performed. There were 320 (56.4%) male cases and mean age was 41 months. Fever (72%), cough (65%), and respiratory distress (23%) were the most common presenting symptoms.In the pre-pandemic group (n:257), the most common viral agents were; Influenza A/B 95 (36%), Rhinovirus 87 (34%), RSV 46 (18%), Prainfluenza virus 14 (7%). Although the number of viral agents detected in the 1st year of the pandemic has decreased (n:57); the most frequently viral agents are Rhinovirus (72%), RSV (10%), and Parainfluenza virus 2 (0.7%). In the second year of the pandemic (n: 253), the most common viral agents were Rhinovirus (44%), RSV (46%) and Bocavirus (17%)
Conclusions/Learning Points: During the pandemic period, a decrease was observed in all viruses, especially influenza, with isolation measures. With the relaxation of the post-pandemic measures, there was an increase in all viral agents, similar to the pre-pandemic period.

PV0638 / #673

UNEXPECTED SEVERE BOCAVIRUS INFECTIONS AMONG HOSPITALIZED CHILDREN DURING THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Acute respiratory tract infections are among the most important causes of childhood mortality and morbidity. The most frequently isolated viruses in respiratory tract infections are respiratory syncytial virus, influenza virus, parainfluenza virus, adenovirus, coronavirus, metapneumovirus, and bocaviruses. Here, we aimed to evaluate Bocavirus (HBoV) cases presenting with severe respiratory tract symptoms during the pandemic period.
Methods: Patients who were followed up with the diagnosis of respiratory tract infection in Eskişehir Osmangazi University Faculty of Medicine Pediatrics Clinic between September 2021 and March 2022 were evaluated retrospectively. Patients detected HBoV by nasopharyngeal PCR included in the study. The clinical and epidemiological features of the cases were reviewed retrospectively.
Results: Fifty-four cases with HBoV in nasopharyngeal PCR samples were included in the study.The mean age of the cases was 25 months(1 month-72 months).The most common symptoms at presentation were cough, fever, and respiratory distress. In the chest X-ray; hyperinflation 48%, pneumonic consolidation 42%, and pneumothorax-pneumomediastinum 7% were detected.54% of the cases were followed up in the intensive care unit.HBoV and other viral coinfection were present in 20(37%) cases, and bacterial coinfection was in 7(17%) cases. 57% of all cases were given oxygen support via a mask, 24% high-flow oxygen, 7% non-invasive ventilation, and 9% mechanical ventilator support. Antibiotics were given to 34(63%) cases and steroid treatment was given to 41(76%) cases
Conclusions/Learning Points: The COVID-19 pandemic changed the epidemiology of seasonal respiratory viruses and the clinical course of the diseases. Although HBoV infections are not as common as other seasonal respiratory viruses, they are among the viruses that cause respiratory symptoms in children. Although it usually causes mild symptoms, severe respiratory symptoms can also lead to serious life-threatening clinical findings that require intensive care admission

PV0639 / #682

TREATMENT OF RESPIRATORY INFECTIONS IN CHILDREN AGED LESS THAN 1 YEAR: A DESCRI PTIVE RETROSPECTIVE STUDY FROM TERTIARY-LEVEL PEDIATRIC HOSPITAL IN FINLAND

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Viral respiratory infections are accountable for a vast amount of health care visits annually. Treatment guidelines of different respiratory tract infections and their symptoms vary. We aimed to determine how children aged <1 year presenting with fever and symptoms of a respiratory infection were treated, as well as the response to the treatment, in Tampere University Hospital Pediatric Unit. The secondary purpose was to describe the specific diagnosis beyond the respiratory symptoms.
Methods: This descriptive, retrospective study was conducted in the pediatric unit of Tampere University Hospital (Tays), Finland, using background and medical data relating to the outpatient and inpatient episodes from the electronic patient records of Tays. We documented demographics, clinical findings at arrival to the hospital, and the medication and other treatments given to the children during their hospital stay. If the child was given the same medication multiple times, only the first dosage and response to that medication were documented.
Results: Total of 119 episodes (117 children) were included, and 50 children (42%) were hospitalized. Symptom-relieving medications were used frequently. For example, paracetamol was given to 82 children (69%), with good response and salbutamol to 21 children (18%) with 14 children having response. Most children (59%) were administered antibiotics, the most common indication being otitis media. Most common primary or secondary diagnosis were bronchiolitis or bronchitis (43%), otitis media (38%) and upper respiratory tract infection (27%).
Conclusions/Learning Points: We found that nearly half of the children needed hospitalization. We also found that symptom-relieving medications, such as analgetics were a key form of treatment with commonly good response. Antibiotics were also used frequently, supporting the previous understanding that viral respiratory infections are often complicated by secondary bacterial infections.

PV0640 / #44

AN ADDED VALUE OF SYNDROMIC MULTIPLEX PCR TESTING FOR PEDIATRIC ACUTE RESPIRATORY INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Numerous viruses are known to be the predominant pathogens of acute respiratory tract infections (ARIs). They present with non-pathogen-specific symptoms, and only microbiological studies can establish the correct diagnosis. Using a syndromic approach, we aimed to investigate respiratory pathogens in children with ARIs admitted to a university hospital.
Methods: In this ongoing study, a total of 100 nasopharyngeal specimens from children with ARIs were tested between January 2018 and February 2022. The commercial kit FilmArray Respiratory panel (bioMerieux, France), which detects 23 targets (4 bacteria and 19 viruses), was used.
Results: Out of the cases, 71% were diagnosed with lower ARIs infections. Their median age was 10 months. Among the patients, 94 were admitted to the wards, and 6 were seen in the emergency department. Respiratory pathogens were detected in 77 % (77/100) of specimens, including 105 viruses and 8 bacteria, such as Bordetella pertussis and B. parapertussis. However, an unsuspected case of B.pertussis infection was found, and the patient was then isolated. The prevailing viruses were Human Rhinovirus/Enterovirus (51.95%) and Respiratory syncytial virus (RSV) (33.77%). One-third (26/77) of the positive specimens were coinfected with two or more pathogens. Human Rhinovirus/Enterovirus was the most common companion virus in mixed infections, while RSV plus Human Rhinovirus/Enterovirus was the most frequent combination. SARS-CoV-2 was detected in 7 samples, 2 of them as coinfection with RSV. In one of these associated infections, SARS-CoV-2 was an incidental finding. The child was also isolated, local health authorities were notified, and an epidemiological investigation commenced.
Conclusions/Learning Points: Our results have shown diverse diagnostic yields. Moreover, rapid mPCR testing has aided in the timely therapeutic management and prevention of hospital outbreaks that are challenging to recognize.

PV0641 / #1153

PARTICULARLY SEVERE COURSE OF ADENOVIRUS RESPIRATORY INFECTION IN SIX CHILDREN, INCLUDING FIVE UKRAINIAN REFUGEES

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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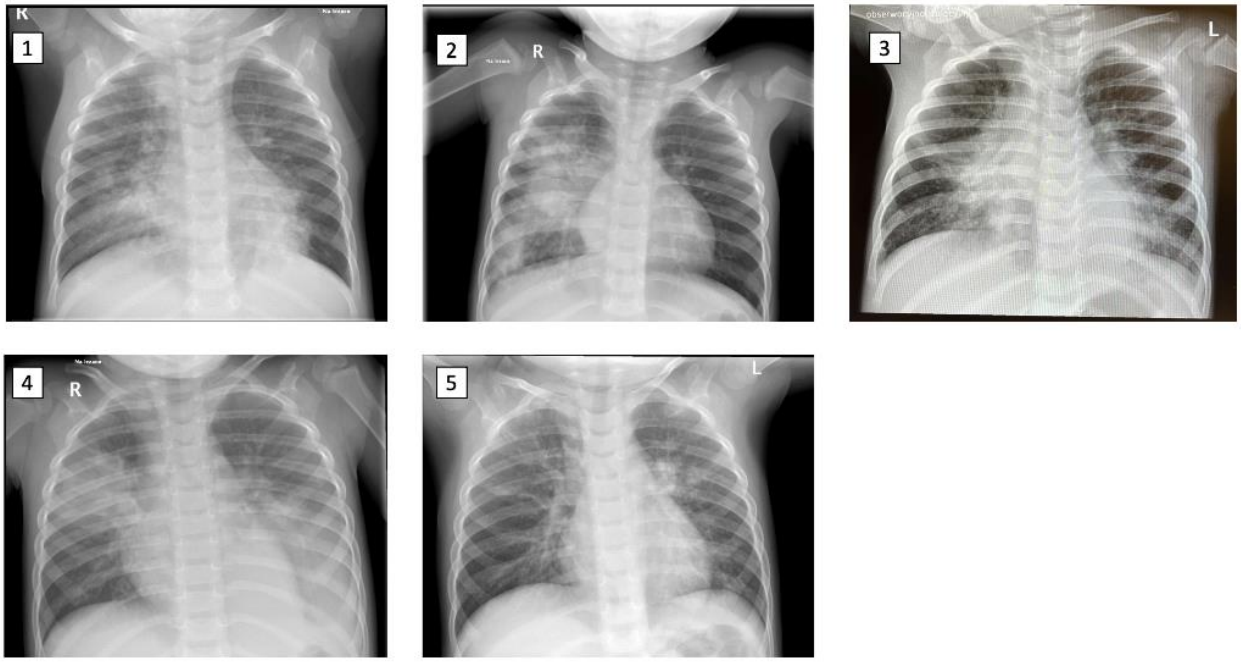
Title of Case: PARTICULARLY SEVERE COURSE OF ADENOVIRUS RESPIRATORY INFECTION IN SIX CHILDREN, INCLUDING FIVE UKRAINIAN REFUGEES
Background: Coronavirus disease 2019 pandemic, associated with various infection prevention measures, led to a transient reduction in other seasonal infections, followed by an unusually high circulation of respiratory viruses. Moreover, the Russian invasion of Ukraine led to the massive migration to other countries, mostly to Poland (1.4 million registered refugees as of 10/2022). Many refugees still stay in overcrowded humanitarian hubs.
Case Presentation Summary: We present six otherwise healthy children (four boys, aged 0.7-2.7 years) admitted to our hospital between 10th Oct and 10th Nov 2022. Five of them were Ukrainian refugees. All children had fever lasting up to 13 days and respiratory signs (5/6 had otitis media, 5/6 were oxygen-dependent, and 5/6 had abnormal chest X-rays [see the picutre]). All but one were substantially lethargic for a prolonged time, irrespective of rehydration and other treatment measures. Three children had mucocutaneous lesions. The only child with no dyspnea and the shortest disease course was Polish. Blood tests showed a varying degree of inflammation (median C-reactive protein 5 mg/dL, procalcitonin 14.1 ng/mL, leukocytes 10.7 x 10^3/uL) with high ferritin (up to 5867 ng/mL) and high D-dimer (up to 43475 ug/L) in all children tested. All patients received antibiotics, and two received intravenous immunoglobulins and steroids. All recovered, but three were discharged with slight dyspnea. Among five children tested, all had adenovirus infection. The boy who was not tested, was admitted as the first one, from the same hub and in the same week as two
others.



Learning Points/Discussion: Adenovirus respiratory disease may have a particularly severe, prolonged course in young children, with fatigue, poor living conditions and crowding being possible risk factors.

PV0642 / #280

THE IMPACT OF NON-PHARMACOLOGICAL EPIDEMIOLOGICAL MEASURES ON THE INCIDENCE OF ENVELOPED VERSUS NON-ENVELOPED RESPIRATORY VIRUSES

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Non-pharmacological measures (NPMs) introduced to prevent the spread of SARS-CoV-2 affected the incidence of respiratory viruses, but not with the same effect on all types of respiratory viruses. The aim of our research was to compare the incidence of enveloped versus naked respiratory viruses before and during NPMs in Croatia.
Methods: In four years period (5/2017-3/2021), specimens obtained from 957 children up to 18 years of age which were hospitalized due to respiratory infection were collected and tested for fifteen respiratory viruses using multiplex PCR.
Results: One or more respiratory viruses were detected in 739 (77.2%) patients, of which one virus in 496 (67.1%) and two or more viruses in 243 (32.8%) cases. The most frequently detected was rhinovirus (343; 35.8%), followed by: respiratory syncytial virus type A and B (162; 16.9%), adenovirus (145; 15.2%), parainfluenza viruses types 1-4 (101; 10.6%), bocavirus (73; 7.6%), influenza viruses type A and B (69; 7.2%), enterovirus (61; 6.4%), coronaviruses OC43 and 229E/NL63 (54; 5.6%) and metapneumovirus (30; 3.1%). Incidence of all tested viruses did not differ between seasons 2017/18, 2018/19 and 2019/20, while significantly dropped in 2020/21 when NPMs were in use ($P<0.05$). However, while the incidence of enveloped viruses (i.e., respiratory syncytial virus, influenza and parainfluenza viruses, seasonal coronaviruses, metapneumovirus) was practically zero, the non-enveloped viruses (i.e., rhinovirus, bocavirus, adenovirus and enterovirus) showed activity of quarter of the value compared to previous seasons despite NPMs.
Conclusions/Learning Points: The spread of enveloped respiratory viruses is effectively prevented with NPMs. To completely prevent the spread of non-enveloped respiratory viruses, NPMs such as distance and wearing masks are not sufficient, specific pharmacological measures should be developed and considered.

PV0643 / #1944

CLINICAL SEVERITY OF RSV DISEASE IN INFANTS AND YOUNG CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: RSV causes substantial morbidity in infants and young children. Studies comparing the severity of infections caused by RSV with other viruses are inconclusive. The aim of this study was to evaluate clinical characteristics of infants and young children with RSV infection and compare it with respiratory infections caused by other viruses.
Methods: This is a prospective observational study including hospitalised children under 24 months of age with acute respiratory infection (with symptoms lasting <5 days), from March 2021 to December 2022. A nasopharyngeal sample was taken and submitted to PCR detection (FilmArray respiratory panel). Clinical data were recorded. The ReSVinet Scale, a clinical score for the assessment of respiratory difficulty in infancy was applied. The cohort was divided based on the virus detected: RSV, RSV with another virus or other viruses and groups were compared.
Results:

Table 1. Demographic and clinical characteristics of children with respiratory infections
* Justicia-Grande AJ et al. PLoS One.2016;11(6):e0157665

	RSV only (n = 70)	RSV with other viruses (n = 56)	Other viruses (n = 53)	*p value*
Gender Male – n (%)	38 (54,3)	32 (57,1)	24 (45,3)	0.424
Median age – months (IQR)	2 (4)	6 (7)	8 (13,5)	<0.001
Median duration of admission – days (IQR)	3 (5)	3 (6)	1 (2)	0.002
Final diagnosis – n (%)				
Rhinopharyngitis	2 (2,9)	3 (5,4)	20 (37,7)	< 0.001
Bronchiolitis	62 (88,6)	40 (71,4)	23 (43,4)	< 0.001
Pneumonia	5 (7,1)	9 (16,1)	5 (9,4)	0.326
Laryngitis	0	0	3 (5,7)	
Bronchitis	1 (1,4)	0	1 (1,9)	
Acute otitis media	0	1 (1,8)	0	
Wheezing	0	3 (5,4)	1 (1,9)	
ReSVinet Score – n (%)				
Mild	12 (17,1)	6 (10,7)	27 (50,9)	< 0.001
Moderate	50 (71,4)	47 (83,9)	25 (47,2)	
Severe	8 (11,4)	3 (5,4)	1 (1,9)	

Data were collected from 179 children: 70 with RSV only, 56 with RSV with other virus and 53 with other viruses (Rhinovirus/Enterovirus 33%, Human Coronavirus 10.6%, Human Metapneumovirus 10.5%, Parainfluenza virus 10%, others). The comparison between groups is presented in Table 1. Children with RSV infection differ significantly in age, duration of admission, final diagnosis and ReSVinet Score, which is higher in children with RSV only.

Conclusions/Learning Points: Children with RSV associated infections were younger, mostly with bronchiolitis and with higher clinical severity when compared to infections caused by other viruses.

PV0644 / #1196

CLINICAL IMPACT OF PANDEMIC RELATED CHANGES ON THE EPIDEMIOLOGY OF RESPIRATORY TRACT INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Following lockdown periods and restricting public health measures, an increase of respiratory infections was observed worldwide. Consequently, several reports highlighted an increased burden on children's hospitals compromising medical care of acutely and chronically ill children. This study aimed to characterize changes in the epidemiological pattern of circulating viral infections.
Methods: We assessed the number of patients with respiratory infections and the annual distribution of virus detections between 2019 and 2022 based on 4809 clinical samples of 4131 patients in a German pediatric tertiary care center. We then investigated the impact of lockdown periods on spectra of circulating viruses, pattern of coinfections, age and seasonality of these infections in children.
Results: A fourfold increase in the total number of respiratory virus detections was observed in 2022 vs 2019 with a doubling comparing 2021 to 2022. In contrast to previous years, constant high rates of Rhinovirus infections with no typical seasonal pattern were observed all over 2022 while other viruses showed fewer changes in terms of seasonality. SARS-CoV-2, parainfluenza- and human metapneumovirus detections increased significantly in 2022 (2019 vs 2022 $p < 0,01$). Coinfections with multiple viruses occurred significantly more often since 2021 as compared to prepandemic years, especially in very young children (2019 vs 2022 $p < 0,01$).
Conclusions/Learning Points: Compared to pre-pandemic years, we demonstrate a dramatic increase in pediatric respiratory tract infections with an incrementing spectrum of viruses and an outstanding gain in Rhinovirus infections leading to a high rate of hospital admissions, particularly in conjunction with other viruses. This is acutely causing a shortage of medical care and increases the risk of chronic respiratory diseases such as asthma, thus leading to a long-lasting burden on the health system.

PV0645 / #798

ETIOLOGY OF VIRAL RESPIRATORY TRACT INFECTIONS IN CHILDREN IN THE PRE-PANDEMIC PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Viruses are a common cause of acute respiratory infections (ARI) in the paediatric population and the epidemiology of these infections have changed after the pandemic. We report the viral aetiology of ARI in children, during the pre-pandemic period 2016-2018.
Methods: Nasal swabs were collected from 343 children, aged one month to 17 years. RNA was extracted, subjected to reverse transcription, and analysed for human respiratory syncytial virus (HRSV), influenza viruses, human metapneumovirus (hMPV), human rhinovirus (hRV) and human parainfluenza viruses (HPIV). The presence of HRSV subtypes (HRSV A and B) was confirmed by real time RT-PCR (rRT-PCR). Influenza A and B viruses (INF A and B) were detected by simplex nested real-time PCR (nRT-PCR) targeting the matrix gene of influenza A virus and nucleoprotein gene of influenza B virus. hMPV was detected using nRT-PCR and confirmed with rRT-PCR using primers and probe targeting the nucleoprotein gene of hMPV. Human rhinovirus (hRV), human parainfluenza virus types 1, 2, 3 and 4 (HPIV 1 - 4) were detected by simplex conventional RT-PCR.
Results: HRSV B (10.9%) was the most commonly detected virus, followed by INF A (9.1%) and HRSV A (6.3%). hMPV, hRV, HPIV 3 and HPIV 4 were present in 4%, 3.7%, 4.2% and 2% of the samples respectively, while none were positive for HPIV 1 and HPIV 2. INF B was detected in 1.7% samples, with equal numbers of Victoria lineage and Yamagata lineage strains. Dual infections were found in 4% of samples with HRSV A and INF A virus being the most frequently encountered combinations.
Conclusions/Learning Points: HRSV subtype B and influenza A were the most common etiological agents of ARI in children during the pre-pandemic period.

PV0646 / #1468

LONG-READ WHOLE GENOME SEQUENCING OF THE RESPIRATORY SYNCYTIAL VIRUS IN SOUTH KOREA

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) has been the leading cause of lower respiratory tract infection (LRTI) in children, with seasonal epidemics in temperate regions. However, in Korea, the occurrence of RSV in the 2020-2021 season was close to zero, and it is prevalent again from the 2021-2022 season. We investigated whether there were significant changes in the genotypic patterns of RSV strains in Korea before and after the COVID-19 pandemic.
Methods: This prospective study was conducted at Severance Children's Hospital in Seoul, Korea from September 2019 to December 2022. Residual respiratory specimens from children hospitalized with RSV LRTI were collected. Whole genome sequencing (WGS) analysis was performed using the PacBio Circular Consensus Sequencing platform. Due to time constraints, we preferentially analyzed samples in the pre-pandemic era.
Results: A total 168 samples in 168 children were collected. The median age at sample collection was 0.9 years (interquartile range, 0.3 to 1.9 years), and 87 subjects (52%) were male. Seven children received at least one dose of palivizumab prior to RSV infection during the RSV season. Of these, RNA extracts from 84 samples (A type: 52 and B type: 32) were available for analyses. Genotypes showed close clustering with NA1, ON1 and GA2 in RSV-A and BA in RSV-B, respectively. When analyzed only for the G protein genotype, all RSV-A strains were close to ON1 or NA1, and all RSV-B strains were BA. No mutations have been found for palivizumab resistance.
Conclusions/Learning Points: Our NGS method can not only quickly track these genotypic trends, but also provide information on the clinical effectiveness of existing and/or recently developed RSV-specific agents. Continuous monitoring of genotypic changes in RSV strains is required.

PV0647 / #1945

GLOBAL CLINICAL BURDEN OF HUMAN METAPNEUMOVIRUS INFECTIONS IN CHILDREN IN GIPUZKOA (BASQUE COUNTRY, SPAIN)

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Human metapneumoviruses (hMPV) are commonly detected in nasopharyngeal aspirates (NPAs) from children with respiratory tract infections (RTIs) but the real burden remains poorly defined.
Methods: Observational and retrospective study carried out by reviewing the medical records of patients up to 14 years old who tested positive for hMPV in the outpatient oncology clinic, emergency department and inpatient departments [general pediatrics and hematology/oncology units, neonatal intensive care units and pediatric intensive care units. It was performed in a tertiary hospital of a Spanish province between January 2018 and June 2022.The virus hMPV was detected using a commercial real-time multiplex PCR platform (AllplexTM Respiratory panel assays, Seegene). Epidemiological, clinical and analytical variables were analyzed.
Results: hMPV was detected in 291 samples from 2050 children(14,2%). We excluded three patients with no symptoms related to hMPV with a surgical diagnosis. One-hundred-twenty(41.6%) episodes occurred in infants aged<1 year. Viral co-infections were detected in 85 episodes(29.5%). The mean-age of single infections was similar to coinfected children (24.5±25.3/24.3±28.1months;p=NS). In addition to causing upper respiratory disease (29.1%), the virus was associated with bronchiolitis(18.4%), asthma exacerbation(24.3%), pneumonia(14.6%), high fever(5,9) bronchitis(3.8%) febrile seizures(1,7%) and croup(1,4%). In total 143(49.6%) children were hospitalized. The mean-length of stay was 7.2 days(range 2–24 days). Twenty-three children required admission to the PICU. The hospitalization of monoinfections was similar to coinfections (48.7%vs.51.7%) but they needed less respiratory support (9.3%vs.5.30%;p=NS) and PICU admissions (6.4% vs. 11.8%; p=NS). The use of aerosoltherapy (50.2%vs.62.3%;p=NS),corticotherapy (32.01%vs.35.3%;p=NS) and antibiotics (6.4% vs. 11.8%;p=NS) was similar in both.
Conclusions/Learning Points: hMPV is a significant pathogen that contributes to the hospitalization of children being a leading cause of respiratory tract infections. Coinfections of hMPV and other respiratory viruses were associated with severe respiratory syndromes more frequently than Hmpv single-infections.

PV0648 / #1249

VIRAL INTERFERENCE BETWEEN RESPIRATORY VIRUSES: A SYSTEMATIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The COVID-19 pandemic has placed new urgency on examining the underlying mechanisms that influence the epidemic spread of respiratory viruses (RV) and their interactions due to the dramatic decrease in epidemic virus incidence. Viral interference is an interaction which occurs between different viruses, producing an alteration in viral replication when a host is infected at a certain time probably due to primary immunity activation. We evaluated the evidence published about viral interference in RV in the last 10 years.
Methods: A systematic review was conducted in the electronic database MEDLINE of all preclinical and observational studies between 2013 and 2023. Two reviewers performed title/abstract, full-text review, and data extraction.
Results: We identified 596 studies and 256 were eligible after inclusion and exclusion criteria. Finally, 24 articles were accepted for qualitative synthesis. 8 contained information about >3 RV; 11 about 2 RV and 5 studies about 1 RV (influenza) and their linages. Preclinical studies demonstrated the interaction Influenza-coronavirus, SARS-CoV-2-influenza, SARS-CoV-2-RSV, Rhinovirus-influenza, RSV-Human Metapneumovirus and Rhinovirus-SARS-CoV-2. Observational studies showed that influenza, SARS-CoV2 and Rhinovirus reduce other respiratory virus presence.
Conclusions/Learning Points: There is current scientific evidence related to viral interference in observational and preclinical studies, but it is necessary to carry out clinical trials in humans to provide more information.

PV0649 / #1292

BURDEN OF JUVENILE RECURRENT RESPIRATORY PAPILLOMATOSIS: A SYSTEMATIC LITERATURE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Juvenile-onset recurrent respiratory papillomatosis (JoRRP) is a human papillomavirus (HPV)-induced disease characterized by the growth of papillomas in the respiratory tract, especially the larynx to effect voice and restrict breathing. Transmission of JoRRP occurs from the mother to the child either in utero or at the time of birth. The objectives of this systematic literature review (SLR) were to assess the disease clinical, epidemiological and economic burden of this non curable and life-threatening disease.
Methods: The SLR was conducted according to the guidelines from the Cochrane Group and PRISMA. MEDLINE, Embase and Cochrane Library databases and conference proceedings published in last 4years. The outcomes of interest were clinical (i.e., patient characteristics, risk factors, symptoms, treatment and procedures); humanistic, epidemiological (i.e., incidence, prevalence, HPV genotype, frequency of RRP recurrences, tumour progression and mortality) and economic (i.e., costs, indirect costs, resource use and utility data) burdens.
Results: This SLR identified data from publications that described generally narrow populations. These results include data from 64 clinical, 8 humanistic, 35 epidemiologic, and 13 economic burden full-text articles. Most of HPV infections were due to HPV type 6 and 11. Diagnosis of the disease is challenging in children and usually around 3 years old. The treatment largely consists of multiple surgical management, including tracheotomy for the most aggressive cases. Due to the non-curable aspect, the humanistic and economic burden is significant.
Conclusions/Learning Points: The published data are limited in scope. JoRRP is a rare non-curable disease mainly due to HPV 6 and HPV 11 with high clinical and economic burden through lifetime treatment. Further research is crucial to obtain more robust data that will help address the information gap in clinical, epidemiological and economic burden.

PV0650 / #2178

CHARACTERISTICS OF THE RSV (RESPIRATORY SYNCYTIAL VIRUS) WAVE OF NOVEMBER-DECEMBER 2022

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: In the months of autumn and winter 2022, there was an increase in RSV (respiratory sincicial virus) infection cases around the world. RSV infection symptoms appeared earlier and in much greater numbers. Hospitalizations were higher than in previous years.
Methods: We did a retrospective study on the children hospitalized with confirmed diagnosis of RSV infection on the 9 th Pediatric Department of the National Institute of Infectious Disease„Prof. Dr. Matei Bals”in the period November 2022- December 2022.Diagnosis was confirmed by positive rapid tests for RSV or PCR.
Results: We had a total number of 36 cases of RSV infection in children.22% were <1 year old , 55% - 1-3 years old ,16 % - 4-6 years old and 5% were older than 7 years.49% were female and 51% male.55% of cases were mild forms and 27% were moderate forms.All patients presented with high grade fever, productive cough and nasal obstruction.An important number of patients (27%) developed acute respiratory failure.Supplemental oxigenotherapy was necesary,with a median duration of 2 days,and a median value of 2 liters O2/min.No invaziv ventilation was required.The most frequent complications were acute interstitial pneumonia (83%) , dehydration syndrome((52%),gastrointestinal symptoms (27%) and anemia (27 %).Additionally, there were 3 cases of acute otitis media, 2 related sepsis episodes and coinfections with influenza A virus and rhinovirus .Median period of hospitalisation was 5 days,and all the patients had favorable outcomes.
Conclusions/Learning Points: RSV can cause serious health complications, particularly for young children.This year case numbers have peaked early. Also as we can see in our study there were more sever cases,which can be explained by the fact that children were exposed to RSV earlier in the pandemic due to masking and social distancing.

PV0651 / #1440

THE IMPACT OF UNIVERSAL VARICELLA VACCINATION IN ISRAEL: AN INTERRUPTED TIME-SERIES ANALYSIS, 2000-2020

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: In Israel, a 2-dose universal varicella vaccination (UVV) program was implemented in 2008, with a first dose recommended for children at 12 months of age and a second dose at 6–7 years of age. This study examined the impact of 2-dose UVV on varicella incidence in Israel.
Methods: This retrospective observational study obtained data from Maccabi Healthcare Services, a nationwide health plan in Israel. Electronic medical record data from January 2000–December 2020 were included, with the pre-UVV period spanning from January 2000–December 2007 and the post-UVV period from January 2010–December 2020. Incidence rates were calculated per time period (pre-UVV, post-UVV) and by age group: target vaccinated population (1–7 years), non-target population (<1 year, >7 years), and overall population (all age groups). Time series analyses with autoregressive integrated moving average (ARIMA) modeling were used to predict varicella incidence in the absence of UVV in the post-UVV period by age group. Predicted and observed incidence rates post-UVV were compared to estimate UVV impact.
Results: Mean annual incidence rates per 100,000 population declined from 5,459 pre-UVV to 1,065 post-UVV in the target population, from 438 to 331 in the non-target population, and from 1152 to 426 in the overall population. In the post-UVV period, observed varicella incidence was 81.7% (95% prediction intervals [PI]:65.7%-87.5%), and 68.2% (95% PI:2.2%-81.1%) lower than predicted incidence in the target and overall populations, respectively. The reduction in observed vs. predicted incidence was highest in 1-2 year olds (90.7%; 95% PI:82.9%-93.7%) followed by 6–7 year olds (74.8%, 95% PI:49.6%-83.2%).
Conclusions/Learning Points: In Israel, varicella burden of disease reduced substantially following implementation of the 2-dose UVV program.

PV0652 / #766

RESULTS OF A NEW COST-UTILITY MODEL ASSESSING PALIVIZUMAB FOR THE PREVENTION OF RESPIRATORY SYNCYTIAL VIRUS INFECTION IN ITALIAN INFANTS BORN AT 29-35 WEEKS' GESTATIONAL AGE

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: To undertake a cost-effectiveness analysis of palivizumab versus no prophylaxis in healthy Italian infants born at 29-35 weeks gestational age (wGA) using a newly developed cost-utility model that includes medically-attended respiratory syncytial virus (RSV) infections (MARI) and ascribes RSV hospitalisation (RSVH) risk using the International Risk Scoring Tool (IRST).
Methods: Data for all infants born at 29-31wGA and 32-35wGA identified as moderate- or high-risk of RSVH by the IRST were analysed. Infants entered a semi-Markov process whereby they experienced RSVH, MARI, or remained uninfected/non-medically attended. Palivizumab (average cost per infant 29-31wGA: €2,978; 32-35wGA: €3,422) reduced the RSVH rate by 63.3% in 29-31wGA (baseline rate: 5.9%) and by 82.2% in moderate-high risk 32-35wGA infants (baseline: 6.3%). Likelihood of RSV-related intensive care unit (ICU) admission was 8.7% in those receiving palivizumab and 20% in unprophylaxed infants, with 0.43% ICU mortality applied. MARI (emergency room visit without RSVH), 18 years of long-term respiratory morbidity and indirect costs were included in the reference case, without vial sharing. A lifetime time horizon with 3% discounting was utilised. Deterministic (±20% on main variables) and probabilistic (10,000 iterations) sensitivity analyses were conducted.
Results:

Table: Cost-effectiveness of palivizumab *versus* no prophylaxis

	29-35 wGA*	29-31 wGA	**32-35 wGA***
- Difference in costs (€)	2,134	1,959	2,193
- Difference in QALYs	0.144	0.130	0.149
- **Cost *per* QALY** (€)	14,799	15,078	14,717

*32-35 wGA infants assessed at high- and moderate-risk by the International Risk Scoring Tool. QALY: quality-adjusted life year; wGA: weeks' gestational age

The incremental cost per quality-adjusted life year (QALY) gained with palivizumab versus no prophylaxis

was €14,799 (€15,652 excluding indirect costs) for 29-35wGA infants (Table). The probability of being cost-effective was 89.7% at a €40,000 willingness-to-pay threshold. The incremental cost/QALY was €15,078 and €14,717 for 29-31wGA and 32-35wGA infants, respectively. The model was most sensitive to long-term respiratory morbidity rates, health utility scores, palivizumab efficacy and palivizumab cost. **Conclusions/Learning Points:** This new analysis, the first to incorporate the IRST and MARI in the Italian setting, found palivizumab to be highly cost-effective in otherwise healthy 29-35wGA infants (vs no prophylaxis).

PV0653 / #2041

CORRELATION OF FACTORS DETERMINING THE NEED OF OXYGEN SUPPLEMENTATION IN RESPIRATORY SYNCYTIAL VIRUS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Bronchiolitis is a common pediatric disease which affects children under 2 years and accounts for multiple hospitalizations. Rigorous measures are needed to prevent further deterioration of the disease and to ensure the least possible hospitalization duration. In the present study we investigate the factors that determine disease outcomes.
Methods: We evaluated neonates, infants and toddlers admitted in our institution for respiratory syncytial virus infection between September 2022 until January 2023. We documented patients age, duration of infection prior to admission, C-reactive protein (CRP), white blood cells (WBCs) levels, as well as the ratios of neutrophil to lymphocytes(NLR), monocyte to lymphocyte(MLR) and monocyte to neutrophils(MNR), and the use of oxygen supplementation and correlated them to the duration of hospitalization.
Results: Overall, 103 patients were enrolled in this study, aged 1-70 months and admitted between the first and 11thday of symptoms. The median duration of hospitalization was 4 days (1-11). Neither patient age (p-value=.403), nor the duration of infection prior to hospitalization (p-value=.291) influenced the need for oxygen supplementation. Similarly, CRP, WBC, NLR, MLR and MNR levels did not differentiate among those that required oxygen and those that did not (p-value .471, .988, .879, .931 and .763 respectively). Of all the laboratory parameters, only CRP admission levels correlated with the duration of hospitalization (rho=.192). Patients with concurrent infections had significantly higher CRP levels (p-value=.002) and a lower MNR (p-value=.012).
Conclusions/Learning Points: Admission laboratory parameters of patients with respiratory syncytial virus infection cannot help distinguish those that will require oxygen supplementation during hospitalization, nor the length of hospital stay; hence, their use should be restricted on the presence of concurrent infections.

PV0654 / #1248

PREDICTORS OF COMPLICATED INFLUENZA INFECTION IN CHILDREN PRESENTING IN A TERTIARY HOSPITAL IN A TROPICAL COUNTRY: A CASE-CONTROL STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Influenza causes significant health-care burden world-wide with highest mortality and morbidity in children and the elderly. We aim to compare the characteristics of patients with complicated influenza infections admitted to high-dependency (HD) or intensive care unit (ICU) and influenza-related mortality in hospitalized children and identify the risk factors associated with these cases.
Methods: A retrospective case-control study was conducted amongst laboratory-confirmed influenza infections amongst pediatric patients admitted to KK Women's and Children's Hospital, Singapore between January 2011 to October 2017. Patients were defined as cases if they were admitted to HD or ICU for complicated influenza infection needing closer monitoring; controls were patients admitted for an uncomplicated influenza infection within 3 days of these cases. We compared demographic, clinical and laboratory data between cases and controls and between mortality cases and survivors.
Results: We identified 209 patients, 55 (26.3%) cases and 154controls (1:2.8 ratio) between the ages of 22 days to 15 years (median age 2.9 years). There were 17 deaths (8.1%)amongst the cohort studied. Cases requiring HD/ICU admission were older compared to controls (4.5 years versus 2.6 years). By univariate analysis, significant risk factors for HD/ICU admission or death were respectively: drowsiness(OR 5.8, p <0.001; 10.49, p<0.001), any co-morbidities (OR 4.46, p<0.001; 3.14, p 0.02) and viral co-infections (OR 7.34, p=0.001; 6.26, p=0.002). Additional significant risk factors for HD/ICU admission were age >5 years old (OR 2.17, p=0.02), presence of seizure (OR 3.00, p=0.01) or tachypnea (OR 6.86, p<0.001) at initial presentation in hospital. By multivariate analysis; risk factors for HD/ICU admissionwere: initial presentation with tachypnea (multivariate OR 9.27, p<0.001) and concurrent viral co-infections(multivariate OR 10.42, p=0.002). Multivariate analysis showed greatest risk factor for influenza-related mortality to be presence of drowsiness (multivariate OR 7.97, p<0.001).
Conclusions/Learning Points: Patients with underlying co-morbidities should be recommended for routine influenza vaccination. Initial presentations of tachypnea, seizures or drowsiness in suspected influenza infections should be monitored closely for progression and complications that may cause significant morbidity or mortality and should alert the attending physician to consider admission to HD/ICU for more intensive care and treatment.

PV0655 / #2044

SEVERE INFLUENZA VIRUS AND RSV INFECTIONS IN PEDIATRIC INTENSIVE CARE IN THE LAST 15 YEARS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Influenza virus is a common agent of pediatric infection. Most cases are mild, but severe illness and death can occur. The aim of this study was to analyze severe cases associated with influenza virus and compare it with RSV.
Methods: We retrospectively studied children 0-17years old, admitted to pediatric intensive care unit (PICU) over the last 15years (2008-2022) due to influenza virus at a tertiary hospital in Portugal. Clinical presentation, severity and evolution were analyzed. Comparison of children with RSV infection admitted in the same period was performed (excluding coinfections; n=11).
Results: We identified 46 cases of influenza virus infection (24% coinfection with RSV, 15% with other viruses), with a median age of 2,3years (IQR 6,8) and 52% had comorbidities. The median admissions were 3/year, with a peak of 11 cases in 2019. Influenza subtype A was identified in 93%. Clinical presentation was with respiratory symptoms in 96%, neurologic 39% and sepsis 28%. The main reason for admission was respiratory failure (67%). Mean Paediatric Index of Mortality 2 (PIM2) at admission was 9% (SD 16). Ventilatory support was used in 65% (invasive 45%, non-invasive 30%). Vasoactive support and blood products were required in 17% each. The median length of stay was 4days (IQR 5,5). There were 3 (7%) deaths. During this period there were 171 admissions related to RSV infection. Comparison with cases of RSV infection is present at Table
1.

Type of viral infection	Influenza virus (n=35)	RSV (n=171)
Age (y), median (IQR)	3,3 (IQR 7,9)	0,1 (IQR 0,2)
Newborn (n, %)	1 (2,9%)	57 (33,3%)
Male (n, %)	19 (54,3%)	100 (58,5%)
Comorbidities (n, %)	20 (57,1%)	57 (33,3%)
Influenza vaccination (n, %)	2 (0,06%)	3 (0,02%)
PIM2 (mean, SD)	11,2 (SD 17,9)	1,7 (SD 17,6)
Length of stay (days), median (IQR)	5 (IQR 7)	5 (IQR 4)
NIV (n, %)	12 (34,3%)	49 (28,7%)
MIV (n, %)	15 (42,8%)	38 (22,2%)
Length (hours) of MIV, median (IQR)	108 (IQR 192)	12,5 (IQR 94)
Blood products (n, %)	8 (22,9%)	6 (3,5%)
Mortality (n, %)	3 (8,6%)	0 (0%)

Conclusions/Learning Points: The number of RSV infections admitted to PICU was much higher than with influenza virus. However, influenza was more severe (higher PIM2 at admission and need of supportive care) and responsible for all deaths registered. An important number of patients were previously healthy.

PV0656 / #1883

SEASONALITY TRENDS OF COVID-19, RSV, AND OTHER RESPIRATORY VIRUSES DURING THE COVID-19 PANDEMIC IN SÃO PAULO, BRAZIL: A SINGLE-CENTER PASSIVE SURVEILLANCE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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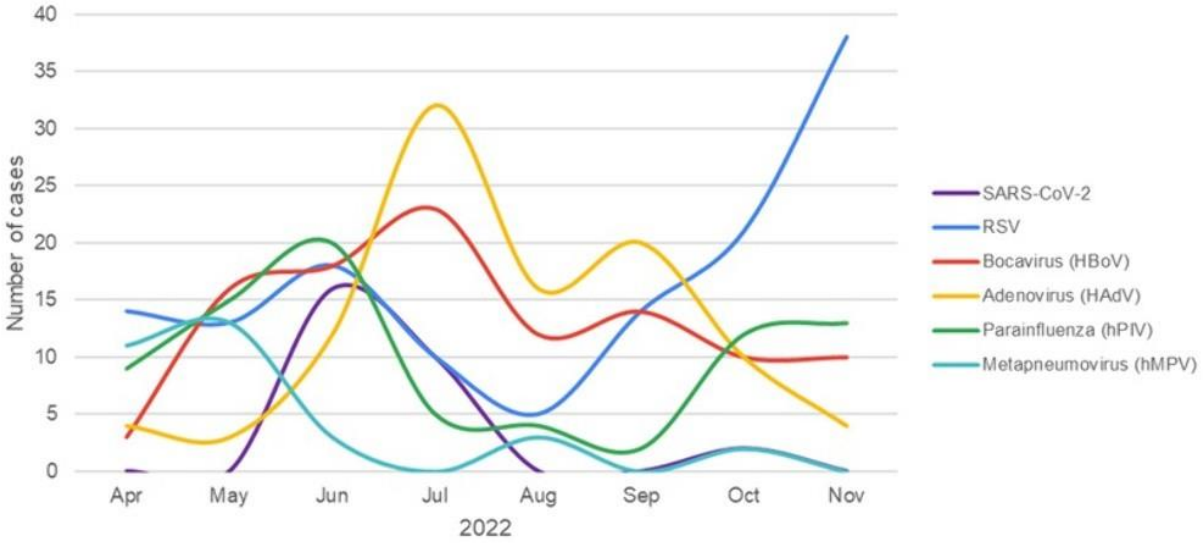
Backgrounds: Significant changes in the circulation of respiratory viruses were seen during and following the COVID-19 pandemic years. All pediatric cases admitted to a referral university hospital due to respiratory disease were evaluated. The prevalence of the different respiratory viruses causing hospitalization is provided herein.
Methods: From 2020 to 2022, we collected nasopharyngeal specimens from all pediatric inpatients under 15 years old with respiratory diseases. A multiplex RT-PCR assay was performed, and the early and mid-pandemic periods (2020 and 2021) were compared to 2022.
Results: 2053 patients were screened, and 1974 samples were evaluated – 278 were collected in 2020, 724 in 2021, and 972 in 2022; 40% were younger than 5 years old. The most frequent viruses found in 2020 were SARS-CoV-2 (10%; 28/278) and RSV (5.7%; 16/278). In 2021 RSV was the leading pathogen (22.8%; 165/724), followed by parainfluenza (7.3%; 53/724) and bocavirus (4.4%; 32/724). During 2022 RSV was the most frequent virus (13.7%; 133/972), followed by bocavirus (10.9%; 106/972) and adenovirus (10.4%; 101/972). Most patients were admitted with severe respiratory symptoms (SARS) – RSV was the leading pathogen in this group. In addition, most children with RSV (41%) were hospitalized from August to November in both 2021 and
2022.



Conclusions/Learning Points: RSV has been a leading cause of hospitalization in pediatric patients, even during early and mid-pandemic periods. The seasonality of this virus differed in 2021 and 2022 since the circulation peaked in March-July before COVID-19.

PV0657 / #952

BACTERIAL CO-INFECTIONS IN BRONCHIOLITIS: ANTIBIOTIC PRESCRIPTION IN SPECIFIC CASES

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Most recent guidelines do not recommend antimicrobials therapy in bronchiolitis. However, antibiotics are indicated if there is evidence of a coexisting or secondary bacterial infection. We sought to define the incidence of bacterial infections in children with bronchiolitis caused by different viruses.
Methods: Retrospective cross-sectional study of children ≤ 2 years old with bronchiolitis admitted at a referral hospital from June to December 2022. Patients hospitalized in ICU were excluded. Acute otitis media (AOM), urinary tract infection (UTI), pneumonia and bacteremia were considered as bacterial infections. Respiratory viral co-infections and severity clinical outcomes were compared between patients with bacterial infections and those with uncomplicated bronchiolitis.
Results: 6/57 (10%) children presented bacterial concomitant infections. Of those, 3/6 (50%) were pneumonia, 2/6 (33%) AOM and 1/6 (17%) UTI. All patients were RSV positive. No differences in age or immunizations (included flu vaccine) administered were detected according to bacterial infections. No different history of family smoking, atopia, prematurity or having a sibling less than 5 years old based on bacterial co-infections was reported. Respiratory viral co-infections were similar between both groups. C-reactive protein was higher in bacterial concomitant infection group than those without bacterial complication (median IQR: 71 [47-102] mg/L vs. 17[3.5-22] days; p =0.004). No differences in severity score of bronchiolitis, duration of hospitalization or oxygen requirement were detected according to bacterial co-detections. Amoxicillin/clavulanic acid was the most commonly used antibiotic 3/6 (50%), followed by amoxicillin 1/6 (16.6%) and ceftriaxone12/6 (33.3%). Median IQR of antimicrobial duration was 6.4 [6-7] days.
Conclusions/Learning Points: Bacterial infections complicating bronchiolitis in our center were higher than reported by other studies, being essential to detect and treat specifically these patients.

PV0658 / #1789

THE ASSOCIATION BETWEEN CHRONIC COMORBIDITIES AND RHINOVIRUS DISEASE SEVERITY IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Human rhinoviruses (RVs) are known triggers of asthma attacks, but the role of RV infections in children with other chronic medical conditions (CMC) is not fully described. We sought to define the frequency of CMC in a large cohort of patients with RVs infection, and the impact of RV infections on clinical outcomes according to the type of CMC.
Methods: Retrospective cross-sectional study of patients ≤21 years of age with a symptomatic PCR-confirmed RVs infection at a referral hospital or associated outpatient clinics from 07/2011 to 12/2013. RV semiquantitative loads was reported as cycle threshold values. Clinical outcomes (need and duration of hospitalization, ICU and oxygen administration) were compared between patients with asthma (CMC-A), other comorbidities (CMC-O) and those previously healthy.
Results: 1,899 children had a symptomatic RV infection: previously healthy(22%),CMC-O (41%), and asthma (37%)(Table 1). Within CMC-O the most common condition was prematurity(208; 11%). Median age was higher for CMC-A(23 mo), followed by CMC-O (11 mo) and healthy (4.7 mo); p=0.0001. No differences in RV viral loads or RV/viral coinfections were identified based on the presence or type of CMC. However, need for hospitalization was higher in children with CMC vs those healthy (86% vs.77%; p=0.0001), with no differences between CMC-A(88%) and CMC-O(84%). In CMC children supplemental oxygen(CMC-A, 65%; CMC-O, 50%) and PICU requirement(CMC-A 43%; CMC-O, 27%) were higher compared to healthy children(35% and 17% respectively; p=0.001). Length of stay was also higher in children with CMC vs healthy (2.6 vs.1.9 days; p
=0.0001).

Table. 1. Patient population and distribution of Underlying chronic conditions

	Chronic Medical Conditionss[1] (CMC; *n*=1477)	**Asthma/Atopy[2]** (CMC-A; n=699)	**Other CMC[3]** (CMC-O; n=778)	**Previously healthy[4]** (*n*=422)	***p* value[1,4]**	***p* value[2,3]**
Demographic characteristics						
Age, (months)	**15.8 (4.9-52.9)**	**23 (8.2-68.5)**	**11 (3.5-35.7)**	**4.7 (1.5-19.9)**	**0.0001**	**0.0001**
Sex, n (%) male	894 (60.5)	416 (59.5)	478 (61.5)	243 (57.58)	0.28	0.450
Laboratory/Radiology data						
RV viral loads	25.05 (22.02-29.03)	25.1 (21.9-29)	25 (22.08-28.9)	25.63 (22.5-29)	0.16	0.542
Viral co-infections	347 (23.49)	150 (21.46)	197(25.32)	112 (26.54)	0.19	0.085
Chest X-ray abnormalities	1273 (86.19)	96 (13.73)	108 (13.88)	369 (87.44)	0.51	0.948
Management/Outcomes of care						
Steroids, n (%)	**672 (45.50)**	**436 (62.37)**	**236 (30.33)**	**87 (20.72)**	**0.0001**	**0.0001**
Hospitalization	**1271 (86.05)**	614 (87.84)	657 (84.45)	**325 (77.01)**	**0.0001**	0.071
Supplemental O2						
Administration	**848 (57.41)**	**456 (65.24)**	**392 (50.39)**	**149 (35.31)**	**0.0001**	**0.0001**
Duration (days) [a]	2 (1-4)	**2 (1-3)**	**2 (1-6)**	2 (1-3)	0.38	**0.0001**
PICU						
Admission	**508 (34.39)**	**300 (42.92)**	**208 (26.74)**	**71 (16.82)**	**0.0001**	**0.0001**
Length ICU of stay [b]	2.3 (1.3-3.9)	**1.9 (1.2-3)**	**3 (1.7-6.1)**	2.7 (1.2-6.1)	0.25	**0.0001**
Mechanical ventilation	**138 (9.3)**	**37 (5.3)**	**101 (13)**	**19 (4.5)**	**0.0001**	0.276
Length of stay [c]	**2.6 (1.7-4.5)**	**2.2 (1.4-3.6)**	**2.6 (1.5-5.5)**	**1.9 (1.3-3)**	**0.0001**	**0.0001**

Data presented as frequency (percentage). Numbers in bold indicate significant p values. * Values expressed as median [interquartile range]. [a] Prolonged duration of supplemental oxygen if greater than median O2 supplementation that was 4 days. [b] Prolonged pediatric intensive care unit (PICU) stay if greater than the median length of PICU stay, which was 1.9 days. [c] Prolonged hospital stay if greater than the median length of stay, which was 1.8 days. NIV, non-invasive ventilatory support; PICU, pediatric intensive care unit. Other CMC included: prematurity (n=208); genetic syndromes (n=132); gastrointestinal diseases (n=70); congenital heart diseases (n=70); respiratory tract morbidity (n=41); neurological disorders (n=36); immunodeficiencies (n=27); cystic fibrosis (n=17), hematologic disease (n=17) and other (n=169).

Conclusions/Learning Points: Clinical outcomes were significantly worst in both CMC-A and CMC-O vs healthy irrespective of RV viral loads. Defining the clinical phenotype of RV infection in children will help identify the patients that may benefit from targeted interventions.

PV0659 / #1484

RESPIRATORY SYNCYTIAL VIRUS (RSV)- ASSOCIATED HOSPITALIZATIONS IN A TERTIARY PEDIATRIC DEPARTMENT: A 5-YEAR REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory Syncytial Virus(RSV) is a leading cause of hospitalization for acute respiratory tract infections(ARI), especially in young infants. The aim of this study is to review the characteristics of RSV pediatric patients hospitalized in a 5-year period, including the COVID-19 pandemic.
Methods: A retrospective study was conducted from Jan 2018 to Dec 2022 in a General tertiary level Pediatric department in North Greece. Hospitalized children with a diagnosed RSV infection were included. Demographic, epidemiology, clinical data, treatment, and outcome were analyzed.
Results: Sixty-five(65) children were included, 33(50.7%) males, with mean age 8.23mo (IQR 6, 70% <6 months of age). In 2018-2020, seasonal peaks were observed Jan-March, while in 2021-2022 peaks were observed Oct-Dec, indicating an earlier season onset. In early December 2022, there was a cluster of RSV cases within 15 days, in children that were hospitalized for other reasons. Nineteen patients(29%) had a history of chronic conditions (16% of prematurity). Two patients had received at least one dose of Palivizumab. Fifty-five patients(84%) were diagnosed as bronchiolitis, with main symptoms cough(89%), rhinitis(86%) and respiratory distress(76%). Forty-two(64%) patients were diagnosed with a rapid antigen test, 25(38%) with multiplex PCR, while three patients had a co-infection with Human Rhinovirus-Enterovirus. All patients received iv fluids, 49(75%) needed oxygen therapy, and 8(12%) were admitted to PICU/NICU. Half patients were treated with antibiotics, 61% had nebulizers, and 53% had corticosteroids. Four patients presented complications . No deaths were recorded.
Conclusions/Learning Points: In this cohort of hospitalized patients with RSV infection, most patients were young infants with a good clinical course. The seasonality of RSV hospitalizations seems to be altered due to COVID-19 pandemic. An RSV outbreak in the department was detected.

PV0660 / #1146

ASTHMA, VIRUSES AND THE ENVIRONMENT: A SPATIO-TEMPORAL ECOLOGICAL ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Asthma is a heterogenous respiratory condition characterised by chronic airway inflammation, affecting 300 million people globally and predominating in children five years and older. The aetiopathophysiology of asthma is complex, with various environmental triggers leading to exacerbations, including respiratory viral infections, pollen levels, thunderstorm incidence and humidity.
Methods: We conducted a spatiotemporal ecological analysis of state-wide hospital data in Victoria, Australia, from July 2011 to June 2022. Spatiotemporal trends of state-wide datasets of emergency department and hospital-admitted asthma episodes occurring in children 5-19 years, environmental triggers and respiratory multiplex PCR tests performed at two large hospital networks were examined through negative binomial regression analysis.
Results: RSV, hMPV, Influenza A and B and pollen levels were associated with increased risk of asthma incidence before the COVID-19 pandemic (1.18 RR, 1.08 RR, 1.05 RR, 1.03 RR, 2.14 RR, respectively). Decreasing humidity was also associated with increased asthma risk before the pandemic. In 2020-2022, RSV and pollen levels were all associated with an increased risk of asthma (1.07 RR and 2.44 RR, respectively).
Conclusions/Learning Points: In addition to non-infective triggers, ongoing associations of asthma with RSV through the COVID-19 pandemic suggest an important role for this virus in exacerbations. Having identified changes to asthma associations in the wake of the COVID-19 pandemic, ongoing investigation of the role of these variables is warranted to provide further insight into asthma exacerbations in a post-pandemic world. If these results are confirmed, they can serve as the foundation for a multi-faceted asthma exacerbation forecasting system for healthcare providers and public use.

PV0661 / #1303

SOUTHERN AUSTRIA RESPIRATORY SYNCYTIAL VIRUS (RSV) INPATIENT INVESTIGATION (ARNI STUDY)

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: RSV-Bronchiolitis is one of the main causes of hospitalization in infants and young children, especially in premature newborns and the presence of pre-existing disorders. Aim of this study was to document the burden of disease during the last 7 RSV seasons in Southern Austria.
Methods: Retrospectively all infants and children ≤ 5 years of age hospitalized due to RSV infection between October 01, 2015, and April 30, 2022, were analysed. Demographics, medical history, incidence, severity, treatment, complications, and mortality of RSV infection, as well as hospital costs, were documented. Hospitalization rate for RSV to all acute respiratory illnesses (ARI) and to other diseases were estimated.
Results: 976 hospitalized infants and children were identified due to RSV infection during the study period. 79% hospitalized infants were younger than 12 months, 60% of infants were born during the RSV season. 87 % were healthy term infants. Highest hospitalization occurred in February (239 children). In the 2nd year of life, 59 % children with severe RSV infection had underlying diseases and prematurity. RSV accounted for 19% of hospitalizations due to ARI in children ≤ 5 years of age, 37% of all ARI <6 months of age, 28% of all ARI<12 months of age and 6.3% of all infections <12 months. Mortality rate was 0.3%. RSV-related hospital costs were about € 2 million per year.
Conclusions/Learning Points: Infants are disproportionally affected by RSV with the majority of hospitalizations being healthy term. RSV hospitalization accounted for about 1/5 of all hospitalization respiratory cause in children ≤ 5 years of age and were associated with high morbidity and costs. Prematurity and pre-existing conditions played a major role in older children resulting in comparably severe courses of disease

PV0662 / #1796

MICROBIOLOGICAL DATA OF RESPIRATORY INFECTIONS IN HOSPITALIZED CHILDREN DURING SEPTEMBER 2021-MARCH 2022.

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Novel rapid diagnostic methods are crucial for prompt identification of a wide range of respiratory pathogens and their clinical utilization may potentially improve patients' outcome.
Methods: Data from medical records of all hospitalized children during the study period (1/9/2021-13/3/2022) were documented and statically analyzed with SPSS 25.0.
Results: During the study period a total of 240 children were hospitalized, of which 62/240 (25.8%) presented symptoms indicative of respiratory infection. A percentage of 65% of children was found to be less than one year of age (range: 2 months-6 years), while boys accounted for 65% of study population. Emergency department complaints included: Symptoms indicative of acute bronchiolitis (52,5%), fever (32,5%), respiratory distress (10%), croup (2,5%) and other reasons (2,5%). In 64,5% of cases, rapid novel microbiological diagnostics methods were performed: RT- PCR (42,5%), FilmArray Respiratory panel (35%) or Lateral flow immunoassay (9%). Table 1 shows the microbiological data of diagnostic testing. RSV rapid diagnostic methods were proven to be accurate with high positive predictive value: 93,8% for RSV RT-PCR and 77,8% for RSV immunoassay.

Table 1

RESULT	POSITIVE	NEGATIVE
FILMARRAY (FA) Respiratory panel	11/14 (78,6%)	3/14 (21,4%)
	RSV: 3/11	
	Parainfluenza: 3/11	
	Rhinovirus/Enterovirus: 2/11	
	Metapneumonovirus: 1/11	
	Rhinovirus & Metapneumonovirus: 1/11	
	Corona0C43 & Rhinovirus & RSV: 1/11	
RT-PCR RSV	15/16 (93,8%)	1/16 (6,2%)
RSV Lateral flow Immunoassay	7/9 (77,8%)	2/9 (22,2%)
RT-PCR INFLUENZA	1/1 (100%)	
RT-PCR SARS CoV2	2/2 (100%)	

Conclusions/Learning Points: This study shows that the majority of hospitalized children with respiratory infections are under one year of age, highlighting the need for raising public awareness regarding prevention of respiratory infections in infants. Rapid novel microbiological methods for RSV are proven to be cost-effective point-of-care testing with high accuracy and potentially positive impact on clinical outcome of children.

PV0663 / #933

SEVERE ACUTE RESPIRATORY VIRAL INFECTION COURSE AMONG PEDIATRIC PATIENTS ADMITTED TO INTENSIVE CARE UNIT

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Acute respiratory viral infections are a leading cause of morbidity and mortality worldwide, especially among children. Although a small proportion of pediatric patients requires intensive care, it is crucial to understand risk factors for severe course among these patients. We aimed at assessing risk factors for severe course among children hospitalized in the pediatric intensive care unit (PICU).
Methods: A retrospective cohort study in a tertiary care center in northern Israel, during 2010-2021. All pediatric patients admitted with a laboratory-confirmed respiratory viral infection were included. Data regarding age, sex, underlying conditions, clinical manifestations and complications were collected. Severe course considered to be hospitalization >7 days, mechanical ventilation, pneumonia and death in the first month.
Results: A total of 312 patients were included comprising 10% of the patients admitted to the PICU during the study period. The median age was 13.2 months. Fifty-five percent were males, and 18.3% were born preterm. Almost quarter were transferred from surrounding hospitals. The most common pathogen was RSV (37.5%), followed by adenovirus (28%), influenza (19%), parainfluenza (11.5%) and Human metapneumovirus (HMPV)(11%). During the COVID-19 pandemic, there were 14 cases of SARS-CoV-2. Nearly half required mechanical ventilation and another 25% required other respiratory support. Mortality rate was 12%, half of them in the first month after admission. In a multivariate analysis, background illness (p=0.004; OR-2.11 95% CI 1.27-3.53), HMPV (p=0.049; OR-2.56 95% CI 1.01-6.51) and referral from another hospital (p=0.023;OR-1.99 95% CI 1.10-3.61) were found as independent risk factors for the severe course.
Conclusions/Learning Points: Although respiratory viral infections are not the main cause of admission to PICU, morbidity and mortality are not negligible, especially among patients with underlying conditions, those with HMPV and refereed from surrounding hospitals.

PV0664 / #2146

PROFOUND CHANGES IN THE EPIDEMIOLOGY OF RESPIRATORY VIRUSES AFTER THE COVID-19 PANDEMIC IN A LATIN AMERICAN PEDIATRIC ONCOLOGY CENTER.

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The COVID pandemic has turned the spotlight on the importance of the diagnosis of respiratory virus infections. Immunocompromised patients remain vulnerable to respiratory viral infections and there are still doubts regarding the true incidence of respiratory infections in these patients. We aimed to evaluate in pediatric oncology patients the impact of not SARS-CoV-2 respiratory virus in pandemic time, by comparing their detection with pre-pandemic.
Methods: We analyzed all respiratory specimens collected between Jan, 2017 and Dez, 2022 from symptomatic patients. Immunofluorescence test detected: Influenza, Adenovirus, Parainfluenza, and Respiratory Syncytial Virus (RSV). We compared results from 2017-2019 (pre-pandemic) to 2020-2022 (pandemia).
Results: In the pre-pandemic period, 1,421 tests were collected, versus 2,451 during the pandemia, a 72.5% increase. There were 53 positive tests 2017-2019 and 43 in 2020-2022 (4% vs. 2%, respectively; $p<0.001$). RSV was the most commonly isolated virus in the pre-pandemic period (55%; $p<0.001$), followed by Parainfluenza (32%), Influenza (11%), and Adenovirus (2%). During the pandemic period, Parainfluenza was the most commonly isolated virus (63%; $p=0.005$), followed by RSV (19%), Influenza (14%), and Adenovirus (5%). During 2017-2019, RSV incidence peaked in April-June. During 2020-2022, Parainfluenza had two separate peaks, during August-September and November-December, 2022.
Conclusions/Learning Points: The pandemic has led to profound changes in the circulation of non-SARS-CoV-2 respiratory viruses. Our study observed a reduction in RSV incidence and increase in Parainfluenza infections. The number of tests has significantly increased, probably due to increased awareness, allowing earlier diagnoses, prompt initiation of isolation and supportive measures to decrease morbidity and mortality in our pediatric oncology patients.

PV0665 / #1121

MOLECULAR SURVEILLANCE OF RESPIRATORY VIRAL INFECTIONS AMONG PAEDIATRIC POPULATION ATTENDED AT PRIMARY CARE CENTRES OF CATALONIA, SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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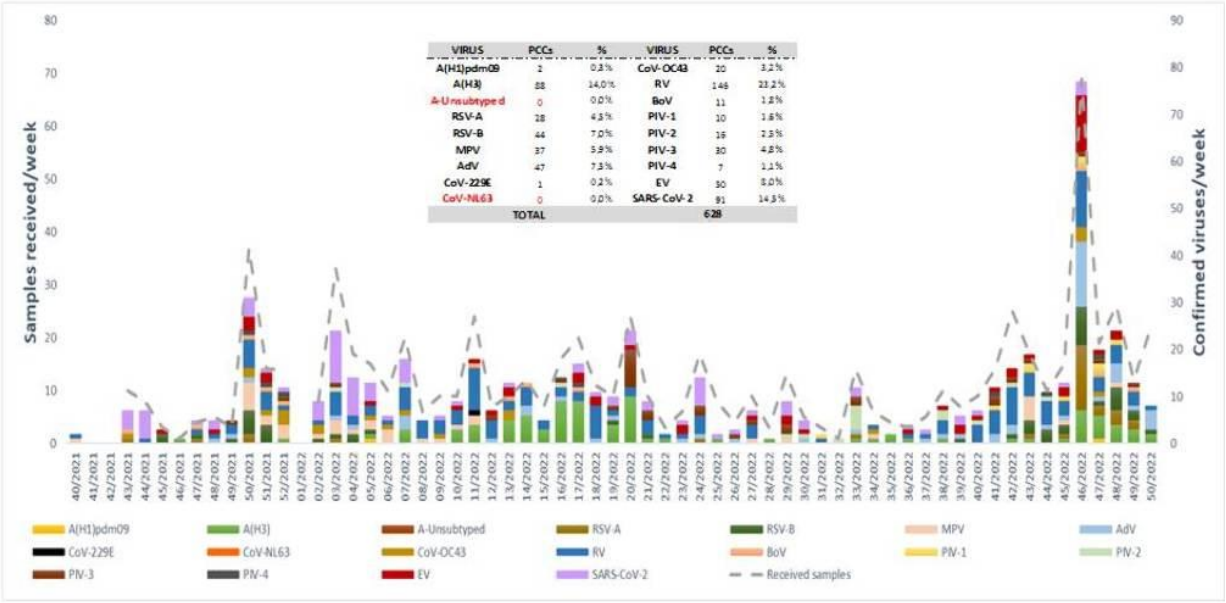
Backgrounds: We aimed to monitor and to characterize respiratory viral infections among paediatric population attended at Primary Care (PC) setting in Catalonia (Spain), comparing them with those detected among general population attended at the largest tertiary hospital in this area.
Methods: Naso/oropharyngeal swabs from children with a suspected acute respiratory tract infection were randomly collected at 25 PC participating centres of the COPEDICAT network (up to two per centre weekly) in Catalonia (Spain) between September/2021 and December/2022. Laboratory confirmation of respiratory viruses was performed at the referral microbiology laboratory. Detection of viruses was performed by transcription-mediated amplification and real-time multiplex RT-PCR assays for SARS-CoV-2 and other respiratory viruses, respectively. Molecular characterisation was carried out for influenza viruses, SARS-CoV-2, enterovirus (EV) and adenovirus (AdV) by partial or complete genome sequencing.
Results: A total of 734 specimens were received, mostly from 5 to 14-year-old children (335, 46%), and 628 (86%) different viruses were detected (Figure). Rhinoviruses were the most prevalent (23%), followed by SARS-CoV-2 (14.5%), influenza A(H3) virus (14%), EV (8%), AdV (7.5%), RSV-B (7%), and MPV (6%). These prevalences were similar to the observed at the referral hospital for COPEDICAT network, except for seasonal coronaviruses and parainfluenza virus type 3. Genetic characterisation revealed that: all influenza A(H3) and one A(H1)pdm09 viruses belonged to a similar clade of the current recommended vaccine strain; most AdV were from genetic clades B3 (15; 41%) and C2 (16; 43%); up to 12 different EV types were distinguished, being EV-D68 the most common; and finally, different SARS-CoV-2 lineages were detected, mostly Omicron
variants.



VIRUS	PCCs	%	VIRUS	PCCs	%
A(H1)pdm09	2	0.3%	CoV-OC43	20	3.2%
A(H3)	88	14.0%	RV	146	23.2%
A-Unsubtyped	0	0.0%	BoV	11	1.8%
RSV-A	28	4.5%	PIV-1	10	1.6%
RSV-B	44	7.0%	PIV-2	16	2.5%
MPV	37	5.9%	PIV-3	30	4.8%
AdV	47	7.5%	PIV-4	7	1.1%
CoV-229E	1	0.2%	EV	50	8.0%
CoV-NL63	0	0.0%	SARS-CoV-2	91	14.5%
TOTAL				628	

Conclusions/Learning Points: The good correspondence observed in viral detections between hospital and PC makes this paediatric surveillance worthy to implement as a sentinel network from paediatric PC clinics.

PV0666 / #1775

DIVERSITY OF RESPIRATORY VIRAL CO-INFECTIONS IN AUSTRIA DURING SEASONS 2021/2022 AND 2022/2023

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: During the SARS-CoV-2 pandemic, the circulation of RSV, Influenza and other respiratory viruses declined significantly due to pandemic measures and changes in behavior. In the current season, a seasonally atypical re-emergence of RSV, Influenza and other respiratory viruses could be observed.
Methods: In Austria, annual sentinel surveillance of circulating respiratory viruses is coordinated on a nation-wide level. Nasopharyngeal samples are collected year-round from over 200 sentinel physicians (including pediatricians, family doctors and hospitals) from patients presenting with acute respiratory illness and tested by PCR for SARS-CoV-2, RSV-A/-B, Influenza-A/-B/-C, Rhinovirus, Metapneumovirus and other viruses at the Center for Virology of the Medical University of Vienna. Here, we report the incidence data for infections and co-infections with those viruses for two pandemic seasons (2021/2022 and 2022/2023) in children (0-6 and 6-18 years) and adults (>18 years).
Results: In summary, the 2021/2022 season was characterized by a strong SARS-CoV-2 activity in adults, low overall Influenza activity and a moderate to high RSV-A incidence in children. In comparison, strong Influenza-A and RSV-B circulation was observed in the 2022/2023 season with only low co-circulation of SARS-CoV-2. Children under 6 years showed a more diverse pattern of viral infections and viral co-infections compared to adults. Notably, SARS-CoV-2- and RSV-infected children (< 6a) were co-infected with another virus in up to 50 % and 25 % of the observed cases in the current 2023/2023 season, respectively. Interestingly, co-infections with RSV and Influenza-A were less commonly observed than other combinations such as RSV and SARS-CoV-2.
Conclusions/Learning Points: In conclusion, the unusual predominance of RSV-B as well as the overall strong respiratory virus circulation in the current 2022/2023 season warrant further epidemiological and mechanistic investigation.

PV0667 / #1564

MUMPS VIRUS INFECTION IN CHILDREN IN BULGARIA

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Mumps (MuV) is a common childhood disease worldwide, especially in developing countries that usually makes a child have a fever and swollen salivary glands in his mouth and near his ear. MuV may also affected the central nervous system and caused viral meningitis.
Methods: In the present study, 108 serum samples, 39 urines and 39 buccal swabs from 108 children with possible MuV infection were tested, for the period 2018-2022. Patients are aged from 0 to 18 years of age. Serological tests were performed using a commercial enzyme-linked immunosorbent assay (indirect ELISA test to prove specific mumps IgM/IgG antibodies in sera). Molecular methods with a target amplifying the highly variable small hydrophobic (SH) gene of MuV genome by a One-step RT-PCR in urines and buccal swabs were used. The study was supported by the European Regional Development Fund through Operational Program Science and Education for Smart Growth 2014–2020, Grant BG05M2OP001-1.002-0001-C04.
Results: Of all tested patients (n=108), in 50 (46%) serological confirmation of acute MuV infection (positive IgM result) were found. The distribution by age groups shows the most frequent infection of children aged 5-9 years (27/50, 54%). Positive MuV PCR signals in 28 urines and 23 buccal swabs were detected. The resulting mumps symptoms quickly subsided and the outcome of the disease was good. In 70/108 (65%) of the tested patients, evidence for MuV protective immunity (IgG antibodies) were shown.
Conclusions/Learning Points: Despite vaccination strategies, recent outbreaks in European countries highlight the need for rapid diagnosis of MuV. The most affected persons are children between the ages of 2 and 12 and the unimmunized.

PV0668 / #2291

RESPIRATORY SYNCYTIAL VIRUS EPIDEMIC IN YOUNG CHILDREN IN A TROPICAL COUNTRY: EFFECTS FROM COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is the most important respiratory pathogen of young children. During the COVID-19 pandemic, reports from temperate countries demonstrated RSV seasonal patterns changes, information were limited from tropical areas. We did the study to define RSV seasonal pattern and compare clinical characteristics of young children before and during the pandemic.
Methods: A cross-sectional study was done from January 1, 2019, to December 31, 2021, at Queen Sirikit National Institute of Child Health, Bangkok, Thailand. Children aged 0-5 years with RSV PCR or antigen test positive were enrolled. We collected the children's demographic and clinical information and analyzed data using SPSS software.
Results: There were 2143, 1912, and 356 RSV testing and the rate of positive for RSV were 15, 28, and 4% in 2019, 2020, and 2021 respectively. Comparing between pre-pandemic (2019) and during Covid-19 pandemic (2020), the RSV peak was shifted from August-September in 2019 to October-November in 2020. The mean age was significantly lower in children with RSV enrolled in 2019 compared to 2020-2021 (15.7 ± 13.0 versus 21.8 ± 16.4 months, p=0.001). Clinical diagnosis was also different, in 2019, 84% presented with lower respiratory tract infections including pneumonia, bronchiolitis, and bronchitis compared to 77% in 2020-2021 (p=0.022). In contrast, in-patient treatment was significantly higher in 2020-2021 compared to 2019 (63.9 versus 52.1%, p=0.038).
Conclusions/Learning Points: RSV season was delayed by 2 months, which was corresponded to delayed school starting during Covid-19 pandemic in Thailand. RSV affected older children during the pandemic and may explain the clinical presentations of less pneumonia and bronchiolitis. The higher admissions may reflect higher concern of Covid-19 among young children presented with respiratory infections during the pandemics.

PV0669 / #2194

THE IMPACT OF THE SARS-COV-2 PANDEMIC ON THE SEASONALITY OF HUMAN RESPIRATORY SYNCYTIAL VIRUS AMONGST HOSPITALIZED CHILDREN IN HEIDELBERG/GERMANY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: The SARS-CoV-2 pandemic had an impact on the circulation of common respiratory viruses. We evaluated changes in the seasonality of respiratory syncytial virus (RSV) infection amongst hospitalized children.
Methods: Nasopharyngeal swabs are obtained from hospitalized children (<3 years) who present with clinical symptoms of acute respiratory tract infection (ARTI) at the Paediatric Department of the University Hospital Heidelberg/Germany during winter seasons. We compared three pre-pandemic seasons (2017/18, 2018/19, 2019/20) with three pandemic SARS-CoV-2 seasons (2020/21, 2021/22, 2022/23 (ongoing investigation)). Nasopharyngeal swabs were screened for RSV using point-of-care molecular testing (Abbott IDnow®), and RT-PCR (Altona Diagnostics) was performed to identify RSV subtypes. Clinical data was collected using a standardized questionnaire.
Results: Pre-pandemic during winter seasons 2017/18, 2018/19, 2019/20, a total of n=146/461 (31.7%), n=193/397 (48.6%) and n=121/313 (38.7%) hospitalized children were RSV positive, respectively. RSV-B predominated 2017/18 and 2018/19 with 56.4% and 84.0%, respectively, whereas RSV-A mostly circulated in season 2019/20 with 80.0%. The seasonal peaks were February/March 2018, January/February 2019 and February 2020. During the SARS-CoV-2 pandemic, in the first winter season 2020/21 only few patients (n=30) presented with ARTI and none was RSV positive. During season 2021/22, a total of n=214/481 (44.5%) patients tested RSV-positive (64.2% male; median age 4.4 months (IQR 1.6-16.0)) with the majority presenting with RSV-A (77.4%). Whereas in the currently ongoing season 2022/23, n=145/270 (53.7%) children were RSV positive and 85.3% were allocated to RSV-B. Both seasonal peaks were earlier in November/December 2021 and 2022, respectively and in 2021 first RSV positive cases were found in July.
Conclusions/Learning Points: RSV seasonality changed substantially with the introduction of non-pharmaceutical measures during the SARS-CoV-2 pandemic reporting no RSV cases in 2020/21 whereas displaying an early onset and high incidence in 2021/22.

PV0670 / #1939

ALICE IN WONDERLAND SYNDROME ASSOCIATED WITH INFLUENZA INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Title of Case: ALICE IN WONDERLAND SYNDROME ASSOCIATED WITH INFLUENZA INFECTION
Background: Alice in Wonderland Syndrome (AIWS) is characterized by distortions of visual perception (macropsia or micropsia), the body schema, and the perception of time. It is often associated with migraines, brain tumours, the use of psychoactive drugs, and viral infections, with Epstein-Barr virus infection being the most common. Here we present a case of AIWS associated with Influenza infection.
Case Presentation Summary: A healthy 10-year-old boy presented with a 2-day history of fever, headache, rhinorrhoea, cough and vomiting. He had two afebrile self-limited episodes of altered visual perception, where he described seeing everything too large. He did not take any recent medications or immunizations, he had no contact with animals, no recent travel or history of trauma. Neurological and systemic examination were normal. His blood test results revealed lymphopenia (640/uL). Cerebrospinal fluid obtained by a non-traumatic lumbar puncture revealed 200 erythrocytes/uL and 3 leukocytes/uL, with normal glucose and proteins and without microbial identification. Influenza A/H3 was identified on respiratory secretions. Brain CT scan and electroencephalogram were normal. The diagnosis of AIWS associated with Influenza A infection was assumed and the patient was given oseltamivir. He had no fever after day 2 of treatment, with no new episodes. Three months after the episode he had a good general and mental health, without relapse.
Learning Points/Discussion: AIWS is a rare presentation in paediatric patients. In the presence of AIWS, Influenza virus infection should be considered as a possible cause. The clinician's awareness of this complication of influenza infections might prevent extensive diagnostic procedures.

PV0671 / #1279

HOSPITALIZATIONS IN THE LAST 5 YEARS DUE TO INFLUENZA INFECTIONS IN A TERTIARY PEDIATRIC HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Seasonal influenza virus' burden seems to have changed due to COVID-19 pandemic. We aimed to characterize influenza hospitalizations in children, and evaluate the pandemic impact.
Methods: Cross-sectional observational retrospective study of patients under 18 years, hospitalized in a tertiary paediatric hospital with Influenza, from January 2018 to December 2022. Cases were divided before the beginning of the COVID-19 pandemic (before march 2020) and after. Statistical univariate analysis was performed.
Results: There were 94 hospitalizations due to influenza (54.3% male, median age 26 months), mostly influenza A (75.5%). Half of the children had a co-infection, mainly RSV. The majority (71,3%; 67) were younger than 5 years old (45.7%;43 younger than 2 years). 50% (47) had a chronic condition, the most common being asthma (30%). Nine (9,6%) were vaccinated, all of them with chronic conditions. The main reason for hospitalization was hypoxemia (52,1%; 49), followed by feeding difficulties (31.9%; 30). Eight (8.5%) required ICU, and there were no deaths. The year with more hospitalizations was 2019 (36.2%), followed by 2022 (31.9%). More cases occurred before COVID-19 pandemic (67.0%; 63). Before the pandemic, infections were more common in winter (77.8% vs 9.7%), and after in the autumn (61.3% vs 6.3%; $p<0.001$). There were no differences in ages and chronic conditions. After the pandemic there were more neurological complications (32.3% vs 6.3%, $p<0.001$) and a higher mean length of hospital stay (9,67 vs 5,71, $p<0.005$).
Conclusions/Learning Points: Restrictive measures during COVID-19 pandemic changed the epidemiology of infections. During last year, Influenza infections raised to pre-pandemic levels, occurring earlier in the year. The burden of influenza infection in younger and healthy children should allow reflection on the role of different immunization strategies at that age.

PV0672 / #1328

THE USEFULNESS OF MULTIPLEX PCR PANELS IN ACUTE RESPIRATORY INFECTIONS IN CHILDREN: A PROSPECTIVE CASE-CONTROL STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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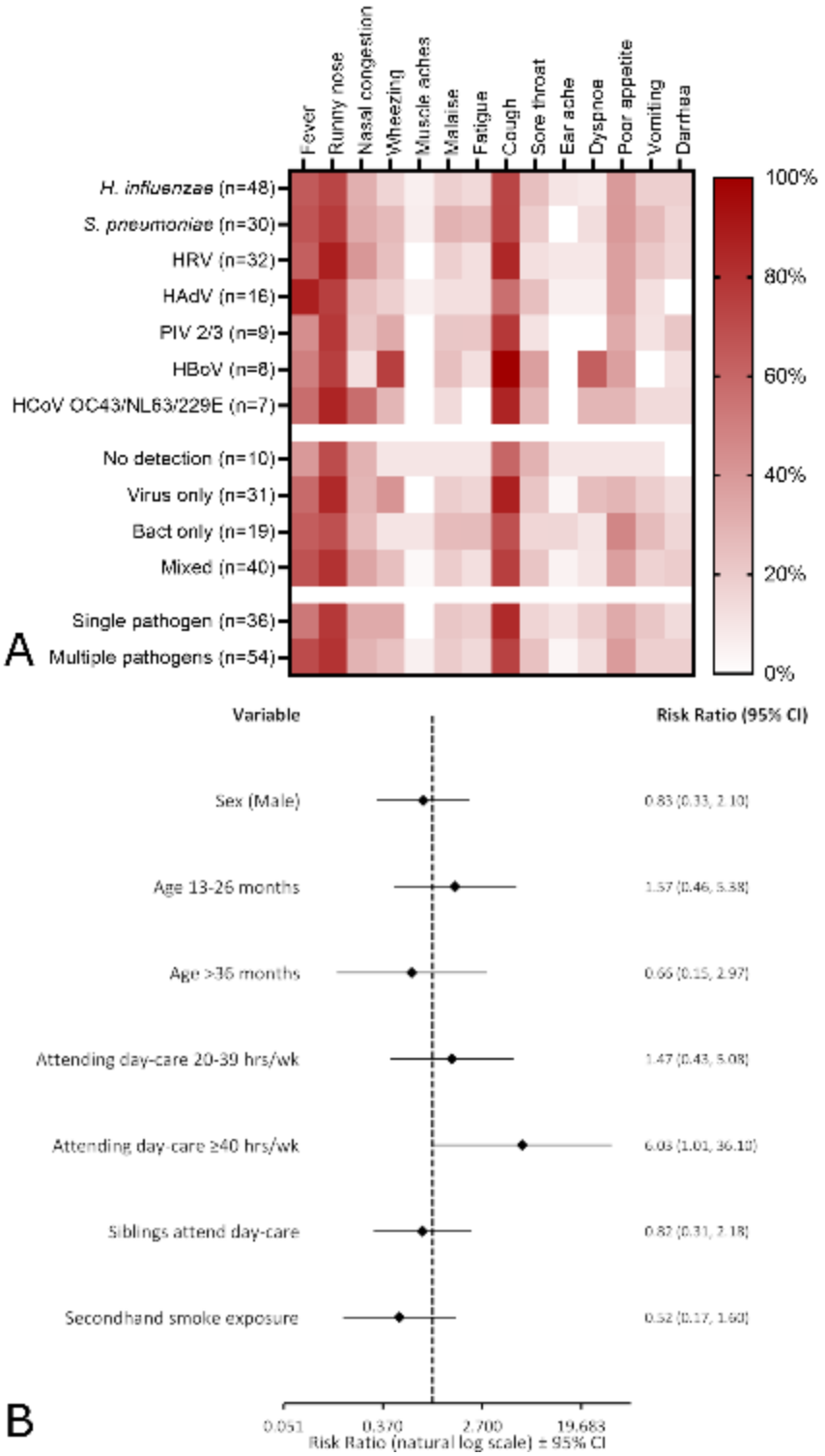
Backgrounds: Acute respiratory tract infections (ARIs) are common in pediatric patients. Since these infections are caused by a wide spectrum of viral and bacterial pathogens, proper antibiotic use in ARI patients is difficult. The aim of the study was to identify respiratory pathogens in nasopharyngeal swabs by multiplex PCR in ARI children in the context of the clinical picture of the infections.
Methods: We prospectively recruited children under 5 years of age with ARI who were hospitalized (n=54) or consulted in the primary care clinic (n=46), and tested negative for SARS-CoV-2. Nasopharyngeal swabs were collected between October 2021 and April 2022 and tested with RT-PCR screening for 19 viruses and 7 bacterial strains.
Results: A virus was detected in 67% of outpatients and 74% of hospitalized children. Bacteria were detected in 59% of children. The most common detections were H. influenzae (49%), human rhinovirus (32%), and S. pneumoniae (30%). The fluA virus was detected in 2% children in March 2022 only. RSV was detected in 5%. Single detection was seen in 36%, dual in 27%, triple in 15%, and quadruple in 2%. No correlation was found between the number of detected pathogens, the co-detection of bacterial pathogens and the clinical picture of the infection (Fig.A). Multiple detections were more common in children spending over 40 hours in a day-care weekly (OR, 6.03; 95%CI, 1.01-36.1)(Fig.B).



Conclusions/Learning Points: Viral and bacterial pathogens were commonly detected in ARI children. Clinical symptoms were similar regardless of the pathogens detected in the nasopharyngeal swabs, questioning the usefulness of multiplex PCRs. Our results also show that RSV and the flu viruses were still circulating in the early 2022, providing a reservoir for the flu and RSV outbreaks in the late 2022.

PV0673 / #2482

TODDLER WITH BILATERAL PLEURAL EFFUSION CAUSED BY INFLUENZA A

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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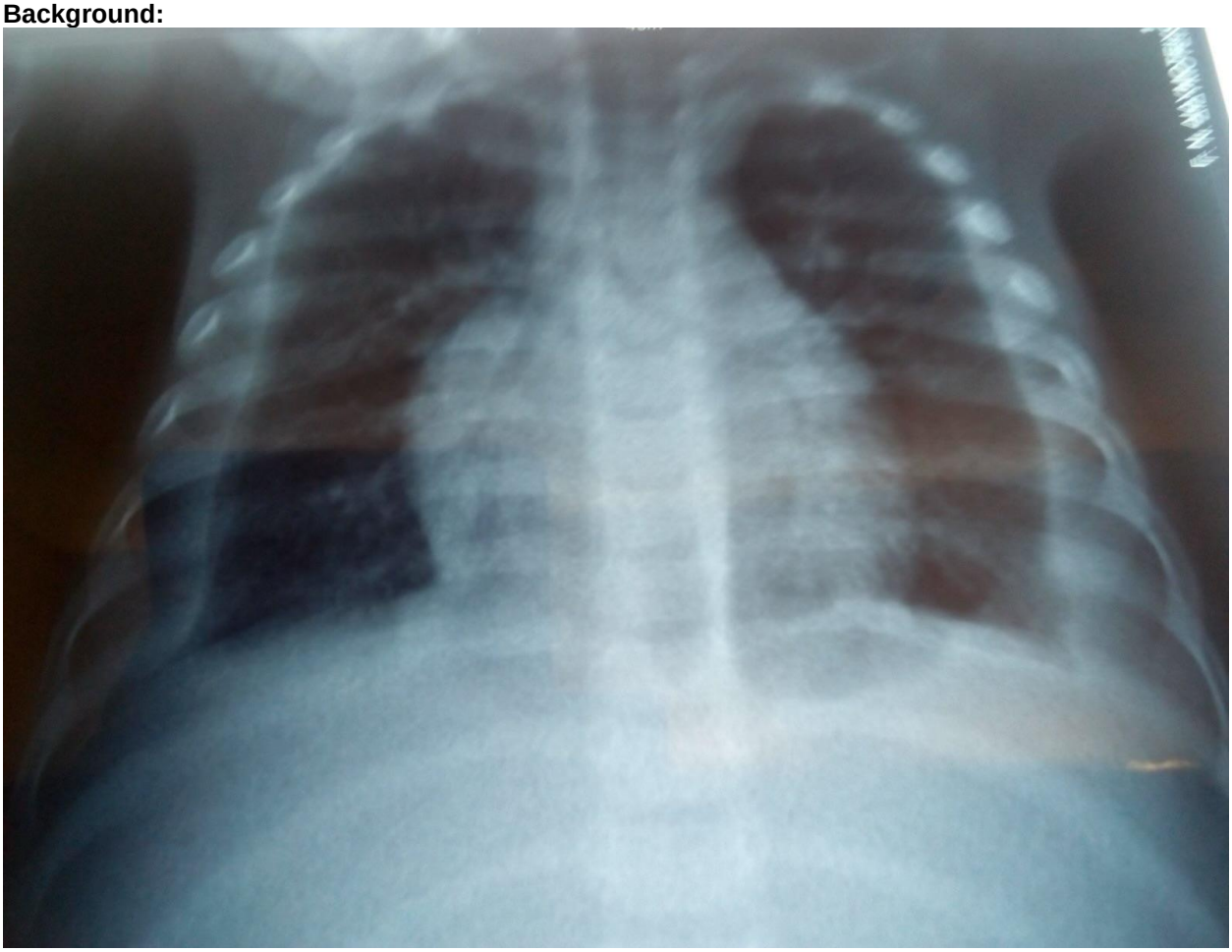
Title of Case: Toddler with bilateral pleural effusion caused by Influenza A.
Background:



Bilateral pleural effusion in children is attributed to different infectious agents (Streptococcus pneumoniae), or non-infectious factors (congestive heart failure, malignancies). Clinical features of pulmonary complications of Influenza are mild lower respiratory tract infection, secondary bacterial pneumonia, progressive severe hemorrhagic pneumonia and concomitant viral and bacterial pneumonia.
Case Presentation Summary: A 2 years-old boy presented to emergency department afebrile with respiratory distress. Physical examination revealed bronchospasm and clinical symptoms of acute bronchitis of moderate severity. CBC depicted WBC: 17,520 x10^6/L (LY: 80%), negative inflammatory biomarkers (CRP: 0.15 mg/dL, procalcitonin: 0.07 ng/ml) and negative rapid tests for SARS-CoV-2, Influenza A + B, RSV and Adenovirus. Treatment with oxygen and nebulized salbutamol was initiated. On the 3rd day of admission, patient presented fever (T: 38.4^{o}C) and severe grunting. CXR was performed and revealed bilateral pleural effusion. Diagnostic thoracentesis was performed; pleural fluid was

exudative (according to Light's criteria). A blood culture was collected and empirical treatment with intravenous ceftriaxone was administered. Repeated CBC, biochemical profile revealed a decrease in WBC: 2,860 $x10^6$/L(LY 90%), and elevation in inflammation markers (CRP: 27.2 mg/dL and PCT: 2.5 ng/ml). The rapid test for Influenza A became positive the 4^{th} day of hospitalization. Oseltamivir was added to the treatment. After 20 days of hospitalization, clinical improvement was observed with gradual absorption of pleural effusion.

Learning Points/Discussion: Influenza A virus may cause severe respiratory infection and invasive complications, such as pleural effusion. Prognosis of the latter is highly related to the underlying disorder and early drainage of fluid may dramatically reduce the rate of mortality and morbidity. Rapid test should be repeated when clinically indicated, as early administration of oseltamivir is associated with better outcomes .

PV0674 / #1665

PREVALENCE AND COMPLICATIONS OF RESPIRATORY SYNCYTIAL VIRUS INFECTIONS IN CHILDREN HOSPITALIZED WITH ACUTE LOWER RESPIRATORY TRACT INFECTIONS IN AN EMERGENCY CHILDREN HOSPITAL DURING 2018-2022

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) represents an important cause of lower respiratory tract infections in infants and children Aim: To investigate the prevalence of RSV infections, complications, and impact on hospitalizations during a 5-year period (2018-2022) in an Emergency Children Hospital
Methods: Retrospective analysis of cases of RSV associated lower respiratory tract infections (LRTI) in children admitted to a tertiary care centre from Romania. RSV was detected by rapid antigen tests or RT-PCR from nasal swabs.
Results: 627 children were admitted for RSV LRTI during the 5-year period, representing 13% of the total LRTIs treated in the Paediatrics Department. 53% of RSV LRTIs were diagnosed in infants (<1 year) and 44% in pre-schoolers (<6 year). Most of the patients were admitted during the classic season (November-April) except for 2021 when the RSV season started during summer and lasted until April 2022,probably due to non-pharmacologic measures taken during the COVID-19 pandemic. The main identified complications were respiratory failure in 52% of cases, hypovolemia in 28%, and otitis media in 4,5% of cases. For both all-age children and under 3 months old infants, the average length of stay (ALS) for RSV LRTI was longer than for non-RSV LRTI (7.4 days and 8.25 days, compared with 5.5 days and 6 days, respectively). The total cumulative days of hospitalization for RSV infection was 4000 days.
Conclusions/Learning Points: RSV bronchiolitis and pneumonia are an important cause of hospitalization in infants and young children and frequently associates respiratory failure and dehydration requiring prolonged hospital stay and additional costs for the health system. RSV LRTI is most likely underdiagnosed in this study because testing is not performed routinely.

PV0675 / #810

RSV AND OTHER RESPIRATORY INFECTIONS AMONG CHILDREN DURING THE SECOND COVID-19 PANDEMIC WINTER SEASON

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Background: In the first Covid-19 winter season respiratory pathogens such as RSV, influenza and metapneumovirus were not observed in pediatric patients due to the impact of non-pharmaceutical measures. This prospective, longitudinal analysis aimed to identify the pathogen profile in children during the second Covid-19 winter season with less strict measures.
Methods: 678 children (0-36 months) presenting with an acute respiratory infection at Vienna's largest pediatric primary healthcare center were enrolled in this study from September 2021 to the end of March 2022. Nasal swabs were performed and tested by multiplex PCR for 23 respiratory pathogens. Clinical features, treatment recommendations and hospitalization were documented. The effect of lockdown on the pathogen prevalence was analysed.
Results: The 815 smears of 678 children revealed rhino-/enterovirus (38.5%), RSV (26.7%), and metapneumovirus (7.2%) as most prevalent pathogens. The early RSV onset was interrupted by the only lockdown in this winter season (RR 0.367, CI (0.184-0.767), p=0.003). Metapneumovirus circulated in January. Influenza was only sporadically found. Compared to last season, the hospitalization rate was significantly higher and was associated with RSV (OR 4.089, 95%CI (1.414-11.827), p-adj=0.05).
Conclusions/Learning Points: Less strict Covid-19 measures led to the surge of RSV in the second winter season. RSV was associated with a high hospitaliziation rate, and was abruptly interrupted by the only lockdown.

PV0676 / #2715

INCIDENCE OF MINIMALLY SYMPTOMATIC WINTERTIME RESPIRATORY VIRAL INFECTIONS IN FRONTLINE PAEDIATRIC EMERGENCY HEALTHCARE WORKERS IS SIMILAR TO THAT IN OFFICE AND LABORATORY WORKER CONTROLS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Background: Wintertime acute viral respiratory tract infections are common in children. Clinical staff in frequent contact with children presenting to emergency services may be frequently exposed via exhaled aerosols and contact with fomites. We compared rates of infection in these staff during the peak virus season with those in staff in the same hospital without patient contact duties.
Methods: 56 frontline healthcare workers (HCW) (doctors and nurses) with daily contact with acutely infected children and 56 control hospital staff without direct patient contact provided 5 weekly nasal swab and saliva samples in December 2019 - January 2020, just before the start of the COVID-19 pandemic. Staff on sick leave were not sampled. Masks were not routinely worn at this time. Samples were analysed by RT-qPCR multiplex panel (Certest Biotec) for respiratory viruses: Influenza A, Influenza B, Respiratory Syncytial Virus (RSV), Adenovirus, Human Metapneumovirus, Bocavirus, Rhinovirus, and Parainfluenza 1-4.
Results: Positive results are shown in the table. The numbers of cases detected were very similar for all viruses apart from influenza, with a cluster of 4 cases of influenza B detected in the HCWs. Saliva yielded fewer positives than nasal swabs and only 2 cases of influenza B were detected in saliva only. 5/6 influenza and 2/3 RSV cases had
symptoms.

	HCW (n=56)	Controls (n=56)
Influenza	5 (1A, 4B)	1 (1A)
RSV	1	2
Parainfluenza	2	2
Rhinovirus	15	12
Adenovirus	1	0
Total	24	17

Conclusions/Learning Points: During a period of high incidence of respiratory viral disease, including influenza and RSV, despite increased occupational exposure and during the pre-pandemic period, before enhanced infection control precautions were introduced, HCWs in frequent contact with sick children did not have enhanced numbers of mild or asymptomatic viral infections apart from a cluster of cases of influenza B.

PV0677 / #2098

THE RELATIONSHIP BETWEEN RSV VIRAL LOAD AND BRONCHIOLITIS SEVERITY AMONG CHILDREN AGED LESS THAN 12 MONTHS

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Respiratory syncytial virus (RSV) is the most common cause of bronchiolitis which is the main cause of hospitalization in infants under 1 years of age. It has still not been clarified if a correlation exists between VRS viral load (VL) and disease severity.
Methods: Our objective was to define this correlation in hospitalized infants. We analyzed 116 nasopharyngeal aspirates (NPAs) from 38 infants admitted to hospital with RSV bronchiolitis between March 2018 and August 2021. NPAs were taken at admission, every 48 h, at discharge. VL was detected with a real-time PCR. Results were normalized for the presence of human DNA and expressed as Log10 copies/ng human DNA (h DNA). Disease severity was assessed considering the need for supplemental oxygen therapy, its delivery devices (low-flow and high-flow), length of stay and clinical score including poor feeding.
Results: At admission infants who required oxygen therapy (n=24) showed on average a higher VL compared to those who didn't (n=14) (4,71 ± 0,87 vs 4,04 ± 0,93 Log10 copies/ng h DNA; p=0,031). In 18 patients out of 24 (75%) treated with oxygen, the highest VL was found at admission, whereas for the remaining 6 (25%) at 48h from admission. On average, VL was greater among infants who required high-flow oxygen therapy (n=5) in comparison to those who received low-flow oxygen therapy (n=19), (5,49 vs 4,76 Log10 copies/ng h DNA; p=0,044). No statistically significant difference was found between VL at different time points and within parameters of disease severity.
Conclusions/Learning Points: Our data shows that virus replication plays an important role in defining the clinical picture demonstrating a significant correlation between VL at admission and the need for oxygen therapy, especially for those who required high-flow therapy.

PV0678 / #1702

MEASLES CLINICAL MANIFESTATION IN DIFFERENT AGE CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: Measles is an acute respiratory infection that occurs at any age in children without vaccination. Typically measles outbreaks happened once in 5-10 years when the public immunity response decreases. The last measles outbreak affected Europe and the USA in 2017-2018.
Methods: The 239 case histories of children from one month to 18 years with confirmed measles were analyzed during 2017-2018.
Results: The obtained data indicate that the course of measles in children retains its typical manifestation but has features depending on the child's age. So in children up to 12 months more often, measles occurs in a severe form (29.41±6.09)% with manifestations of intoxication (95.59±2.49)%, a typical rash (100%), fever (91.18±3.44)%, dry cough (94.12±2.85)%, runny nose (89.71±3.68)% and with the development of complications (48.53±6.06)%, mainly in the form of pneumonia (32.40±5.67)%, $p<0.05$.
The most diverse manifestations of measles were in children aged 1-3 years. Thus, in most of them, fever (94.12±3.29)% and dry cough (96.08±2.72)% were determined against the background of a typical rash (100%) and, in every third child, complications (33, 33±6.60)%, more often in the form of pneumonia (16.28±5.17)% and bronchitis (18.60±5.45)%.
4-6 years old, children characterized by the course of moderate severity (82.61±2.90)% with intoxication (76.09±6.29)%, fever (95.65±3.01)%, rash (100%), dry cough (97.83±2.16)% and bronchitis (19.57±5.85)%.
Typical rash (100%), intoxication (88.89±4.68)%, fever (97.78±2.19)%, conjunctivitis in every second child (51.11±7.45) %, and a severe course (31.11±6.19)% characterize measles in children aged 7-12 years, $p<0.05$.
At the same time, typical manifestations for children aged 13-17 were intoxication (86.21±6.40%), fever (96.55±3.38%), rash (100%), dry cough (100%), conjunctival hyperemia (72.41±8.29)%, runny nose (58.62±9.15)%, and facial swelling (51.72±9.28)%, $p<0.05$.
Conclusions/Learning Points: The age younger than 12 months (29.41±6.09) %, the presence of concomitant diseases (35.71±6.40)%, and lack of vaccination (82.14±5.12)% are the risk factors of measles severe manifestation.

PV0679 / #1446

PATTERNS OF SEASONAL RESPIRATORY INFECTIONS IN PEDIATRICS BEFORE AND DURING THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS08.A. VIRAL RESPIRATORY INFECTIONS

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Backgrounds: During the COVID-19 pandemic, an interesting phenomenon was observed consisting in the disruption of regular circulation of common respiratory pathogens across the US and the world. We aim to describe the prevalence of respiratory patterns in hospitalized children during the COVID-19 pandemic.
Methods: A retrospective analysis of the prevalence of respiratory pathogens was performed using BioFire respiratory panels among hospitalized patients (ages 0-18) from January 2019 to December 2022. A total of 2,670 specimens were obtained from 2,456 patients at a tertiary university hospital in Tampa, FL. Pathogen detection rates were analyzed by age group, gender, calendar year, season, co-infection, and clinical presentation.
Results: Overall positivity rates were 51.7% in 2019, 32.1% in 2020, 39.9% in 2021, and 42.8% in 2022. In 2019, prior to the COVID-19 pandemic, rhinovirus was the most prevalent pathogen (31.7% positivity rate), followed by influenza B (14.7%) and influenza A (14.0%). Starting 2020 circulation patterns changed dramatically. Influenza A decreased to 7.30% in 2020, 2.90% in 2021, and bounced back at 23.9% in 2022. RSV declined from 7.90% in 2019 to 1.80% in 2020, rising back up to 8.30% in 2021 and 9.3% in 2022. The prevalence of SARS-COV-2 was noted at 3.20% in 2020, 10.10% in 2021 and 5.4% in 2022. The most frequent initial clinical manifestations prompting testing were fever, cough, and respiratory distress.
Conclusions/Learning Points: We noted a significant decrease in respiratory viruses such as influenza and RSV earlier in the COVID-19 pandemic. The year 2022 was marked by rebounds in influenza and RSV detection. Continuous surveillance of these circulation patterns is important as COVID-19, influenza, and RSV appear to have formed a triple threat taxing healthcare systems worldwide.

PV0680 / #2445

PREDICTIVE FACTORS OF THE NEED FOR INTENSIVE TREATMENT IN CHILDREN WITH PNEUMONIA

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Background: Pneumonia is a major cause of morbidity and mortality in children. Some children with pneumonia require intensive treatment. Several predictors of the need for intensive treatment have been studied previously but showed inconsistent results. The objective of our study was to determine whether the age of onset at diagnosis, severe malnutrition, hypoxemia, high neutrophil-lymphocyte ratio (NLR), high platelet-lymphocyte ratio (PLR), and comorbidities are the predictive factors of the need for intensive treatment in children with pneumonia.
Methods: A retrospective cohort of children aged 1 month-18 years with pneumonia that was admitted to Dr. Sardjito Hospital in January 2020-December 2020 and who met the inclusion and exclusion criteria. Samples were taken by convenience sampling. Bivariate analysis to calculate p-value and multivariate analysis with logistic regression was conducted. The relationship between variables was presented as odds ratio (OR), 95% confidence interval (95% CI), and statistical significance level $p < 0.05$.
Results: One hundred and six children with pneumonia were included, with a median age of 24 (1-206) months. 36.8% need intensive treatment. Multivariate analysis showed hypoxemia (adjusted OR=6,849; 95%CI=2,692-17,429; p<0,001) was an independent predictor of the need for intensive treatment in children with pneumonia.
Conclusions/Learning Points: Hypoxemia was an independent predictor of the need for intensive care in children with pneumonia

PV0681 / #1172

THE AUSTRIAN SYNDROME: HIGHLIGHTING PNEUMOCOCCAL INVASIVE POTENTIAL

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: THE AUSTRIAN SYNDROME: HIGHLIGHTING PNEUMOCOCCAL INVASIVE POTENTIAL
Background: A 2-year-old Latin-American male with no relevant previous history, with full vaccine scheme 2+1 of 10 serotypes pneumococcal conjugate vaccine (PCV10)
Case Presentation Summary: He presented to the ER with 15 days of runny nose, dry cough, and intermittent fever up to 39°C, otalgia was present with no response to cephalexin and oral azithromycin prescribed in the ambulatory setting. 3 days before consultation he developed a fever of up to 40°C. On admission, generalized tonic-clonic movements and gaze deviation without resolutions, the Glasgow scale was 9/15 and was admitted to the PICU. The blood count at admission was WBC18x10e9/L, N15x10e9/L, L1,9x10e9/L, Hb113g/L, Plq41x10e9/L, and bilateral lung infiltrates compatible with pneumonia in chest X-ray (Figure1. A). Vancomycin and ceftriaxone were started for suspected meningitis. Abnormal CSF exam: leukocytosis (240) with neutrophilia (70%), hypoglycorrhachia (10mg/dl), hyperproteinorrhachia (560mg/dl), and a multiplex PCR positive for S. pneumoniae, as well as blood cultures with susceptibility to PEN y CRO. A contrasted cerebral MRI identified multiple hyperintense lesions suggesting inflammatory and ischemic lesions, predominantly in temporal, frontal, and basal ganglia lobes (figure 1,C and D), in addition to pansinusitis. The first echocardiography noted infective mitral valve endocarditis, vegetation 10x7 mm, and mild to moderate mitral insufficiency requiring surgery for extraction a valvular reconstruction (Figure1. B). The second blood count showed WBC51x10e9/L, N43x10e9/L, L4,8x10e9/L, Hb150g/L, Plq26x10e9/L and CSF culture identified S. pneumoniae PEN (R) and CRO susceptible (MIC <0.12mcg/L). Despite of medical treatment, he develops generalized CNS compromise and secondary infective vasculitis that leading to confirmed brain death; serotype 19A was later
confirmed.

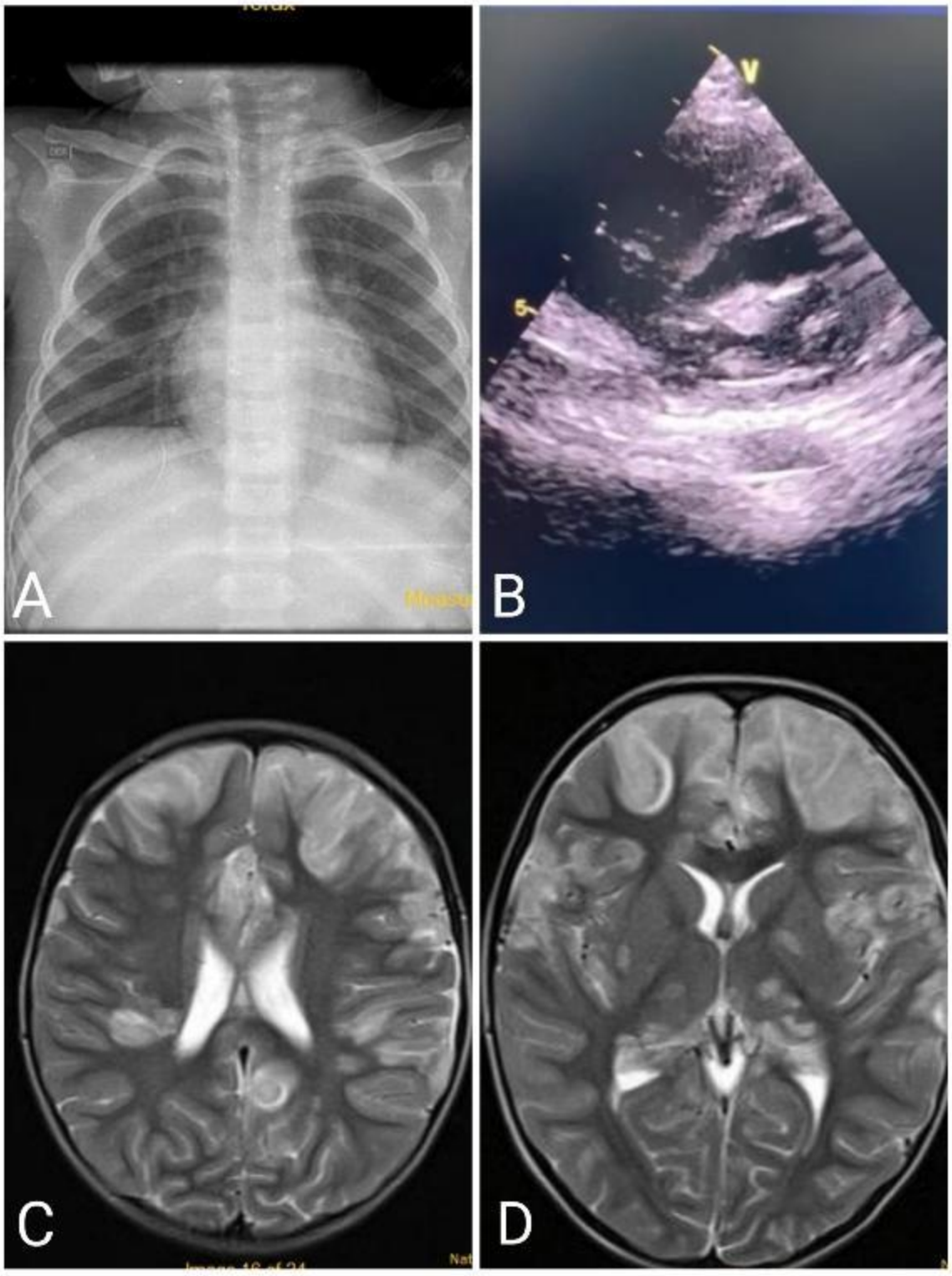

Figure 1

Learning Points/Discussion: Pneumonia, meningitis with endocarditis due to S. pneumoniae is rare, especially in the pediatric age.

PV0682 / #1873

EVALUATION OF VIRUS-BACTERIA CO-INFECTION IN PEDIATRIC COMMUNITY-ACQUIRED PNEUMONIA

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: Evaluation of virus-bacteria co-infection in pediatric community-acquired pneumonia
Background: As diagnostic methods evolve, the detection of coinfection in pneumonia becomes more frequent and can impact antibiotic prescription and hospitalization length. We aim to describe the etiology of CAP in pediatric patients, including cases of virus-virus and virus-bacteria co-infection.
Case Presentation Summary: Methods: We retrospectively screened patients aged under 7 years of age from March to December 2022 at a tertiary referral hospital in São Paulo, Brazil. All those admitted due to severe CAP were included. Blood samples (culture and RT-PCR), respiratory secretion (multiplex RT-PCR assay), and pleural fluid (RT-PCR) were evaluated. Results: 18 patients were included: 61% (11/18) were female, with ages ranging between 4 months and 6 years old. S. pneumoniae was the most frequently identified bacteria identified by RT-PCR or culture (n=8). Streptococcus pyogenes and H. influenzae were also detected in the blood culture. Two patients had a viral infection (Adenovirus and Bocavirus, respectively) and six bacterial infections – one with Haemophilus influenzae and five with .S. pneumoniae Virus-bacteria coinfection was present in 4 cases: two associated with Adenovirus, one with Bocavirus, and one with metapneumovirus. 67% (4/6) of patients with isolated bacteria and all patients with virus-bacteria coinfection were admitted to the PICU.
Learning Points/Discussion: – In general, virus-virus coinfection does not seem to significantly impact the severity of the disease. Conversely, virus-bacteria co-infection is generally associated with increased severity due to the synergy mechanism in the nasopharyngeal epithelium. Pneumococcus is a major pathogen causing CAP in children, both as an isolated agent and in co-infection with viruses. RT-PCR in pleural fluid was essential for its identification.

PV0683 / #1537

EPIDEMIOLOGY OF LOWER RESPIRATORY TRACT INFECTIONS IN PEDIATRIC POPULATION DURING OCTOBER-DECEMBER 2022. EXPERIENCE FROM A TERTIARY GREEK HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Pneumonia and bronchiolitis/bronchitis are the most common lower respiratory tract infections (LRTI) in children and accounts for 13% of all infectious illnesses in infants younger than 2 years of age.
Methods: Retrospective cohort study in a single tertiary hospital on 91 children with pneumonia hospitalized from October 2022 to December 2022.
Results:

1st IV Treatment							
Total n=91 Female=46 Male=45	Ampicillin	Ampicillin/ Sulbactam	Ceftriaxon or Cefotaxin	Teicoplanin/ and Piperacillin/ Tazobactam	Dalacin	No Rx	Average days of hospitalization
1-24 months n=31	11	9	6	4		2	6,6
2-5 years old n=38	22	7	4	0	0	1	6,6
>5 years old n=22	14	4	3	0	2	0	6,5

Out of 450 patients hospitalized with LRTI, 91 patients had pneumonia (46 female, 45 males, average age 6 years old). Major symptoms were cough and fever. Seventeen patients reported recurrent LRTI and 15/91 had prematurity history. Viral co-infections of RSV or FLU A/B was identified in 20 patients during December, while 19/91 reported COVID-19 infection during the last 12 months. Complicated pneumonia, with pleural infusion occurred in 14/91 (16%). Nine patients were treated with intravenous antibiotics while 5 patients underwent interventional pleural infusion drainage. Film-array of pleural infusion revealed Strept.pneumoniae in 80%. Two patients had single pneumococcal infection, 2/5 had co-infection with rhino/entero and parainfluenza virus and 1/5 adenovirus and Flu Type A virus. Pneumonia panel Film-array revealed rhino/entero/parainfluenza in 2 patients, FLU A/B in 1 and Sars-Cov-2 in one. In 4 patients with pneumonia without pleura infusion, Haemophilus influenzae with viral co-infection (adeno, rhino/entero or corona-virus) was identified in pneumonia Film-array panel. Median duration of hospitalization was 6,6 days regardless of patients age. Prolonged stay was observed in 17 patients due to supportive care (16/17) and antibiotic step up (12/17). Need of supplemental oxygen or nebulizers was noticed in 45 out of 91 patients.

Conclusions/Learning Points: Elevation of pneumonia incidence compared to the same period of 2021 when only 3 patients were hospitalized in our department, with Strept.pneumoniae being the main pathogen in complicated pneumonias.

PV0684 / #1500

RISK FACTORS ASSOCIATED WITH NONINVASIVE PNEUMOCOCCAL INFECTION AND ANTIMICROBIAL RESISTANCE OF ISOLATED STRAINS IN CHILDREN UNDER 5 YEARS OF AGE

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Streptococcus pneumoniae is a commensal bacterium that colonize human nasopharynx in asymptomatic carriers or may determine a variety of manifestations, such as sinusitis, otitis, conjunctivitis or invasive infections including meningitis, bacteremia, complicated pneumonia and pleural empyema. The objective of our study was to identify risk factors associated with symptomatic pneumococcal infection and antibiotic resistance profile of the isolated strains.
Methods: The proposed study is a descriptive, prospective laboratory-based survey of children with acute respiratory infections, hospitalized in the period 2021-2022. Patients included in the study were aged from 2 to 59 months. All 138 biological samples were taken using the nasopharyngeal aspirate technique before the initiation of antibiotic therapy. The study was carried out in the framework of the project 20.80009.8007.08 „The impact of immunization on the morbidity and mortality of children with respiratory diseases in the Republic of Moldova" supported by the National Agency for Research and Development.
Results: S. pneumoniae was identified in 7.7% of cases. It was resistant to benzylpenicillin (80%), amoxicillin/clavulanate (75%), trimethoprim/ sulfamethoxazole (70%), amoxicillin, ampicillin and cefatoxime (66%), cefepime, ceftriaxone, cefuroxime, carbapenems (33%), and to macrolides in 42% of cases. Also, the results of our study showed that children's exposure to passive smoking is a risk factor for pneumococcal infection (RR – 2.4, OR – 2.6, CI 95%: 0.66 – 10.30, $\rho<0.05$), while immunization with the pneumococcal conjugate vaccine (PCV13) is a protective factor (RR – 0.25, OR – 0.22, CI 95%: 0.05 – 0.88, $\rho<0.05$).
Conclusions/Learning Points: Although, the study showed a relatively high rate of antibiotic resistance, the rate of pneumococcal infection was low. Identifying and understanding factors that influence pneumococcal infection is important for strengthening measures to prevent infections of lower airways in young children.

PV0685 / #1413

PREDICTORS OF POOR OUTCOME IN COMPLICATED COMMUNITY-ACQUIRED PNEUMONIA IN A PAEDIATRIC POPULATION

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: The acute management of paediatric complicated community-acquired pneumonia (PCCAP) can be challenging. Patients may experience poor outcomes, such as PICU admission, prolonged hospitalization and invasive procedures. The aim of this study is to identify possible predictors of poor outcomes in PCCAP.
Methods: In this retrospective study, we collected demographic, clinical, laboratory, instrumental and therapeutic data of all paediatric patients hospitalized in our Centre from 1st May 2017 to 31st May 2022 with a diagnosis of PCCAP. We considered as complications: parapneumonic effusion, empyema, lung abscess, necrotizing pneumonia, pneumatocele and pneumothorax. We searched correlations between variables and poor outcomes, using univariate and multivariate analysis. We considered as "poor outcomes": PICU admission, invasive procedures, and hospitalization longer than twenty days.
Results: We selected eighty-five patients with PCCAP. Twenty-seven patients had a prolonged hospitalization, nine patients were admitted to PICU and twenty patients underwent invasive procedures. Effusion size on lung ultrasound on admission showed a correlation with poor outcomes. Among biomarkers, CRP levels on admission and after 48-72 hours were significantly higher in children admitted to PICU; CRP levels at admission and WBC count, neutrophils count, CRP and PCT after 48-72 hours from admission showed a correlation with both invasive procedures and prolonged hospitalization. Multivariate analysis showed that chest and abdominal pain at admission are significantly associated to invasive procedures, and duration of fever before admission is associated to both PICU admission and invasive procedures.
Conclusions/Learning Points: PCCAP are infrequent but serious clinical conditions: therefore, knowing possible predictors of poor outcome could help physician in the management of them. The integration of different parameters that are easily available at early stages of hospitalization, such as chest or abdominal pain is essential.

PV0686 / #2172

WHERE IS MYCOPLASMA PNEUMONIAE?

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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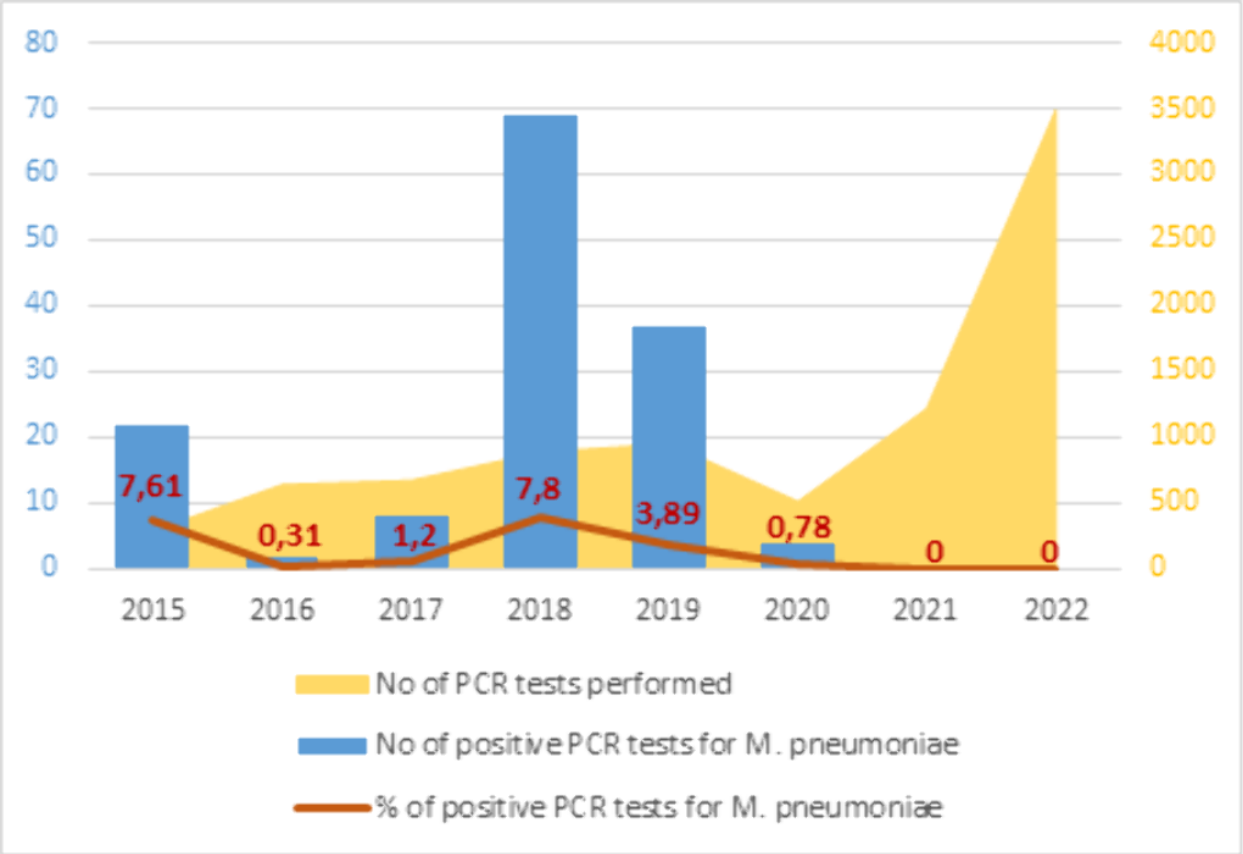
Backgrounds: Mycoplasma pneumoniae is a cause of community acquired paediatric respiratory infections. The COVID-19 pandemic led to a dramatic reduction of illness due to viral and bacterial respiratory pathogens, including M. pneumoniae, with subsequent resurgences of most of them, although at different times. The aim of this study was to evaluate the detection of M. pneumoniae during and beyond the COVID-19 pandemic and compare it to previous years.
Methods: We performed an observational study evaluating all the detections of Mycoplasma pneumoniae through PCR in nasopharyngeal samples (FilmArray respiratory panel), from children with acute respiratory infections, attending an Emergency Service of a level III pediatric hospital, that has received an average of 60 000 children/year, from January 2015 to December 2022. The decision to perform the test was up to the physician who observed the patient.
Results:



Despite some variation of M. pneumoniae detection from year to year before the pandemic, these data

show its disappearance and ongoing absence in this community since the beginning of the pandemic.
Conclusions/Learning Points: Despite the progressive reduction of non-pharmacological interventions and the high number of samples submitted to PCR in the last two years, M. pneumoniae remains undetectable to date, in contrast to what was observed for respiratory viruses, as an indicator of community transmission. The reasons for this sustained suppression are not clear and continuous surveillance is necessary to monitor when and how this pathogen will come back.

PV0687 / #1115

LIFTING DISTRUPTION OF INVASIVE PNEUMOCOCCAL DISEASE (IPD) CASES FOLLOWING THE COVID-19 PANDEMIC: IPD IN THE YOUNGEST CHILDREN IN BELGIUM AFTER RE-SWITCH FROM PCV10 TO PCV13

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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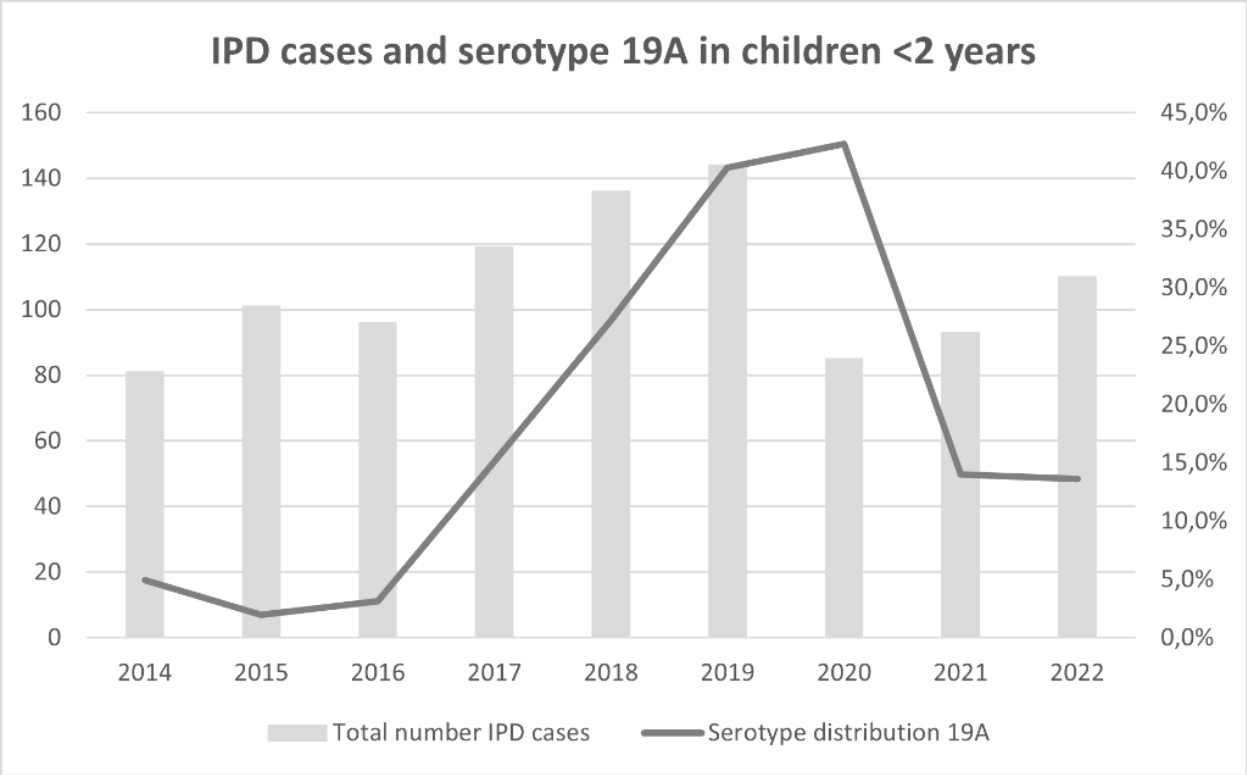
Backgrounds: Due to the restrictive measures to contain the COVID-19 pandemic, a signficant and sustained reduction in invasive pneumococcal disease (IPD) cases in children (<2 years) was observed in 2020-2021. The 13-valent pneumococcal conjugate vaccine (PCV13) was reinstalled in 2019 in the childhood vaccination programme, after a re-emergence of serotype 19A IPD in children following the switch from PCV13 to PCV10 in 2015-2016 in Belgium.
Methods: Surveillance of IPD in Belgium is based on a stable laboratory-based system involving yearly around 100 laboratories, evenly spread over the country, sending their strains to the National Reference Centre for Invasive Pneumococci, for capsular typing by Quellung reaction.
Results:



While the total of 110 IPD cases in children for 2022 is a reduction of 23.6% compared to the pre-COVID year 2019, numbers have increased compared to 2020 and 2021 (respectively +29.4% and +18.3%), and exceeded cases of the years 2014 to 2016. Although capsular typing determined 19A as most prevalent serotype (13.6%) in young children for 2022, similar to 2021 (14.0%), this entails a continued reduction of 19A cases following the re-switch from PCV10 to PCV13 in 2019 as serotype 19A accounted for 40.3% and 42.4% of cases in children in 2019 and 2020. Serotypes 33F (10.0%), 10A (9.1%), 11A (9.1%) and 23B (7.3%) complete the top 5 of most frequently detected serotypes in 2022. Serotype coverage of pneumococcal vaccines PCV13, PCV15 and PCV20 based on IPD cases is 19.1%, 30.9% and 57.3%,

respectively.
Conclusions/Learning Points: For 2022, IPD epidemiology is no longer heavily disturbed by the COVID-19 pandemic, characterized by increasing cases, although still lower compared to 2019. Furthermore, three years post PCV10 to PCV13 switch, a further reduction of the proportion of serotype 19A was observed.

PV0688 / #2195

T HE IMPACT OF PNEUMOCOCCAL PNEUMONIA IN A BRAZILIAN PEDIATRIC HOSPITA

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Pneumococcal infection is the main cause of pneumonia in children. The impact of COVID-19 pandemic on pneumococcal pneumonia is still unknown. The aim of this study was to describe the epidemiology and sensitive profile of pneumococcal pneumonia from 2018-2022.
Methods: Data were collected from medical records of patients admitted to a reference pediatric hospital in Brazil.
Results: 56 cases of pneumococcal pneumonia were identified, 36 (64%) during the years of COVID-19 pandemic (2020-2022). 37 (66%) patients were admitted to an intensive care unit (ICU). Younger age was associated with a higher risk of ICU admission (p=0.021). In total, 36 (64%) patients had pulmonary complications. The main complication was pleural effusion (28, 77,7%). The year of 2022 had the highest prevalence of complications (47,2%) (p< 0.001). Overall mortality rate was 8.92% (n=5). There was no difference in mortality between the studied periods. Penicilins were the antibiotic of choice with a mean treatment duration of 9 (±4) days. All pneumococci were 100% sensitive to penicillin. Greater resistance was noted for sulfamethoxazole (53%), erythromycin (50%) and clindamycin (46%).
Conclusions/Learning Points: The immune debt caused by social restriction measures and exposure to respiratory pathogens has led to higher pneumococcal pneumonia compications in 2022, when lockdown was ended. This study also reinforces the recommendation to use penicillins as a first-line treatment for pneumonia.

PV0689 / #1998

BACTEREMIA IN CHILDREN DIAGNOSED WITH PNEUMONIA IN EMERGENCY DEPARTMENTS: A MULTINATIONAL PROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Globally, blood cultures are commonly obtained in children presenting to emergency departments (ED's) with community-acquired pneumonia (CAP). The current prevalence and etiology of bacteremia are not well described for this population. We sought to assess the prevalence and etiology of bacteremia among children diagnosed with CAP in a global cohort of ED's.
Methods: This was a prospective cohort study of children 3 months to <14 years old with CAP at 69 ED's in a global consortium, the Pediatric Emergency Research Network. We excluded children with hospitalizations within the previous 7 days, hospital-acquired pneumonias, or chronic complex conditions. Bacteremia was defined by pathogen detection in blood culture. Patient demographics, clinical characteristics, radiographic findings, and laboratory testing results were compared between children with and without bacteremia.
Results: A total of 2,540 children (median age 3.8 years) with CAP were enrolled. Blood cultures were obtained from 790 (31.1%) patients, and 16 (2.0%) demonstrated growth of a pathogen. Streptococcus pneumoniae accounted for 13 (81.3%) cases of bacteremia, Staphylococcus aureus was identified in 2 patients, and Group A streptococcus in 1. Clinical and radiographic findings did not significantly differ between children with and without bacteremia; however, inflammatory markers were significantly higher among children with bacteremia. (Table) Eight children with bacteremia had complicated pneumonias, 6 had moderate-to-large pleural effusions, and 4 underwent pleural drainage.

Table 1. Characteristics of children with CAP, stratified by bacteremia (n=790).

Characteristic	No bacteremia (n=774)	Bacteremia (n=16)	P-value
Demographics			
Age (yr), median (IQR)	2.0 (1.0, 5.0)	2.5 (1.0, 4.0)	0.95
Female	386 (50.0%)	8 (50.0%)	0.99
History of asthma or wheezing	247 (31.9%)	4 (25.0%)	0.56
Pneumococcal Vaccine (Fully Vaccinated)	674 (87.1%)	15 (93.8%)	0.71
History of Present Illness			
Duration of illness (days), median (IQR)	5 (3, 7)	4 (3, 7)	0.58
Fever present (Yes)	699 (90.3%)	16 (100%)	0.19
Days of fever, median (IQR)	2 (4, 6)	4 (3, 7)	0.63
ED Physical Examination			
Initial Vital Signs			
Temperature (°C), median (IQR)	37.8 (37.0, 38.7)	37.8 (37.1, 38.6)	0.87
Respiratory rate, median (IQR)	39 (30, 48)	39 (36, 48)	0.39
Systolic blood pressure, median (IQR)	105 (96, 114)	102 (93, 106)	0.23
Heart rate, median (IQR)	149 (130, 166)	150 (131, 159)	0.82
Oxygen saturation, median (IQR)	95% (91, 97)	96% (93, 98)	0.34
Retractions	525 (54.9%)	10 (62.5%)	0.55
Flaring	128 (16.5%)	1 (6.3%)	0.27
Grunting	105 (13.6%)	2 (12.5%)	0.90
Wheezing	192 (24.8%)	2 (12.5%)	0.26
Rales	423 (54.7%)	8 (50.0%)	0.70
Rhonchi	202 (26.1%)	1 (6.3%)	0.07
Imaging			
Chest X-Ray performed in ED	746 (94.4%)	14 (87.5%)	0.07
Radiographic pneumonia	510 (68.3%)	10 (71.4%)	0.23
Pleural effusion	92 (12.3)	8 (57.1%)	<0.0001
Laboratory			
WBC, median (IQR)	n=773; 12.3 (8.2, 18.0)	n=16; 18.9 (11.7, 26.7)	0.01
ANC, median (IQR)	n=715; 7.9 (4.8, 13.9)	n=16; 13.2 (9.0, 19.4)	<0.01
C-reactive protein, median (IQR)	n=576; 7.2 (2.4, 17.1)	n=14; 26.0 (14.3, 30.8)	<0.01
Procalcitonin, median (IQR)	n=122; 1.8 (0.4, 6.8)	n=5; 4.9 (4.6, 13.5)	0.04
Any virus detected	228 (29.5%)	3 (18.8%)[2]	
RSV	111 (14.3%)	0 (0%)	0.10
Influenza A	31 (4.1%)	0 (0%)	0.41
Influenza B	19 (2.5%)	0 (0%)	0.53
Clinical course			
Hospitalized	671 (86.8%)	14 (87.5%)	0.94
ICU >48 hours	81 (10.5%)	3 (18.8%)	0.24
Death	1 (0.1%)	0 (0%)	0.89
Complicated pneumonia[3]	47 (6.1%)	8 (50.0%)	<0.001
Oxygen use	410 (53.0%)	8 (50.0%)	0.81
Non-invasive positive pressure ventilation[4]	115 (28.8%)	3 (30.0%)	0.93
Mechanical ventilation	54 (13.5%)	1 (10.0%)	0.75
Vasopressors	14 (3.5%)	1 (10.0%)	0.28
Extracorporeal membrane oxygenation	2 (0.5%)	0 (0%)	0.83
Pleural drainage	35 (4.5%)	4 (25%)	<0.01

IQR interquartile range, CXR chest xray

[1] Includes CXRs read as favoring pneumonia or definite pneumonia on CXR performed in ED

[2] Parainfluenza 3 (n=1), Rhinovirus/enterovirus (n=2)

[3] Defined by the presence of empyema, abscess, necrotizing pneumonia, or pneumothorax

[4] Includes high-flow nasal cannula, continuous positive airway pressure, bi-level positive airway pressure

Conclusions/Learning Points: Bacteremia is uncommon among children diagnosed with CAP in the ED globally. Although our study demonstrates clinical and radiographic findings are similar between children with and without bacteremia, inflammatory markers are significantly higher among children with bacteremia.

PV0690 / #622

STICKING TO THE FACTS - AN UNUSUAL BACK SWELLING

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: STICKING TO THE FACTS - AN UNUSUAL BACK SWELLING
Background: A, a 7-year-old female of African ethnicity presented with a tender swollen mass to the left mid-back. She reported a three-day history of cough and fever, and three weeks of intermittent back pain, reduced appetite, and weight loss prior to admission. She also reported that she was ‘hit with a stick' to her back by a guardian the day previous to admission.
Case Presentation Summary: Examination of the respiratory system was normal and there was a tender, non-erythematous swelling to the right mid-back,10cm in length. She had an underlying diagnosis of Autistic Spectrum Disorder (ASD) and a sibling had passed away in early childhood following a prolonged illness abroad with a 'neck lump', but his final diagnosis was unclear. Investigations on admission included a of CRP 126 mg/L, neutrophilia and a chest radiograph demonstrating a confluent area of opacification within the right peripheral lower zone and small pleural effusion. CT reported two large enhancing and infiltrative lesions, in the right thorax (5x 2.9 x 3.9cm) and the right posterior lower ribs (7.4 x 3.4 x 9.4cm), and disseminated lymphadenopathy. This extended to adjacent musculature and retroperitoneally into the right posterior renal space. Tissue sampling for microbiology and histology were conclusive for actinomycosis, and she had a full recovery following a prolonged course of oral amoxicillin.
Learning Points/Discussion: Invasive actinomycosis is rare. This diagnostic journey was clouded by suspicion of non-accidental injury (NAI) and concern regarding her sibling's unusual illness. Though there was an invasive bacterial pneumonia, her respiratory signs were mild. A thorough investigation is warranted in those with an atypical history and presentation, and full investigation of any case suspicious for NAI to both safeguard the child and to ensure no underlying medical cause for symptoms.

PV0691 / #71

EFFECT ON NASAL HEALTH OF NUTRITION IN CHILDREN IN HOMA BAY COUNTY, KENYA (ENRICH): AN EXPLORATORY STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Malnutrition contributes to 45% of deaths in children under five, with malnourished children at greater risk of severe pneumonia. Stunted children may have higher rates of pneumococcal carriage, a prerequisite for pneumococcal disease, but the underlying biological mechanisms are unknown.
Methods: The ENRICH study was nested within the PROSYNK study in Homa Bay County, Kenya and enrolled asymptomatic infants from the PROSYNK control arm and their household contacts under five. Weight and height were measured for each child, then paired nasopharyngeal swabs and synthetic absorptive matrix (SAM) samples were collected. Respiratory bacteria and viruses were detected in swabs by species-specific qPCR. Cytokine and metal concentrations in nasal fluid were measured using Luminex and Inductively Coupled Plasma Mass Spectrometry (ICP-MS), respectively. Results were grouped according to Weight-for-Height (WHZ, a measure for wasting) or Height-for-Age (HAZ, a measure for stunting) Z-scores.
Results: 27 PROSYNK control group children and 56 compound contacts were recruited in early 2022. 72 (88%) children asymptomatically carried a respiratory bacterial pathogen, and 15 (18%) children were asymptomatically infected with a respiratory virus, the most common being SARS-CoV-2. Nasal levels of GCSF, IL-10, eotaxin, IL-17A, MCP1, HGF, VEGFα, IFNγ, TNFα, IL-2, IL-2R and IL-7 were higher in children with lower WHZ scores when carrying bacteria but not virus. In children with lower HAZ scores, IL-13 and RANTES levels were higher and IL-1RA lower when carrying bacteria but no virus, whereas IL-2 concentrations were higher in the absence of any respiratory pathogen. Concentrations of calcium and magnesium were positively correlated with HAZ score.
Conclusions/Learning Points: This study provides preliminary insights into changes at the nasal mucosa in malnourished children. Differences in nasal cytokine and micronutrient levels could alter susceptibility to respiratory pathogens.

PV0692 / #2631

THE USE OF CEFIDEROCOL TO TREAT A MULTIRESISTANT STENOTROPHOMONAS MALTOPHILIA VENTILATORY ASSOCIATED PNEUMONIA IN AN EXTREME PRETERM NEONATE.

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: THE USE OF CEFIDEROCOL TO TREAT A MULTIRESISTANT STENOTROPHOMONAS MALTOPHILIA VENTILATORY ASSOCIATED PNEUMONIA IN AN EXTREME PRETERM NEONATE.
Background: Ventilator-associated pneumonia (VAP), a complication of mechanical ventilation caries a morbidity and mortality risk in the pre-term neonate. Cefiderocol, a siderophore cephalosporin, has broad gram-negative antimicrobial activity, and CNS penetration and is licensed for the treatment of hospital-acquired or VAP in adults. There are no published data on neonates.
Case Presentation Summary: A female neonate born at 26+6/40 gestation developed apnoeas, abdominal distention and raised inflammatory markers on day 14 of life, requiring mechanical ventilation and broad-spectrum antibiotics (meropenem and vancomycin). Her clinical symptoms and inflammatory markers improved over 72 hours, but she developed an increasing oxygen requirement and pneumonia on a chest x-ray. Two endotracheal aspirates cultured a pure growth of Stenotrophomonas maltophilia, resistant to trimethoprim/sulfamethoxazole, ceftazidime and ciprofloxacin. Cerebrospinal fluid showed an elevated white cell count but was culture negative; as were serial blood cultures. Given the extensive antibiotic resistance and ongoing clinical deterioration, cefiderocol monotherapy was given at 30 mg/kg/tds for 10 days. Within 72 hours of starting cefiderocol, the neonate was extubated with clinical improvement. Further antimicrobial susceptibility testing of the S. maltoophilia isolate revealed a 28mm disk zone to cefiderocol (susceptible >/=17mm as per CLSI guidance).
Learning Points/Discussion: Cefiderocol was integral for the care of our critically-unwell premature neonate with multidrug-resistant VAP. We provide the first published data on its off-label use in this population. No immediate adverse safety consequences were evident. Dosing data were obtained from conference proceedings and expert consensus. The paucity of evidence is concerning given the high rates of infections due multidrug-resistant pathogens in neonates worldwide, frequently resulting in prolonged hospital stay and significant morbidity and mortality.

PV0693 / #1495

NON RESPONDING COMMUNITY ACQUIRED PNEUMONIA, CONSIDER DRSP

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: Non responding Community Acquired Pneumonia, consider DRSP.
Background: CAP not responding to appropriate first line antibiotic is a therapeutic challenge for clinician and significant health threat for a child patient. Structured clinical review and timely imaging usually suffice, microbiology needed occasionaly. Presented herewith a case of non responding CAP due to MDRSP, responding to antimicrobial escalation.
Case Presentation Summary: A 9 years old boy referred for persistent fever of 6days, early vomiting, cough with streaks of blood , inspite of oral co amoxy-clav 3days, cefuroxime 3days. Examination revealed severe, hypoxic CAP . Empiric IV ceftriaxone 100mg/kg/day, cloxacillin 100 mg/kg/day, oral Azithromycin,oseltamivir with supportive treatment was started. Hb 11, TWBC1900/cmm,P75,L21,E0,M4, platelets1.32L/cmm, ESR65mm, CRP327mg/L, Xray chest Rt. middle, lower lobe homogenous opacity,air bronchogram.USG chest-consolidation, no pleural fluid. After marginal clinical improvement over 48hours, hypoxia, fever, tachypnoea, retractions increased with vomiting and lethargy. Hb10.4, TWBC 5900, P68, L 20, E4,M8, platelets 1.74L, CRP67mg/L. USG chest- Consolidation Rt.middle, lower lobe, minimal non-tappable pleural effusion., sputum PC 25/hpf ,gram, ZN stains, geneXpert negative. Blood culture D1 Streptococcus Pneumoniae Susceptible to penicillin,cefotaxime, Quinolones,Clindamycin,vancomycin,Linezolid,tetracycline rifampicin; Resistant to Erythromycin,TMP SMX.(MDRSP-PSSP) As per structured analysis of persistent /non responding CAP 1) wrong diagnosis-confirmed pneumonia 2) complications- Local- significant pleural effusion, abscess, necrotizing pneumonia, Distant- TSS, Metastatic infections excluded 3) wrong bug- TB excluded 4) Wrong antibiotic-selection, route, dose, duration- excluded 5) Immunocompromise - no background & normal WBC-reasonably excluded 6) Resistant Organism- MDRSP sensitive to penicillin & ceftriaxone With clinical antimicrobial failure, vancomycin was started to which child responded in 48 hours with complete resolution in 8days Vi tek Advanced Expert System flagged red of Beta lactam resistance (modification of PBP)
Learning Points/Discussion: Growing AMR is becoming clinically relevant in non invasive pneumococcal disease.

PV0694 / #1582

COMPLICATED PNEUMONIA IN CHILDREN/A PICU EXPERIENCE IN THE FIRST POST-COVID YEAR

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Complicated pneumonia (CP) is an uncommon but severe condition in children, with an increasing incidence after post-COVID-19 lockdown strategies discontinuation. Managing patients with CP is challenging as no definite guidelines exist. Antibiotics alone, chest tube drainage +/- fibrinolytics, video-assisted thoracoscopy (VATS) and open thoracotomy (OT) with decortications are among accepted treatment with significant variability and different modalities. The aim of this study is to present children with CP treated in our department, in the first post-covid year.
Methods: A retrospective analysis of patients (age ≤18 years) managed with CP, between January 2022 to December 2022, in our department in a tertiary-level teaching hospital.
Results: 9 children with CP with a mean age of 7.04 years old, were admitted to our unit from January to December 2022 (5 boys, 4 girls). All had high temperature, respiratory distress with elevated inflammation markers, abnormal x-rays, US and CT of the chest. Six underwent thoracostomy and 2 received fibrinolytics. Streptococcus pneumonia was the pathogen most commonly detected by polymerase chain reaction (PCR) of blood and/or pleural fluid (6/9), followed by Staphylococcus aureus (1/9). One respiratory viral PCR panel detected rhinovirus/enterovirus. COVID19 was not detected in any of the samples. One patient, a 11.5-year old girl, with an underlying comorbidity remained intubated for 20 days. PICU hospitalization duration was 3-30 days (mean 3.62). Only 2 children needed additional surgical treatment. All patients survived.
Conclusions/Learning Points: The majority of CPs in children can be successfully treated with a conservative approach. Some of them may need surgery. Indications and timing of surgical procedures are controversial. Further studies are required for children's best treatment management. Up to date 2022/J Pulm Respir Med, Volume 12:6, 2022 https://www.rch.org.au/clinicalguide/guideline/empyema

PV0695 / #620

ANTIMICROBIAL RESISTANCE IN PAEDIATRIC PATIENTS WITH PNEUMOCOCCAL INFECTION IN HONG KONG – EPIDEMIOLOGICAL ANALYSIS OF MEDICAL RECORDS 2012-2019

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Streptococcus pneumoniae(Sp) is one of the aetiology for paediatric infections. The pathogen can cause pneumonia, invasive pneumococcal disease(IPD) and otitis media(OM), which might lead to bacteraemia and meningitis. This study aims to identify the characteristics of antimicrobial resistance(AMR) and serotypes for the Sp isolated.
Methods: Data were retrieved from the population-wide Clinical Data Analysis and Reporting System(CDARS), for hospitalisation episodes with IPD, invasive infections, and OM from 2012 – 2019. Patients aged <18 years diagnosis were defined by International Classification of Diseases, 9th Revision, Clinical Modification(ICD-9-CM). Collected data include patient demographics, diagnoses, and microbiological culture and laboratory test results – including antimicrobial sensitivity and serotyping. Laboratory results were captured within ±28 days from the date of admission. Hospital admissions within ±28 days of the index hospitalization were considered as the same episode. Descriptive statistics were tabulated by each hospitalisation episode for (1)antimicrobial susceptibility (Sensitive/Intermediate/Resistance); and (2)serotype of the isolate.
Results: Of all 40503 episodes identified from 37661 patients, 64% had pneumonia. Other manifestations include bacteraemia(23%) and OM(9%). Sp isolates from 723 episodes were tested for antimicrobial susceptibility. Among the tested isolates, 12% had no evidence of antimicrobial resistance, another 38% were resistant to 2 antibiotics. Of the antibiotics tested, some notable antibiotics with non-susceptibility include Tetracycline(94%), Azithromycin(87%), Erythromycin(86%), Penicillin(28%). For isolates from 85 episodes, serotype information was available. Serotype 3 was the most prevalent serotype, accounting for 41% of all tested isolates and 40% among isolates with evidence of AMR (intermediate/resistance).
Conclusions/Learning Points: AMR is found common in pneumococcal diseases in kids and adolescents. Despite the high uptake of pneumococcal vaccines among children, serotype 3 remains the dominant serotype among patients with AMR. Future vaccine development should address efficacy against infection by serotype 3.

PV0696 / #2696

INVASIVE GROUP A STREPTOCOCCAL INFECTION: RAPID DIAGNOSIS IN CHILDREN WITH PARAPNEUMONIC EFFUSION BY PCR

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Background: Parapneumonic effusion is a complication of severe pneumonia in children, and will require prolonged antibiotics. During the latest increase in invasive Group A Streptococcal (GAS) infections in children most of the severe pneumonia with effusion is caused by GAS infection. However, identification of the pathogen can be difficult, as cultures of upper respiratory tract specimens in children often will reflect throat and upper colonization. Multiplex PCR assays has not been approved for pleural fluid and can only identify a selected group of pathogens. However, it has been used in children with complicated pneumonia at our department since 2021.
Methods: This year, until 8th of March, we identified 11 patients with pleuraeffusion due to invasive GAS infection and severe pneumonia. All the included patients were treated with pleural drainage, at Department of pediatrics at Rigshospitalet, which is a tertiary care referral center for chest tube drainage for eight pediatric departments (2.6 million inhabitants). This is a high increase. Medical records were reviewed for clinical and laboratory data, including microbiological results.
Results: All 11 patients identified with parapneumonic effusion due to GAS infection were investigated with multiplex PCR (BioFire FilmArray Pneumonia Panel; Biomerieux). In 27 % (3/11) og the patients GAS was also found in blood culture, 36% (4/11) in pleural fluid culture. 7 patientes had a respiratory tract specimen made, and of these 71% (5/7) GAS was also found here. (table1) (The results are partly and among others, included in report submitted to Acta
Paed.)

TABLE 1 Patients aged 0-17 years with Invasive GAS pneumonia and parapneumonic effusion treated with chest tube drainage at Copenhagen University Hospital, Rigshospitalet 1st Jan – 8th March 2023.

No	YEAR	AGE	CAUSATIVE BACTERIA	CULTURE			MULTIPLEX PCR[1]		ANTIBIOTICS[2]	VIRUS[3]
				Blood	Pleural fluid	Respiratory tract specimen	Pleural fluid			Respiratory tract specimen
							Bacteria	Copies/mL	Hours	
1	2023	0	Group A *Streptococcus*	+	+	NI	+	10^6	3	hMPV, adeno- and rhinovirus
2	2023	2	Group A *Streptococcus*	-	-	NI	+	10^5	96	hMPV
3	2023	3	Group A *Streptococcus*	-	-	+	+	10^5	240	VZV
4	2023	4	Group A *Streptococcus*	-	+	NI	+	10^4	7	hMPV
5	2023	1	Group A *Streptococcus*	-	+	NI	+	$\geq 10^7$	30	Influenza A
6	2023	2	Group A *Streptococcus*	-	-	+	+	$\geq 10^7$	59	hMPV
7	2023	5	Group A *Streptococcus*	-	-	-	+	10^4	192	hMPV
8	2023	8	Group A *Streptococcus*	-	-	+	+	10^6	120	-
9	2023	5	Group A *Streptococcus*	+	+	+	+	$\geq 10^7$	5	Influenza B
10	2023	1	Group A *Streptococcus*	+	-	-	+	$\geq 10^7$	32	hMPV
11	2023	1	Group A *Streptococcus*	-	-	+	+	$\geq 10^7$	11	VZV

'-' = Pathogen *not identified*; '+' = Pathogen *identified*; MRSA = methicillin-resistant *Staphylococcus aureus*; MSSA = methicillin-sensitive *Staphylococcus aureus*; NA = not available; NI = not investigated; RSV = respiratory syncytial virus; VZV = varicella-zoster virus; hMPV= human metapneumovirus

[1] The assay identifies 18 bacterial pathogens with semi-quantitative results, seven antimicrobial resistance genes, and eight viruses (https://www.biofiredx.com/products/the-filmarray-panels/filmarray-pneumonia). Semi-quantitative concentrations were given as 10^4, 10^5, 10^6, and $\geq 10^7$ genome counts/mL

[2] The duration of antibiotics covering the pathogen before pleural fluid investigation

[3] Viral co-infection was identified in upper airway secretion by either SeeGene Allplex™ Respiratory Panel Assays (Roche cobas Liat influenza/RSV assay) or BioFire FilmArray Respiratory Panel 2/Pneumonia Panel.

Conclusions/Learning Points: PCR on pleural fluid has the advantage of delivering a test result within a few hours, and will help clinicians with early targeted antibiotic treatment, in contrast to more conventional cultures and respiratory tract specimens.

PV0697 / #1414

PREVALENCE OF BACTEREMIA IN CHILDREN HOSPITALIZED WITH PNEUMONIA IN LUANDA (ANGOLA)

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: In previous studies the prevalence of bacteremia in paediatric community acquired pneumonia (CAP) has been shown to be low globally. The reported rates have ranged between 1.1-11.4%. Our objectives were to (1) to determine the rate of bacteremia in Angolan children hospitalized with pneumonia and (2) to observe if any demographic/ clinical characteristics or outcomes were associated with positive blood cultures.
Methods: This is a prospective, observational study of children hospitalized with pneumonia in Hospital Pediátrico David Bernardino, Luanda. Patients were previously healthy and aged between 2 months-13 years. Children with sickle cell disease or HIV were not excluded. Blood cultures were performed at the study hospital.
Results: 372 children with admission diagnosis of pneumonia and a lung x-ray were enrolled between September 2019 and May 2021. Blood cultures were performed in 328/372 (88%) cases. 66/328 (20%) of the cultures were positive. Mortality was higher (8% vs 3%), and median age lower (2.4 vs 3.4y) in bacteremic children compared with cases with negative bacterial cultures, but the differences were not statistically significant. No significant differences were either found in breastfeeding, fever duration/antibiotic treatment before admission, PICU admissions, pleural complications, need of respiratory support, C-reactive protein values or white blood cell counts. Table 1. Staphylococcus aureus was the most common pathogen identified (n=23) followed by Klebsiella (n=14). 40/66 (61%) of the identified pathogens were gram-
negative.

	All patients	Positive blood culture	Negative blood culture	p
N (%)	372 (100)	66 (18)	246 (66)	
Female	177 (48)	31 (47)	113 (46)	0.90
Age (y)	3.15 [1.55-6.21]	2.38 [1.39-4.98]	3.43 [1.62-6.47]	0.062
Breastfed (< 2y) †	90/126 (71)	16/27 (59)	56/77 (73)	0.23
SCD	96 (26)	16 (24)	66 (27)	0.75
HIV	14 (4)	0 (0)	10 (4)	0.13
Malnutrition †	106/367 (29)	22/63 (35)	70/244 (29)	0.36
Vaccinations reported as "Up to date" †	219/338 (65)	34/61 (56)	154/223 (69)	0.066
Reported antibiotic use prior to admission †	143/356 (40)	24/63 (38)	101/236 (43)	0.57
Median duration of fever before admission (days)	4.0 [2.0-7.0]	4.0 [2.0-6.0]	4.0 [2.0-7.0]	0.77
Length of stay (days) (median [IQR])	7 [3-14]	4 [2-15]	8 [3-14]	0.19
Died in hospital	18 (5)	5 (8)	7 (3)	0.14
PICU admisson †	5/369 (1)	2/66 (3)	3/245 (1)	0.29
Respiratory support needed †	183/371 (49)	34/66 (52)	119/245 (49)	0.68
Empyema	63 (17)	14 (21)	42 (17)	0.47
Pleural effusion	24 (6)	2 (3)	15 (6)	0.54
Chest tube	57 (15)	13 (20)	37 (15)	0.35
WBC (1000 /microliter)	17.3 [11.0-25.6]	14.6 [9.6-22.4]	17.7 [11.3-25.4]	0.21
CRP at enrollment (mg/L)	136 [75-180]	136 [58-180]	135 [77-180]	0.93

† proportions reported among those childen who had this data documented

Conclusions/Learning Points: The prevalence of bacteremia in this study was higher than usually reported in children hospitalized with CAP, suggesting that it is a relevant assay when investigating the aethiology of paediatric CAP in Angola.

PV0698 / #859

MASSIVE PROGRESSIVE EMPYEMA DESPITE PROPER ANTIBIOTHERAPY AS A COMPLICATION OF STREPTOCOCCUS PYOGENES PNEUMONIA.

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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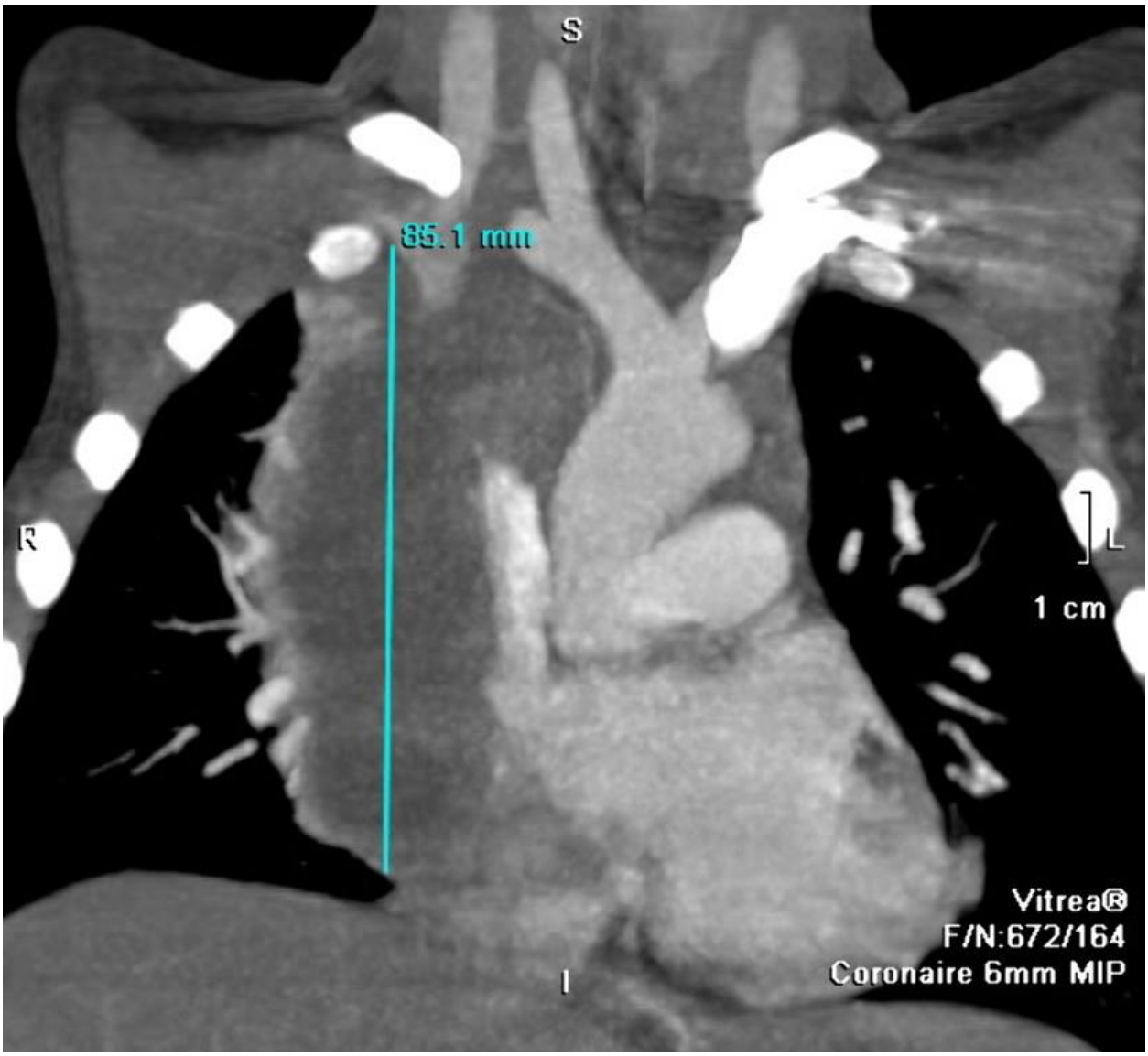
Title of Case: Massive progressive empyema despite proper antibiotherapy as a complication of Streptococcus pyogenes pneumonia.
Background: Community-acquired pneumonia is a common cause of pediatric hospitalization, especially in children under five. Most of them are easily treated with narrow-spectrum antibiotics, but some develop complications, with especially parapneumonic effusions.
Case Presentation Summary: We report here the case of a previously healthy four-year-old boy treated conservatively for a right pneumonia with parapneumonic effusion. After four weeks of antibiotics (three of intravenous penicillin and one of oral amoxicillin) with initial improvement, CRP and fever increased again. A chest CT demonstrated a voluminous mass occupying the middle, anterior and posterior part of the mediastinum. A malignant tumor was initially suspected on the basis of radiological images. A thoracoscopy for biopsy was performed and an abundant purulent discharge was observed in the pleural spaces. A massive empyema had developed. The pus was analyzed and a 16S pan-bacterial PCR identified a Streptococcus pyogenes. This patient finally recovered after 6 weeks of post-drainage antibiotics, including two given
intravenously.


S
85.1 mm
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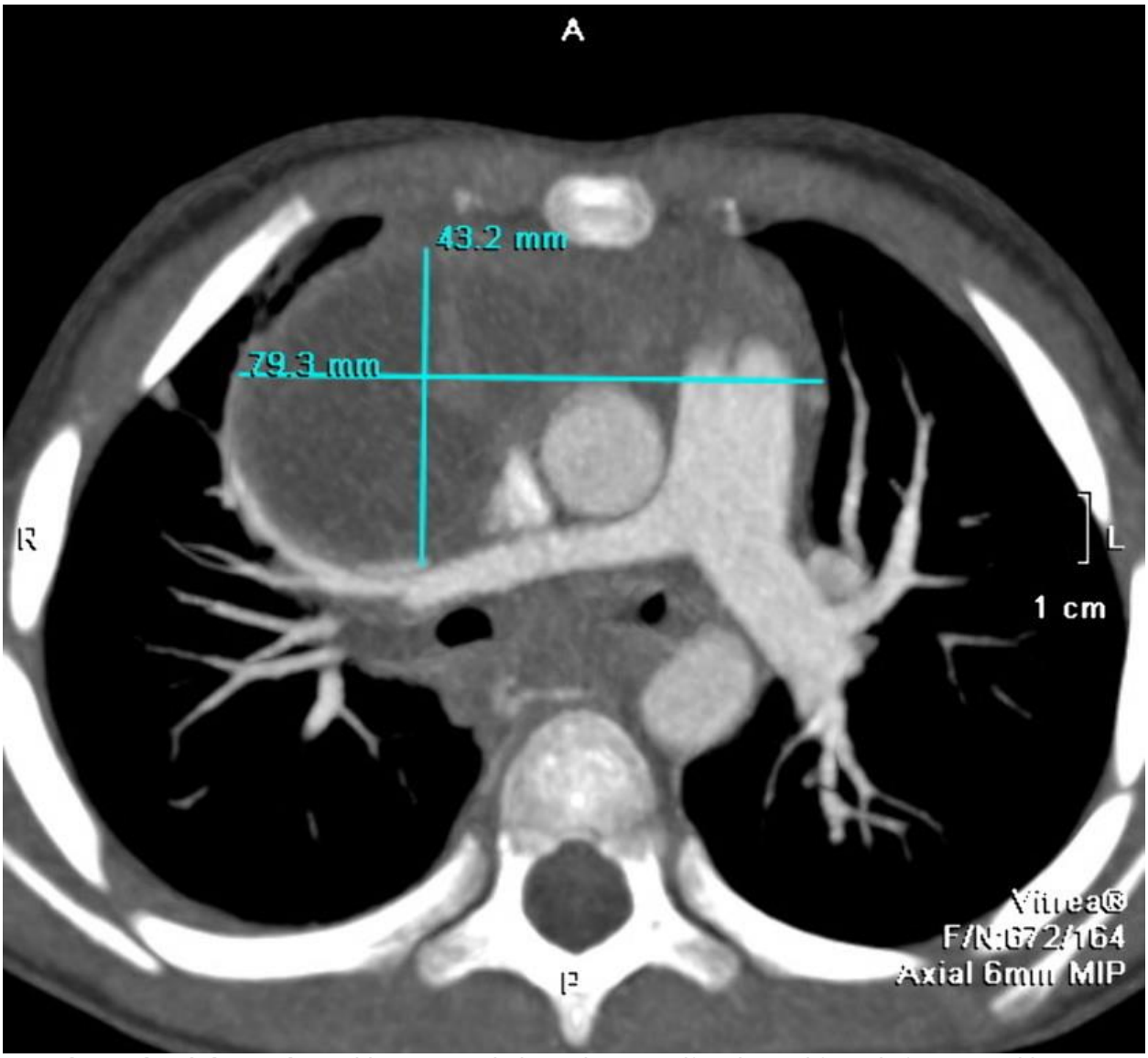

Learning Points/Discussion: This case reminds us that even if prolonged fever is frequent with empyema, close follow-up is key to ensuring complete resolution. It also highlights that although Streptococcus pneumoniae is the most common cause of pneumonia in children, pneumonia and empyema due to Streptococcus pyogenes are increasing. Empyema due to Streptococcus pyogenes seems to be associated with higher risk of complications compared with Streptococcus pneumoniae, with larger effusion, longer hospital stay, but also longer time before defervescence, even with adequate antibiotherapy.

PV0699 / #1806

CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS IN CHILDREN WITH COMMUNITY-ACQUIRED PNEUMONIA: A 10 YEAR MULTICENTRIC RETROSPECTIVE STUDY IN PORTUGAL

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Community-acquired pneumonia (CAP) represents significant burden in children's health. The aim of this study was to characterize the demographic and clinical features of children admitted for CAP.
Methods: Retrospective descriptive study of children admitted to the hospital aged 0-18 y-old with diagnosis of CAP from 2011 to 2021 in two level II hospitals in Lisbon, Portugal. CAP diagnosis was based upon clinical and imagiological evidence. Statistical analysis was conducted in SPSS®.
Results: In a total of 512 children, 362 were uncomplicated CAP (UCAP), 85 uncomplicated pleural effusions, 46 empyemas, 14 necrotizing pneumonias and 5 pulmonary abscesses. Median age was 3 y-old (interquartil range: 1,7-7,0). 48% of the UCAP and 32% of the complicated CAP (CCAP) had PCV13. 135 children had comorbidities, the most frequent was sickle cell disease (SCD). Fever was the main symptom (92%), 38% had gastrointestinal symptoms. 20% of the UCAP had normal breath sounds. The C-reactive protein (CRP) was statistically different between UCAP and CAP (p-value<0,001, mean value for UCAP 13,8mg/dl, CCAP 18,9mg/dl). 32% CCAP had an agent identified (46% S.pneumoniae). There were 39 CAP in the SCD group, 33% had normal breath sounds, 9 were CCAP with mean CRP value 11,1mg/dl, whilst in the UCAP was 8,9mg/dl.
Conclusions/Learning Points: Most of the data are according to the scientific literature. Nevertheless, gastrointestinal symptoms and normal breath sounds were frequent, raising the need for clinical suspicion for its diagnosis. SCD patients, a rare disease, yet frequent amongst our population, were paucisymptomatic. The CRP is tendentially lower in patients with UCAP, but it is not enough to distinguish between UCAP and CCAP.

PV0700 / #1040

STREPTOCOCCAL DISEASE CAUSING EMPYEMA AND CATECHOLAMINE RESISTANT SHOCK

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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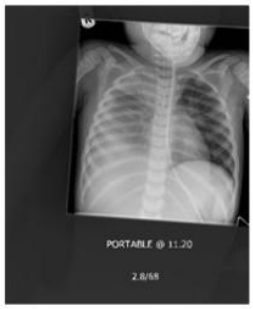
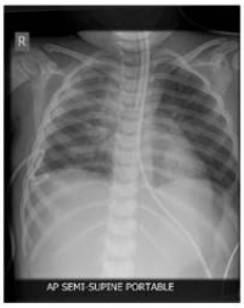
Backgrounds: We report a case of a four year old with invasive Group A Streptococcal disease manifesting as Pneumonia and Empyema.
Methods: He had presented to ED with fever, lethargy, blanching erythematous rash and cold extremities. His capillary refill time was prolonged at 7s, with HR of 172b/min and systolic BP of 60mHg. Following 60ml/kg of fluid resuscitation, he was ventilated, and transferred to PICU on inotropic support. In spite of maximal doses of Adrenaline and Noradrenaline infusions, his MAP was not maintained above 55 mmHg. He received 120ml/kg of Hartman solution, 20ml/kg each of Packed cells and FFP and a septic dose of Hydrocortisone. Following CXR, (figure 1) a chest drain released 420ml of purulent fluid. An Echocardiogram revealed poor myocardiac function but no pericardial effusion. Following addition Vasopressin, his MAP improved to above 60mmHg. He required some active cooling for a core temperature of 42.4^{o}C. Vasopressin was weaned slowly and replaced with Milronone on Day 2 on PICU admission.
Results: Pleural fluid isolated group A streptococcus (emm type 6.0). Antibiotics was switched to high dose Benzyl Penicillin and Clindamycin. Inotropes were weaned off slowly until Day 6 of admission. He developed some dark discoloration and blisters on his toes but this did not result in necrosis or limb amputation. He required hemofiltration for seven days for a renal failure. He made good recovery and was discharged on the third week for follow
up.

Figure 1.



x-rays showing a Right Pneumonia and Empyema on admission.



x-rays with chest drain following thoracocentesis of purulent fluid.

Conclusions/Learning Points: Our case highlights the virulence of GAS infection and how clinicians need to be familiar with uncommon presentation of invasive disease in children. Early recognition of group A streptococcus as a cause of empyema and shock can result in good outcomes.

PV0701 / #1421

PNEUMONIA? IT'S COMPLICATED...

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: Pneumonia status? It's complicated...
Background: Although complicated community-acquired pneumonia is rare in paediatric patients, it's the most frequent cause of morbidity and mortality in children between 28-days and 5-years of age. Despite some studies have been done to establish the better therapeutic approach, the treatment is still a challenge.
Case Presentation Summary: A previously healthy 2-year-old boy with updated routine vaccination, presented to the emergency department with 4 days of high fever, cough and anorexia. X-ray was performed and he was discharged with oral amoxicillin for pneumonia. 4 days later he returned for persistent fever, dyspnea, and groaning. At observation he had infracostal retraction and decreased left breath sounds. X-ray revealed a hypotransparency on the middle/upper right lobe and inferior left lobe and blood tests a PCR increase (5.9 mg/dL), without leucocytosis. He was admitted with the diagnosis of bilateral lobar pneumonia and started ampicillin. 72 hours later, a new x-ray and thoracic ultrasound were performed for persistent fever and demonstrated a small pleural effusion. Ampicilin was switched to ceftriaxone plus clindamycin. After 72 hours of no clinical and laboratorial improvement, thoracic CT was performed, revealing an extended consolidation on the right and left side, signs of necrotizing pneumonia with pneumatoceles, 2 small abscesses and bilateral mild pleural effusion. Vancomycin was added and he was afebrile in 24 hours. He was discharged after 3 weeks of intravenous antibiotics, with radiologic, analytic, and clinical improvement. Thoracic CT was performed 4 months later, showed a significant improvement, without sequels.
Learning Points/Discussion: Complicated community-acquired pneumonia should be suspected in any child with pneumonia not responding to appropriate antibiotic treatment within 48-72h. In this case, conservative treatment was sufficient, without need to resort to surgical intervention, with complete clinical recovery.

PV0702 / #2197

INVASIVE NON-TYPABLE HAEMOPHILUS INFLUENZAE IN A PREVIOUSLY HEALTHY MALE ADOLESCENT

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Title of Case: INVASIVE NON-TYPABLE HAEMOPHILUS INFLUENZAE IN A PREVIOUSLY HEALTHY MALE ADOLESCENT

Background: The introduction of the Haemophilus influenzae (Hi) type b vaccine has had a significant impact on Hi invasive disease worldwide. Non-typeable Hi (NTHi) usually causes acute otitis media and sinusitis, but an increase in NTHi invasive disease has been reported in the last decade, especially in the elderly and children before the age of 5 years-old.

Case Presentation Summary: A previously healthy 15-year-old male adolescent, who had returned from a 3-week Costa Rica vacation, came to the paediatric emergency room reporting general malaise, high fever and shivers. He had been immunized with hepatitis A and typhoid fever vaccines prior to the trip. The remaining vaccine schedule was updated. He was pale, febrile and the remaining vital signs and physical examination were normal. Blood count revealed WBC 4500/Ul (N 34.9%, Ly 49.1%) with a C-reactive protein 4,63mg/dL. An x-ray was performed showing a bilateral perihilar infiltrate and no condensations. Blood cultures were pending, and he was discharged on azithromycin. A non-typeable Haemophilus influenzae was isolated in the blood culture and he was summoned for observation. He had improved and his fever was lower, but he was still started on ceftriaxone completing a 5-day course of treatment, with complete recovery. Primary and secondary immunodeficiencies were ruled out, and there was no functional or anatomic asplenia.

Learning Points/Discussion: Carriage of NTHi has been increasing after the introduction of pneumococcal and Hib conjugated vaccines, and probably underlies the higher rates of invasive NTHi. We report a healthy adolescent with NTHi bacteremia, highlighting the importance of timely blood cultures in patients presenting fever and shivers, irrespective of the age.

PV0703 / #1066

OUTCOMES AMONG THAI CHILDREN WITH RISK CONDITIONS HOSPITALIZED FOR PNEUMOCOCCAL DISEASE (INVASIVE OR NON-BACTEREMIC PNEUMONIA): A MULTICENTER, OBSERVATIONAL STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

Ruangwit Thamaree[1], Wanatpreeya Phongsamart[2], Kristen Allen[3], Warunee Punpanich[4], Chonnamet Techaseansiri[5], Pope Kosalaraksa[6], Kamolwish Laoprasopwattana[7], Puttichart Khantee[7], Songkiat Udompornwattana[8], Detchvijitr Suwanpakdee[9], Tavitiya Sudjaritruk[10], Thanyawee Puthanakit[11], Suvaporn Anugulruengkitt[11], Jo Southern[12], Mark Fletcher[13], Eileen Dunne[3], Graciela Morales[14], Kulkanya Chokephaibulkit[2], Tawee Chotpitayasunondh[4]
[1]Pfizer (Thailand), Medical Affairs, Bangkok, Thailand, [2]Mahidol University, Faculty Of Medicine Siriraj Hospital, Bangkok, Thailand, [3]Pfizer, Vaccines, Minneapolis, United States of America, [4]Queen Sirikit National Institute of Child Health, Pediatrics, Bangkok, Thailand, [5]Ramathibodi Hospital Mahidol University, Pediatrics, Bangkok, Thailand, [6]Khon Kaen University, Pediatrics, Khon Kaen, Thailand, [7]Prince of Songkla University, Pediatrics, Hat Yai, Thailand, [8]Buddhachinaraj Hospital, Pediatrics, Phitsanulok, Thailand, [9]Phramongkutklao Hospital, Pediatrics, Bangkok, Thailand, [10]Chiang Mai University, Pediatrics, Chiang Mai, Thailand, [11]Chulalongkorn University, Pediatrics, Bangkok, Thailand, [12]Pfizer UK, Clinical Affairs, Surrey, United Kingdom, [13]Pfizer Emerging Markets, Medical Affairs, Paris, France, [14]Pfizer Inc, Emerging Markets Medical Affairs, Vaccines, San Jose, Costa Rica

Backgrounds: Each year, Streptococcus pneumoniae disease causes approximately 14% of all deaths in children aged under 5 years worldwide (WHO, 2021), with most deaths occurring in low- or middle-income countries. S. pneumoniae causes a spectrum of diseases, from mucosal infections such as acute otitis media and non-bacteremic pneumonia to severe invasive pneumococcal disease (IPD), including septicemia, meningitis, and bacteremic pneumonia. However, there is limited evidence regarding the demographics, clinical characteristics, and outcomes of children in Thailand presenting with IPD. The objective of this study was to describe the risk condition status and clinical outcomes among Thai children hospitalized with pneumococcal disease.
Methods: In this retrospective analysis, pediatric patients with invasive pneumococcal disease (IPD) or X-ray confirmed non-bacteremic pneumococcal pneumonia (NBPP) were identified from nine hospitals from 2010-2019 in Thailand. Data on risk factors and outcomes were extracted from medical records.
Results: In total, 413 cases were identified, 319 IPD and 94 NBPP. Overall, 133 (32.2%) patients were admitted to the intensive care unit and 11/406 (2.7%) died. Twenty-seven percent of IPD cases had at-risk conditions; 15% had high-risk conditions. Most IPD cases (32.9%) occurred in children aged 2-4 years and most NBPP cases (28.7%) occurred in infants aged 0-11 months. Of 51 Streptococcus pneumoniae isolates collected, 41 (80%) were PCV13 serotypes. Only 5.1% of children had received a pneumococcal vaccine.
Conclusions/Learning Points: Most children with IPD and NBPP had no risk condition, while 42% of the children had at-risk or high-risk conditions for pneumococcal disease. Very few children in the cohort had received any type of pneumococcal vaccine. Increasing the availability of pneumococcal conjugate vaccines should be considered to reduce the burden of pneumococcal disease among children in Thailand.

PV0704 / #751

PEDIATRIC NON-INVASIVE PNEUMOCOCCAL PNEUMONIA IN PORTUGAL (2017-2022): DOMINANCE OF SEROTYPES 11A AND 23B AND THE CONTINUED IMPORTANCE OF VACCINE SEROTYPES 3 AND 19F

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

Catarina Silva-Costa, Joana Gomes-Silva, Mário Ramirez, José Melo-Cristino, . The Portuguese Group For The Study Of Streptococcal Infections, . The Portuguese Study Group Of Invasive Pneumococcal Disease Of The Pediatric Infectious Diseases Society
Faculdade de Medicina de Lisboa, Instituto De Microbiologia, Lisboa, Portugal

Backgrounds: Although pediatric invasive pneumococcal disease (IPD) is well characterized, less is known regarding the epidemiology of non-invasive pneumococcal pneumonia (NIPP). The aim of this work was to characterize the pneumococcal population causing NIPP in children (<18 years) in Portugal in 2017-2022.
Methods: A total of 167 respiratory tract isolates recovered in 62 hospitals between January 2017 and December 2022 were characterized by serotyping.
Results: A decrease in reporting of NIPP cases was noted, possibly due to the COVID-19 pandemic. Overall, 79 isolates expressed serotypes not included in any conjugate vaccine (47%). Serotypes included in PCV7 accounted for 13% of the isolates (n=21), while PCV13 serotypes were found in 39 isolates (23%). The serotypes included in PCV15 accounted for 44 isolates (26%). Slightly more than half of the isolates (53%, n=88) expressed serotypes included in PCV20. Serotype 11A was the most frequent, accounting for 17% (n=29), followed by serotype 23B (11%). Vaccine serotypes 3 and 19F were responsible for 8% of NIPP cases (each). Throughout the study period, the proportion of infections caused by non-PCV20 serotypes and PCV7 serotypes decreased from 58.6% to 37.5% and from 17.2% to 12.5%, respectively, while the opposite trend was detected for serotypes included in PCV13 and PCV15 (27.6% to 37.5% both) and in PCV20 serotypes (from 41.4% to 62.5%), all non-significant.
Conclusions/Learning Points: Despite more than 2 decades of conjugate vaccine use, serotype 19F is still an important serotype in pediatric NIPP, along with serotype 3, which is a very important serotype also in IPD. Serotypes included in PCV20 are becoming important causes of disease, reinforcing the potential usefulness of higher valency vaccines in the pediatric population.

PV0705 / #2686

V-212, A PEPTIDE-BASED SEROTYPE-INDEPENDENT VACCINE CANDIDATE AGAINST STREPTOCOCCUS PNEUMONIAE

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Virometix AG, R&d, Schlieren, Switzerland

Background: Streptococcus pneumoniae (Spn) is a leading cause of a wide range of bacterial infections including otitis media, community-acquired pneumonia, meningitis and bacteremia, with considerable morbidity and mortality worldwide. Current prophylaxis is based on capsular polysaccharide vaccines, plain or conjugated to protein carriers, that are periodically updated to cover for the circulating serotypes. Young children under 2 years of age, the elderly and individuals with weakened immune systems are still vulnerable to infection due to emerging serotypes not covered by current vaccines. To circumvent the need for new vaccines composition and to provide broad serotype coverage, we are developing V-212, a peptide-based vaccine candidate based on a small number of well-conserved antigenic epitopes presented on a synthetic nanoparticle (Virometix SVLP platform).
Methods: The antigenic epitopes, parts of Spn virulent surface protein domains shared among serotypes, were synthesized using solid-phase peptide synthesis and subsequently conjugated to a lipopeptidic backbone carrying elements to activate innate and adaptive immune responses.
Results: V-212 is immunogenic in mice and rabbits with durable epitope-specific antibody responses. In two lethal sepsis mouse models, administration of V-212 prevents pneumococcal disease by reducing bacterial presence in lungs, and extends animal survival by blocking bacterial dissemination in blood, both after intranasal challenge with serotypes 3 and 8. Moreover, antibodies triggered upon V-212 immunization recognize and bind whole bacterial cells of various PCV13 vaccine and non-vaccine serotypes.
Conclusions/Learning Points: V-212 is a novel vaccine candidate against Spn. Additional efficacy studies and studies to elucidate the mechanism of protection conferred by V-212 will allow us to further proceed to the candidate’s non-clinical development.

PV0706 / #2121

DECLINE IN THE INCIDENCE OF PNEUMOCOCCAL EMPYEMA AMONG PEDIATRIC PATIENTS DURING COVID-19 PANDEMIC: CENTRAL GREECE, 2011-2022

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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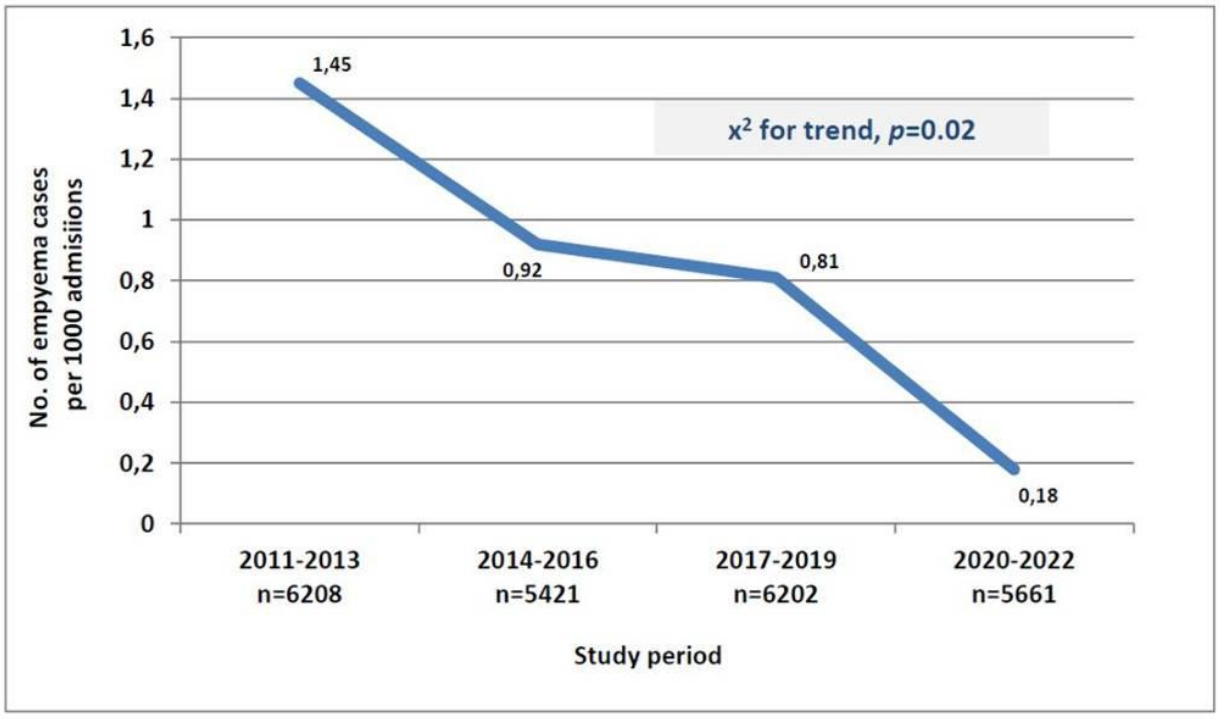
Backgrounds: Pleural empyema is a complication of pediatric community-acquired pneumonia mostly due to Streptococcus pneumoniae. In Greece, the 13-valent pneumococcal conjugate vaccine (PCV) was introduced in June 2010 and since July 2010 it has been the most used PCV. The first case of SARS-CoV-2 infection was announced on February 26th resulting initially in a full lockdown, followed by several non-pharmacological interventions. Previously reported experience of viral epidemics has shown the increase of bacterial coinfections or post-viral superinfections, such as sepsis and/or pneumonia.
Methods: We studied all pediatric pneumococcal empyema cases admitted to the University General Hospital of Larissa before and during Covid-19 pandemic (2011-2022).
Results: There were 20 cases of empyema due to S. pneumoniae among children aged 2.3-9.7 years (median age: 4.4 years). The rate of empyema cases significantly declined from 1.45 cases per 1000 admissions during the period 2011-2013, to 0.18 cases during the Covid-19 period, 2020-2022 (Figure). The identified serotypes were: 3, 19A, and 9N/L in descending order. Serotype 3 emerged as the predominant pathogen of pneumococcal empyema (15 of 20 cases). There were not any cases of serotype 1 reported, whereas serotype 19A was not recovered after 2011.



Conclusions/Learning Points: In Greece, currently, there is a major withdrawal of non-pharmacological interventions. Surveillance of the pneumococcal empyema cases is ongoing to assess whether a rebound of the empyema cases will occur.

PV0707 / #2667

INVASIVE GROUP A STREPTOCOCCAL EMPYEMA: AN EMERGING CLINICAL PRESENTATION?

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

Inês Teles De Figueiredo[1], Ana Lemos[1], Ana Margarida Garcia[1], Filipa Marujo[2], Marta Oliveira[2], Catarina Gouveia[1]
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Title of Case: INVASIVE GROUP A STREPTOCOCCAL EMPYEMA: AN EMERGING CLINICAL PRESENTATION?
Background: Group A Streptococcus (GAS) is a common cause of acute pharyngitis and cutaneous infections. Multiple countries have reported the resurgence of rarer cases of invasive GAS (iGAS) infections since the end of 2022.
Case Presentation Summary: A previously healthy 15-month-old boy presented with 7 days of high fever, cough and rhinorrhea. Two days before he had become lethargic and presented papule-vesicular rash. There were cases of chickenpox at his school. At admission, he looked ill, was febrile, tachycardic, SpO2 of 93%, presenting signs of breathing difficulty and diminished breathing sounds on the right hemithorax, as well as enanthema. Laboratory results were notable for leukocytosis (18390/uL) with neutrophilia (12250/uL), high CRP (236mg/L) and PCT (44ng/mL). Chest x-ray showed increased lucency on the right and subsequent ultrasound a voluminous non-loculated pleural effusion occupying the right hemithorax with collapse of the left lung. A thoracic drain was inserted in ICU with aspiration of 685mL of purulent fluid compatible with empyema in the first 24h. GAS was isolated in blood culture and detected in pleural fluid PCR. Adenovirus and chickenpox co-infection were also confirmed. GAS pleural empyema was treated with 21 days of penicillin drug and clindamycin and he completed 5 days of acyclovir due to concomitant chinckenpox. On the 6th day, due to clinical deterioration he performed ultrasound that showed multiloculated pleural effusion, requiring 3 additional days of fibrinolytics in ICU, with latter good evolution, being discharged after 20 days.
Learning Points/Discussion: Pleural empyema following chickenpox or presenting with rash may be due to GAS, therefore prompt addition of an antitoxin drug is advised. As recently reported, we describe a difficult to treat severe case of iGAS pneumonia with empyema.

PV0708 / #1593

MEASURING THE IMPACT ON PNEUMOCOCCAL SEROTYPE DISTRIBUTION IN HEALTHY CHILDREN ATTENDING DAY-CARE CENTERS TWO YEARS AFTER THE SWITCH BACK FROM PCV10 TO PCV13 IN BELGIUM.

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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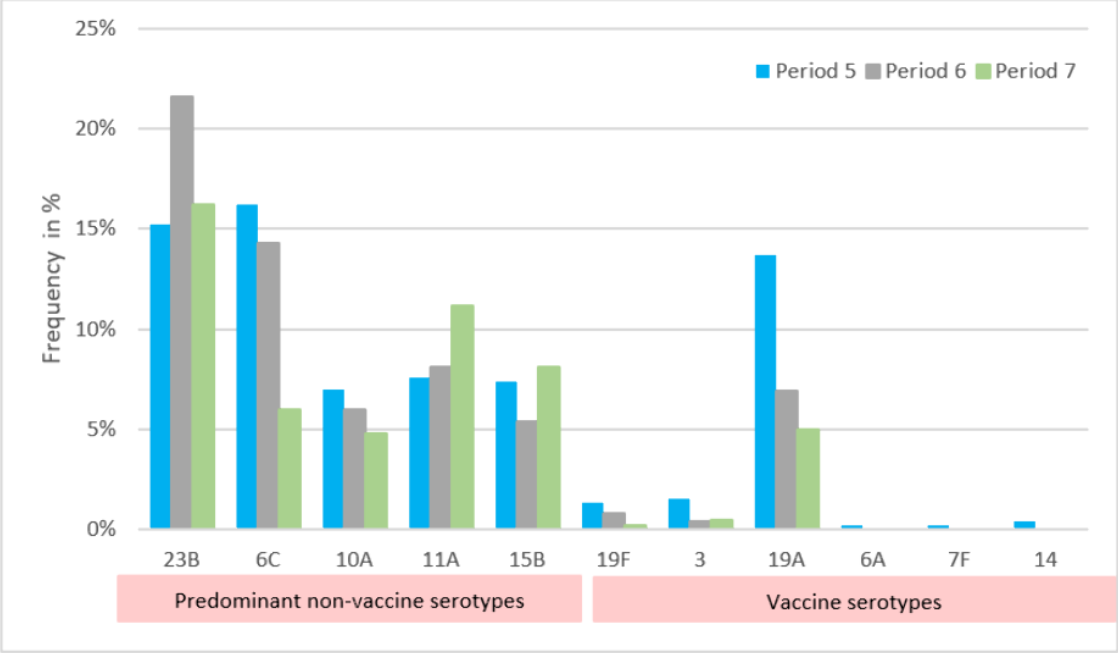
Backgrounds: Following a switch from 13-valent (PCV13) to 10-valent pneumococcal conjugate vaccines (PCV10) in the Belgian infant vaccination program in 2016, we started monitoring nasopharyngeal carriage of pneumococcal serotypes (STs) in children (6-30 months) attending day-care centers (DCC). Here, we report data collected in November 2021-June 2022 (P7) and in November 2020-July 2021 (P6) to evaluate the continuing impact of reverting to PCV13 in September 2019 when 19A carriage was 13.7%.
Methods: In P6 and P7 respectively, 700 and 709 nasopharyngeal samples were cultured for Streptococcus pneumoniae (SP), which were consecutively serotyped (Quellung reaction) and tested for antimicrobial susceptibility. Differences between P6 and P7 were evaluated using Chi^2.
Results:

Figure 1: Frequency of pneumococcal serotypes carried by young children at three consecutive collection periods



Frequency of predominant non-vaccine serotypes 23B, 6C, 10A, 11A, and 15B and of vaccine serotypes 19F, 3, and 19A in period5 (blue bars), in period 6 (grey bars) and in period 7 (green bars).

The proportion of age-appropriately vaccinated children with exclusively PCV13 increased from 39.2% (P6) to 95.6% (P7), while children vaccinated with a mixed schedule decreased from 40.1% to 0.4%. SP carriage was 68.7% in P6 and 59.1% in P7 ($p>0.05$). PCV13-vaccine serotype carriage decreased from 8.1% in P6 to 5.7% in P7 ($p>0.05$), only serotypes 3, 19A, and 19F remained. Carriage of frequently-occurring (>5%) non-vaccine serotypes did not significantly change except serotype 6C (14.3% (P6); 6.0% (P7) – $p<0.001$) and 23B (21.6% (P6); 16.2% (P7) - $p<0.05$)(Figure1). Antimicrobial non-susceptibility to tetracycline (22.9% (P6); 22.4% (P7)), erythromycin (22.5% (P6); 21.9% (P7)), penicillin (23.7% (P6); 28.4% (P7)) and cotrimoxazole (23.7% (P6); 21.9% (P7)) did not change significantly. However, non-susceptibility of strains to at least one of those antibiotics markedly decreased (43.4%; 70.9% (P6); 43.4% (P7) - $p<0.001$).

Conclusions/Learning Points: In Belgian children attending DCC, the overall carriage of PCV13-vaccine serotypes (non-significantly) as well as the carriage of frequently-occurring non-vaccine serotypes 6C and 23B (significantly) decreased between 1−2 years after the switch back from PCV10 to PCV13.

PV0709 / #2533

UNVACCINATED PRE-SCHOOL GIRL WITH COMMUNITY-ACQUIRED PNEUMONIA

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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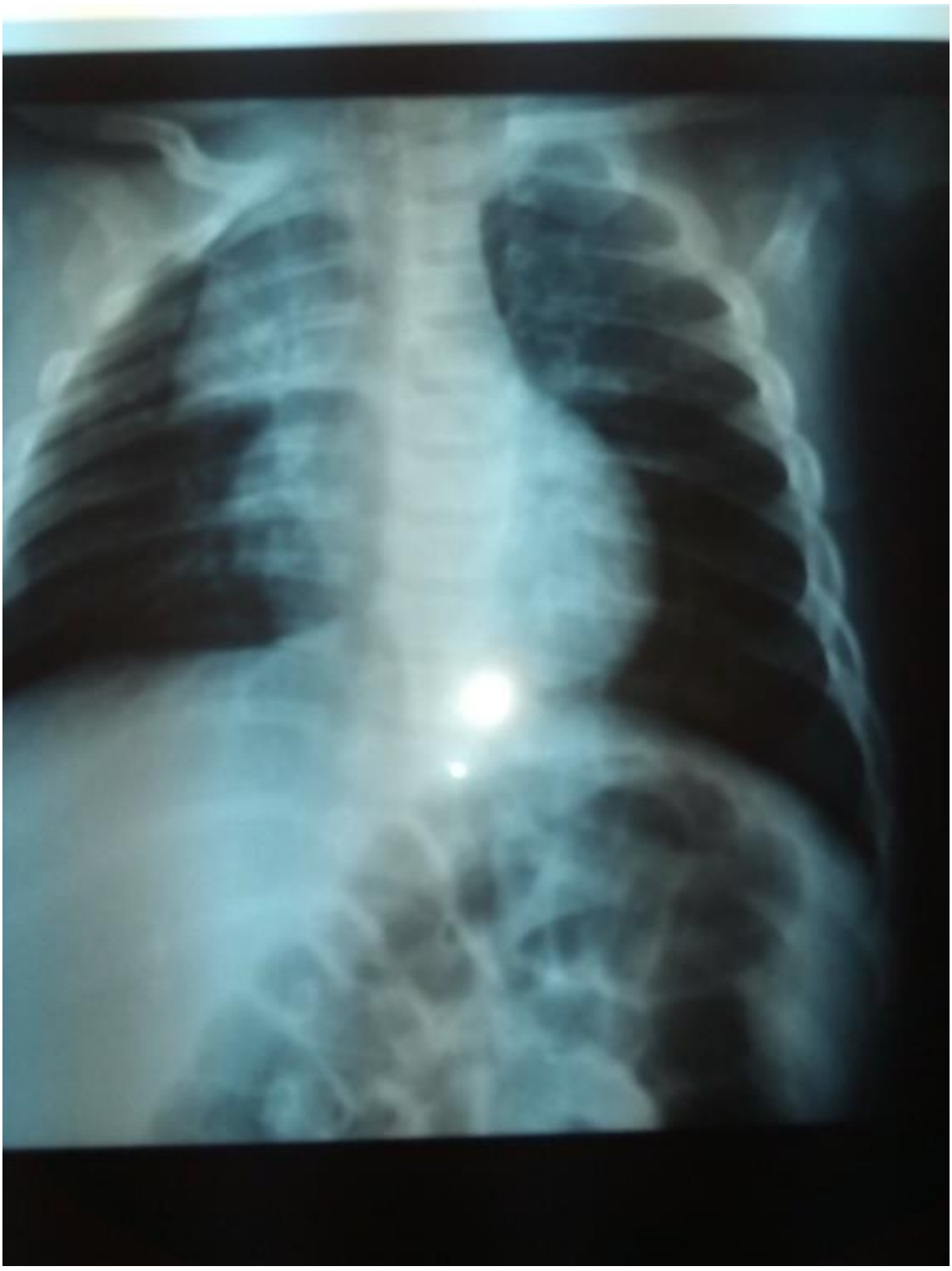
GENERAL HOSPITAL OF PELLA-HOSPITAL UNIT OF EDESSA, Peadiatric Department, EDESSA, Greece

Title of Case: Unvaccinated pre-school girl with community-acquired pneumonia
Background: Streptococcus pneumoniae is the most commonly identified bacteria causing community-acquired pneumonia. The disease is associated with significant morbidity and mortality in young children, particularly those under the age of two



years.

Case Presentation Summary: A 4.5 years-old girl presented to the emergency department with cough, shortness of breath and low-grade fever. The patient came from the Roma ethnic minority group and was completely unvaccinated. Physical examination revealed crackles and decreased breath sounds in the right lower lobe on chest auscultation, and dullness to percussion. She was admitted for further observation and investigation. CBC depicted elevation of WBC: 24,000 x 10^6/L (NEU: 80%), PLT 600,000/μL, increased inflammatory biomarkers (CRP: 15,2 mg/dL, procalcitonin: 1 ng/ml), and negative

rapid tests for SARS-CoV-2, Influenza A, Influenza B, RSV, and Adenovirus. CXR was performed showing segmental consolidation of the right lobe. Furthermore, pneumococcal urinary antigen test was found positive. Serum cold agglutinin test was negative. Therapy included administration of intravenous ampicillin (100 mg/kg/d), and oxygen due to mild respiratory distress. On the 3rd day of hospitalization, she became afebrile and respiratory distress gradually improved. The patient was discharged on the 7^{th} hospitalization day with per os amoxicillin (90mg/kg) for 7 days.

Learning Points/Discussion: Urinary antigen tests have emerged as a promising alternative for improving the diagnosis of respiratory infections caused by Streptococcus pneumoniae. Vaccination programs in developed countries have significantly decreased the incidence of Streptococcus pneumoniae infections. Nevertheless, in the last two decades the anti-vaccine movement has led to an escalation of lung infections, especially in the post Covid era. Moreover, targeted health policies need to be developed aiming to prioritize vaccinations in vulnerable communities.

PV0710 / #2571

THE ACTIVITY OF CERAGENIN CSA-13 AGAINST MULTISPECIES BIOFILMS ASSOCIATED WITH CHRONIC INFECTIONS IN CYSTIC FIBROSIS SUBJECTS

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Background: Opportunistic pathogens such as P. aeruginosa, S. aureus, and C. albicans are usually growing in biofilm form in which increased antibiotic resistance was noted. The development of such biofilms triggers life-threatening infections in cystic fibrosis patients, which are associated with impaired response to antibiotic therapy, rapid decline in lung function, and poor clinical outcomes. An additional key factor in the development of drug-resistant phenotypes and the persistence of chronic lung infections in cystic fibrosis patients is the high viscosity of biofilms developed by mucoid (alginate-producing) strains of P. aeruginosa, which considerably impairs the diffusion of antimicrobials within biofilm matrix and thus, hampers the eradication of biofilm-embedded bacteria.
Methods: This study was designed to evaluate the ability of ceragenin CSA-13, being a lipid analog of endogenous antimicrobial peptides to eradicate multispecies biofilms associated with lung infection development in cystic fibrosis subjects. The mass of multispecies biofilms developed in the presence of CSA-13 was measured using crystal violet staining. Rheological properties of bacterial biofilms exposed to the different concentrations of ceragenin were investigated using a rheometer in a plate-plate arrangement.
Results: We observed considerable reductions in single- and multi-species biofilm masses upon treatment with CSA-13. Alterations in the viscoelastic properties of biofilms developed in the presence of CSA-13 were also noted.
Conclusions/Learning Points: The observed effects of CSA-13 strongly suggest the possibility to develop novel lung infection therapies for cystic fibrosis subjects based on lipid antimicrobials from the ceragenin family. This work was financially supported by grant from the National Science Center, Poland: UMO-2018/30/M/NZ6/00502 (RB).

PV0711 / #493

THE IMPACT OF IMMUNIZATION AGAINST PNEUMOCOCCAL INFECTION ON THE REDUCTION OF MORBIDITY AND MORTALITY FROM PNEUMONIA AMONG CHILDREN UNDER 1 YEAR OF AGE IN KAZAKHSTAN

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Since 2010, Kazakhstan has gradually started mass vaccination against pneumococcal infection for children. The present study is the first analysis that aims to study the prevalence of pneumonia and pneumonia as a cause of mortality in children under 1 year of age.
Methods: An analytical study of the official data of the statistical collection of the National Scientific Center for Health Development (Kazakhstan) for 2010 to 2020 was carried out.
Results: From 2010 to 2020, the incidence of pneumonia in children under 1 year of age tends to decrease in absolute numbers. In 2010, this indicator was 17,761 cases of morbidity, and in 2020, the indicator decreased by 52.1% compared to 2010, i.e. 8493 cases. Mortality from pneumonia in children under 1 year of age in the Republic of Kazakhstan in 2010 was 0.6% of the total mortality of children under 1 year of age. In general, there is a steady decrease in pneumonia as a cause of death. In the final 2020 study, mortality from pneumonia in children under 1-year-old was recorded as 0.1%.

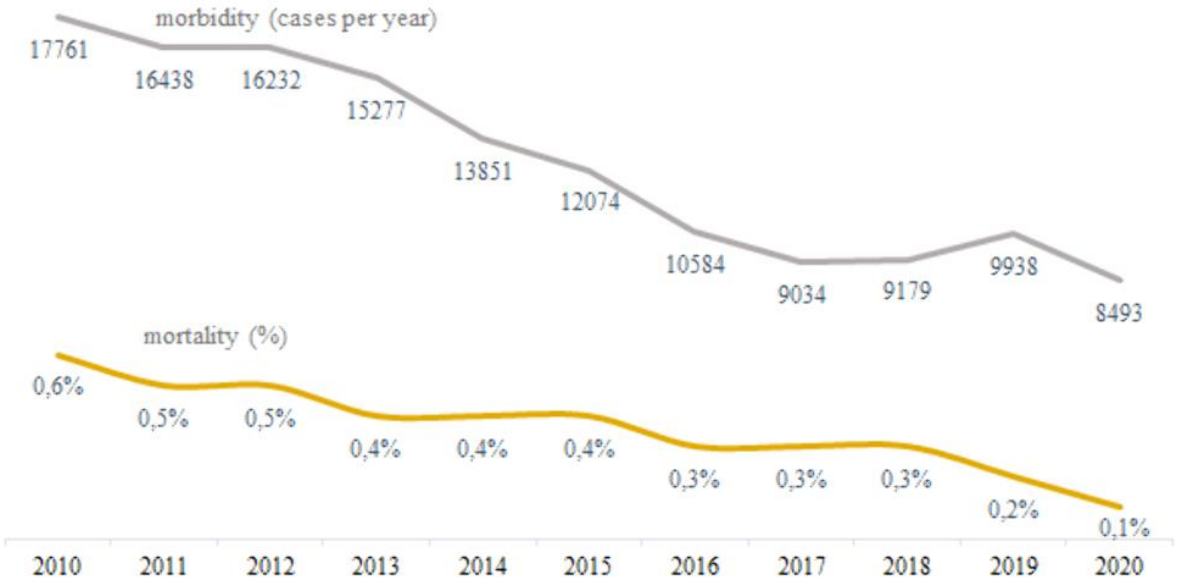

Figure 1. The number of confirmed pneumonia cases per year and percentage of mortality from pneumonia in children under 1-year-old in the Republic of Kazakhstan (2010-2020)

Conclusions/Learning Points: Vaccination against pneumococcal infection was included in the national vaccination schedule of the Republic of Kazakhstan in 2010. In general, in the Republic of Kazakhstan, there is a decrease in the incidence of pneumonia in children under 1 year of age.

PV0712 / #826

GALACTO-OLIGOSACCHARIDES POSSESS ANTIMICROBIAL AND ANTI-INFLAMMATORY PROPERTIES: POTENTIAL TREATMENT FOR MACROLIDE-RESISTANT AND -SENSITIVE MYCOPLASMA PNEUMONIAE

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Effective treatment of bacterial infections is threatened by antibiotic resistance. Antibiotic resistance reduces treatment efficiency and often results in increasing morbidity and mortality. Mycoplasma pneumoniae (MP) are frequent causes of respiratory infections in children, and known for increasing resistance rates against macrolide antibiotics. Evidently, alternative treatments are warranted. Non-digestible oligosaccharides (NDOs), a diverse group of carbohydrates have recently gained profound interest due to their direct anti-infective and bactericidal effects on pathogens. Here, we evaluated the potential of galacto-oligosaccharides (GOS) and fructo-oligosaccharides (FOS) as therapeutic options for macrolide-resistant (MR) MP and MP infections.
Methods: Minimum inhibitory concentrations (MICs) and minimum bactericidal concentrations (MBCs) were determined on MP and MRMP isolates. Effect of NDOs on bacterial adhesion and viability was evaluated in co-cultures with A549 alveolar cells. Cytokines in co-culture supernatants were detected by ELISA. Untreated cultures served as control.
Results: MIC and MBC of GOS for MRMP and MP was 4%. MIC and MBC of FOS was 16% for all strains. GOS reduced adhesion of MRMP and MP to A549 in a dose-dependent manner, with 8%GOS respectively inhibiting 65% of MRMP and 54% of MP adhesion as compared to control. Analysis of culture supernatants revealed that 91% MRMP and 59% MP were killed. Additionally, the production of bacteria-induced IL-6 and IL-8 was significantly suppressed by 8%GOS. Remarkably, FOS did not show anti-adhesion, anti-inflammatory and anti-microbial effects on MRMP and MP.
Conclusions/Learning Points: These results indicate that GOS, but not FOS, acts as an anti-infective and anti-microbial agent and also has anti-inflammatory properties. Therefore, GOS may be useful for treatment of MRMP and MP infections.

PV0713 / #697

EXPERIMENTAL ASYMPTOMATIC MYCOPLASMA PNEUMONIAE CARRIAGE ACCELERATES BACTERIAL CLEARANCE BUT INCREASES IMMUNOPATHOLOGY DURING SUBSEQUENT MYCOPLASMA PNEUMONIAE PNEUMONIA

E-Posters Viewing
E-POSTER VIEWING: AS08.B. BACTERIAL PNEUMONIA

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Backgrounds: Mycoplasma pneumoniae causes 3-7 yearly epidemics of pneumonia in children and can be preceded by asymptomatic upper respiratory tract carriage. Vaccine-enhanced disease have been described, but how previous M. pneumoniae exposure affects the host response during infection is unknown. We thus studied the effects of experimental M. pneumoniae carriage on immunity during a subsequent M. pneumoniae infection.
Methods: We have developed a murine model of asymptomatic M. pneumoniae upper respiratory tract carriage using intranasal installation of 10^6 CFUs of the M129 M. pneumoniae strain.
Results: We found that prior M. pneumoniae carriage led to accelerated bacterial clearance in the lungs during subsequent M. pneumoniae infection, but also increased lung histopathology scores and weight loss when compared to infection in non-carrier controls. Repeated infections with M. pneumoniae showed even faster bacterial clearance in the lungs and similar increases in immunopathology when compared to infection in M. pneumoniae carriers. Lung histopathology coincided with increased levels of inflammatory cytokines, but not with lung bacterial load, and was associated with increased weight loss [Spearman's rho -0.5171, 95%CI: -0.7920 - -0.06782]. Both pneumonia in M. pneumoniae carriers and repeated infection in non-carriers led to rapid recall responses of M. pneumoniae-specific immunoglobulins in bronchoalveolar lavage fluid and serum, which associated with bacterial clearance in the lungs [Spearman's rho: -0.7670, 95%CI: -0.9142 - -0.4411]. Previous exposure also induced accelerated clearance of M. pneumoniae from the upper respiratory tract, however this could not be attributed to antibody responses.
Conclusions/Learning Points: Previous M. pneumoniae upper respiratory tract carriage and M. pneumoniae infection improve bacterial clearance during subsequent M. pneumoniae infection, but this comes at the cost of increased lung immunopathology and does not benefit mouse body weight loss during M. pneumoniae infection.

PV0714 / #1810

NECK STIFFNESS IN A TODDLER, NOT ALWAYS A LUMBAR PUNCTURE IS NEEDED

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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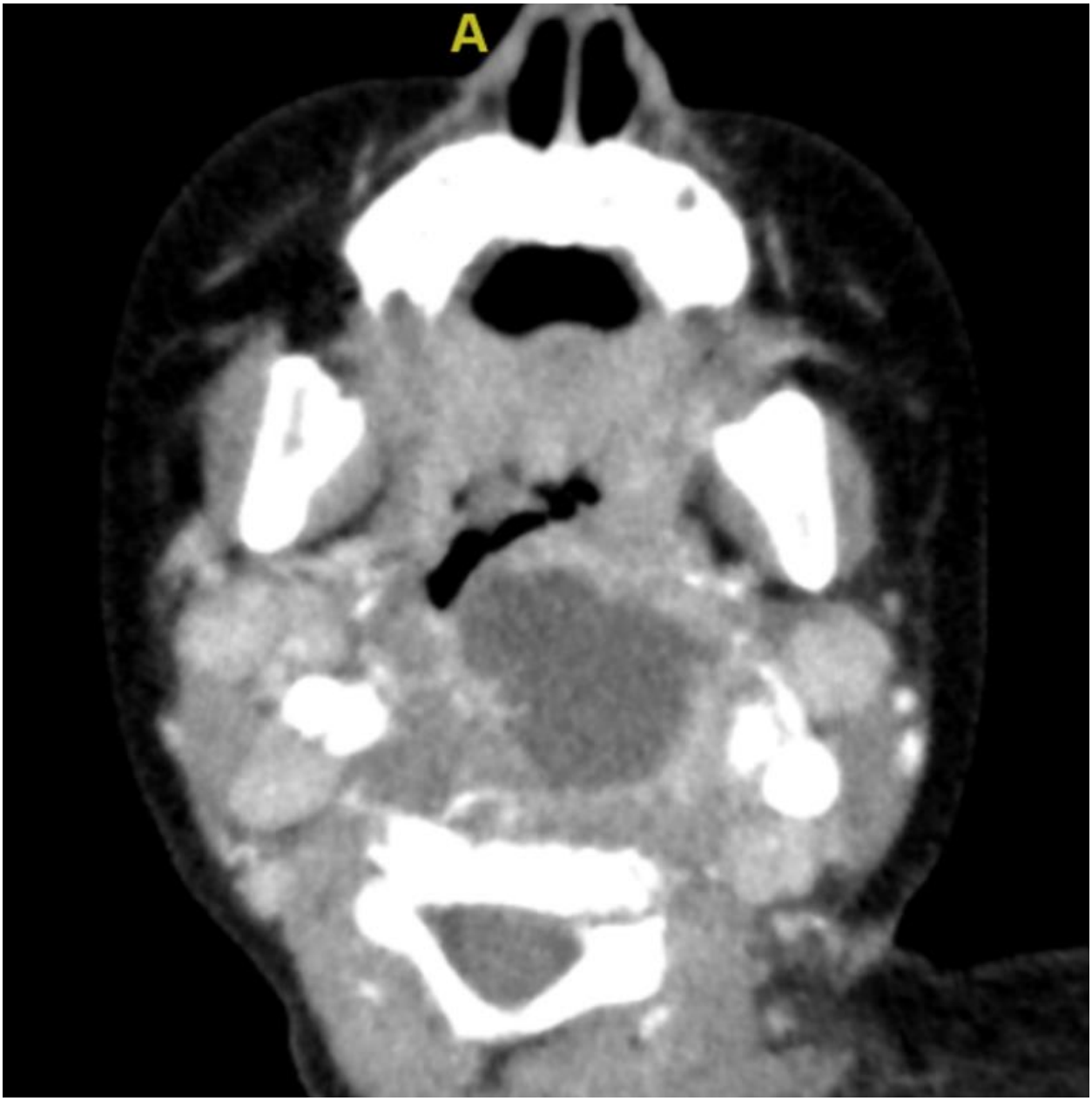
Title of Case: Neck stiffness in a toddler, not always a lumbar puncture is needed
Background: Neck stiffness is generally associated with meningoencephalitis in paediatrics and should be so, however, other diagnostic possibilities must be considered.
Case Presentation Summary: We present a 10-month-old male infant referred to the emergency department with fever, cough and irritability on several occasions. The patient was examined and discharged home with several diagnosis; upper respiratory tract infection and suspicion of pneumonia and a course of empirical antibiotics with amoxicillin clavulanic was prescribed. He presented an insidious evolution with persistent fever and on examination a left submandibular adenopathy was observed associating neck stiffness. Tests showed leukocytosis (38,500), neutrophilia (21,400) and elevated CRP (136 mg/L). Meningitis was ruled out with a normal lumbar puncture (normal CSF biochemistry and negative meningoencephalitis panel), and a cervical ultrasound showing a 2.6 cm left laterocervical abscess. He was admitted to the hospital and intravenous amoxicillin clavulanic was continued. Dysphagia, drooling, and respiratory distress were observed 48 hours after admission. Contrast-enhanced cervical and mediastinal CT was performed and the presence of a left retropharyngeal abscess (36x24x64 mm) with airway compromise was confirmed and surgical drainage was performed. Bacterial culture showed positivity for K. pneumoniae, MSSA, S. mitis, and S. constellatus. Intavenous antibiotic regimen was modified to cefotaxime and clindamycin for 7 days and continued orally with amoxicililn-clavulanic at home during 1 more week with full
recovery.



Learning Points/Discussion: Retropharyngeal abscesses are a rare complication in children presenting with fever, odynophagia, sialorrhea, trismus and neck pain. In this clinical case the neck stiffness was one of the main concerns. Deep suppurative ENT area complications must be taken into consideration when meningitis is rule out at this range of age.

PV0715 / #1420

ORBITAL CELLULITIS: AN 8 YEAR REVIEW IN A PEDIATRIC DEPARTMENT

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Backgrounds: Periorbital (PC) and orbital cellulitis (OC) are common in pediatric age and include infections of the ocular adnexal and orbital tissues with different management and potential complications.
Methods: Retrospective descriptive analysis of pediatric patients admitted to a general hospital diagnosed with PC or OC between 2013-2021.
Results: Sixty-five children were admitted with PC (82%) or OC (18%), mainly unilateral (97%). Most occurred in wintertime, in under 5-year-olds (54% PC, 58% OC), 50.8% in males. Rhinosinusitis was present in 53% of PC; 83% in OC; acute conjunctivitis in 17% of PC and 16.7% of OC. Symptoms included periorbital edema and erythema (> 80% of PC and OC), fever and eye pain (50% of OC), proptosis (n=1 PC) and chemosis (n=2 OC). Median leukocyte count was 12,600/uL (4,600-32,400) in PC, 11,750/uL (6,000-17,900) in OC; median C-reactive-protein (CRP) was 8.1mg/L (1-181) in PC; 28.7mg/L (1-119) in OC. All cultures were negative. Intravenous amoxicillin-clavulanate was the first line empirical therapy (PC=OC). Contrast CT (n=52;80%) revealed complications in 7.5% of PC (n=4), 33% of OC (n=4): subperiosteal abscess (n=6), orbital abscess (n=1) and epidural empyema (n=1). 5 patients needed antibiotics change. Mean duration of systemic therapy was 4.9 days (1-10; OC minimum 4 days). Mean duration of hospital stay was 5.6 days in PC and 6.8 days in OC. All recovered well.
Conclusions/Learning Points: As previously described, PC was more frequent, incidence was higher in wintertime and rhinosinusitis was a major risk factor, especially for OC. OC didn´t always present with proptosis, ocular pain, higher leukocyte count or CRP, so the diagnosis required a high degree of suspicion. Amoxicillin-clavulanate was mainly an effective treatment. OC had slightly higher mean duration of stay and complications, but overall, prognosis was good.

PV0716 / #494

PERIORBITAL CELLULITIS: WHEN THINGS LOOK BAD, THEY MAY GET WORSE

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Title of Case: PERIORBITAL CELLULITIS: WHEN THINGS LOOK BAD, THEY MAY GET WORSE
Background: Orbital (OC) and periorbital cellulitis (PC) both present with sudden onset of eyelid swelling and erythema, but with different clinical implications. PC does not involve the contents of the orbit and usually has a better prognosis with lower risk of complications. Acute rhinosinusitis is the most frequent predisposing factor, followed by skin lesions.
Case Presentation Summary: A previously healthy 4 year-old male, was admitted with a 3-day history of high fever, headache and right conjunctival purulent discharge, followed by right palpebral edema and eye pain. He had no diplopia, skin lesions, respiratory symptoms or vomiting. Examination revealed marked edema and erythema of the right eyelid, with closure of the palpebral fissure, without proptosis, altered eye movements, relative afferent pupillary defect or chemosis. Blood tests revealed 32,400 leukocytes/uL, 84.7% neutrophils and CRP 12.3mg/dL. Cranial CT scan revealed pansinusitis with right preseptal cellulitis. He was started on IV Amoxicillin+Clavulanic Acid. Due to clinical and analytical worsening after 3 days, cranial CT scan was repeated, which revealed worsening of the PC, epidural empyema and frontal subperiosteal abscess. Antibiotics were changed to IV ceftriaxone and metronidazole and bilateral ethmoid-maxillary sinusotomy was performed with external drainage of the frontal subperiosteal collection. He completed 4 weeks of antibiotic treatment, with full recovery. Cultures of the exudate from the paranasal sinuses and subperiosteal abscess were negative.
Learning Points/Discussion: Despite usually having a better prognosis, PC has potential serious complications such as subperiosteal and orbital abscess or intracranial empyema, even in the absence of postseptal involvement. Exuberant inflammatory signs or absent improvement after 24-48 hours of adequate antibiotics should lead to clinical and imaging assessment to exclude complications that may require surgical intervention.

PV0717 / #1738

EPSTEIN-BARR VIRUS (EBV) INFECTION IN PEDIATRICS: EXPERIENCE OF A PORTUGUESE HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Backgrounds: EBV infection is usually subclinical or associated with infectious mononucleosis. Diagnosis is based on clinical suspicion complemented with laboratory data. Complications can occur, with a wide variety of symptoms that can lead to hospital admission. It can also be associated with long-term morbidity.
Methods: Retrospective observational study of pediatric patients with positive EBV serology and/or heterophile antibody test between January/2018-June/2022. Clinical and analytic data were collected and findings of admitted vs non-admitted patients were compared.
Results: Identified 107 patients (51,4% female) with acute infection, median age 12,8 years (IQR 5,7-15,8). The most frequent clinical manifestations were fever (78,5%), tonsillitis (78,5%), adenomegalies (62,6%), fatigue (26,8%), hepatomegaly (25,2%), splenomegaly (18,7%) and cutaneous rash (16,8%). Heterophile antibodies were found in 87,1% of tested patients, the remaining being diagnosed with serology. 53% had leukocytosis, 90% lymphocytosis (median of maximum absolute count 7900/uL, IQR:5090-11260/uL), 92% monocytosis (median of maximum absolute count 960/uL, IQR:550-1300/uL) and 89% stimulated lymphocytes. C-reactive protein was elevated in 88,6% of cases (median 1,62mg/dL, IQR:0,2-
28,2mg/dL) and transaminases in 81%. Complications included hepatitis (n=4), bacterial superinfection (n=3), severe cutaneous rash (n=2), febrile neutropenia, lupus flare, parotiditis, immune thrombocytopenia, Guillain-Barré syndrome and hemorrhagic gastritis. There were 20 hospitalizations (median age 7 years, IQR:2-15,7) with a median length of 3 days. Corticosteroids (n=8), antibiotics (n=4) or intravenous fluids (n=9) were administrated in some of the patients. Hospitalized patients had higher C-reactive protein measures (p=0,045). No differences were observed in admitted vs non-admitted patients regarding remaining analytic data.
Conclusions/Learning Points: This is the largest identified national casuistic of pediatrics' EBV infections. One-fifth of our patients required hospitalization, but C-reactive protein measure was the only significant difference found. More investigation is needed for a better understanding of complications risk.

PV0718 / #678

COMPLICATIONS TO ACUTE BACTERIAL RHINOSINUSITIS IN CHILDREN - A PROSPECTIVE STUDY; BACTERIAL CULTURES, VIRUS DETECTION, ALLERGY SENSITIZATION AND IMMUNOGLOBULINS

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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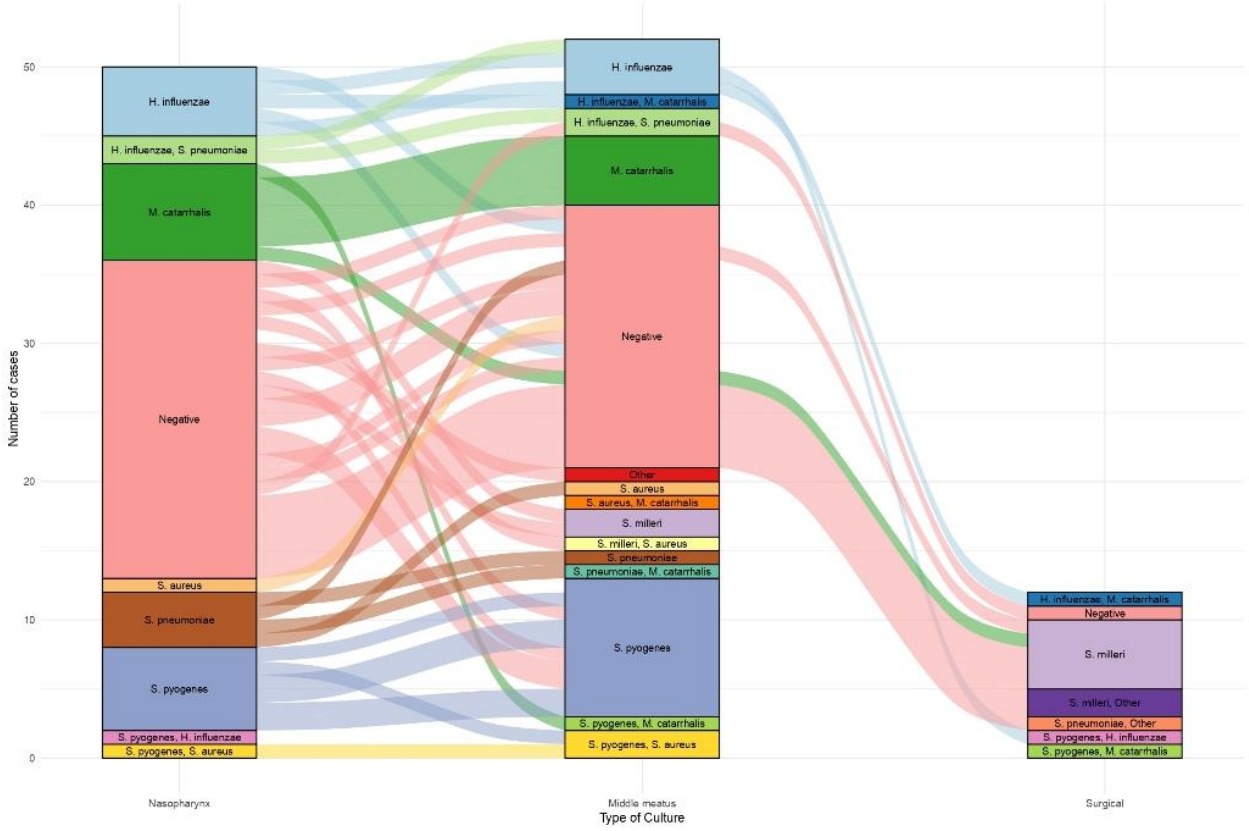
Backgrounds: There are few prospective studies of complications due to acute bacterial rhinosinusitis (ABRS) in children. Microbial etiology is difficult to establish, and viral infection has been implicated in the pathogenesis of ABRS. The aim was to compare the bacterial findings from different anatomic sites, and to investigate the rate of concomitant viral infection.
Methods: Children up to 18 years of age, hospitalized due to acute bacterial rhinosinusitis, from April 1st, 2017 to April 1st, 2020 were prospecively included. Bacterial cultures from nasopharynx (NPH) and nasal middle meatus (MM), blood cultures, multiplex viral PCR swab from all and bacterial cultures and broad-range 16S rDNA PCR from the children undergoing surgery were obtained.
Results:



55 children were included. The MM cultures were positive for bacterial growth to a greater extent (69% compared to 54%) and showed a different set of bacteria compared to NPH cultures (Figure1). In 20 cases (36.4%). We found an association between S. pyogenes and maximum CRP ($p<0.01$). The most common bacteria found in surgical cultures was S. milleri (7/12 cases),S. pyogenes in middle meatus cultures (13/52 cases), and S. pyogenes and H. influenza in the nasopharyngeal cultures (8/50 cases respectively). 50% of surgical cases had negative nasal cultures and broad-range 16S rDNA PCR increased the number of positive results compared to cultures. Viral nasopharyngeal PCRs were positive

in 51% of the cohort and Influenza A was the most common. There was a significant association between influenza A/B and growth of S. pyogenes ($p<0.05$).
Conclusions/Learning Points: There seem to be differences in the patterns of bacterial growth in NPH, MM and surgical cultures in children with complications to ABRS. Viruses seem to play a role in complications to acute bacterial rhinosinusitis in children.

PV0719 / #2625

EOSINOPHILIC INFILTRATION OF THE LUNGS, ASSOCIATED WITH FASCIOLA HEPATICA

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Title of Case: EOSINOPHILIC INFILTRATION OF THE LUNGS, ASSOCIATED WITH FASCIOLA HEPATICA
Background: Eosinophilic infiltration of the lungs associated with parasitic diseases is rare.Only a few cases are described in the literature
Case Presentation Summary: We aimed to describe a case of eosinophilic infiltration of the lungs, associated with Fasciola hepatica. A 10-year-old boy was admitted to the pediatric emergency medicine department. The patient had a fever for 12 days. Cough developed later. The prenatal, birth, and neonatal period was without pathologies. For clinical assessment, It was presented: Tachypnea, shortness of breath, and dry cough. Decrease of breathing sounds in the right lower lobe for auscultation. The abdomen was soft for palpation. Other organ systems were presented without pathological changes. In laboratory studies, it was noted: leukocytosis ($21.3*10^9$/L), Neutropenia ($5.1*10^9$/L) Lymphopenia ($4.1*10^9$/L) Eosinophilia ($10.4*10^9$/L), ESR- 39mm/hr and CRP- 39mg/L.On the chest X-ray detected infiltration of the right lower lobe. Abdomen USE without pathologic changes.2 possible diseases were selected for differential diagnosis according to the patient's clinical and laboratory tests: Hematologic malignancy, Parasitic infection. A serological test was conducted on common parasites and Anti-Fas2 IgM F.Hepatica become positive. The egg was not found in stools. The primary diagnosis was eosinophilic infiltration of the lungs associated with F.hepatica.The patient continued treatment in a specialized clinic with triclabendazole. Broncho alveolar lavage was performed and eosinophils were detected (Eos-41%) 3-4 days after treatment F.hepatica eggs were found in stool. The patient's symptoms improved and he left the hospital.
Learning Points/Discussion: Conclusion: Eosinophilic infiltration of the lungs associated with F.hepatica is a rare condition and Parasitic diseases should be considered in etiology. Early diagnosis is important for rational anthelmintics treatment. serologic testing for common parasites may be more informative than stool analysis.

PV0720 / #973

EMM TYPES OF BIOFILM-FORMING PHARYNGEAL ISOLATES OF GROUP A STREPTOCOCCI IN SCHOOL CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Backgrounds: Group A Streptococci (GAS) are responsible for a diverse spectrum of diseases, including pharyngotonsillitis. Persistent asymptomatic GAS throat carriage is due to streptococcal internalization in epithelial cells or biofilm formation. Several virulence factors play an important role in biofilm formation in GAS, particularly the M protein, which is required for initial cell-surface interactions. The objective of this study was to detect slime production and biofilm forming ability of GAS isolated from children with pharyngotonsillitis and asymptomatic carriers and to determine their emm types.
Methods: Fifty strains of GAS isolated from school children (21 from pharyngotonsillitis and 29 from asymptomatic pharyngeal carriers) were screened for their ability to produce slime and biofilm. Slime formation was detected by the Congo Red agar method and biofilm formation was assayed by the crystal violet microtiter plate method. The strains were emm typed according to the standard CDC protocol(http://www.cdc.gov/ncidod/biotech/strep/protocol_emm-type.htm).
Results: All the 50 isolates tested were slime producers of which 92% were strong slime producers. Seventeen of the 50 isolates (34%) were biofilm producers.The isolates from pharyngotonsillitis belonged to 12 emm types showing 57.14% heterogeneity, while the carrier isolates belonged to 19 emm types showing 65.51% heterogeneity. Thirteen out of the 50 isolates (26%) were emm89.0b. Eleven different emm types were observed among the 17 biofilm positive isolates. The most common emm type was emm89.0b. Many of biofilm positive emm types were also found among the biofilm negative strains.
Conclusions/Learning Points: The most common emm type reported in our study was emm89.0b. The emm-types associated with biofilm positive strains in our study were extremely heterogenous. Hence biofilm formation appeared to be an inherent property of individual GAS isolates rather than a general attribute of the serotype.

PV0721 / #1972

ADENOVIRUS INFECTION IN CHILDREN. A DESCRIPTIVE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Backgrounds: Adenovirus infection (AI) in children commonly presents with a wide variety of clinical presentations, including high fever and increased acute phase reactants (APR). Differential diagnosis includes bacterial infections and frequently, these patients receive a short-course empirical antibiotic therapy. This study aims to describe the spectrum of AI.
Methods: Review of clinical and analytical features of AI diagnosed with RT-PCR from nasopharyngeal exudates of children with symptoms in a tertiary hospital, between February 2021 and October 2022.
Results: • Clinical specimens from 175 pediatric children with symptoms compatible with AI were studied. 73 (41.7%) samples were detected by RT-PCR (29 girls/ 44 boys) with a median age of 36 months (IQR: 16-55). Most frequent symptoms were: fever (95.9%), ear, nose and throat related symptoms (60.3%), upper respiratory symptoms (58.9%), vomiting and/or diarrhea (57.6%), conjunctival injection (28.8%), respiratory distress (12.3%) or cutaneous rash (11%). The median duration of fever was 4 days (IQR: 2-5). Median rise in APR was: 13440 leukocytes (IQR: 10400-16797), 8600 neutrophils (IQR: 6330-11610), 2600 lymphocytes (IQR: 1555-4160), C-reactive protein (CRP) 77 mg/L (IQR: 36.75-143). • 44 children (60.3%) required hospital admission, with a median length of stay of 3 days (IQR: 1.5-5), and up to 52.3% children received empirical antibiotic therapy (more frequently cephalosporins [34.1%]) with a median duration of 3 days (IQR: 2-4.5). Viral and bacterial coinfection was identified in 19.3 % and 4.1%, respectively.
Conclusions/Learning Points: AI often presents with an APR response, similar to bacterial infections, with CRP values above 70mg/l in our series. More than a half of these patients were hospitalized and received antibiotics, thereby unnecessarily increasing antibiotic pressure and hospital stays. Further studies are needed to develop accurate diagnostic and management algorithms.

PV0722 / #549

LYMPHOCYTOSIS AND ADENOMEGALY: THE CHALLENGE OF THE DIFFERENTIAL DIAGNOSES

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Title of Case: Distinguishing haemato-oncological cancer from infectious mononucleosis
Background: In pediatric age, peripheral lymphadenopathies are frequent, particularly when associated with changes in the white blood count. Differential diagnoses are numerous, and it is imperative to exclude serious and potentially treatable causes, from those that are benign and do not need targeted therapy.
Case Presentation Summary: A 2-year-old male child is admitted at the Emergency Department for rhinorrhea, dry cough and painless, mobile, and elastic cervical, axillary, and inguinal adenomegalies for the last 24 hours. He also had bilateral tonsillar hypertrophy and hyperemia, without hepatosplenomegaly. He completed the seventh day of amoxicillin-clavulanate due to acute otitis media, diagnosed in the previous week. The analytical study showed leukocytosis 13620/uL with lymphocytosis (8200/uL, atypical lymphocytes 286/uL) and cells suggestive of lymphoblasts (1185/uL) in the peripheral blood smear (PBS). He was admitted into the Paediatrics Department to continue the etiological study. The PBS was repeated and revealed reactive lymphocyte and monocyte population with no lymphoblasts therefore excluding haemato-oncological disease. An abdominal ultrasonography was performed, which showed the already known adenopathy with reactive characteristics. From the etiological study, positive IgM for the Epstein Barr Virus stood out, which allowed the diagnosis of Infectious Mononucleosis. The child was discharged without directed therapy and was reassessed in consultation with complete resolution of the clinical picture.
Learning Points/Discussion: Infectious Mononucleosis is a common disease in pediatric age and the differential diagnosis with the haemato-oncological diseases is not always straight. Invasive and unnecessary exams should be avoided and carefully weighted as they can harm more than benefit. This case also highlights that malignant diagnosis should not be communicated to the patients and their families, when not for certain because they can carry unnecessary burden and impact on their lives.

PV0723 / #563

UNUSUAL PRESENTATION OF SCARLET FEVER – CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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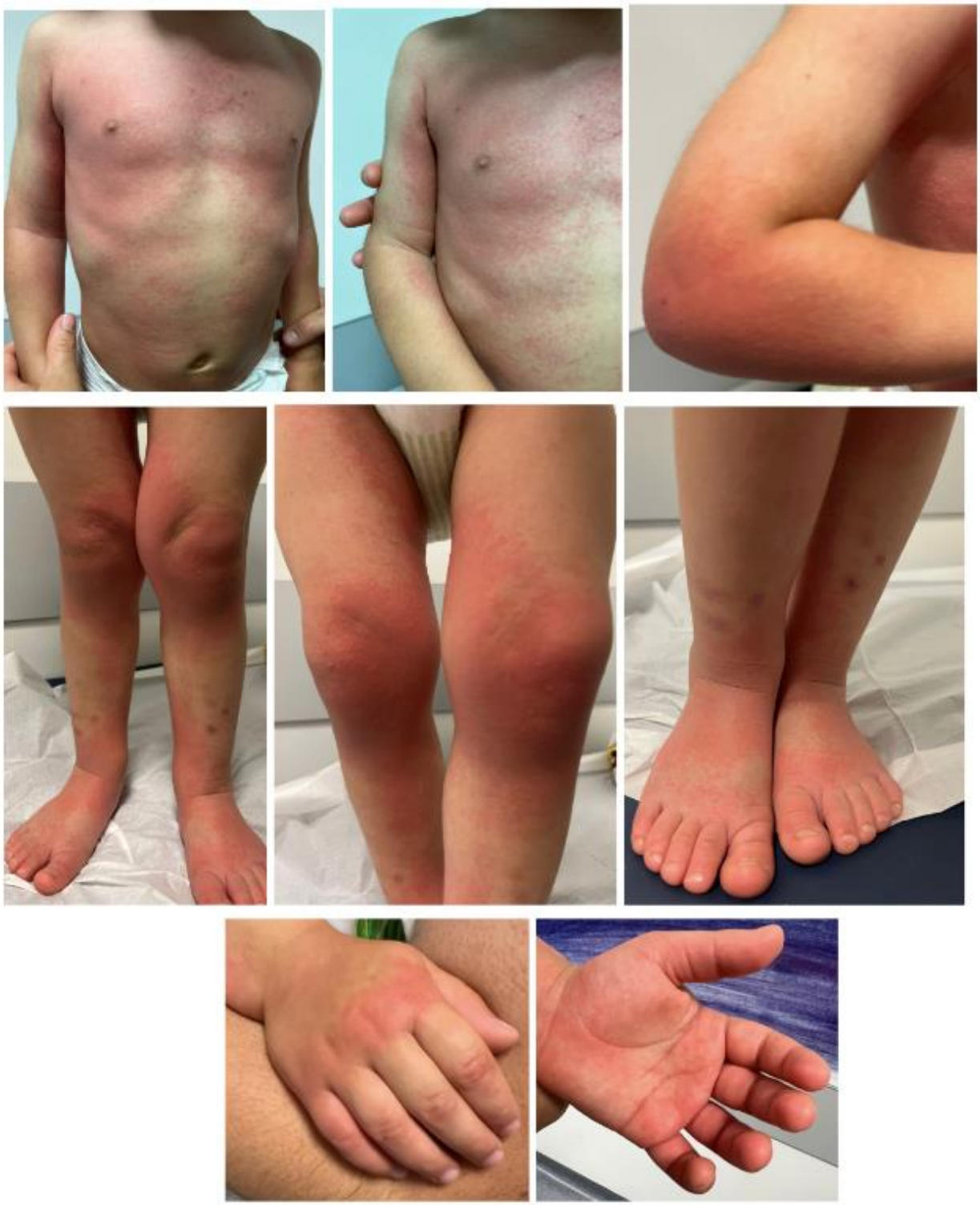
Title of Case: UNUSUAL PRESENTATION OF SCARLET FEVER – CASE REPORT
Background: Scarlet fever is caused by an endotoxin produced by group A Streptococcus (GAS). Usually presents as a confluent, rough textured maculopapular rash associated with fever and pharyngitis. However, atypical presentations are described in literature.
Case Presentation Summary: Previously healthy 2-year-old boy was admitted in our emergency department with a 36-hour history of fever, rash, joint swelling and vomiting. Loss of consciousness, respiratory distress and angioedema were denied. No known history of allergies.
At presentation, he was apiretic and hemodynamically stable. We observed erythema of the pharynx and a blanchable, confluent, rough textured maculopapular rash, more prominent in the trunk and skin folds, sparing palms and soles. Furthermore, he presented a non-painful oedema and redness on knees, elbows and hands. Some purpuric lesions were noticed in both legs. No gait impairment was noticed. Blood tests revealed a slight increase of inflammatory markers (RCP 84.50 mg/L), prothrombin time (15.5 seconds) and INR (1.34), but normal complete blood count. Serology testing was negative to Epstein-Barr virus, cytomegalovirus and adenovirus. Rapid antigen detection test to GAS was positive. Therefore, this case was interpreted as an unusual presentation of scarlet fever and the child was treated with benzylpenicillin and clemastine, with joint swelling improvement. Discharged under desloratadine. After 24 hours he became apyretic and the rash started to fade 2 days later with light desquamation.



Learning Points/Discussion: Unusual presentations of scarlet fever can be misdiagnosed with other entities leading to treatment delaying and potential major complications. This case highlights the relevance of early identification, particularly when cases of invasive GAS are increasing. Thereby, the knowledge of toxin-producing strains could be a useful tool to better understand the variation of clinical presentation.

PV0724 / #2634

PERTUSSIS MANIFESTING AS RECURRENT COUGH AND HYPERLEUKOCYTOSIS WITH COMPLICATION OF SEIZURE IN AN INCOMPLETELY VACCINATED 12-MONTH-OLD- INFANT

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Title of Case: PERTUSSIS MANIFESTING AS RECURRENT COUGH AND HYPERLEUKOCYTOSIS WITH COMPLICATION OF SEIZURE IN AN INCOMPLETELY VACCINATED 12-MONTH-OLD- INFANT
Background: The COVID-19 pandemic has affected healthcare services and access globally, including vaccination coverage in children, contributing to the rising incidence of vaccine-preventable diseases (VPDs). Pertussis, one of the VPDs, is an acute respiratory illness caused by Bordetella pertussis, showing a re-emergence in developed countries.
Case Presentation Summary: We reported a case of 12 months old boy who was referred to our hospital due to a history of seizures and hyperleukocytosis with a white blood count (WBC) of 75.000/mL predominantly by lymphocytes. A brain computed tomography scan was performed with hypoxic encephalopathy as a result. A blood smear showed a 3% of blast hence bone marrow puncture was performed. A 21% blast was found in the peripheral blood smear that supports the suspicion of acute leukemia but the immunophenotyping showed otherwise. We found a history of recurrent cough since the age of 2,5 months old and pneumonia at the age of 3,5 months old. Several kinds of antibiotics were given including beta-lactam antibiotics but no macrolides had been prescribed until that point. The patient only received 1 dose of pertussis vaccination at 2 months old. Several episodes of cyanosis during the cough made us consider a potential diagnosis of pertussis in the patient. The polymerase chain reaction from the nasopharynx swab was then performed and showed positive for Bordetella pertussis. The patient was given azithromycin considering the clinical suspicion and once the diagnosis of pertussis was confirmed the therapy was administered for 7 days and the infant recovered completely.
Learning Points/Discussion: Pertussis can manifest through an atypical course of disease in infants and as a high-risk population, herd immunity is needed.

PV0725 / #1783

TWENTY-YEAR RETROSPECTIVE STUDY ON PEDIATRIC ACUTE OTOMASTOIDITIS: EPIDEMIOLOGY AND ANALYSIS OF RISK FACTORS FOR COMPLICATIONS

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Backgrounds: Acute otomastoiditis (AOM) is a severe infection potentially developing from an acute otitis media. AOM could be responsible for severe life-threatening complications. Aim of the study: To describe the epidemiology of AOM in our tertiary care Centre and to evaluate risk factors for possible complications.
Methods: We enrolled children admitted to our Pediatric Unit in the past 20 years, diagnosed with AOM according to the ICD-11th Revision codes. We collected demographic and clinical data and compared clinical outcomes between children with and without complications and children younger and older than 2 years. We performed a multivariate logistic regression to identify risk factors for complications of AOM, including clinical and laboratory predictors as independent variables.
Results: We enrolled 214 patients for a total of 222 cases. Mean (SD) age was a 5.2 (3.9) years. Earache was the main symptom (n=173, 78%), followed by fever (n=155, 70%). The most common findings were erythema (n=166, 75%) and edema (n=157, 71%) in the retroauricolar area. All patients received antibiotics, mainly ceftriaxone (n= 206, 93%). Imaging was performed in 52 (23%) cases, mostly CT (40/52 cases). Intracranial complications of AOM occurred in 29 (13%) patients and subperiosteal abscess was the most frequent finding. Surgery was necessary in 22 (10%) patients. In spite of a more prolonged parenteral treatment, children younger than 2 years had a similar incidence of complications of older patients. A positive blood culture was found as an independent risk factor for complications in the multivariate logistic regression.
Conclusions/Learning Points: Our study describes the clinical and laboratory characteristics of a large pediatric population with AOM. Blood culture should be obtained in these patients, to identify children at higher risk for complications.

PV0726 / #1876

CHANGES IN THE EPIDEMIOLOGY OF ACUTE MASTOIDITIS AFTER THE IMPLEMENTATION OF PNEUMOCOCCAL VACCINATION IN A SPANISH POPULATION.

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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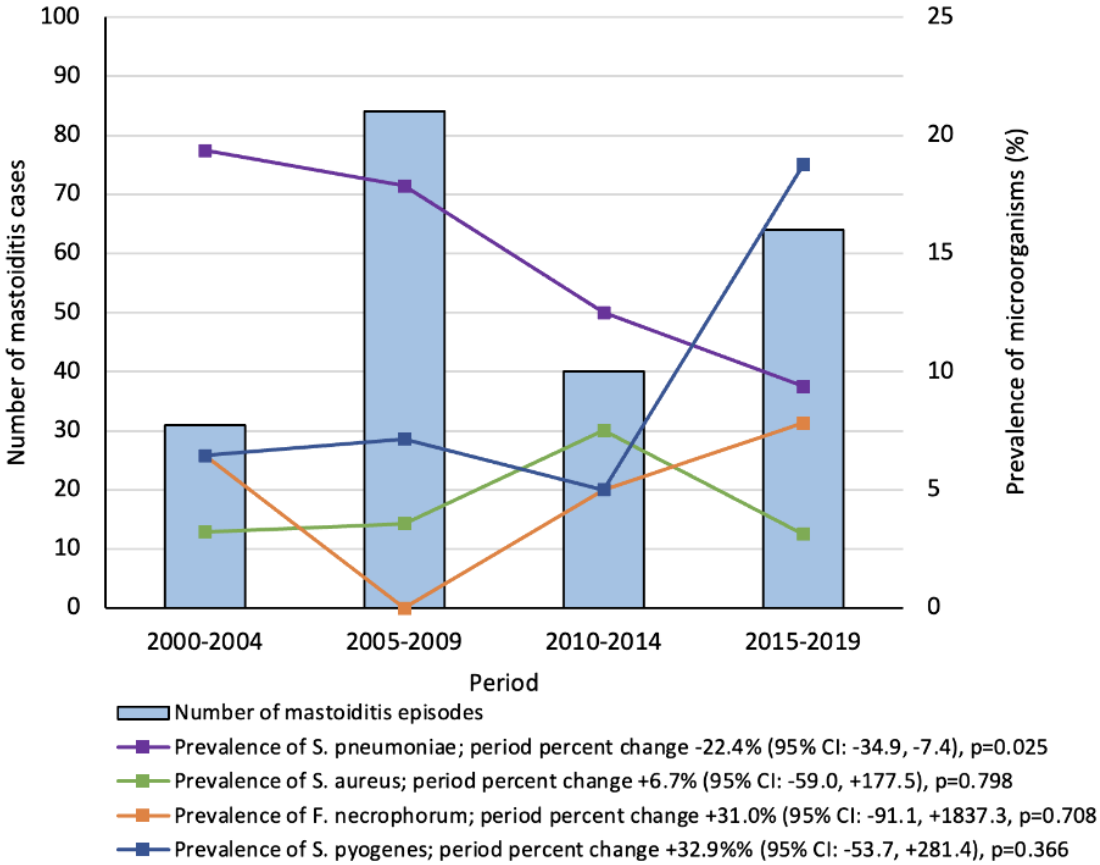
Backgrounds: The aim of our study was to describe changes in the epidemiology and etiology of acute mastoiditis (AM) over a 20-year period in relation to the implementation of pneumococcal conjugated vaccines (PCV).
Methods: Retrospective study at Gregorio Marañón Hospital (Madrid). Episodes of AM in children <16 years from 2000-2019 were included. Demographics, clinical and microbiological variables were collected from the medical charts. The study was grouped into four 5-year periods. The percentage change (PC) in the incidence rate and in the prevalence of each microorganism isolated within the study periods were estimated to characterize trends.
Results: 219 episodes from 209 patients were included: 125(59.8%) males; median age 19(IQR 13-35) months. The incidence rate of AM remained stable (PC:+27.2%[95%CI:2.6; +139.8];p=0.163). Ninety-one (41.6%) episodes had some microbiological isolation. S. pneumoniae was the most common (32/91,35.2%), although its prevalence decreased from 19.4% in the first, to 9.4% in the last period (PC:-22.4%[95%CI:−34.9,-7.4];p=0.025). Serotypes were identified in 18/32(54.5%) isolates, and 19A was the most frequent (11/18;61.1%). PCV13 serotypes significantly decreased in the post-PCV13 period (p=0.022). Non-susceptibility to standard-dosing penicillin (75%vs.27.2%;p=0.022) and cefotaxime (62.5%vs.9%;p=0.08), and resistance to erythromycin (68.8%vs.27.3%;p=0.034) significantly decreased within the study period, and were associated with serotype 19A (p=0.002;p=0.013;p=0.002, respectively).



Conclusions/Learning Points: The incidence of AM remained stable in our study with significant changes in its etiology. Thus, whereas the prevalence of S. pneumoniae significantly decreased in the post-PCV era, S. pyogenes emerged as the main etiological agent after the implementation of PCV13.

PV0727 / #387

OTOGENIC LEMIERRE'S-LIKE SYNDROME SECONDARY TO COMPLICATED, DISSEMINATED BACTEROIDES FRAGILIS GROUP INFECTION IN A CHILD WITH BILATERAL CHRONIC SUPPURATIVE OTITIS MEDIA

E-Posters Viewing
E-POSTER VIEWING: AS08.C. ENT INFECTIONS

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Title of Case: Otogenic Lemierre's-like syndrome secondary to complicated, disseminated Bacteroides fragilis group infection
Background: Lemierre's syndrome is a rare but potentially life-threatening infection resulting in septic thrombophlebitis of the internal jugular vein(IJV) often complicated by multifocal, septic emboli. The classic form follows Fusobacterium necrophorum pharyngitis however, it may follow mastoiditis or sinusitis. We report a case of otogenic Bacteroides fragilis Lemierre's-like syndrome.
Case Presentation Summary: A 9-year-old boy with chronic suppurative otitis media was admitted to PICU with septic shock following eight days of fevers, otorrhoea and neck pain. Investigations demonstrated bilateral mastoiditis, subdural empyema and occlusive thrombus(sigmoid sinus to the IJV) with pleural effusions and multiple embolic, cavitary pulmonary abscesses. He underwent bilateral mastoidectomies and drainage of the subdural empyema and pleural fluid. Bacteroides fragilis group was isolated in the blood culture and pleural fluid. Meropenem and vancomycin were rationalised to ceftriaxone and metronidazole upon clinical improvement. Susceptibility testing performed by gradient MIC strip method at two different laboratories using different anaerobic breakpoints(EUCAST or CLSI) revealed different susceptibilities(Table 1). Despite reported resistance according to EUCAST breakpoints, there was significant improvement with meropenem and/or metronidazole prior to the availability of susceptibility testing. Oral moxifloxacin was changed to amoxicillin/clavulanic acid to complete 6 weeks of antibiotics following source control with an excellent clinical outcome.

Table 1. Minimum Inhibitory Concentrations for *Bacteroides fragilis group* blood culture and pleural isolates

	Interpretation / Minimum Inhibitory Concentration mg/L (MIC)		
	Blood culture isolate 23/9/22 (CLSI breakpoints)	**Pleural isolate 5/10/22 (CLSI breakpoints)**	**Pleural isolate 5/10/22 (EUCAST breakpoints)**
Antibiotic			
Amoxycillin/Clavulanic acid	Susceptible (MIC 2)	Susceptible (MIC 2)	No interpretable breakpoint (MIC 1)
Meropenem	Susceptible (MIC 4)	Intermediate (MIC 8)	Resistant (MIC 2)
Metronidazole	Susceptible (MIC 4)	Intermediate (MIC 16)	Resistant (MIC 8)
Moxifloxacin	Resistant (MIC 16)	Susceptible (MIC 0.5)	No interpretable breakpoint (MIC 0.38)

Learning Points/Discussion: Lemierre's syndrome may extend beyond the classic form and should be considered in complicated or severe mastoiditis, with systemic features. Susceptibility testing of anaerobic isolates should be considered in severe infections however clinical correlation is not always clear.

Bacteroides fragilis resistance to meropenem and metronidazole is described but gold standard in-vitro testing is often not available to confirm the MIC. Different methodologies may lead to variability in the MIC and the categorisation of susceptibility.

PV0728 / #413

A CASE OF TUBERCULOUS LYMPHADENITIS INFECTION PRESENTING MAINLY AS A SINGLE SUPRACLAVICULAR ADENOPATHY IN A PATIENT FROM A HIGH TUBERCULOSIS INCIDENCE COUNTRY

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Cervical Lymphadenopathy: Remember the Old Foe
Background: Tuberculosis is one of the most widespread infectious diseases worldwide. Since 2015, Portugal is considered a low incidence country. Extrapulmonary tuberculosis is more frequent in children and tuberculous cervical lymphadenitis is the most common presentation.
Case Presentation Summary: A 16-year-old Bangladeshi girl, living in Portugal for six months, was admitted with a 1-month history of fatigue, 2-week history of a progressively enlarging right supraclavicular mass, intermittent headache, cough and nocturnal fever. She denied weight loss. Physical examination showed a hard, painful, right supraclavicular mass 5cm wide, adherent to underlying tissue, with undefined borders and no inflammatory signs. She had no other palpable masses. Computed tomography scan revealed a heterogeneous supraclavicular adenopathy conglomerate, with central necrosis and densification of surrounding fat, without other adenopathies, pulmonary or abdominal lesions. Fine needle aspiration showed inflammatory cells and no evidence of malignancy. Search for possible viral and bacterial causes was negative. Tuberculin skin test read at 48 hours and interferon gamma release assay were positive, pointing towards tuberculosis infection. Lymphnode incisional biopsy was performed with nucleic acid amplification test and mycobacterial culture, which was positive for M. tuberculosis, confirming the diagnosis of tuberculous lymphadenitis. The patient started antituberculosis therapy (with isoniazid, rifampin, pyrazinamide and ethambutol for two months followed by isoniazid and rifampin for four months) and monthly follow-up. Family members were screened.
Learning Points/Discussion: While investigating a patient with supraclavicular adenopathy, excluding neoplastic etiology is of paramount importance. Nevertheless, infectious diseases should always be contemplated. Due to the significant rate of immigrants from high incidence countries, clinicians should consider tuberculosis when these children present with cervical adenopathy.

PV0729 / #942

EPIDEMIOLOGY OF INTERNATIONAL TRAVEL AS A MODE OF DISEASE ACQUISITION AMONG CANADIAN- AND FOREIGN-BORN CHILDREN WITH TUBERCULOSIS — TORONTO, ONTARIO, 2002–2018

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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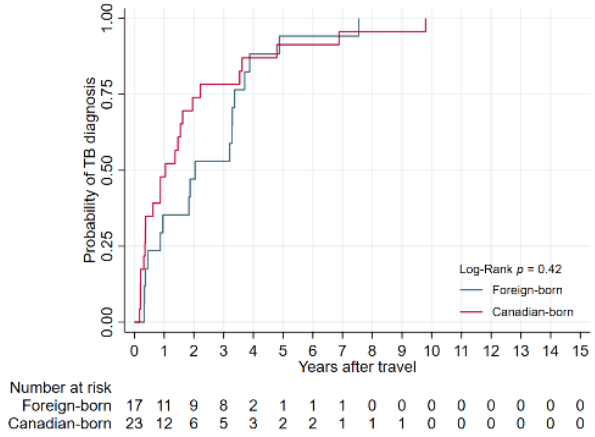
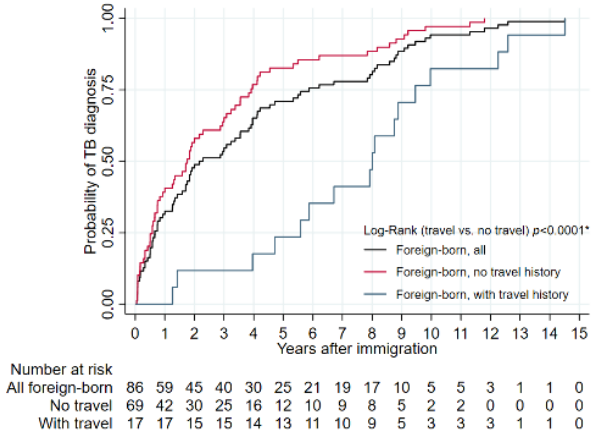
Backgrounds: In most low-burden settings, travel data is not routinely collected for tuberculosis (TB) case notification. We analyzed travel-related epidemiologic risk factors for disease transmission among children with TB.
Methods: We reviewed data for all children treated for TB disease in Toronto's regional pediatric TB program from 2002–2018. Birthplace, migration, and travel histories were prospectively obtained at clinic enrolment. Countries with annual TB incidence over 20 cases per 100,000 population, matched to year of travel departure, were considered endemic. Travel-related epidemiologic risk factors were analyzed among source-negative patients.
Results: Of 221 children with TB disease, 110 (50%) were foreign-born and 111 (50%) Canadian-born, among whom 95% had at least one foreign-born parent. 71 (32%) patients travelled to a TB-endemic country, 61 (86%) of whom to a country of either parent's birth. Among 122 source-negative patients, 23/35 (66%) Canadian-born versus 17/87 (20%) foreign-born children had travelled to a TB-endemic country (p<0.001); 66% of trips departed in June, July, December, or January, coinciding with summer and winter school holidays. Median (interquartile range) time from travel to diagnosis was 1.0 (0.4–2.2) years for Canadian-born children and 2.0 (0.9–3.4) years for foreign-born children (p=0.42; Figure 1A). Time from immigration to diagnosis was substantially longer among foreign-born patients with a post-immigration travel history than those without (8.0 [5.6–9.5] vs 1.7 [0.5–3.9] years, p<0.0001, Figure 1B), supporting travel as the likely source of TB in this subgroup.





Conclusions/Learning Points: Travel to a TB-endemic country plausibly accounted for about one in three source-negative cases and one in five cases overall. Epidemiologic patterns among both domestic- and foreign-born children suggest that travelers were likely visiting friends and relatives. Clinical and public-health measures to prevent travel-related pediatric TB disease should be developed and evaluated.

PV0730 / #1225

DIFFERENCES BETWEEN NON-TUBERCULOUS MYCOBACTERIAL PULMONARY AND CERVICAL LYMPH NODE INFECTIONS.

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Incidence of nontuberculous mycobacterial (NTM) infections has risen during the past years. While the most frequent presentation in children is cervical adenitis, pulmonary and disseminated infections are less common. There are few paediatric studies comparing these infections.
Methods: Retrospective comparative study of culture-confirmed NTM pulmonary and lymph node infections in patients aged 0-18 years, from 2013 to 2022, in a tertiary hospital.
Results: 34 patients were included: 12 (35%) pulmonary infection, 22 cervical lymphadenitis. Median age was lower in lymphadenitis (22 months [IQR 19.7-28.2] vs 169.5 months [IQR 98-192.5], p<0, 01). All patients with lung disease had chronic conditions, mainly immunodeficiency (n=5, 42%) or cystic fibrosis (n=6, 50%), whereas all patients with adenitis were previously healthy. The most common pathogen in respiratory infection was Mycobacterium avium (n=6, 50%), while in lymph node infection was Mycobacterium lentiflavum (n= 16, 72%). All patients with lung disease and the majority of patients (86%) with lymphadenitis received combined antibiotic therapy. Therapy was longer in pulmonary infections (median of 48 weeks [IQR 8-54] vs 16 weeks [IQR 3.3-24], p 0.238). Fifteen patients with adenitis (68%) underwent surgery. Four patients with pulmonary disease had a relapse after eradication, without any lymph node infection relapsing (p 0.01). Four patients died (12%), being all immunocompromised patients with NTM lung disease. NTM infection contributed to two deaths.
Conclusions/Learning Points: Lymphadenitis is the most common presentation of NTM infection, affecting young and healthy children, and has an excellent prognosis. Pulmonary infections affect older children with immunodeficiency or cystic fibrosis and can recur despite longer treatments. In our setting, the most frequent pathogens are M. avium in pulmonary infection and M. lentiflavum in adenitis.

PV0731 / #2012

TREATMENT OF MULTIDRUG-RESISTANT TUBERCULOSIS IN THE CHILD PRESENTING WITH ITP-LIKE CLINIC AND IN CHILDREN LIVING TOGETHER

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Treatment of multidrug-resistant tuberculosis in the child presenting with ITP-like clinic and in children living together
Background: Multidrug-resistant tuberculosis (MDR-TB) is the resistance of the tuberculosis bacillus to both isoniazid and rifampicin. It is estimated that approximately 25,000–32,000 children develop multidrug-resistant or rifampicin-resistant tuberculosis each year. Mortality is reported to be approximately 22% in children with multidrug-resistant tuberculosis
Case Presentation Summary: In June 2021, the oldest child first applied with the complaint of bleeding from the mouth and nose. In the foreground, ITP (immune thrombocytopenic purpura) was accepted as the diagnosis and steroid treatment was administered. She did not benefit from intravenous immunoglobulin treatment. On the 2nd day of steroid treatment, platelets still did not increase. Platelets increased with platelet replacement. Then, the information that the mother had tuberculosis and MDR-TB came. Contact screening was performed on four more children, the mother's three other children and a niece living in the same household. All of the children were girls and their ages were 15,13,12, six and one and a half years old. The symptoms, findings, treatment and side effects of the patients are given in the table.
Learning Points/Discussion: Diagnosis and treatment may be delayed due to the non-specificity of tuberculosis symptoms in children, the difficulty of microbiological tests and the low sensitivity of diagnostic tests. MDR-TB should be considered in children with adult contact known to have MDR-TB, although isoniazid and rifampicin resistance were not detected by culture result. Management of MDR-TB in pediatric patients is a process that requires patience and dedication. The use of unapproved second-line drugs in children is necessary to treat life-threatening MDR-TB, but careful monitoring is required to recognize dose- and duration-dependent drug adverse events quickly.

PV0732 / #346

UNCERTAINTY IN PEDIATRIC TUBERCULOSIS CLINICAL DECISION-MAKING: FINDINGS FROM A SYSTEMATIC UMBRELLA REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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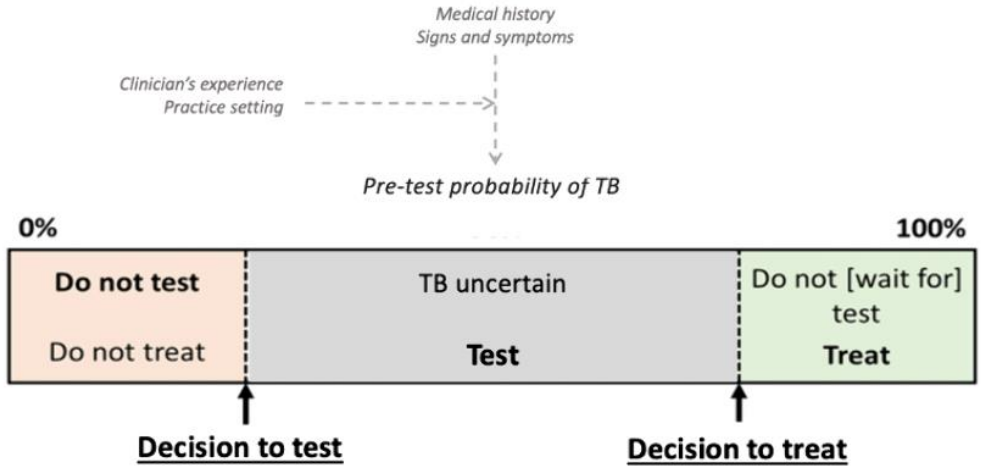
Backgrounds: In clinical decision-making, the threshold model represents test/treatment decisions based on pre- and post-test probabilities of disease. In resource-limited settings, additional contextual factors may influence thresholds, contributing to uncertainty in the decisional process. This umbrella review aimed to identify factors influencing pediatric TB decision-making and underlying sources of uncertainty.
Methods: Systematic reviews were searched in seven databases (MEDLINE, CINAHL®Complete, Embase, Scopus, Cochrane, PROSPERO, Epistemonikos) and selected using predetermined criteria. Results were thematically analyzed based on sources of uncertainty (patient, provider, health system, diagnostic test) and classified as barriers and facilitators for testing or treatment decisions.
Results: 24 reviews were included. Study designs and primary aims were heterogeneous, with seven meta-analyses and three qualitative evidence syntheses. Provider-level facilitators for test decisions included an advanced professional qualification and confidence in tests. Important diagnostic test characteristics included automation, non-sputum-based assays, and quick turnaround times. Main barriers for testing included poor provider TB knowledge and lack of diagnostic, infrastructural, and administrative resources. Fear of acquiring TB through respiratory sampling, complexity, and invasiveness of collection technique (e.g., gastric aspirate) were additional barriers for testing. Facilitators for empiric treatment included patients' young age, severe sickness, and test inaccessibility. Barriers to treatment included a history of previous TB, unknown TB exposure, providers' high confidence in negative test results (irrespective of true negative predictive value) and fear of TB drugs side effects.
Conclusions/Learning Points: Complex determinants of uncertainty influence pediatric TB decision-making. Provider and health system factors, in addition to patient and diagnostic test factors, should be addressed to optimize testing and treatment decision-making. Pragmatic trials at the point-of-care are needed to ensure that provider characteristics and the operating context are considered early during the development of diagnostic tests and decision

algorithms.



Facilitators	**Provider:** public sector employment, high level of qualification, confidence in diagnostic tests **Health system:** public/urban facility **Diagnostic test:** automation/computer-based technology, good sensitivity, non-sputum-based test, short waiting time for results	**Patient:** young age, sick hospitalized child **Health system:** high testing costs, lack of diagnostic resources **Diagnostic test:** low sensitivity in paucibacillary TB, invasiveness
Barriers	**Provider:** low TB knowledge, informal provider, private sector employment, fear of acquiring TB, TB/HIV stigma **Heath system:** undertrained staff, diagnostics and PPE stock-outs, poor infrastructure, peripheral setting, no local guidelines **Diagnostic test:** invasiveness, sample collection complexity	**Patient:** previous TB diagnosis, no known TB exposure **Provider:** high confidence in negative test result (even if low NPV), fear of TB drugs side effects

PV0733 / #157

13 YEAR OLD WITH DELAYED DIAGNOSIS OF PULMONARY TUBERCULOSIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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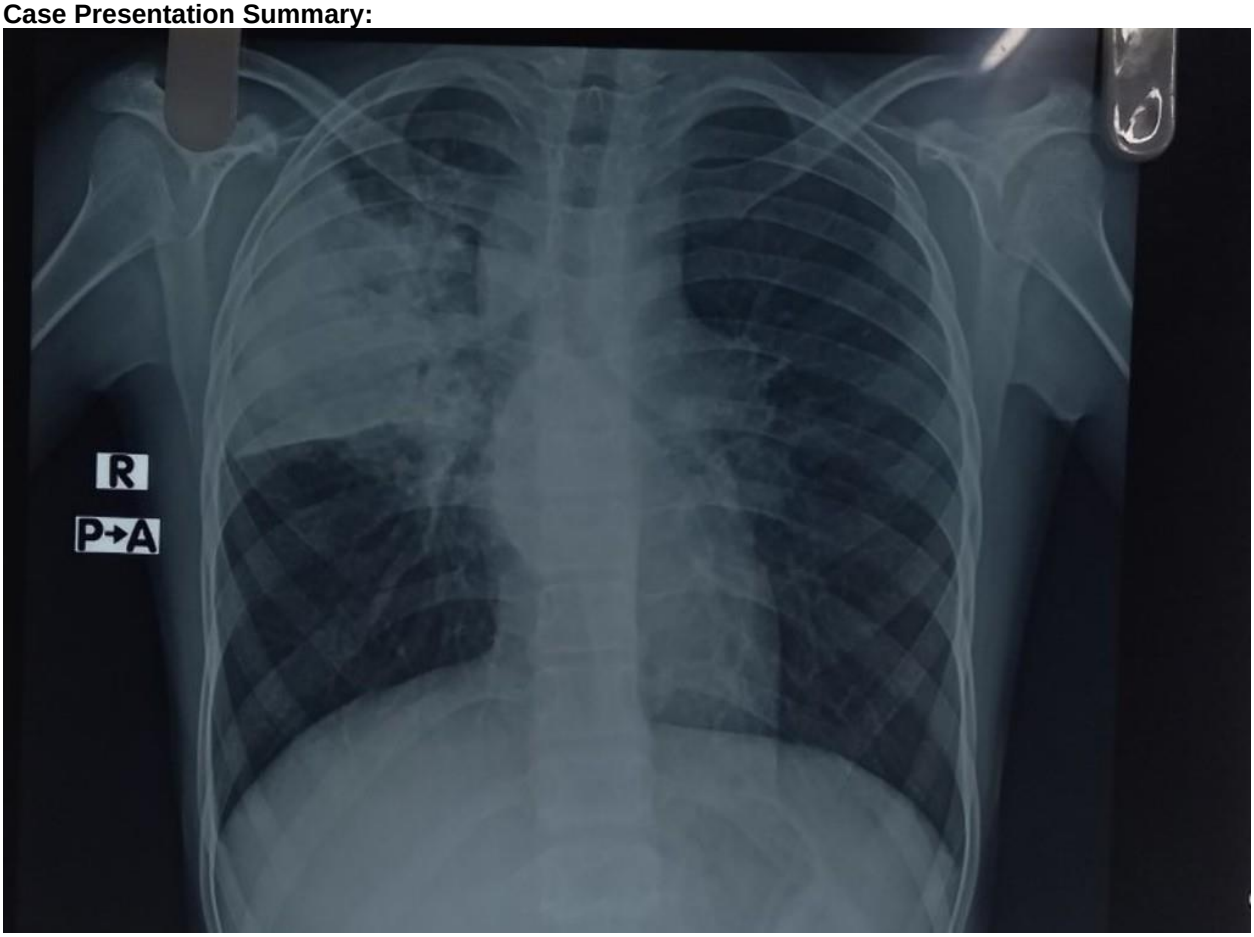
Title of Case: 13-YEAR-OLD GIRL WITH DELAYED DIAGNOSIS OF PULMONARY TUBERCULOSIS
Background: With a burden of disease that accounts for more than 10 million new cases per year, of which less than two-thirds are reported, tuberculosis (TB) continues to be a major global health threat. Once infected with TB bacteria, children are more likely to get sick with TB disease and to get sick more quickly than adults. Diagnosis and treatment of the disease may be missed sometimes in the early stages and symptoms may mimic other conditions like Asthma, especially in children and it may flare up with the use of steroids. Limited access to healthcare, high treatment cost, and the social stigma of TB have contributed to delayed detection and poor treatment uptake.
Case Presentation Summary:



The 12-year-old child presented with a history of cough from 6 months on and off. She was treated as persistent asthma for which she was given steroids for the exacerbations twice and was also started on inhalers. At presentation, she had a high-grade fever for 1 week with an increased cough. On examination, she had Bronchial breathing on the right side and a chest x-ray was done at admission, shown in figure 1. She was admitted and started on injectable antibiotics and her sputum was sent for Acid fast bacilli (AFB), which was positive she was started on Anti-tubercular drugs and she responded

well to the treatment.
Learning Points/Discussion: In children with prolonged cough, tuberculosis should always be ruled out. Sometimes wheezing may be an initial symptom and the use of steroids may flare up up the disease. Early referral whenever needed should always be done.

PV0734 / #274

TWENTY THREE YEARS OF DRUG-RESISTANT TUBERCULOSIS IN ARGENTINIAN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: The emergence of strains of Mycobacterium tuberculosis (MT) that are resistant to antimycobacterial agents (DR-TB) is a worldwide problem, which the magnitude has not been well described specially in pediatric patients (p).
Methods: We performed a retrospective review of all mycobacterial samples send from 1998-2022 at Hospital Garrahan for microbiological evaluation. Drug resistance tests to first line drugs:Isoniazid(INH), Rifampicin(R), Pirazinamide(PZ), Ethambutol(EMB), Streptomycin(STO) were performed on Lowenstein-Jensen medium according to the proportion method or/and Bactec 460/MGIT960 TB system. We defined DR-TB at those strains of MT resistant to one or more first-line drugs. Strains divided into monoresistant or resistant to 2 or more drugs:multidrug resistant TB strains (MDR-TB, those resistant to at least INH+R) and poliresistant TB strains. We analyzed medical records of p with microbiological confirmation of DR-TB.
Results: We included 1880 TB p during 23 years: 760 p had bacteriologically positive confirmed culture (40%). Fifty nine (7,8%) had DR-TB. Primary resistance was found in 49p (83%).The median age at diagnosis was 124 months (r:4-204), 18p (30%) were immunocompromised, 15/18p (84%) HIV positive. Pulmonary disease was the most common presentation:40p (68%). Nineteen p (32%) had extra-pulmonary localization. Of 59 DR-TB cultures 39(66%) were monoresistant and 20(34%) resistant to 2 o more drugs. Thirteen were MDR-TB, 10p of who had HIV infection. Monoresistance for INH, R, PZ, EMB and STO were 2.1% 0,4%, 0%, 0,13% and 2,5% respectively. Global INH resistance was 4,7%. Twenty two p (37%) had TB contact, 11p (18%) had previous hospital admission, and 9p (15%) previous TB treatment. Three p (5%) died because of TB disease; all of them had central nervous system infection.
Conclusions/Learning Points: INH resistant is increasing and MDR-TB was associated with HIV status. Mortality was low.

PV0735 / #1896

SEVERE AND PERSISTENT TUBERCULOSIS IN A HEALTHY ADOLESCENT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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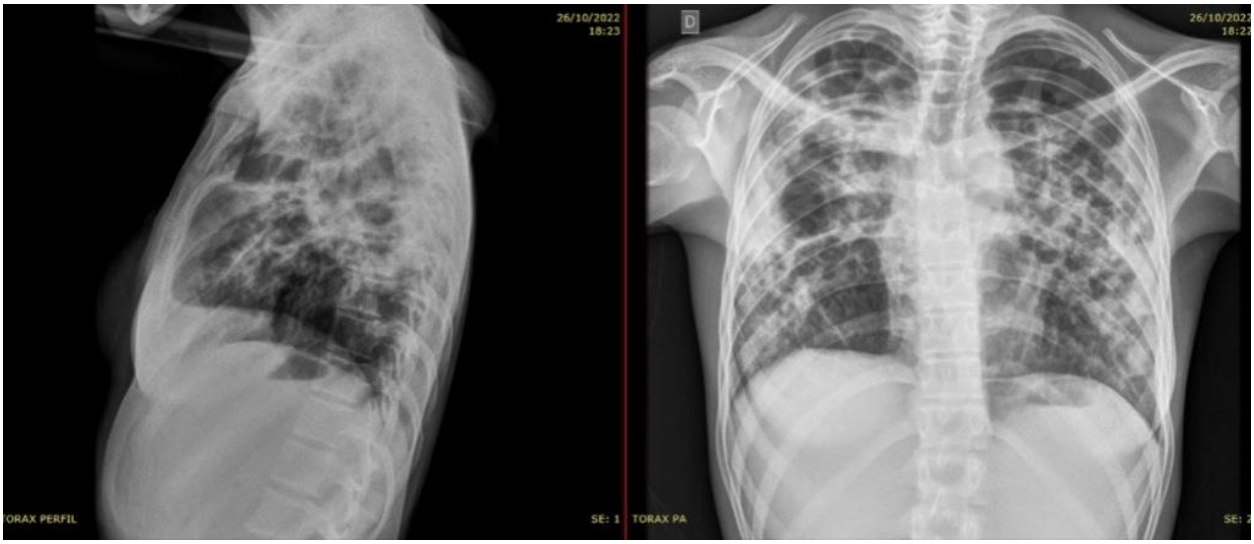
Title of Case: Severe and persistent tuberculosis in a healthy adolescent
Background: Tuberculosis is a transmissible disease considered one of the main causes of death worldwide. It is caused by the Mycobacterium tuberculosis bacillus, with the pulmonary form being the most prevalent.
Case Presentation Summary: A 13-year-old patient with family contact diagnosed with pulmonary tuberculosis in 2020. The patient received treatment for latent infection, ending the scheme in April 2021. After 8 months, she evolved with respiratory symptoms, fever and weight loss. Diagnosis of pulmonary tuberculosis was made in January 2022 (bacilloscopy and sputum culture positive), supervised treatment with Rifampicin + Isoniazid + Pyrazinamide + Ethambutol was initiated. She evolved with periods of improvement followed by worsening, fever, cough and maintenance of weight loss. Readmitted in October 2022, for the difficult-to-regress disease. He received treatment with RIPE associated with levofloxacin due to the possibility of secondary infection, maintaining positive bacilloscopy and, therefore, intravenous treatment was associated with Amikacin and Linezolid. Sputum cultures did not show drug resistance. She was discharged in December 2022, after 50 days of hospitalization with RIPE + Ciprofloxacin, afebrile and with clinical improvement. During outpatient follow-up, bacilloscopy was repeated 10 days after hospital discharge, with negative result. The scheme was maintained until obtaining 2 new consecutive negative sputum samples and then moving on to the second phase of treatment with Rifampicin and
Isoniazid.



Learning Points/Discussion: The RIPE regimen for 2 months, followed by 4 months of Rifampicin + Isoniazid is the recommended treatment. The evolution is usually favorable in immunocompetent patients. The patient met these criteria, without resistance to medications, but evolved unsatisfactorily. One of the hypotheses for such an evolution was the presence of multiple pulmonary cavitations that hindered the effectiveness of the medication.

PV0736 / #822

DISSEMINATED TUBERCULOSIS WITH INTESTINAL INVOLVEMENT IN TEENAGER.

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Disseminated tuberculosis with intestinal involvement in teenager.
Background: Tuberculosis (TB) has suffered a major impact during the pandemic period with COVID-19 globally. According to the World Health Organization (WHO), the progress made so far with global goals has significantly regressed. Mainly associated with the investigation and reporting of cases. In WHO epidemiological data until 2019, Tuberculosis was responsible for leading deaths associated with only one infectious agent, being surpassed by COVID-19 since 2020. During this period, approximately 9.9 million people worldwide were affected, with 1 .3 million deaths without HIV co-infection. In Brazil, in 2021, the incidence was 32/100,000 population (68,271 new cases). The pediatric population (under 15 years old) corresponds to 3.0%, especially those under five years old who represent 40.1%. Regarding the clinical forms, the extrapulmonary presented the highest percentage in its historical series in 2020 with 23.9%.
Case Presentation Summary: We describe a case of disseminated tuberculosis in an adolescent. A 14-year-old male patient presenting weight loss and fatigue for six months, with sweating and cervical lymph node enlargement in the last month. Exams showed pancytopenia (Hemoglobin: 6.4 g/dl / Leukocytes: 908 cells / Platelets: 67,000). Tomography of the thoracoabdominal, evidenced presence of lymph node clusters in bilateral cervical and mediastinal chains, and diffuse consolidations in the right lung. The colonoscopy showed multiple active ulcers in colon and rectum and distal rectal fistula. Pulmonary and ganglionic involvement, whose differential diagnoses transited between Tuberculosis, Lymphoma, HIV and Inflammatory Bowel Disease (Crohn's). Cultures, PCR for MTB and smear microscopy disclosed Mycobaterium tuberculosis. The patient had excellent response to treatment and complete recovery.
Learning Points/Discussion: This case report shows the importance of investigating tuberculosis in cases of fatigue, weight loss and multisystemic involvement.

PV0737 / #1927

PROSPECTIVE EVALUATION OF TB-LAM IN HIV NEGATIVE CHILDREN WITH PRESSUMPTIVE TB IN A DISTRICT HOSPITAL IN MOZAMBIQUE.

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Novel accurate, reliable and rapid point of care (PoC) diagnostic methods which are non sputum based, are needed to narrow the large childhood TB case detection gap POC tests that detect the mycobacterial lipoarabinomannan (LAM) antigen in urine, are currently recommended by WHO for TB diagnosis in people living with HIV, but further evidence-based data is needed regarding broader applications including those HIV negative populations.
Methods: We prospectively evaluated the performance of the Urine TB-LAM Ag test in a prospective cohort of children <8 yr with presumptive TB in rural Mozambique living with and without HIV. Enrolled participants were evaluated clinically, radiologically and microbiologically (urine TB LAM, two respiratory samples tested through Xpert Ultra and culture and one stool sample tested through Xpert Ultra). Diagnostic accuracy was estimated against microbiological confirmation (excluding TB LAM) and NIH clinical case definiton (TB confirmed, unconfirmed and unlikely TB).
Results: Of the 71 presumptive TB cases enrolled, 8 (11.2%) were HIV positive, 3 (4,2%) had a positive LAM and 16 (22%) started ATT. Among those starting ATT, 5 (7%) were confirmed TB. The Sensitivity and specificity of TB LAM was 25 and 100% against the clinical definition in the HIV positive and 16.7% and 100% in the HIV negative. Sensitivity and specificity against Confirmed TB it was 25% and 98.3% respectively for HIV negative
children.

HIV positive	Confirmed	Unconfirmed	Unlikely TB	Total
LAM +	0	1	0	1
LAM -	1	2	4	7
Total	1	3	4	8

HIV negative	Confirmed	Unconfirmed	Unlikely TB	Total
LAM +	1	1	0	2
LAM -	3	7	51	61
Total	4	8	51	63

Conclusions/Learning Points: Until recently there are few studies that try to establish the accuracy of TB-LAM in HIV-negative children, therefore our study presents new evidence in this regard. The results of the study are limited, but the positivity of TB-LAM in two HIV negative children that are considered TB cases, suggests that there is room to further study this topic.

PV0738 / #410

CERVICAL LYMPHADENOPATHY AND POSITIVE INTERFERON-GAMMA RELEASE ASSAY (IGRA) - NOT ALWAYS TUBERCULOSIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: CERVICAL LYMPHADENOPATHY AND POSITIVE INTERFERON-GAMMA RELEASE ASSAY (IGRA) - NOT ALWAYS TUBERCULOSIS
Background: Nontuberculous mycobacteria (NTM) are an important cause of cervical lymphadenitis in immunocompetent children. Most cases are caused by Mycobacterium avium complex. However,Mycobacterium kansasii remains one of the most relevant species of NTM.
Case Presentation Summary: A previously healthy 6-year-old girl was referred to our institution due to a 3-month history of hard adherent unilateral cervical lymphadenopathy. Other symptoms were absent,animal contact or recent travel were denied, and her immunizations did not include BCG. Blood work showed elevated erythrocyte sedimentation rate (25 mm/h),with normal complete blood cell count,C reactive protein and aminotransferases. HIV,CMV, EBV,toxoplasmosis were excluded. QuantiFERON®-TB gold test (QTF) was positive,chest X-ray was unremarkable,and the neck ultrasound revealed a right adenopathic conglomerate (52 mm) and the abdominal ultrasound mesenteric adenopathies (7 mm) and small bowel intussusception. Lymph node's biopsy revealed a caseous granuloma and acid-fast bacilli smear and nucleic acid amplification tests were negative. Tuberculous lymphadenitis was considered,and isoniazid, rifampicin, pyrazinamide, ethambutol [HRZE] were initiated. Biopsy's cultural exam isolated M. kansasii,sensitive to rifampicin,moxifloxacin and clarithromycin, which motivated pyrazinamide discontinuation and treatment with HRE,so far for five months, with gradual improvement. Immunological study is ongoing.
Learning Points/Discussion: The clinical syndromes and radiologic findings of M. kansasii infection are usually indistinguishable from those of M. tuberculosis, so microbiological confirmation is required. Furthermore, QTF may be positive in patients infected with M. kansasii, confounding the diagnosis, as it firstly happened in this case. There is limited evidence to guide treatment of M. kansasii extra-pulmonary disease. We decided to treat this presumed immunocompetent child with extrapulmonary disseminated infection with HRE for a minimum of six months, being the duration decided according to clinical and imagiological evolution.

PV0739 / #2302

TUBERCULOUS MENINGITIS IN A GIRL WITH ACQUIRED INTERNAL OCCLUSIVE POST-HEMORRHAGIC HYDROCEPHALUS, RIGHT-SIDE HEMIPARESIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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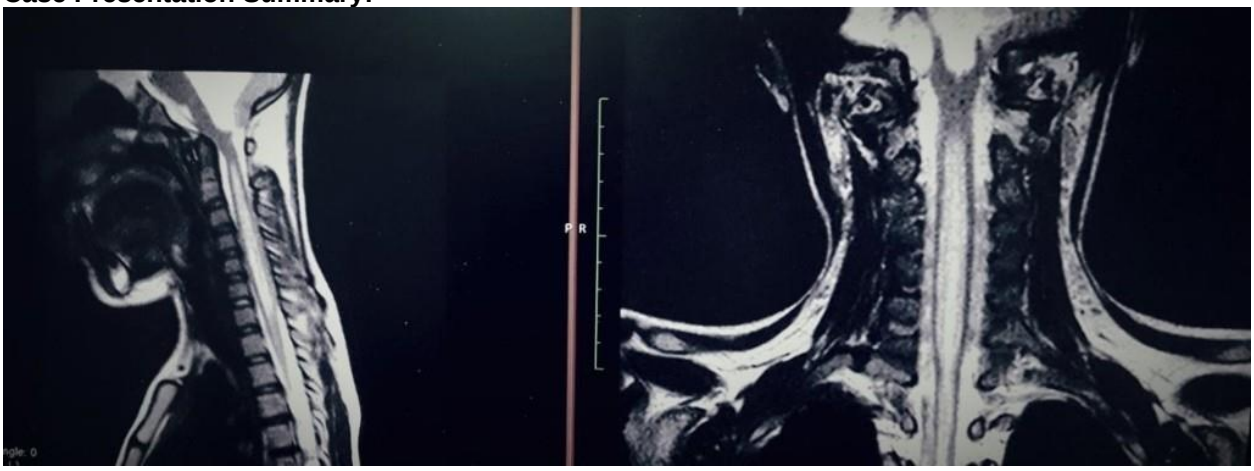
Title of Case: Tuberculous meningitis in a girl with acquired internal occlusive post-hemorrhagic hydrocephalus, right-side hemiparesis
Background: Tuberculous meningitis is a serious and often fatal disease in children and ranges between 1-10% of all TB cases. We want to present a case of tuberculous meningitis in a girl with acquired internal occlusive post-hemorrhagic hydrocephalus, right-side hemiparesis.
Case Presentation Summary:



Our patient is an 8-year-old girl with complaints of prolonged febrile fever, severe headache in the occipital region, vomiting. Disease history. A CSF shunt system was installed to treat hydrocephalus at the age of 1 year. Three months ago there was contact with a bacteriopositive case of lung tuberculosis. The examination showed the following changes: CSF - cytosis of 206 cells, protein 3.32%, glucose 1.9 mmol/l, lymphocytes 80%, MBT Gene Expert CFL was negative. QFT plus was positive. SCT of the thoracic and abdominal organs was nornal. MRI result-signs of increased internal occlusive hydrocephalus with mass effect causing on the brain stem, with the threat of lateral and axillary insertion of the brain stem, increased signals from the hard and soft membranes of the brain, pronounced hydromyelia of the cervical and thoracic spine. The child underwent surgical intervention-revision and removal of the distal end of the CSF shunt system. Antituberculosis drugs were started. Patient improved with follow up MRI showing positive dynamics with Mass effect causing resolution, without the threat of wedging and reducing hydromyelia.
Learning Points/Discussion: 1.Tuberculous etiology should be suspected, although rare, in children with hydrocephalus and prolonged fever, when other causes are excluded. 2. Prognosis can improve with early diagnosis and prompt treatment.

PV0740 / #426

DISSEMINATED TUBERCULOSIS WITH RENAL INVOLVEMENT IN A PARANEONATE

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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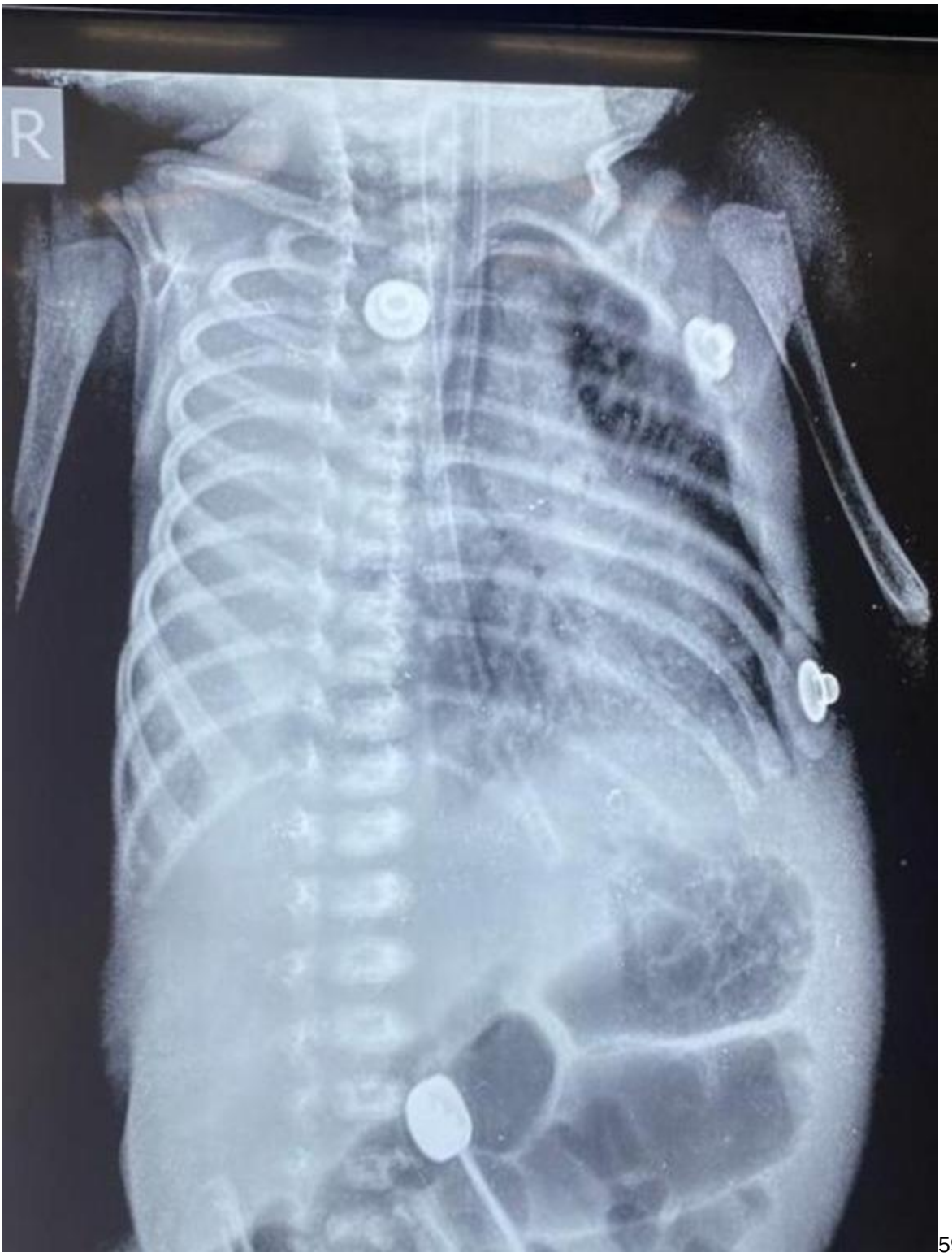
Title of Case: DISSEMINATED TUBERCULOSIS WITH RENAL INVOLVEMENT IN A PARANEONATE
Background: Renal tuberculosis (TB) accounts for 14-41% of all cases of pulmonary tuberculosis (PTB) in developed countries. Renal TB in paraneonatal age group is not reported previously.
Case Presentation Summary:



59 day old male born by vaginal delivery at 38 weeks of gestation with a birth weight of 2kg,brought with fever,cough for 7-8 days. On presentation weight was 1.9 kg with anasarca,respiratory distress and hypoxemia.Initially suspected to have late onset sepsis and required non-invasive ventilation,subsequently intubated and put on mechanical ventilation. Started with intravenous antibiotics piperacillin tazobactum and amikacin.CT chest showed consolidation of entire right lung as well as posterior segment of left upper lobe and most of left lower lobe, Nodular infiltrates with tree in bud

distribution in left lung. Hemoglobin of 8.2 gm/dL,white cell count of 19,100 cells/cumm (63% polymorphs, 33% lymphocytes),C-reactive protein(CRP) 260 mg/L,AST 617 U/L,ALT 136 U/L,Total bilirubin 0.8 mg/dL,Total protein 3.1g/dL,albumin of 1.9g/dL. Blood cultures had no growth. HIV serology was negative.Mother was admitted to another hospital for abdominal Tuberculosis the same time. Endotracheal secretions revealed mycobacterium tuberculosis (MTB) on Xpert MTB/RIF assay without resistance to rifampicin. Started on anti-tubercular therapy (ATT).In view of polyuria and abdominal distension,ultrasound abdomen done which showed raised renal echogenicity with ascites, internal echoes and normal liver echotexture.Urine routine had 1-2 pus cells/ high power field,urine culture was negative. Urine Xpert MTB/RIF ultra showed MTB without resistance to rifampicin. Inspite of all efforts baby succumbed due to respiratory failure.

Learning Points/Discussion: Renal tuberculosis is usually a secondary tubercular infection which is causes by hematogenous dissemination during primary infection or reactivation. High index of suspicion should be kept in patients with primary infection and unexplained renal signs and symptoms.

PV0741 / #2627

ABDOMINAL TUBERCULOSIS IN CHILDREN: A DIAGNOSTIC CHALLENGE

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Abdominal tuberculosis in children: a diagnostic challenge
Background: Tuberculosis disease (TB) is a relevant public health problem, especially in high-prevalence areas. Intestinal TB (ITB) is a rare entity, characterized by non-specific symptoms and signs and a difficult microbiological diagnosis. We present two different cases of ITB.
Case Presentation Summary: CASE 1-A 13-year-old Peruvian male was admitted for a 3-day history of fever, nausea and abdominal pain. Abdominal US showed diffuse ascites. Abdominal CT reported a widespread peritoneal thickening and multiple mesenteric adenopathies. Tuberculin skin test and QuantiFERON were negative. Multiple microscopic samples and PCR for Mycobacterium tuberculosis (MTB) DNA resulted negative in gastric and urine specimens. A laparoscopic peritoneal biopsy reported epithelioid and Langhans cells and caseous necrosis areas. PCR for MTB in the histological sample was positive. Antitubercular treatment was started with clinical improvement. CASE 2-A 12-year-old female was hospitalized for fever and lower abdominal tenderness with a recent travel history in Kosovo. Abdominal US showed ascites, and abdominal CT revealed diffuse peritoneal thickening. A chest CT described a single non-specific pulmonary lesion. Microbiological and PCR for MTB assays performed on urinary, nasopharyngeal, peritoneal fluid and stool samples were negative, but QuantiFERON and tuberculin skin test returned positive. A diagnosis of intestinal tuberculosis was confirmed by positive PCR for MTB in gastric specimens, and a specific treatment regimen was started.
Learning Points/Discussion: ITB is challenging in children, especially in the absence of pulmonary disease. ITB mimics inflammatory bowel disease, malignant neoplasia or other infectious diseases. Therefore, ITB should be included in the differential diagnosis in patients who come from endemic areas and develop abdominal complaints. Imaging tests, QuantiFERON and microbiological tests for TB in biological specimens lead to establishing diagnosis and treatment.

PV0742 / #1695

LARYNGEAL TUBERCULOSIS IN A 12-YEAR-OLD PATIENT, CONFUSION FACTORS AMONG OTHER GRANULOMATOUS DISEASES: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: LARYNGEAL TUBERCULOSIS
Background: Laryngeal tuberculosis (LT) is a rare chronic granulomatous infectious disease caused by Mycobacterium tuberculosis (MT), that affects mainly adults in developing countries. It can either be primary or secondary. This article has the objective to report a case of LT in an adolescent and convey the importance of the differential diagnosis among others granulomatous diseases (GD).
Case Presentation Summary: Healthy 12-year-old male was admitted with a history of dry coughing for the past 6 months, 2 months of progressive hoarseness and painless, enlarged, mobile lymph node. The patient also presented with fragile lesions in the larynx and oropharynx, raising suspicions of a GD. The Computed tomography of the neck had showed diffuse submucous thickening of the larynx, causing significant stenosis of the lumen. He had IgM serologies and sputum AFB tests negative, PPD tests with 15mm (48h) and 18mm (72h), hematological PCR for MT negative. A biopsy of the lesion was performed and PCR tests for MT were found at low levels. LT was confirmed and the patient was started on a regimen of rifampicin, isoniazid, pyrazinamide, ethambutol and corticosteroids for treatment. One week later, showed a slight decrease in swelling in the larynx, an improvement in hoarseness, and a reduction in coughing. After 4 months, the patient still had diffuse granulomatous lesions in the arytenoids, blurring of the aryepiglottic folds, but had his epiglottis and vocal folds free of erosive lesions and unimpaired mobility.
Learning Points/Discussion: This case report highlights the importance of considering LT as a possible differential diagnosis for chronic GD in children and must maintain a high level of suspicion and initiate appropriate treatment, even if test results are negative, in order to prevent poor outcomes.

PV0743 / #535

EVALUATION OF INDUCED SPUTUM AGAINST GASTRIC JUICE ASPIRATE IN THE DIAGNOSIS OF TUBERCULOSIS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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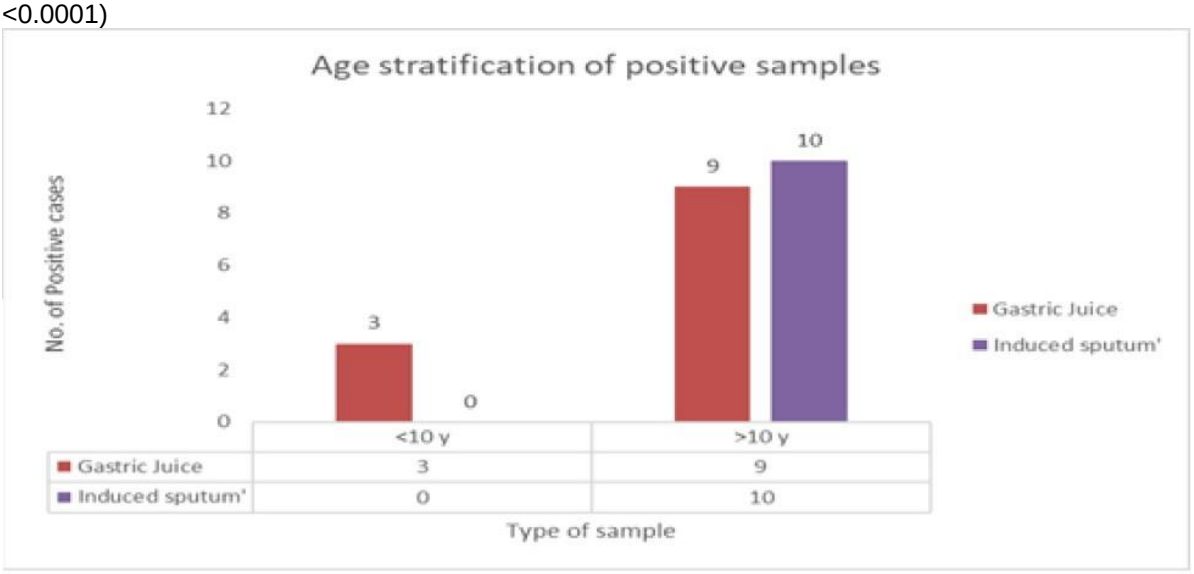
Backgrounds: Gastric juice aspiration has been the preferred method of sampling for the diagnosis of pulmonary TB in children. However, induced sputum collection is less invasive, does not require in-patient admission, causes less discomfort and does not require overnight fasting. Hence this study was carried out to evaluate induced sputum collection against gastric juice aspiration in the diagnosis of Tuberculosis using XpertMTB/RIF and MGIT(culture) in children between 2 to 15 years of age.
Methods: This is a cross-sectional, prospective study including both in-patients and out-patients who were suspected cases of Tuberculosis between 2 and 15 years of age. Sequential samples of gastric juice and induced sputum were collected and both were sent for XpertMTB/RIF and MGIT.
Results: We recruited 138 children for the study who were suspected to have Tuberculosis. Pulmonary TB accounted for 13 cases (9.4%). The overall diagnostic yield by GJ aspiration was 12/138 ie. 8.6% (5-14.5%), while that for Induced sputum was 10/138 ie. 7.2% (3.9-12.8%). Above 10 years of age, there were 10 cases detected by Induced sputum and 9 cases by GJ aspiration. Less than 10 years, 3 cases were detected by Gastric juice aspirate and none by IS. Using the Wong-Baker visual analogue scale GJ aspiration had a median score of 8 while Induced sputum production had a median score of 2, suggesting that IS production was associated with significantly lower levels of discomfort compared to GJ aspiration. (p value
<0.0001)



Conclusions/Learning Points: In children less than 10 years, gastric juice aspiration should be used for

the diagnosis of TB. However, in children aged 10 years and above induced sputum should be done owing to better yield and tolerability.

PV0744 / #397

REPORT ON THE RESULTS OF TB CONTACT HEALTH EXAMINATIONS OF CHILDREN IN JAPAN OVER THE PAST 12 YEARS.

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: In 2021, the number of newly registered TB cases in Japan was 9.2/100,000, classifying Japan as a low endemic country for the first time. Kurume University Hospital has been carrying out TB contact person health examinations in children, and we report on the status of TB infection in children.
Methods: We reviewed the medical records of TB contact health check-ups over a 12-year period from 1 April 2009 to 31 March 2021at Kurume University Hospital retrospectively, and investigated the background, family history of cases judged to have established TB infection, contact status, TB test results at health check-ups and anti-tuberculosis drug administration status.
Results: In this study 192 children were examined for TB contact health examinations and 29 patients(15.1%) were judged to have TB infection (pulmonary TB: 3, lymph TB:4, latent TB:21, pulmonary TB after treatment for latent TB:1). Family and contact history: 15 patients lived together and 12 had contact 1-2 times a week. The main tests leading to the diagnosis were positive tuberculin test in 16 cases, positive IGRA in 6 cases and imaging tests in 2 cases. Treatment was INH+RFP+PZA in pulmonary and lymph node TB cases and INH in latent TB cases.
Conclusions/Learning Points: Among cases in which a family member living with the patient developed pulmonary TB, TB infection was established in all cases. In addition, we found pulmonary TB cases during the check-up after the completion of treatment for latent TB, and it is considered necessary to follow up regularly on cases treated for TB infection. In two cases of pulmonary TB, the tuberculin test was strongly positive and IGRA was negative, so it is necessary to make a comprehensive diagnosis of TB in children, including imaging tests.

PV0745 / #927

PREVALENCE AND CLINICAL CHARACTERISTICS OF CHILDREN WITH NONSEVERE TUBERCULOSIS IN SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: In low-endemic regions, most children have nonsevere tuberculosis (TB). The SHINE Trial has shown that treatment for children with nonsevere TB can be safely reduced from six to four months. We aimed to assess the prevalence and characteristics of nonsevere TB among patients in the Spanish Pediatric TB Research Network cohort.
Methods: We conducted an observational study in children aged ≤16 years diagnosed with TB. Nonsevere TB cases included smear-negative children with respiratory TB confined to one lobe, with no significant airway obstruction, no complex pleural effusion, no cavities, and no signs of miliary, or children with peripheral lymph-node disease. Children not fulfilling these criteria were considered to have severe TB. We estimated the prevalence of nonsevere TB in our cohort, and compared the clinical presentation, diagnostic findings, and outcomes between children with nonsevere and severe TB.
Results: Seven hundred and eighty patients were included (46.9% males, median age 5.5 years [IQR:2.6-11.1]); 477 (61.1%) had nonsevere TB. Nonsevere TB was less frequent in children <1 year of age (4.8% vs 15.2%; p<0.01), and >10 years of age (25.2% vs 35.3%; p<0.01), mostly diagnosed in contact tracing (60.4% vs 29.2%, p<0.01) and more frequently asymptomatic (38.3% vs 17.7%; p<0.01). There was no difference in interferon-gamma release assay tests performance. TST positivity rates and mean induration diameters were greater in nonsevere patients (p<0.01 in both cases). TB confirmation in nonsevere TB was less frequent by culture (27.0% vs 57.1%, p<0.01) and by molecular tests (18.2% vs 48.8%, p<0.01).
Conclusions/Learning Points: In our cohort, two-thirds of the children had nonsevere TB, most of them with benign clinical presentation and negative microbiologic results. In low-burden countries, a large number of children with nonsevere TB might benefit from shorter treatment regimens.

PV0746 / #2166

A FATAL M. TUBERCULOSIS AND S. PNEUMONIAE MIXED MENINGITIS IN A HEALTHY INFANT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: A FATAL M. TUBERCULOSIS AND S. PNEUMONIAE MIXED MENINGITIS IN A HEALTHY INFANT
Background: Streptococcus pneumoniae and Mycobacterium tuberculosis are major vaccine-preventable pathogens causing meningitis, including severe sequelae and fatal outcomes. We describe a rare form of pneumococcal and tuberculous mycobacteria coinfection causing meningitis in a previously healthy child.
Case Presentation Summary: A previously healthy 8-month-old girl presented to the ER with a cough, runny nose, vomiting, diarrhea, and recurrent high fever (up to 39°C) for 7 days, but with significant worsening of the general condition, drowsiness, and irritability and respiratory pattern during the last 24h. CSF was obtained from the lumbar tap: 42 cells (63% neutrophils; 37% lymphocytes), protein=512 mg/dl, glucose=20 mg/dl; red cells=103/mm^3), negative culture. Due to progressive drowsiness and a sudden 12-minute cardiac arrest, orotracheal intubation and vasoactive support were required, and empiric antimicrobial treatment with high-dose ceftriaxone, vancomycin, and acyclovir was initiated. Necrosis of the extremities developed soon after, and, despite these efforts, she remained unresponsive, hypoactive, and with fixed middle pupils even after weaning off sedatives and vasoactive drugs. She died after 18 days of hospitalization in PICU after brain death was confirmed. Streptococcus pneumoniae was identified by multiplex RT-PCR in the CSF from a control lumbar puncture. Acid-alcohol fast bacilli were absent using fluorescent microscopy, and Mycobacterium tuberculosis was subsequently grown in culture after 3 weeks; the organism is sensitive to the drugs used in treatment.
Learning Points/Discussion: Mixed pneumococcal and tuberculous meningitis is a rare combination that occurs most frequently in young infants and results in fatal infections. Diagnostic difficulties are frequent, and delay in treatment is considerable.

PV0747 / #1496

CASES OF PULMONARY TUBERCULOSIS WITH PLEURISY IN SIBLINGS WHO REFUSED LATENT TUBERCULOSIS TREATMENT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: CASES OF PULMONARY TUBERCULOSIS WITH PLEURISY IN SIBLINGS WHO REFUSED LATENT TUBERCULOSIS TREATMENT
Background: Latent tuberculosis infection (LTBI) is defined as a state in which Mycobacterium tuberculosis infected a host but has not caused a disease. According to the Korean Guidelines for Tuberculosis, children with LTBI are recommend being treated with isoniazid for 9 months or with isoniazid plus rifampin for 3 months. We hereby present cases of pulmonary tuberculosis with pleurisy in siblings who refused the LTBI treatment.
Case Presentation Summary: Case 1. A 13-year-old girl visited ER for dyspnea that started 3 days ago. Her chest x-rays showed a massive left side pleural effusion. She was previously diagnosed with LTBI for her father had active pulmonary tuberculosis 7 months ago and 9-month isoniazid treatment was recommended. However, the parents refused the treatment then. Active pulmonary tuberculosis was confirmed with chest CT and sputum exam. The effusion was removed via percutaneous catheter drainage (PCD) and antituberculosis medication was started. She completed a course of 2 months of isoniazid, rifampin, ethambutol, and pyrazinamide (2HREZ) followed by 4 months of isoniazid, rifampin, ethambutol (4HRE). Her symptoms and abnormal findings in chest x-rays improved with the treatment. Case 2. An 11-year-old boy, the brother of case 1, was also diagnosed with LTBI 7 months ago but was not treated. He had no symptoms but his repeated chest x-rays showed active pulmonary tuberculosis with right side pleural effusion. He underwent a course of 2HREZ and 4HRE and recovered completed.
Learning Points/Discussion: LTBI treatment of children could be bothersome and their caregivers would ignore its necessity. However, healthcare professionals should provide confident information about both the benefits and risks of LTBI treatment. The present sibling cases may show its importance.

PV0748 / #2702

A CASE OF BRONCHIAL TUBERCULOSIS IN A 15-YEAR-OLD FEMALE ADOLESCENT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: A case of bronchial tuberculosis in a 15-year-old female adolescent
Background: Introduction: Bronchial tuberculosis (BTB) refers to Mycobacterium tuberculosis (MT) infection of the trancheobronchial tree. BTB is either a complication or a specific type of pulmonary tuberculosis (TB). It is mainly seen in young females. It occurs in about 10-40% in patients with active TB, but it is likely to be undiagnosed. This case illustrates an adolescent with BTB.
Case Presentation Summary: Case presentation: We present a 15-year-old female adolescent, living in Greece, refugee from Ghana admitted due to multiple episodes of hemoptysis since the same day and cough since 2 weeks ago. The clinical examination and the chest X-ray showed no pathological findings. The chest CT revealed bronchiectasis, atelectasis, a ''tree-in-bud'' appearance and ground glass opacity of the left lower lobe with calcified mediastinal lymph nodes. The tuberculin skin test, the sputum test for acid-fast bacilli and the GeneXpert were all negative, however the Quantiferon - TB Gold was positive, so a bronchoscopy was performed and a blood clot was found in the entrance of the left main bronchus. The biopsy revealed granulomas with multinucleated giant cells compatible with TB, the GeneXpert of the tissue, the Lowenstein Jensen culture and MGIT culture of the washing and the mini bronchoalveolar lavage were positive. The Mycobacterium tuberculosis isolated was sensitive to all first line anti-TB drugs. The patient was finally treated with Isoniazid, Rifampin, Ethambutol and Pyrazinamide for 2 months and then with Isoniazid and Rifampin for 4 months.
Learning Points/Discussion: Discussion: Although our patient is a typical BTB case, a bronchoscopy had to be performed to confirm the diagnosis, since direct isolation of MT is the gold diagnostic standard.

PV0749 / #672

THE DIAGNOSTIC YIELD OF NASOPHARYNGEAL ASPIRATE FOR PAEDIATRIC PULMONARY TUBERCULOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Diagnosing pulmonary tuberculosis (TB) is challenging in young children who cannot expectorate sputum spontaneously. Nasopharyngeal aspirate (NPA), an alternative respiratory sample, may be more easily collected than gastric aspirate or induced sputum. However, data on its diagnostic yield is lacking.
Methods: We systematically reviewed and meta-analysed the diagnostic yield of one NPA for testing by either culture or nucleic acid amplification testing (NAAT) to detect Mycobacterium tuberculosis. Three bibliographic databases and two trial registers were searched until 24th November 2022. Microbiological confirmation based on culture and/or WHO-endorsed NAAT on a respiratory specimen was the reference standard. The incremental yield of two NPA samples compared to one was estimated and operational aspects of NPA collection and processing were summarised.
Results:

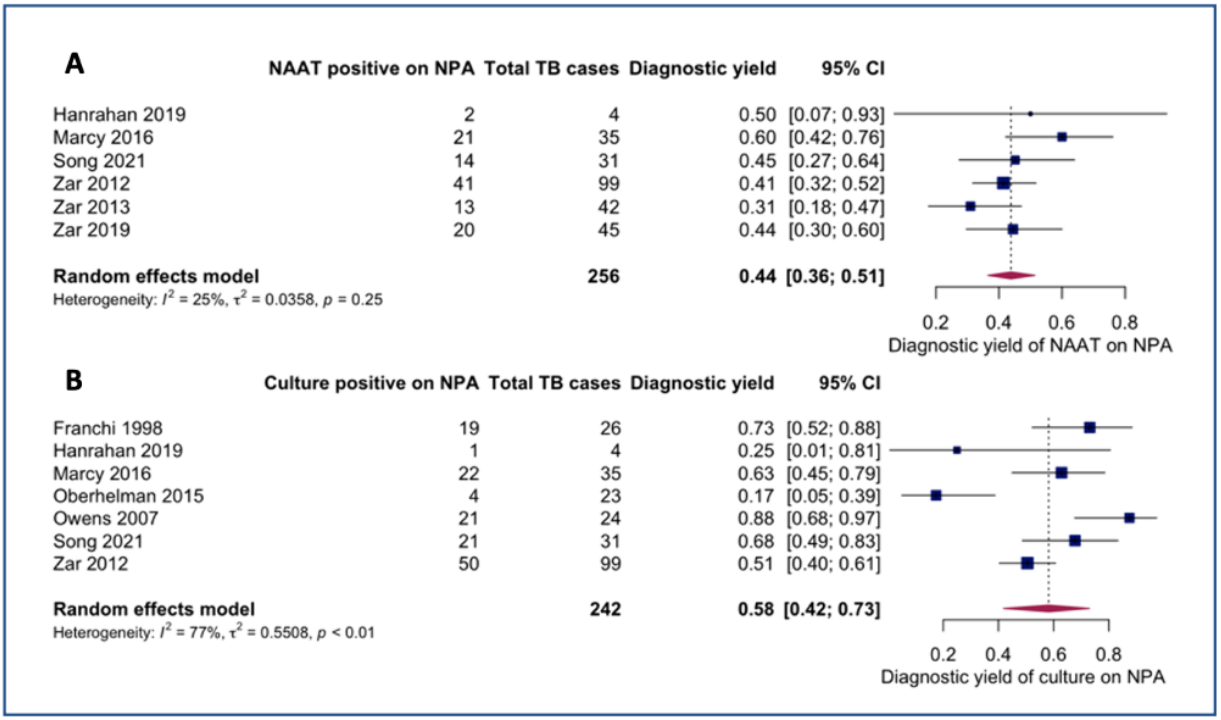

Figure 1: *Forest plots of diagnostic yield of nasopharyngeal aspirate (NPA) using NAAT (A) and culture (B) compared to a microbiological reference standard, based on culture and/or WHO-endorsed NAAT on any of the following respiratory specimens: gastric aspirate, induced sputum, stool, string test, expectorated sputum, bronchoalveolar lavage and NPA.*

From 1492 citations, 54 underwent full-text review and nine were included. Based on six studies

including 256 children with microbiologically confirmed TB, the diagnostic yield of NAAT on one NPA ranged from 31-60%, (summary estimate 44%, 95% CI 36-51%) (Figure 1A). From seven studies including 242 children with microbiologically confirmed TB, the diagnostic yield of culture was 17-88%, (summary estimate 58%, 95% CI 42-73%) (Figure 1B). Testing of a second NPA increased the yield by 8-19% for NAAT and 4-35% for culture. NPA collection procedures varied between studies, although most children had NPA successfully obtained (96-100%), with a low rate of indeterminate results (<5%). Results specifically for children under five years, as well as data on NPA acceptability and contamination rates were limited.

Conclusions/Learning Points: This review confirms that NPA is a suitable and feasible specimen for diagnosing paediatric TB. Studies focused on children under five years and research into how to standardise NPA collection are needed.

PV0750 / #1462

FEASIBILITY AND DIAGNOSTIC UTILITY OF THE COMBINED-NASOGASTRIC-TUBE-AND-STRING-TEST FOR DIAGNOSIS OF PULMONARY TUBERCULOSIS IN YOUNG CHILDREN - KENYA

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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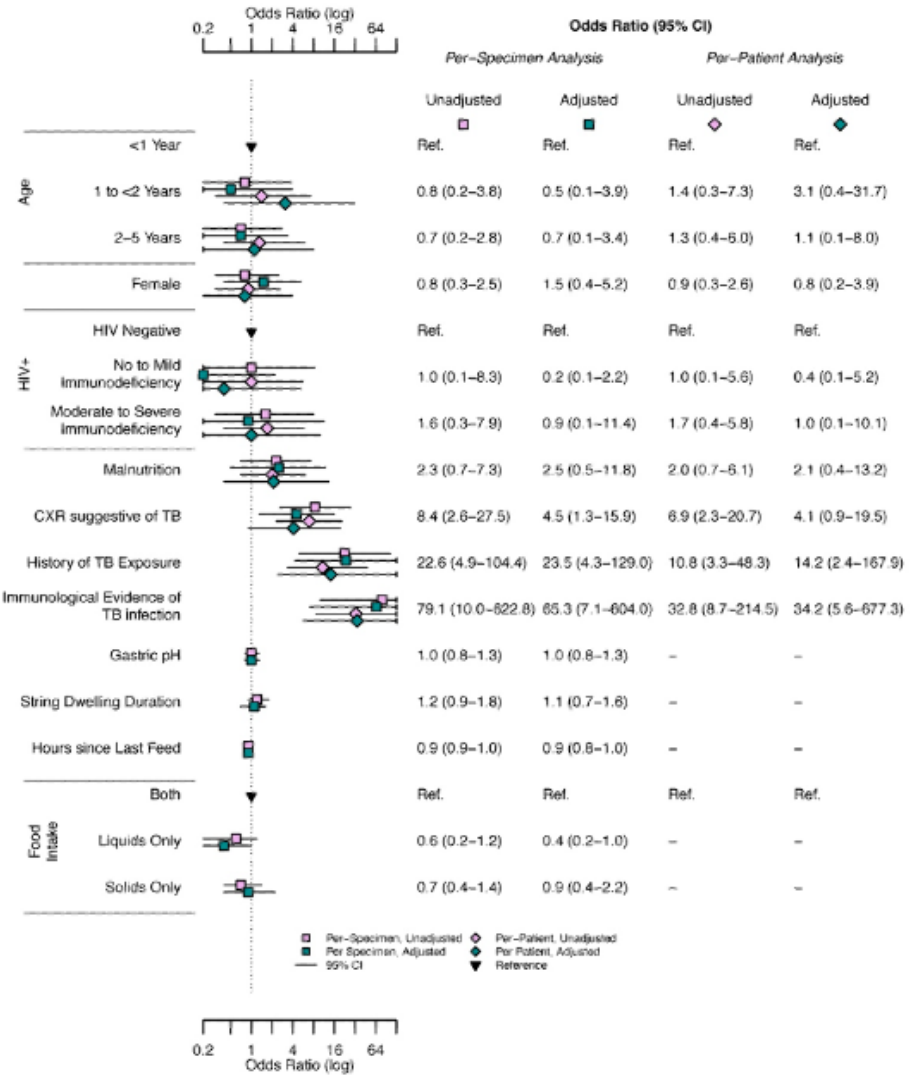
Backgrounds: Alternative diagnostic specimens with high real-world feasibility are needed for TB in young children. We examined the procedural feasibility and microbiologic yield of the Combined-NasoGastric-Tube-and-String-Test (CNGTST), a NGT with a thread wrapped around it that affords the collection of two specimens simultaneously: gastric aspirate (GA) and a string test (ST).
Methods: We conducted a prospective cohort study of children under five with presumptive PTB in Kisimu, Kenya between 2013 and 2015, and obtained demographic, clinical and radiologic information. Using the CNGTST device, up to two samples of GA and ST were collected and tested with Xpert-MTB/RIF and culture. We estimated unadjusted and adjusted odds ratios (ORs) and 95% confidence intervals (CIs) between positive ST samples and covariates using logistic regression implemented through generalized estimating equations.
Results: 294/300 (98%) participants underwent CNGTST; 285/294 (97%) had one or more ST samples successfully collected (545 ST samples total, 541 (99%) interpretable). 38/541 (7%) GA samples and 23/541 (4%) ST samples were positive by Xpert or culture. 23/281 (8%) and 15/281 (5%) children had positive GA and ST results respectively. The median string dwelling time was 34 minutes. Covariates associated with a positive ST included chest radiography suggestive of TB (OR: 8.4; CI: 2.6-27.5), household TB exposure (OR: 22.6, CI: 4.9-104.4) and immunological evidence of TB infection (OR: 79.1; CI: 10.0-622.8). Associations remained significant after adjustment (Figure One).

Figure 1: Unadjusted and adjusted odds ratios of factors associated with a positive Mtb finding on string test samples, by per-specimen analysis (n = 1082) and per-patient analysis (n = 296). Per-specimen analyses implemented logistic regression through generalized estimating equations to account for repeated measurements on the same patient. CI: confidence intervals; CXR: chest X-ray; Mtb; *Mycobacterium tuberculosis*; HIV, human immunodeficiency virus; TB; tuberculosis



Conclusions/Learning Points: The CNGTST procedure was feasible in nearly all children under five years with symptoms of TB. Although microbiologic yield of ST was slightly lower than GA, the CNGTST could be a viable method for detecting TB in situations where GA is already being undertaken. Further research is required to optimise yield of ST.

PV0751 / #663

CLINICAL SIGNIFICANCE OF TUBERCULIN SKIN TEST VERSUS INTERFERON-GAMMA RELEASE ASSAY IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Diagnostic tools for tuberculosis(TB) infection include the tuberculin skin test(TST) and interferon-gamma release assay(IGRA). TST and IGRA can give discordant results and this make it difficult to diagnose TB. In this study, we investigated concordance and discordance rate in children who tested both TST and IGRA. Additionally, when IGRA was used as the reference standard, risk factors associated with discordance of results between IGRA and TST were investigated, and sensitivity and specificity according to the induration threshold of TST were analyzed.
Methods: We retrospectively reviewed the medical records of children(aged ≤ 18 years) who underwent both TST and IGRA from Mar 2010 to Dec 2020 at Severance Children's Hospital. Quantiferon Gold In-Tube test (QFT-GIT) was used as IGRA method.
Results: A total of 289 children were included and the concordance rate of TST and IGRA was 91.1%. The 0-4 age group had the lowest concordance rate at 83.3%. Only the TST induration size showed a significant difference between the positive concordant group and the TST false negative group. Sensitivity and specificity of TST were 48% and 96% for TST 10mm threshold, which is the current positive standard. In 5mm positive threshold of TST, the sensitivity increased to 61%, the specificity decreased to 89%. In 15 mm positive threshold of TST, the sensitivity was lowered to 35% and the specificity rose to about 98%.
Conclusions/Learning Points: TST and IGRA have a discordance rate of 8.9%, which was highest in 0-4yrs group. For the 10mm threshold of TST, the false positive rate may increase in the younger age group, and the false negative rate may increase in the adolescent age group. Therefore, a backup of the IGRA is needed in suspicious situations of TB infection.

PV0752 / #2031

EXTRAPULMONARY TUBERCULOSIS: A CASE OF ORCHITIS REQUIRING ORCHIECTOMY

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: EXTRAPULMONARY TUBERCULOSIS: A CASE OF ORCHITIS REQUIRING ORCHIECTOMY
Background: The clinical manifestations of extrapulmonary tuberculosis involvement are very different, causing delays in diagnosis and treatment. In our case, a male patient who had chronic orchitis due to testicular tuberculosis in the childhood age group and underwent orchiectomy is mentioned.
Case Presentation Summary: 17-year-old male who underwent right orchiectomy due to chronic orchitis and fistula and pathology was interpreted as tuberculosis. It was learned that he had no tuberculosis contact and no active complaints. No pathological finding was detected in the physical examination. and the blood tests studied. Microscopy, culture and PCR analysis were performed for tuberculosis from urine and sputum samples for 3 consecutive days and results were negative. Ppd test was evaluated at 72th hour and the result was 17 mm. Patient was started on antituberculosis quadruple therapy with isoniazid,rifampicin, pyrazinamide, ethambutol.
Learning Points/Discussion: In childhood, tuberculosis is an infectious disease that can involve all organs and tissues, although it most often affects the lymph nodes except the lungs. The gold standard in diagnosis is the production of bacillus in culture. Tuberculosis should definitely be investigated in the differential diagnosis of patients presenting with different complaints and findings in regions with a high incidence of tuberculosis.

PV0753 / #1705

NEUROLOGICAL DEFICITS DUE TO BRAIN ABSCESSES CAUSED BY DISSEMINATED INFECTION WITH MYCOBACTERIUM BOVIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: NEUROLOGICAL DEFICITS DUE TO BRAIN ABSCESSES CAUSED BY DISSEMINATED INFECTION WITH MYCOBACTERIUM BOVIS
Background: Mycobacterium bovis, usually causing tuberculosis (TB) in cattle and other animals can lead to TB disease in humans following infection via ingestion of contaminated, unpasteurized dairy products. Whereas cases are rare in developed countries, they still occur in certain developing countries.
Case Presentation Summary: A 16-year-old previously healthy girl whose family originates from East Africa presented with increasing headache, nausea and vomiting, experiencing flashes of light and temporary unilateral body numbness. Cerebral magnetic resonance imaging showed multiple intracranial abscesses. The critically ill girl required ICU care and external CSF drainage in view of a massively raised intracranial pressure. Further diagnostics included LP and a stereotactic biopsy that tested positive for "MTB complex" on PCR. For presumed TB, she was started on quadruple treatment (Isoniazid, Rifampicin, Pyrazinamide, Prothionamide) and steroids. However, cultures from CSF and gastric aspirate eventually yielded a positive result for Mycobacterium bovis demonstrating disseminated disease. Clinical course was complicated by a relevant intracerebral vascular stenosis (middle cerebral artery) in close proximity of severely affected and inflamed brain tissue requiring systemic anticoagulation. The girl, though born in Germany, had recently spent a 7-year-period in Ethiopia living according to local standards, including consumption of unpasteurized cow's milk.
Learning Points/Discussion: Though M. tuberculosis accounts for the majority of tuberculosis cases in developed countries, M. bovis may be responsible for TB disease in selected populations exposed to contaminated unpasteurized dairy products. Even while responding well to treatment, cerebral involvement may cause severe complications such as vascular stenosis. PCR detects multiple species of the "MTB complex", including M. bovis. Hence, mycobacterial culture remains the gold standard and is of critical importance to tailor the most efficient antimycobacterial regimen.

PV0754 / #351

TB CLUSTER IN THE PASIFIKA COMMUNITY IN SYDNEY, AUSTRALIA

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: TB cluster in the Pasifika community in Sydney, Australia
Background: Australia has one of the lowest tuberculosis (TB) incidence rates in the world (case rate of 5.8 per 100,000 in 2018) and the majority of reported cases has been within the overseas-born population. Australia is located however in close proximity to many high TB incidence countries, including some the Pacific island nations.
Case Presentation Summary: We describe a cluster of 20 TB cases among an ethnically Samoan family living in Western Sydney, Australia; 14 cases were genotypically linked by whole genome sequencing and 6 through epidemiological linkage. The cluster included cases identified over a 10 years period. The 20 TB episodes included 15 adults and 3 children (2 children were infected and were diagnosed with disease twice), aged from 11 months to 61 years.
Learning Points/Discussion: We highlight a paediatric TB case within this family, who was exposed to her birth mother in in 2019 and her grandmother in 2021, requiring 2 prolonged courses of treatment for TB disease before the age of 5 years. Treatment was complicated and highlights a need for Pasifika cultural engagement (talanoa), methods to improve health literacy, difficulties in access to directly observed treatment during the COVID-19 pandemic, the role of child protection services when required, and recent changes to Australian recommendations regarding BCG vaccination.

PV0755 / #1259

MULTIFOCAL MUSCULOSKELETAL TUBERCULOSIS, AN UNUSUAL CHILDHOOD PRESENTATION.

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

Pramod Kulkarni
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Title of Case: Multifocal musculoskeletal Tuberculosis, an unusual childhood presentation
Background: Skeletal Tuberculosis is a less common form of Extra Pulmonary Tuberculosis in childhood. Multifocal musculoskeletal disease by Drug Sensitive MTB in an immunocompetent girl is presented.
Case Presentation Summary: A 13.5 old girl presented with seqential multiple body swellings since 18months. First one right scapular discharged & healed with a scar ove 6months. Left elbow, right foot, left forearm, left buttock, left anterior thigh swellings followed sequentially. These swellings were variably but mildly painful & dicharging over months with few healing with scar. She had significant limitation of posture & body movements but no fever, cough, chest pain. she had breathlessness since 2months relieved by Inhaler therapy. she had lost 5kg weight over last year. She was a frequent wheezer, had contact with a relative having active pulmonary TB 4years ago. Her investigations- normal WBC, microcytic hypochromic anemia,raised ESR & CRP, positive Tuberculin Skin Test, x ray limbs with osteomyelitis with soft tissue swellings & chest xray with fusiform paravertebral swelling. MRI confirmed multifocal osteomyelitis, thoracic Pott's spine & soft tissue cold abscesses. The wound discharge had AFB on ZN stain and GeneXpert confirmed MTB with Absent Rifampicin resistance. Primary immunodeficiency screening and HIV serology was negative. With 4drug Antitubercular therapy over next months she recovered well & continues so. Soft tissue swellings reduced markedly, wound and sinuses healed, gained 6kg weight and movements restored.
Learning Points/Discussion: Musculoskeletal TB is a late & less common childhood presentation of extrapulmonary tuberculosis. Our case is unusual for multifocal musculoskeletal involvement in an immunocompetent girl, caused by DSTB and resolving well with standard DSTB treatment.

PV0756 / #885

CONGENITAL TUBERCULOSIS: IS IT MDR STRAIN?

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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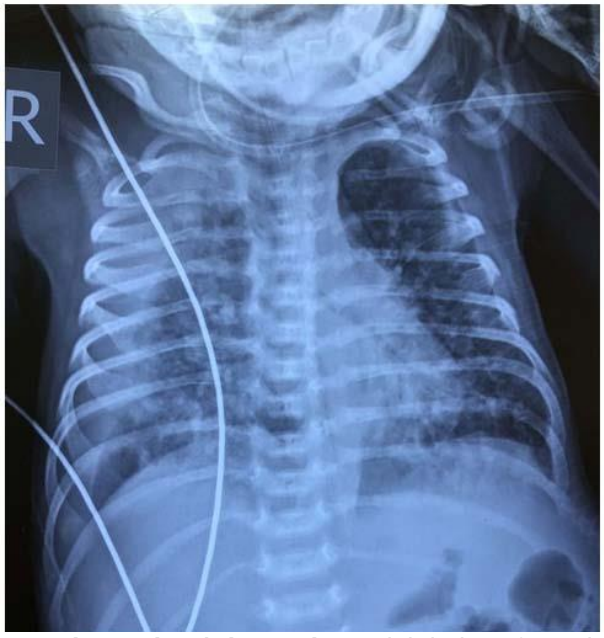
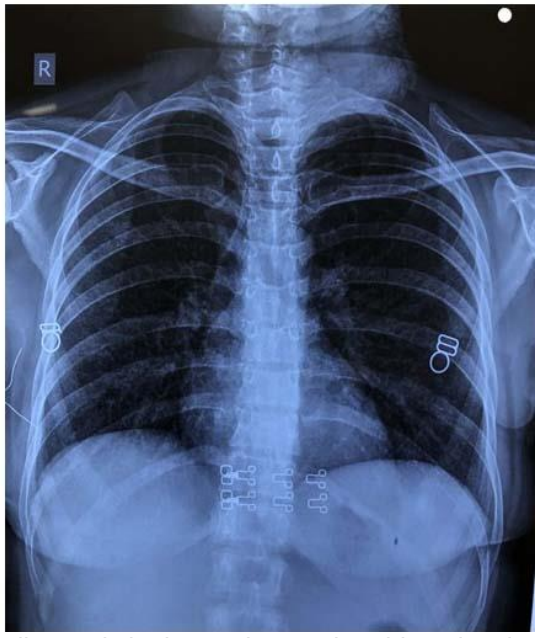
Title of Case: CONGENITAL TUBERCULOSIS: IS IT MDR STRAIN?
Background: Congenital Tuberculosis is rare and usually misdiagnosed as sepsis, pneumonia or hepatitis resulting in poor prognosis. Aim of the current presentation is to share our experience in diagnosing and managing a newborn with congenital tuberculosis.
Case Presentation Summary: The baby born to 29 years 3rd gravida was admitted on D22 of life with fever. Mother had herpes zoster and facial palsy 20 days before delivery and recieved Acyclovir. Delivery and initial course was uneventful. On admission he had PR of 168/min, RR of 68/min and SPO2 of 91% on room air. Chest was clinically clear. There was moderate hepatosplenomegaly. X ray revealed bronchopneumonia. Baby's respiratory distress continued to worsen and repeat X ray on D29 showed development of pleural effusion (Fig). USG abdomen showed moderate ascites. Ascitic fluid and pleural fluid analysis was suggestive of exudate. Baby's clinical course prompted investigations for Tuberculosis in mother. Her chest X ray revealed miliary mottling (Fig). Gastric lavage of the baby and sputum of the mother revealed Rifampicin Sensitive Mycobacterial tuberculosis on CBNAAT. Baby was started on Streptomycin, Levofloxacin and Ethambutol in view of deranged LFT which could be changed to RZEH when LFT became normal. After 2 months of intensive treatment gastric lavage is still positive for Mycobacterium tuberculosis. As BACTEC MGIT report for drug sensitivity is awaited, it has been decided to extend intensive phase by 4 weeks. Meanwhile mother's sputum has become AFB negative. Baby has shown clinical and radiological
improvement.

Baby



Mother



Learning Points/Discussion: High index of suspicion led to diagnosis in the mother. Debatable points in

management are, starting modified anti-tuberculous treatment, no steroids, extending intensive phase by 1 months, and what should be the total duration of ATT?

PV0757 / #1870

M.AVIUM CAUSING CHRONIC CERVICAL LEMPHADENOPATHY IN AN IMMUNOCOMPETENT CHILD

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: M.AVIUM CAUSING CHRONIC CERVICAL LEMPHADENOPATHY IN AN IMMUNOCOMPETENT CHILD
Background: Backgrounds: Nontuberculous mycobacteria (NTMs) are opportunistic environmental pathogenic bacteria transmitted to humans through respiratory, gastrointestinal system and skin. In the last three decades the prevalence of disease in immunocompetent children caused by NTMs has increased with annual incidence ranging from 0.8 to 4.5 children /100,000. Cervical lymphadenitis is the most common NTM clinical entity, particularly affecting patients aged 1–5 years.
Case Presentation Summary: Methods: We present the case of an 8-year-old immunocompetent boy presenting only with unilateral cervical lymphadenopathy, starting two months before his admission. The diagnosis of atypical mycobacterium was reached after biopsy of the extracted lymph node. Extensive work-up for underlying hematological and/or immunological disorders was negative. Results: While the ultrasound findings were non-conclusive, a lymph node biopsy was scheduled immediately, and tissue samples were sent for cultures for bacteria, including mycobacteria, and histological examination. In the histological exam there was no evidence of malignancy or granulomas. The lymph node culture was positive for Mycobacterium avium. The child was initially treated with clarithromycin and amoxicillin-clavulanate with no clinical improvement. The treatment was altered to intravenous cefotaxime –per os rifampicin, which the patient received for 15 days with no further improvement Excision of the affected lymph node was conducted after unsuccessful antibiotic treatment, and was considered as sufficient by the Department of Infectious Diseases. No further antibiotic treatment was required.
Learning Points/Discussion: Conclusions: The report of the case aims to highlight atypical mycobacteria as pathogens in healthy children. Suspicion of NTMs should be raised in the setting of chronic cervical lymphadenopathy regardless the immune status. Surgery is the gold standard treatment for cervical lymphadenitis following a usually unsuccessful antibiotic course.

PV0758 / #1095

MANAGEMENT OF BCG COMPLICATIONS: THE EXPERIENCE OF A TERTIARY HOSPITAL IN LONDON

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Bacille Calmette-Guérin (BCG) vaccine is administered in countries where tuberculosis is endemic to prevent disseminated and meningeal tuberculosis. Albeit uncommon, BCG vaccine complications can occur and there is no clear consensus on their management. The aim of this study was to review the experience of a tertiary care hospital in London (UK).
Methods: We retrospectively reviewed children with BCG complications managed at St Mary's Hospital, London between January 2016 and November 2022. Data on type of complications (localized [injection site reaction, lymphadenitis, or both] or systemic [disseminated BCG disease], management (watch and wait, antimicrobials, surgery) and outcome (complete resolution or healing with complication) were collected.
Results: Thirty-six patients experienced BCG vaccine complications. Demographic and clinical characteristics are shown in Table 1. Thirty-two (88.9%) children presented with localized complications (mainly lymphadenitis 71.9%), and 4 (11.1%) patients had disseminated BCG disease. Patients with localized disease were managed conservatively in the majority of cases (78%); 2 (6.3%) patients were prescribed with antimycobacterial treatment, 3 (9.4%) patients underwent surgery (i.e. incision and drainage), and 2 (6.3%) patients received both medical and surgical treatment. All patients with systemic complications were treated with a long course of antimicrobials, and 3 of them underwent surgery as well (Table 1). All patients with disseminated BCG disease and patients with slow healing/persistent lymphadenitis (total N=19), were investigated for possible underlying immunodeficiency: among them, six (31.6%) patients were diagnosed with immunodeficiency (Table 1). All patients eventually healed without

Demographic and clinical characteristics of the population	
Total number of patients - N	36
Gender - N (%)	
Male	16 (44.4)
Female	20 (55.6)
Ethnicity - N (%)	
Asian or Asian British	13 (36.1)
Black, African, Caribbean, Black British	2 (5.6)
Mixed of multiple ethnic groups	2 (5.6)
Other ethnic group	2 (5.6)
White	17 (47.1)
Comorbidities - N (%)	12 (33.3)
Immunodeficiency	6 (16.7)
Parental consanguinity - N (%)	2 (5.6)
Age at vaccination in days - median (IQR)	2 (0 - 13.5)
Age at symptoms onset in months - median (IQR)	3 (2 - 6)
Age at presentation at tertiary hospital in months - median (IQR)	6 (4 - 9.75)
Localized disease - N (%)	32 (88.9)
Injection site reaction	9 (28.1)
Injection site reaction + Lymphadenitis	3 (9.4)
Lymphadenitis only	20 (62.5)
Non-Suppurative lymphadenitis	11 (47.8)
Suppurative lymphadenitis	12 (52.2)
Disseminated disease - N (%)	4 (11.1)
Bone	2 (50)
Abdomen	1 (25)
CNS + Abdomen + Chest	1 (25)
Management of localized and disseminated disease	
Management of localized disease - N (%)	
Watch and wait	25 (78)
Antimycobacterial treatment	2 (6.3)
Surgery	3 (9.4)
Antimycobacterial treatment + Surgery	2 (6.3)
Management of disseminated disease - N (%)	
Antimycobacterial treatment only	1 (25)
Antimycobacterial treatment + Surgery	3 (75)

Clinical features and management of patients with immunodeficiency

Patient number	Type of Immunodeficiency	Type of complication - Details	Management
1	CGD	Localized - Suppurative lymphadenitis	Antimycobacterial treatment (4 drugs)
2	RAG1 deficiency	Localized - Injection site reaction + Lymphadenitis	Antimycobacterial treatment (4 drugs)
3	IFN-γ/IL-12 pathway defect	Systemic - Bone	Antimycobacterial treatment (2 drugs) + Surgery
4	IFN-γ/IL-12 pathway defect	Localized - Suppurative lymphadenitis	Antimycobacterial treatment (4 drugs) + Surgery
5	Syndromic immunodeficiency (Danon syndrome Xq24 deletion)	Systemic - Abdomen	Antimycobacterial treatment (5 drugs) + Surgery
6	Undefined immunodeficiency	Systemic - CNS, Abdomen, Chest	Antimycobacterial treatment (5 drugs)

sequelae.

Conclusions/Learning Points: The management of BCG complications is nowadays controversial. Our data show that localized disease can be safely managed conservatively. Immunological workup remains of utmost importance in children with disseminated BCG disease or slow healing/persistent lymphadenitis.

PV0759 / #2096

PERITONEAL TUBERCULOSIS IN A PEDIATRIC PATIENT: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Peritoneal Tuberculosis in a Pediatric Patient: a case report
Background: peritoneal tuberculosis is a very rare condition in children representing about 6% of extrapulmonary cases of TB. Usually occurs due to reactivation of a latent focus in the peritoneum or after a pulmonary/miliary condition with a hematogenous dissemination. This paper aims to report a case with microbiological confirmation in a pediatric patient.
Case Presentation Summary: Patient R.S.F, 9 years old, previously healthy. Presented with 2 months of weight loss, progressive abdominal pain, mild diarrhea, nausea and lack of appetite, in addition to daily low fever at night. Physical exam show na ascitic abdomen and no other findings. Normal chest X-ray and Tuberculin test = 8mm. Abdominal CT scan with free fluid in the cavity and peritoneal nodular thickening. Peritoneal fluid: ADA 73, negative BK PCR, negative culture for bacteria and BK, absence of neoplastic cells. Blood cultures and gastric fluid negative for TB. Laparoscopy with biopsy of nodular lesion in the peritoneum with positive PCR for Mycobacterium tuberculosis. Treatment was initiated with rifampicin isoniazid and pyrimethamine. The child presented good clinical response, coursed with rapid weight gain and complete resolution of ascites.
Learning Points/Discussion: Peritoneal tuberculosis is a challenging entity, rarely diagnosed in children, with a nonspecific clinical history and difficult microbiological confirmation. The disease has high morbidity and mortality if not correctly treated and high clinical suspicion is required to enable early diagnosis in this population.

PV0760 / #1963

PRELIMINARY DATA OF THE EXPERIENCE OF TOSAMAGANGA HOSPITAL IN TANZANIA IN IMPLEMENTING THE SIMPLE ONE-STEP METHOD FOR XPERT ON STOOL IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: The diagnosis of tuberculosis in children is a challenge, especially in low-income countries. The increase use of rapid molecular testing has improved the microbiologic yield, yet respiratory sample collection in young children may be still difficult. According to WHO, stool is an alternative sample that can be collected non-invasively. We present preliminary data of the experience of Tosamaganga Hospital in Tanzania in implementing the Simple One-Step method for Xpert on stool in children.
Methods: At the Tosamaganga Hospital diagnosis of TB in children unable to produce sputum is achieved through a national clinical score. The hospital laboratory was already equipped with the Xpert MTB/RIF instrument and software, and the personnel was trained to test sputum, CSF and other biological fluids. In November 2022 the laboratory staff received additional training on the Simple One-Step method through the SOP. In order to assess the efficacy of the training, the staff performed the Xpert on stool and sputum of the same adult patients, and the results were concordant.
Results: In December 2022, the Xpert on stool was then performed in 5 children with severe acute malnutrition (a risk factor for TB) who were not able to produce sputum. The characteristics of patients are summarized in table 1. All tests resulted negative, likewise the Tanzanian clinical score. The laboratory technicians reported the test as being intuitive and not time-consuming.

Patient	Age (months)	Sex	HIV	TB contact	Fever	Cough	Xpert on stool Result
1	20	F	negative	no	yes	no	negative
2	17	F	negative	no	yes	no	negative
3	15	F	negative	no	no	yes	negative
4	16	F	negative	no	no	yes	negative
5	15	M	negative	no	yes	no	negative

Conclusions/Learning Points: The SOS method for Xpert on stool is simple and can be extremely useful in the diagnosis of TB in young or severely ill children. In our setting it was easy to implement since Xpert was already in use. We expect this non-invasive test to become routine when assessing a child with suspected tuberculosis.

PV0761 / #1884

NEURO TUBERCULOSIS IN A YOUNG INFANT: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Neuro tuberculosis in a young infant: a case report
Background: Tuberculosis remains an endemic disease in Brazil. In 2022 there were more than 49.000 new confirmed cases. In 2018, 8.3% of the total cases occurred in children under 19 years of age – an unchanged rate to be seen in 2022 (7.6%). Seventeen percent of these cases had some form of extrapulmonary involvement. In addition, we present a case of TB meningoencephalitis with rapid and unfavorable evolution.
Case Presentation Summary: a previously healthy 4-month-old male infant was admitted with dyspnea, altered neurological examination, and signs of sepsis. He presented epidemiology and CSF analysis suggestive of TB, and treatment with RIP and dexamethasone was immediately started. Despite the therapy, the patient developed re-entrant seizures, and imaging revealed intense ischemia with the brainstem and diencephalon involvement. Due to the extension and irreversibility of the condition, complete palliative care was bilaterally instituted. Unfortunately, after 2 months of hospitalization, the patient died.
Learning Points/Discussion: epidemiological surveillance plays a fundamental role in controlling TB-related morbidity and mortality. In a country like Brazil, it cannot fail to be considered among the differential diagnoses in countless clinical conditions.

PV0762 / #875

QUINQUENNIAL STUDY OF PAEDIATRIC TUBERCULOSIS IN INDIA – EXPERIENCE OF A SOUTH INDIAN TERTIARY CARE HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: One of the top ten killers of children globally today is tuberculosis (TB). The true burden of paediatric tuberculosis (TB) is frequently underestimated and underdiagnosed in India. The ability to diagnose paediatric TB is improved by the availability of the Xpert MTB/RIF assay. We aimed to evaluate the clinical characters, diagnosis, treatment regime given and outcome of the treatment among paediatric cases.
Methods: Data of 191patients diagnosed with paediatric TB between 2017-2022 were analysed. Demographic and clinical characteristics, diagnostic methods, commenced treatments and clinical follow up of patients were listed from medical records
Results: 6.4%(n=191) of the total clinically diagnosed TB positive cases was constituted by paediatric age group (0-15yrs). Highest TB cases were reported in 2019(24%, n=46). Extra pulmonary TB was predominant (63%), while pulmonary TB was 37%. One patient was reactive to HIV test and none of the patients were diabetic, alcoholic and tobacco user. 27/46(58%) samples were tested on positive using GeneExpert MTB/RIF in 2019. 32/320 were positive for TB during 2022. INH resistance (low level) was observed in one patient and no RIF resistance case. Until 2020, paediatric TB patients were treated using HRE drugs for 6months. From 2017-2019, 110 patients received HRE drugs. Among them, 23cured, 78Treatment-complete, 2 Treatment-regimen changed, 7Untraceable. 2FDC and 3FDC drug tablets were dispensed from 2020. 81 (2020-22) patients received 2FDC, 3FDC, 4FDC, Ethambutol drug combinations. One patient with INH resistance was treated with extra Pyrazinamide and Levofloxacin drugs. Among 81 patients– 14cured, 1died, 46treatment complete, 1treatment regimen changed, 19– Diagnosed on treatment.
Conclusions/Learning Points: The results of our study advance knowledge of pediatric tuberculosis, and the continuing
Xpert MTB/RIF campaign for pediatric tuberculosis increases diagnostic yield

PV0763 / #1165

XPERT MTB/RIF ULTRA VERSUS XPERT MTB/RIF FOR THE DIAGNOSIS OF EXTRA PULMONARY TUBERCULOUS: A PROSPECTIVE, SINGLE CENTRE STUDY FROM INDIA

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Extrapulmonary tuberculosis (EPTB) prevalence in India ranges from 8.3-13.1%. EPTB diagnosis more challenging due to paucibacillary nature of the specimen. Xpert MTB/RIF Ultra (Xpert Ultra) might have higher sensitivity than its predecessor, Xpert MTB/RIF (Xpert). This study, we aimed to compared utility of Xpert MTB/RIF and Xpert MTB/RIF Ultra in EPTB
Methods: In this prospective study, we included the suspected cases of EPTB with age <18 years based on the composite reference standard (CRS) criteria. Specimen was sent for Acid fast stain (AFB), Xpert, Xpert Ultra and Mycobacterial culture. Test performance (sensitivity, specificity, and positive and negative predictive values) was calculated for Xpert Ultra and Xpert and compared against CRS.
Results: Between January 16, 2021 to December 10, 2021, 84 patients were randomly assigned to Xpert Ultra (n=52) or Xpert (n=32). The sensitivities of Xpert Ultra and Xpert for tuberculous meningitis diagnosis against a reference standard of mycobacterial culture were 97.22% for Xpert Ultra and 50% for Xpert specificities was 53.3% & 0% respectively.

Analysis (total)	Sensitivity	Specificity	Positive predictive value	Negative predictive value
Xpert ultra	97.22%	53.33%	54.55%	94.12%
Xpert	50%	0%	18.52%	0%

Total cases (no)	Xpert ultra	Xpert
Lymph node	12	14
TB meningitis	29	10
Pleural	4	4
Others	7	4
Total	52	32

Conclusions/Learning Points: Our results suggest that Xpert Ultra might perform better than Xpert in EPTB samples in pediatric population & could be preferably used in detection of paucibacillary TB. Xpert Ultra showed a high negative predictive value 0f 94%, which can be of clinical use. Both the methods detects Rifampin sensitivity which is important for initiation of appropriate antitubercular drug. We need further studies with larger sample size to confirm the utility of Xpert Ultra.

PV0764 / #995

ISOLATED TUBERCULOS ARTHRITIS OF THE ANKLE : A CASE REPORT FROM IGIMS HOSPITAL PATNA

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Isolated tuberculos arthritis of the ankle : a case report from IGIMS hospital Patna
Background: Isolated ankle joint Tuberculos arthritis is extremely rare , comprising an incidence lower than 5% of skeletal tuberculosis.
Case Presentation Summary: We present an unusual case of isolated tubercular arthritis of the ankle in a 30 year old non diabetic , normotensive male , where the definitive diagnosis was difficult to be reached . The clinical examination revealed slight edema and a slight increase in local skin temperature . Based on magnetic resonance imaging performed the finding was suggestive of hyperintense marrow edema was noted involving navicular bone , anterior middle band inferior aspect of talus bone with significant reduction of talonavicular joint space . Arthoscopic synovial biopsy was carried out in which a sample from the synovial lesions was taken for histopathological examination along with synovial fluid analysis . The histopathological findings showed granulomatous arthritis (histocytes and multinucleatd langerhans type gaint cells with surrounding lymphocytes . The microscopy , MGIT culture and CBNAAT (xpert MTB /RIF) of synovial fuid suggestive of Mycobacterium Tuberculosis bacilli.
Learning Points/Discussion: A high index of suspicion and inclusion of TB in the differential diagnosis of inflammatory arthritis is needed to achieve early diagnosis of the disease and appropriate treatment.

PV0765 / #1550

DISTRIBUTION OF SEX IN TUBERCULOSIS DISEASE IN CHILDREN, ADOLESCENTS, AND ADULTS IN SWITZERLAND

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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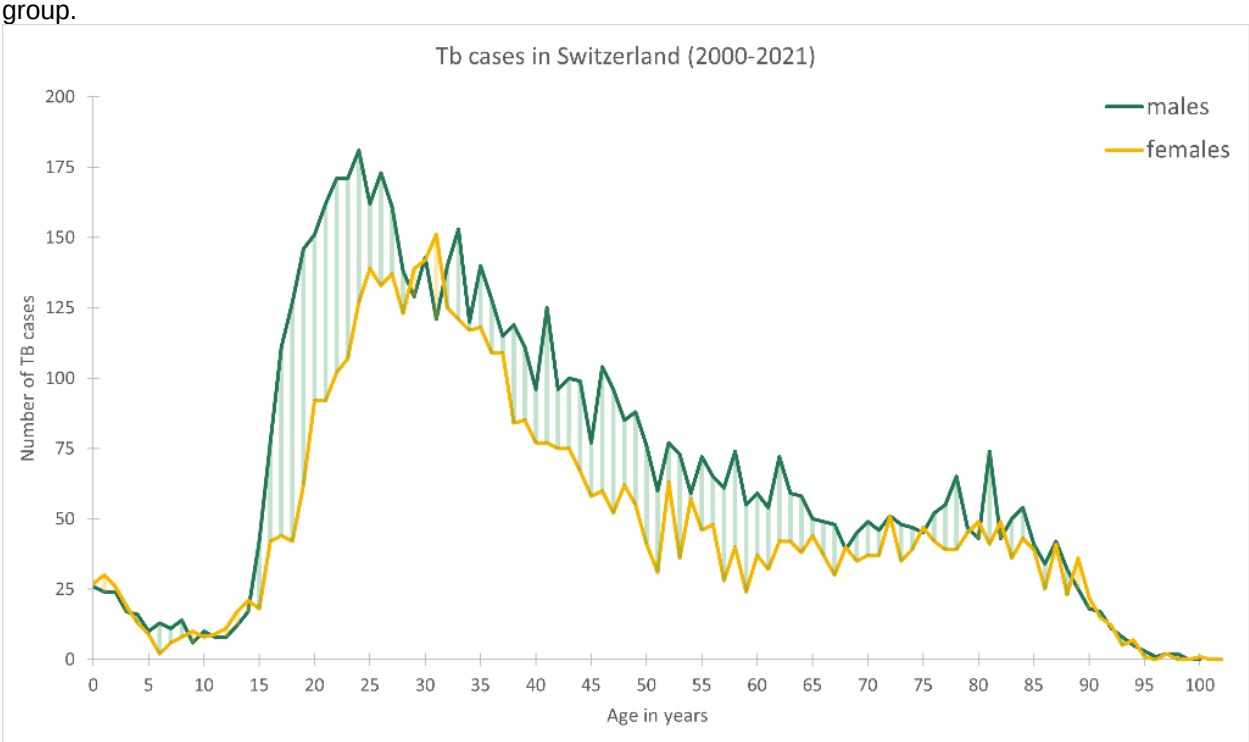
Backgrounds: Sex distribution of individuals with tuberculosis (TB) disease shows a male dominance in adults, whereas in adolescents current data suggest a female dominance. The aim of this study was to assess the sex distribution in individuals with TB disease in Switzerland, and particularly in adolescence.
Methods: Notification of TB disease cases to the Swiss Federal Office of Public Health (FOPH) is mandatory for laboratories and physicians. For this study surveillance data from 2000 to 2021 was used. TB disease was defined as the detection of Mycobacterium tuberculosis by culture or molecular assays or when a treatment with ≥3 antimycobacterial drugs was initiated. Absolute TB disease cases and incidence rates stratified by sex were calculated. Adolescence was divided into and defined as early adolescence 10-14 years and late adolescence 15-19 years.
Results: A total of 11'872 individuals were notified during the 22 years observation of whom 832 were adolescents. Throughout the entire age range of adolescence, the male sex dominated with a male to female ratio (M:F) of 1:0.5 (incidence 5.7 per 100'000 and 3.0 per 100'000 for males and females, respectively). In early adolescence the female sex dominated with a M:F ratio of 1:1.2 (incidence 7 per 100'000), while in late adolescence the male sex dominated with a ratio of 1:0.4. The increase of TB incidence in females compared to males was seen at an early age.
Conclusions/Learning Points: We observed a female dominance only in early adolescence, while in late adolescence there is clear dominance of male sex in TB cases in Switzerland. The dominance of males in late adolescence likely results from a higher rate of male refugees arriving in Switzerland in this age

group.


Tb cases in Switzerland (2000-2021)
males
females
Number of TB cases
Age in years
0
25
50
75
100
125
150
175
200
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100

PV0766 / #1701

SHOW ME YOUR LEFT ARM - STUDENTS' PROJECT TO INVESTIGATE THE KNOWLEDGE AND RISK PERCEPTION REGARDING TUBERCULOSIS IN DIFFERENT COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Globally, the incidence of tuberculosis (TB) is falling at about 2% per year, but it is still one of the most important threats for public health. The incidence of TB is varied and 30 high TB burden countries account for nearly 90% of new cases. The strategy for vaccination depends on the disease epidemiology. Increased human mobility in recent years might impact the TB incidence, however, and doctors should be aware of TB regardless of the country. The aim is to research and evaluate the current awareness and knowledge about TB in future doctors. We hypothesized that the knowledge on TB and perception of TB risk might depend on the country of origin as well as the country in which one gets medical education.
Methods: To investigate that, a group of students from English Department from our University created an online questionnaire and distributed it to multiple universities in different European countries. The study group would be medical students. Except for the demographic information, the questionnaire includes questions that will allow us to evaluate the knowledge of TB epidemiology, presentation, prevention, as well as subjective risk perception. We would compare the results obtained from the students of countries with relatively low epidemiological rates of tuberculosis, to those studying in countries with a higher incidence.
Results: The study is ongoing, by the time of the ESPID meeting we would gather enough data to be presented.
Conclusions/Learning Points: We hope that the study will let us evaluate if there are any differences in knowledge as well as subjective sense of threat connected with TB depending on country, and if there is a need to adjust education on TB accordingly.

PV0767 / #1062

ANALYSIS OF THE BACILLE CALMETTE-GUÉRIN (BCG) LYMPHADENITIS CASES

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Bacille Calmette-Guérin (BCG) lymphadenitis occurs after BCG vaccination and usually results in swelling of the axillary lymph nodes on the side of vaccination. Most cases resolve spontaneously, but there are often cases of abscess formation or even fistulae. Few reports for BCG lymphadenitis specify which cases require therapeutic intervention, and there are limited reports summarizing the course of treatment of BCG lymphadenitis and its underlying diseases.
Methods: Thirty-eight patients who visited the Kurume University Hospital between 2013 and 2022 with the complaint of lymphadenopathy after BCG vaccination were included in the study. Lymph node size at the time of visit, course of local lesion, treatment details, prognosis, and underlying disease were investigated retrospectively based on medical records.
Results: Of the 38 patients, 24 had spontaneous regression. Fourteen patients had suppurative lymphadenitis, of which nine bursts spontaneously, and four had lymph node biopsies. Six patients had pus or biopsied tissue with BCG Tokyo strains. Two patients were diagnosed as tuberculous lymphadenitis. Eight patients were treated with rifampicin (RFP) ointment application and two with oral isoniazid (INH), all of which regressed within 6 months. 1 patient with underlying Mendelian Susceptibility to Mycobacterial Disease (MSMD) recovered after RFP and INH administration, 1 patient with chronic granulomatous disease (CGD) developed disseminated BCG infection and was treated for a prolonged period.
Conclusions/Learning Points: Most cases of BCG lymphadenitis resolve spontaneously, but some cases of suppurative lymphadenitis include immunocompromised patients with CGD, MSMD, or tuberculosis infection. In case of suppurative lymphadenitis, it is important to search for underlying disease.

PV0768 / #1027

MICROBIOLOGICAL DIAGNOSIS OF TUBERCULOSIS IN CHILDREN – A PROSPECTIVE STUDY OF MICROBIOLOGICAL YIELD IN LOWER-MIDDLE INCOME COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Tuberculosis (TB) is a major cause of paediatric morbidity and mortality, with most deaths occurring in children undiagnosed. Mycobacterial culture and more recently Xpert® MTB/RIF Ultra (Ultra) are the reference standard for confirmation in children.
Methods: RaPaed-TB was a diagnostic accuracy study enrolling children (<15yrs) with suspected TB from 5 lower-middle income countries. Two respiratory specimens (sputum or gastric lavage) were collected, and one nasopharyngeal aspirate (NPA) if <5yrs. Extrapulmonary specimens were collected according to local guidelines where possible. Children with M. tuberculosis (MTB) confirmed by Ultra and/or culture were categorised as confirmed TB.
Results: Among 965 children enrolled with valid microbiological results, 2299 samples were collected. In total 93.8% (2157) of samples were pulmonary; most were induced sputa (IS) (59%, 1273/2157), spontaneous sputa (SS) (18%, 389) and NPAs (15%, 332). Of 527 children treated for TB, MTB was confirmed in only 45% (239); 46.0% (110) on Ultra and culture, 36% (86) on Ultra alone, and 18% (43) on culture alone. Semi-quantitative results “trace”, “very low” and “low” together accounted for 78% of all Ultra results. 41% (98) of confirmed cases were confirmed on IS, 21% (49) on extrapulmonary specimens and 15% (36) on SS. Few (15%, 35) were confirmed on more than one specimen type; most on IS and NPA (5%, 13), and on IS and SS (3%, 8). Incremental yield was calculated in children with two serial samples collected for culture. Additional yield was 5% for IS, 4.3% for any two specimen types combined and 3.7% for SS.
Conclusions/Learning Points: This study confirms the paucibacillary nature of TB in children and the added diagnostic value of Ultra “trace” detection. In addition, it highlights the need for improved diagnostic tests for paediatric TB.

PV0769 / #1558

DETECTING TUBERCULOSIS IN CHILDREN: WHAT TO MAKE OF ULTRA TRACE RESULTS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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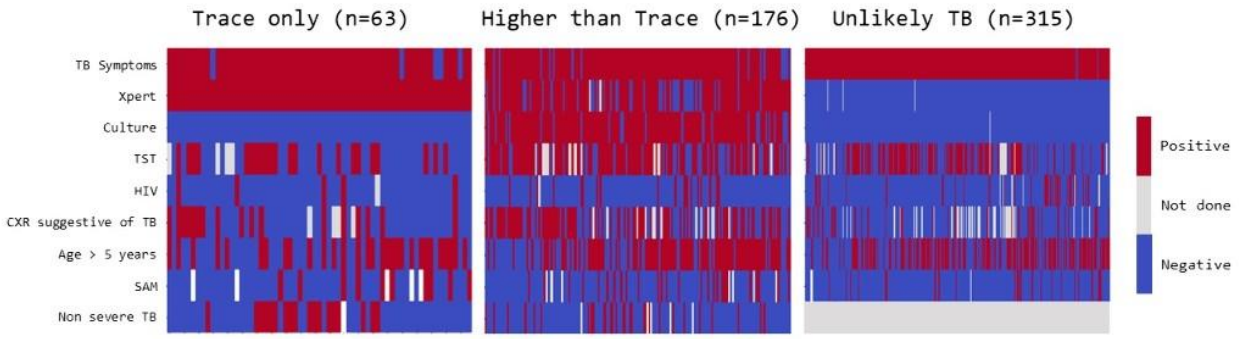
Backgrounds: Microbiological detection of tuberculosis (TB) remains challenging in children. Xpert®MTB/RIF Ultra (Ultra) has greater sensitivity than alternative cartridges. Due to lower specificity, however, WHO recommends considering Ultra Trace results (the lowest semi-quantitative positive) as true positive only for HIV-positive adults, children, and extrapulmonary specimens.
Methods: RaPaed-TB was a multi-centre prospective diagnostic validation study including five countries. Children (<15 years) with presumptive TB provided at least two (induced) sputum samples at enrolment and one nasopharyngeal aspirate if <5 years.
Results: Of 974 participants, 842 were eligible for diagnostic case classification and 28.4% (239/842) met definitions for microbiologically confirmed TB, including 46.0% (110/239) confirmed by both Ultra and culture, 18.0% (43/239) by culture only, and 36.0% (86/239) by Ultra only. Of note, 26.4% (63/239) were confirmed by Ultra Trace only. Children confirmed by Ultra Trace only were younger (4.9 years [IQR 1.3-9.8]) than children confirmed otherwise (7.1 years [2.0-12.0]) with higher BCG-vaccination (100%, [58/58] vs 89.2% [141/176]), and less likely to have positive tuberculin skin test (TST; 37.3% [22/63] vs 70.0% [112/176]), chest Xray consistent with TB (27.0% [17/63] vs 51.7% [81/176]), or severe TB disease (16.4% [29/176] vs 28.6% [18/23]) (Figure 1). On multivariate binomial regression, older age (RR 0.56, 95%CI 0.35-0.89), positive TST (RR 0.42, 0.27–0.65) and chest Xray consistent with TB (RR 0.52, 0.32-0.84) remained significantly less likely for children confirmed by Trace alone.



Conclusions/Learning Points: Ultra Trace results increased the numbers of microbiologically confirmed children, disproportionately impacting children of younger age, less clear radiology, and lower TST positivity. Possible explanations include both false positives, and greater increase in sensitivity for less severe TB disease, warranting further in-depth analyses. Case-by-case review is ongoing by an expert panel.

PV0770 / #1487

CLINICAL AND DEMOGRAPHIC PREDICTORS OF TUBERCULOSIS IN CHILDREN – A MULTI-CENTRE PROSPECTIVE STUDY IN LOWER MIDDLE INCOME COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

Laura Olbrich[1,2,3], Zoe Franckling-Smith[4], Issa Sabi[5], Nyanda Elias Ntinginya[5], Celso Khosa[6], Denise Banze[6], Marriott Nliwasa[7], Elizabeth Corbett[7,8], Robina Semphere[7], Valsan Verghese[9], Joy Michael[10], Stephen Graham[11], Rinn Song[2], Pamela Nabeta[12], Andre Trollip[12], Leyla Larsson[13], Michael Hoelscher[1,3], Christof Geldmacher[1,3], Norbert Heinrich[1,3], Heather Zar[4]
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Backgrounds: Paediatric Tuberculosis (TB) is associated with significant morbidity and mortality. Microbiological confirmation of disease can be challenging. Diagnosis relies on non-specific clinical and radiological features.
Methods: RaPaed-TB study was a prospective study of new diagnostics, enrolling children (<15years) with suspected TB from 5 lower-middle income countries. Baseline demographic, clinical and chest radiograph data, and specimens for microbiological testing were collected. Participants were categorised as confirmed, unconfirmed or unlikely TB, according to adapted NIH consensus definitions. Clinical characteristics in the confirmed and unlikely TB groups were compared.
Results: Of 974 children enrolled, 842 (86.4%) could be categorised; 28.4% (239) had confirmed TB, 34.2% (288) unconfirmed TB, and 37.4% (315) unlikely TB. Children with confirmed TB were older (6.2 [IQR 1.8-1.6] vs 4.8 years [IQR 2.1-7.2]), with lower weight-for-length (in <5years) or BMI-for-age (in >5years) z-scores (-0.6 [SD 1.6] vs -0.1 [SD 1.5]). Both groups had similar percentages of children living with HIV (10.0% [24/239] vs 10.2% [32/315]), however, a higher proportion of confirmed cases was antiretroviral naïve at baseline (52%, 13 vs 21%, 7). Similar frequencies of TB symptoms were observed, however, the confirmed group reported a higher mean number of symptoms (4.0 [SD 2.4] vs 3.2 [SD 1.7]). More children in the confirmed than unconfirmed group had a positive Tuberculin Skin Test, TST (61% [134/239] vs 42% [125/315]) and chest radiograph findings attributable to TB (45% [108/239] vs 13% [41/315]). Multivariate regression analysis supported the associations between confirmed TB and TST positivity (OR 6.36, 95%CI 3.52-11.50), chest radiography (OR 2.57, 95%CI 1.33-4.97) and number of symptoms (OR 1.27 95%CI 1.05-1.52 for each additional symptom reported).
Conclusions/Learning Points: In one of the largest cohorts in recent years, findings reflected the well-described symptomology of paediatric TB.

PV0771 / #1048

ACTIVATION OF LATENT TUBERCULOSIS BY A COVID-19 INFECTION: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Activation of latent tuberculosis by a COVID-19 infection: A case report
Background: Few case reports have suggested the possibility of activation of latent pulmonary tuberculosis in COVID-19 patients. To date, there has however been little described in the paediatric population.
Case Presentation Summary: We report a case of a 15-year-old male who presented with shortness of breath, night sweats and weight loss, following a recent PCR confirmed COVID-19 infection. His initial COVID-19 infection was mild, not requiring treatment. Three months later, he presented with constitutional symptoms and shortness of breath, for which his GP had arranged a chest x-ray and review by the Paediatric team. Chest imaging showed significant upper lobe consolidation in keeping with a diagnosis of active pulmonary tuberculosis. Screening test four months prior to arrival at the United Kingdom including TB screen was negative. on examination, there was reduced air entry with scattered crepitations to the right side and bronchial breathing but saturating 98% in air. He had a few cervical Lymph nodes but no organomegaly. During his admission, he had multiple high grade fevers. Chest x-rays showed bilateral airspace opacification throughout the right lung (figure 1). Sputum cultures were sent which later showed acid fast bacilli were present on both ZN and Auramine staining. He responded well to treatment with Rifinah, Ethambutol, Pyrazinamide and Pyroxidine as par guidelines.

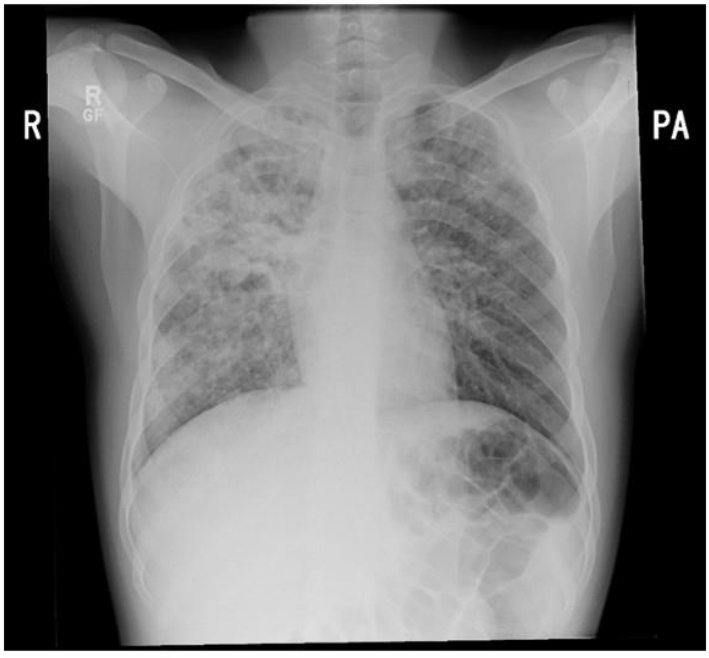

Figure 1 showing Pulmonary Tuberculosis.
Learning Points/Discussion: Our case highlights an unusual presentation of PTB in a child previously fit and well. Given his previous negative screening for TB and the sequence of events, we suggest that COVID-19 may have played a role in activating a latent TB for this child.

PV0772 / #705

INFANTILE TUBERCULOSIS. HOW IMPORTANT IS THE SCREENING?

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Estimating the burden of tuberculosis (TB) in children is challenging due to lack of standard case definition, low public health priority, and difficulty in establishing a diagnosis. Since 2015, Portugal is a low incidence country. In 2021 there were 1504 cases reported, 2% in children <15 years.
Methods: Retrospective analysis of children referenced to an infectious disease outpatient clinic in a level II hospital in the past 2 years for “close contact” with adults with respiratory TB. Statistical analysis in Excel2013®.
Results: There were identified 22 children, 13 girls. The average age was 4,2 years. Six children had been vaccinated with BCG. The “close contact” was the mother in eight children and a family member in 11; in one child it was unknown. The index case was Portuguese in nine children and foreign-born in 11: Guinean (3), Angolan (3), Indian (3), Spanish (2). Most children were asymptomatic with a normal chest x-ray. One child presented with an abnormal chest-CT and a positive Lowenstein culture of the gastric aspirate for Mycobacterium tuberculosis complex with negative smear and nucleic acid amplification tests. Screening tests for latent TB infection (LTBI) were positive in ten children: three positive tuberculin skin tests (TST), three TST conversions, two positive interferon-gamma release assays (IGRA) and two IGRA conversions. Eleven children were offered chemoprophylaxis, nine were treated for LTBI and one for TB disease (TBD).
Conclusions/Learning Points: Amongst the identified children 47,6% were treated for LTBI/TBD. Most contacts were a household with mothers as the main spread source. TB remains a public health problem, with that being verified in the residential areas of our hospital. Screening tests remain essential for identifying TB in asymptomatic children that were “close contacts” of contagious adults.

PV0773 / #1539

UNTANGLING THE COMPLEX RELATIONSHIP BETWEEN CYTOMEGALOVIRUS AND TUBERCULOSIS IN CHILDREN WITH PRESUMPTIVE TB

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Cytomegalovirus (CMV) and tuberculosis (TB) are highly prevalent pathogens with similar epidemiological characteristics. Recent evidence suggests that CMV-TB co-infection affects the risk for TB infection and TB disease progression. We here assess the burden of CMV-TB co-infections in children with presumptive TB and describe their immunological response against CMV antigens.
Methods: RaPaed-TB was a prospective, multi-center paediatric TB diagnostic accuracy study conducted in five countries. Case definition for TB disease followed NIH-consensus classification. T-cell activation marker CMV assay (TAM-CMV) is a blood based immunological assay using flow-cytometry to measure functional and phenotypic markers on CMV-specific CD4 T-cells (CD38 and CD27). CMV-viral load (VL, blood and urine) and serology were captured alongside TAM-CMV at baseline, month 1, 3, and 6.
Results: At point of writing, preliminary results for CMV-serology and CMV-VL were available for 19/300 children with defined TB disease status, 57.9% (11/19) of which were CMV-IgG positive (mean AU 388.5437). Median CMV-IgG in children with confirmed TB was lower (n=9, 217.6 AU; IQR 47.71-250.5) compared to children with unlikely TB (n=10, 371.7 AU; 204.2-999). A considerable proportion of children was VL-positive, particularly children under the age of 5 (9/10). 576 TAM-CMVs captured at multiple time points from 316 children with a defined TB case definition are available and descriptive analysis of the immunological CMV-specific T-cell response is currently underway. Further testing and analysis are ongoing.
Conclusions/Learning Points: Our preliminary results show a high prevalence of CMV-VL and serology positive children under the age of 5. This is the first study to investigate functional changes of CMV-specific T-cells and other determinants of the CMV-immune response and will contribute to a better understanding of the immunological and clinical implications of TB-CMV coinfections.

PV0774 / #1711

SUBOPTIMAL PERFORMANCE OF DIAGNOSTIC TESTS IN TUBERCULOUS MENINGITIS IN CHILDHOOD

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Challenges in diagnosing TBM
Background: Tuberculous meningitis (TBM), a severe manifestation of tuberculosis in children, is associated with high risk of death and disability. After cervical lymphadenitis, TBM is the commonest form of extrapulmonary tuberculosis in children. Diagnosing TBM is often challenging due to its commonly insidious onset with non-specific symptoms, and the lack of highly sensitive diagnostic tests. Diagnostic and resulting treatment delays increase the risk of poor clinical outcome.
Case Presentation Summary: A 2.5-year-old boy of African descent presented with fever without focus for two weeks. Initial blood tests showed unremarkable inflammatory parameters. A broad viral panel performed on a pharyngeal sample and blood cultures were negative. Chest x-ray and abdominal ultrasound were unremarkable. Three weeks after symptom onset, when the patient developed reduced consciousness, a cranial MRI scan revealed symmetrical ventricular dilatation. Cerebrospinal fluid (CSF) showed: WBC 254 cells/µl (93.9% lymphocytes), low glucose and high protein levels. CSF Gram stain and PCR for common viruses were negative. Despite an indeterminate IGRA result (QuantiFERON-TB Gold), TBM was suspected due to the CSF changes, and empiric TBM treatment was started. PCR for Mycobacterium tuberculosis was performed on three gastric aspirates and three CSF samples, but only positive in one CSF sample. After four weeks only one gastric aspirate and one CSF culture grew M. tuberculosis.
Learning Points/Discussion: This case illustrates the difficulties in diagnosing TBM in children. Published data show that indeterminate IGRA results, which convey no information about the TB infection status of the respective patient, are more common in TBM than other forms of TB. MTB PCR can expedite the diagnoses compared to culture, but has comparatively poor sensitivity in TBM. Therefore, multiple clinical samples should be examined whenever possible.

PV0775 / #1584

TRACHEOBRONCHIAL STENOSIS IN A CHILD UNDERGOING ANTITUBERCULOUS TREATMENT: A DIAGNOSTIC AND THERAPEUTIC CHALLENGE

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: TRACHEOBRONCHIAL STENOSIS IN A CHILD UNDERGOING ANTITUBERCULOUS TREATMENT: A DIAGNOSTIC AND THERAPEUTIC CHALLENGE
Background: Differential diagnosis, while facing clinical/radiological worsening at the beginning of antituberculous treatment, must include paradoxical reaction as well as treatment failure or coinfections. Management can be challenging when vital structures are affected.
Case Presentation Summary: 4-year-old child, living in Spain, arrived to ER with 5-days fever after a 6 weeks-stay in Morocco. Mediastinal lymphadenopathies at chest X-ray, 10 mm skin-test, positive IGRA test and positive PCR for Mycobacterium Tuberculosis in stool, led to Tuberculosis diagnosis. Treatment with HRZE, with paediatric formulations, was started, followed by fever resolution. Three weeks later, he was hospitalized for stridor at rest. Chest X-ray and CT scan showed mediastinal lymphadenopathies significantly increased in size with tracheal and bronchi compression (minimum diameter 3 mm). Paradoxical reaction was suspected and iv methylprednisolone at 2 mg/kg/d was started. Concurrently, drug dosage and formulations were adjusted, respiratory viral coinfection and drug resistance, through detection of mutations with PCR in stool, were excluded. Oral switch was made after 7 days of iv steroids followed by clinical and radiological worsening.Multidisciplinary diagnostic and therapeutic alternatives were discussed: transbronchial lymphadenopathies' decompression was ruled out for high anaesthetic risk as well as infliximab, administered to date only in meningeal paradoxical reactions. Eventually, conservative approach was preferred using iv methylprednisolone, with slow tapering, obtaining gradual improvement.
Learning Points/Discussion: Our case describes how paradoxical reactions can be a real challenge both in the diagnosis and treatment of TB. Poor evidence exists regarding their management in children, especially in life threatening situations. Non-standardized microbiological tests like PCR in stool as well as a strict multidisciplinary follow-up can be crucial. Nevertheless, more studies are needed for the pediatric population.

PV0776 / #1859

TUBERCULOSIS OR CANCER? TWO CASES WITH A CHALLENGING DIFFERENTIAL DIAGNOSIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Tuberculosis or cancer? Two cases with a challenging differential diagnosis
Background: Clinical and radiological findings in tuberculosis often present analogies with neoplastic disease, making the differential diagnosis challenging. Here we present two cases followed at our Unit.
Case Presentation Summary: 16 years-old girl from Pakistan. Subacute onset of night fever and vomiting. Chest CT scan revealed mediastinal and peritracheal adenopathy. Abdominal MRI showed ascitic effusion with peritoneal thickening and mesenteric adenopathy. QuantiFERON resulted positive while tumour markers were negative. Ascitic fluid was negative for both tumour cells and detection of Mycobacterium tuberculosis (MT) by microscopy, culture, and RT-PCR. FDG-PET showed multiple thoracic and abdominal lymphadenopathies, suspicious for neoplastic lesions. Exploratory laparoscopy with peritoneal biopsies was performed, revealing epithelioid cell granulomas with necrotizing multinucleated giant cells referable to MT infection. 14 years-old boy from Philippines. Due to abdominal pain and vomiting, abdominal ultrasound was performed, showing hyperechoic mesenterial adipose tissue and ascites. MRI revealed pleural and peritoneal effusion with thickening of mesenteric adipose tissue. Chest CT scan showed pleural effusion, lingular consolidation and intrathoracic lymphadenopathy. Mantoux was positive while QuantiFERON and tumour markers tested negative. In pleural fluid from thoracentesis no malignant cells were found and RT-PCR for MT was negative. Exploratory laparoscopy with peritoneal biopsies was performed, showing necrotizing chronic granulomatous inflammation with multinucleated giant cells. In both cases treatment with HRZE was started with improvement.
Learning Points/Discussion: Our cases show that before doubtful inflammatory lesions, it is essential to consider tuberculosis in the differential diagnosis, investigating the epidemiological links and bearing in mind the poor sensitivity of PCR for MT on fluids other than sputum. Histological investigations play a crucial role in complex cases, where both possible diagnoses are potentially life-threatening when not promptly treated.

PV0777 / #1855

NOT ALWAYS DRINKING RAW MILK IS THE CAUSE: PULMONARY TUBERCULOSIS DUE TO MYCOBACTERIUM BOVIS.

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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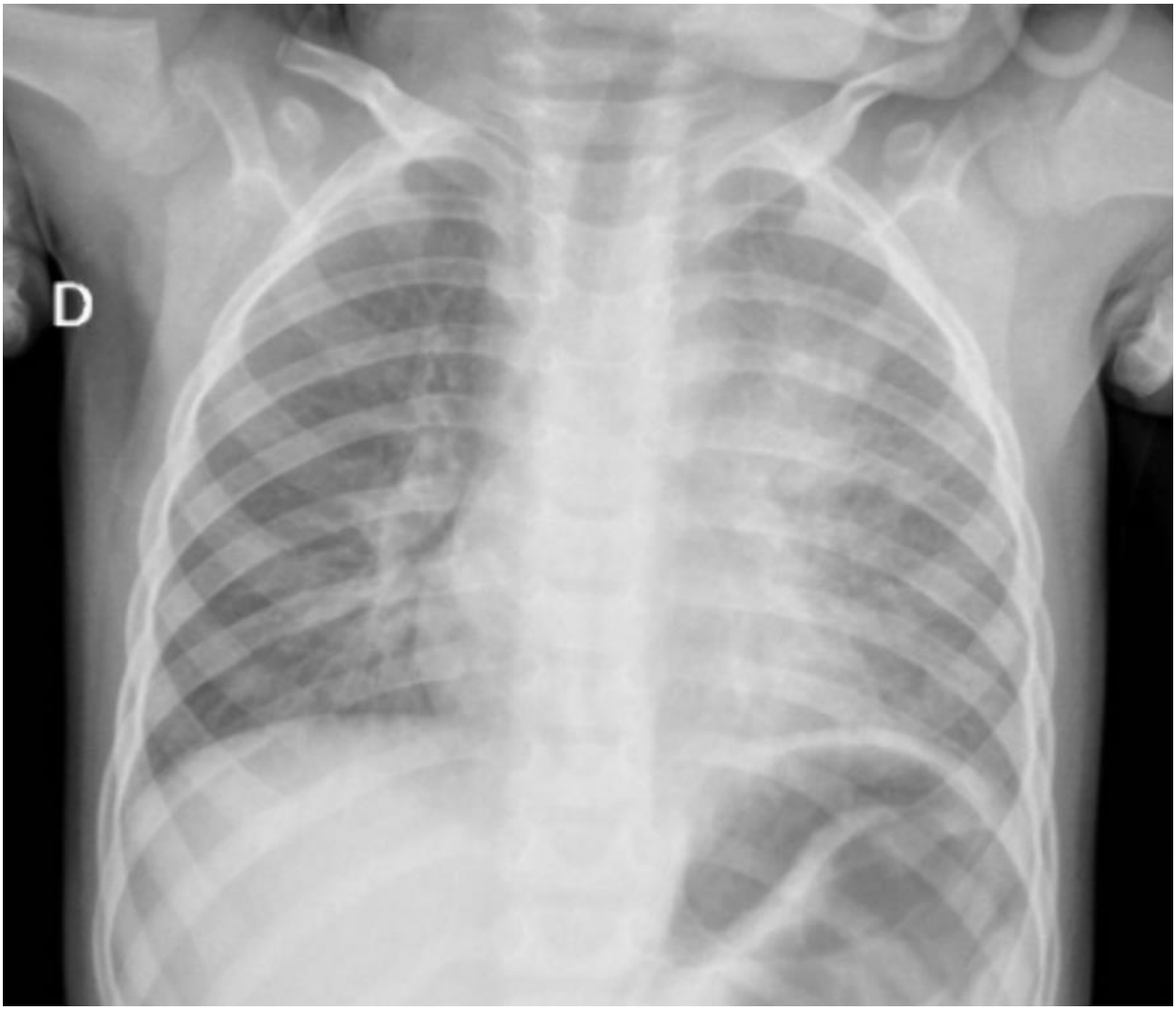
Title of Case: NOT ALWAYS DRINKING RAW MILK IS THE CAUSE: PULMONARY TUBERCULOSIS DUE TO MYCOBACTERIUM BOVIS.
Background: Diseases caused by Mycobacterium bovis (M. bovis) are exceptional in our environment due to livestock control and pasteurization of dairy products. However, in recent years there has been an increased incidence due to immigration from highly endemic countries. The epidemiological environment is fundamental for the diagnosis.
Case Presentation Summary: A previously healthy 2-year-old boy presented with a 2 week history of coughing and rhinorrhea, associating fever in the last 48 hours. A chest X-ray showed pulmonary infiltrates with incipient consolidation in the left lung. Blood tests revealed neutrophilia (7,800/mm3) with an elevated CRP (4.8 mg/dl). He had lived with his 4-year-old cousin who is under treatment for abdominal tuberculosis. Chemoprophylaxis with isoniazid was given for 4 weeks, withdrawing due to poor tolerance after a negative tuberculosis skin test. His father has been diagnosed with miliary tuberculosis due to M. bovis, currently under standard treatment. They have not traveled abroad with no intake of unpasteurized dairy products either. A positive tuberculosis skin test response was indicated by 12 mm of induration with blister formation and gastric aspirate was collected. Initial phase treatment with isoniazid, rifampicin and ethambutol was started and the patient was discharged home. Both culture and PCR results were positive for M. bovis and a 9 month course treatment was completed with a favorable clinical course.



Learning Points/Discussion: Tuberculosis due to M.bovis is a rare zoonosis in our environment and human-to-human transmission infection occurs rarely. Extrapulmonary involvement is more frequently seen than the pulmonary. A close contact screening is very important to determine the index case (usually an adult) and therefore establish an early diagnosis to guide the specific treatment.

PV0778 / #67

THINK RENAL, THINK WISE

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Think Renal, Think wise
Background: A 6-year-old boy was diagnosed as steroid resistant nephrotic syndrome, with renal biopsy MPGN type 2. He treated with pulse steroid & Cytoxan with no improvement. During which, he had an attack of focal convulsions, CT brain showed right leuco-encephalomalacia. Brain MRI showed multiple brain masses for differential diagnosis, pyogenic abscess, cysticercosis, Tuberculomas versus Fungal lesions. MRS was done and showed pattern suggestive of TB, but Revision of MRI with senior staff suggesting more cysticercosis. Serological markers of cysticercosis, tuberculin test, & QuantiFERON were negative. Broad spectrum antibiotic & antifungal were started with no improvement of brain masses. Oral Albendazole was started but with no improvement. Masses were increasing in sizes, so triple antituberculosis medications were started empirically for 2 months but follow up MRI & MRS brain showed no changes in size & new lesions Patient had uncontrolled convulsions, so an open biopsy was sone & revealed yellowish white cheesy like caseous materials, that confirmed by pathology to be chronic necrotizing granulomatous inflammatory reaction & diagnosis of Tuberculomas was confirmed. Quadruple antituberculosis therapy was started, but with no improvement & patient had passed away 2 months later
Case Presentation Summary: A male patient who was diagnosed as steroid resistant nephrotic syndrome & received immunosuppressive medications, developed uncontrolled convulsion owing to brain masses that was difficult for diagnosis & treatment, & finally proved to be a resistant to treatment brain tuberculoma
Learning Points/Discussion: An enemy that changed strategy

PV0779 / #1382

XPERT MTB/RIF ULTRA IN TONGUE SWAB AND SPUTUM SAMPLE COLLECTION IN CHILDREN WITH SUSPECTED PULMONARY TUBERCULOSIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Introduction: Mycobacterial culture for tuberculosis (TB) diagnosis remains the “gold standard” method despite having a lower sensitivity in children due to the paucibacillary nature of TB. Development of rapid diagnostic TB tests is recognized as essential of the World Health Organization (WHO) End TB Strategy, to allow early initiation of TB treatment and reduce mortality. WHO endorse the use of Xpert MTB/RIF Ultra (GeneXpert® Cepheid) as the initial diagnostic test in all children suspected of having TB. Availability of alternative, noninvasive sample collection would increase the TB testing. This work was supported by the PROADI-SUS in collaboration with Hospital Moinhos de Vento.
Methods: Cross-sectional study in 22 Brazilian local sites. Children between 6 months to <15 years old were prospectively enrolled in two different types of health services (hospital and specialized outpatient clinics) from December 2021 to December 2022. All participants underwent tongue swab and sputum collection, analyzed by Ultra. Diagnostic accuracy was calculated using the epiR package to estimate sensitivity and specificity values. Exact method was used to calculate 95% confidence intervals for all estimates.
Results: 161 participants were screened and 123 were included. 88/123 (71.5%) had tongue swab and sputum Ultra results. No detection of TB occurred in all tongue swab samples, while in sputum, four participants were diagnosed positive for TB (positivity of Ultra was defined as: detected or trace-positive). Specificity was 100.0% (95%CI, 95.5-100.0) and the sensitivity was 0.0% (95%CI, 0.0-60.2).
Conclusions/Learning Points: Conclusion: These partial results indicated, at the moment, that the noninvasive tongue swab samples are not as sensible as the sputum sample. However, this is an ongoing study and more participants will be included.

PV0780 / #2029

IS IT REALLY COVID-19?

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: IS IT REALLY COVID-19?
Background: COVID-19 pandemic had a substantial effect on tuberculosis (TB) diagnosis and treatment worldwide both due to reduced accessibility of medical services and overlapping clinical presentations of these respiratory infections. We present a case of TB that was misdiagnosed as an acute SARS-CoV-2 infection more than once.
Case Presentation Summary: A 17-year-old teenager presented with a history of recurrent upper respiratory infections (rhinitis, dry cough, subfebrile fever) lasting for a year. During this time the boy was diagnosed twice with SARS-CoV-2 infection. As the cough continued and lung auscultation was always unremarkable, he was first treated for a gastroesophageal reflux and later considered to have post-COVID syndrome. Only after a year (on the 7th visit to the family doctor) the boy finally had a chest X-ray that revealed bilateral infiltrates with a necrotic cavitation on the right. He had no known TB contacts and lived with a mother who worked as a teacher and had yearly chest X-rays that were always normal. Subsequent chest CT scan of the patient showed multiple various size cavitations bilaterally characteristic for TB. Additionally, the boy had positive Mantoux tuberculin skin test as well as positive microscopy for AFB and positive GeneXpert assay for Mycobacterium tuberculosis DNA on gastric lavage aspirate, susceptable to rifampicin. After confirming pulmonary TB, the patient was isolated and received treatment with oral rifampicin, isoniazid, pyrazinamide and ethambutol that was later changed to intravenous rifampicin and isoniazid due to extensive pulmonary damage. After a month of treatment the patient developed toxic hepatitis and treatment had to be interrupted. At the moment he continues his TB treatment in adult TB department.
Learning Points/Discussion: If acute SARS-CoV-2 infection presents with prolonged or severe symptoms, TB should always be ruled out in endemic countries.

PV0781 / #1017

TUBERCULOSIS OF THE CENTRAL NERVOUS SYSTEM IN CHILDREN: A 12-YEAR SINGLE INSTITUTION RETROSPECTIVE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Central Nervous System Tuberculosis (CNSTb) has the highest morbidity of all tuberculosis manifestations. Neurological sequelae are described in more than 50%. Our aim is to characterise children with CNSTb admitted to a tertiary-level children's hospital in Portugal, and compare patients with and without neurological sequelae.
Methods: Retrospective review of pediatric patients with CNSTb (diffuse and/or focal), admitted over a 12-year period (2011-2022). Severity of disease was classified according to the Modified Medical Research Council score. We defined neurological sequelae as any motor, sensory, cognitive or behavioural impairment that emerged during illness and persisted 12 months after.
Results: Eleven children with CNSTb were identified. Median age was 10.0 years [0.5-16.0]; 2 (18%) were immigrants and 2 (18%) were not immunized with BCG. One patient had a definitive diagnosis; 6 were classified as probable cases, and 4 as possible cases; 64% had a severity score II or III. Fever, headache, meningism, and altered consciousness were the most frequent presentations (61%). TST was negative/indeterminate in all and 3 (27%) had a positive IGRA test. Mycobacterium tuberculosis was isolated in 3 (27%). The mean duration of antituberculosis therapy was 12 months [9-18]. No deaths were registered. 5 (45%) had neurological sequelae: 2 epilepsy, 1 hemiparesis, 1 ataxia, 1 global development delay, 1 learning disabilities, and 1 behavioral disorder. Patients with sequelae presented with a higher severity score at admission (p=0.02). No statistical difference was observed between groups regarding previous BCG vaccination.
Conclusions/Learning Points: CNSTb is difficult to diagnose, as signs and symptoms are nonspecific, and diagnostic tests are often negative. Although no mortality was registered, a substantially high proportion of patients had sequelae. Sequelae was associated to a higher severity score at presentation.

PV0782 / #2127

THE PARADOX OF MEDICAL THERAPY IN TUBERCULOUS LYMPHADENITIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: THE PARADOX OF MEDICAL THERAPY IN TUBERCULOUS LYMPHADENITIS
Background: We report a case of a 5-year-old Pakistan male with persistent fever and enlargement of laterocervical lymphnodes on the left side. A positive Mantoux skin test, the DNA amplification by polymerase chain reaction and the culture from fine needle aspiration confirmed the diagnosis of Mycobacterium tuberculosis. He started medical treatment with isoniazid, rimpaficin, pyrazinamide. There was an initial remission of the fever and general conditions, while the characteristics of the affected lymphnodes did not change. After 1 month of therapy, he came back to our observation for increased lateral cervical swelling, redness of the overlying skin and pain, in addition to the reappearance of serotin fever and night sweats. Therapy was then modified by discontinuing the isoniazid, adding ethambutol, prednisone and levofloxacin.
Case Presentation Summary: After another month, due to no clinical improvement, a magnetic resonance was performed: marked deformation of the laterocervical region was found with voluminous confluent necrotic-colliquative adenopathies (88x72 mm). We therefore decided to subject the child to surgery to remove the colliquate laterocervical lymphnodes and to proceed with histological examination, with confirmation of M. tuberculosis. A drug resistance was ruled out by antibiogram. He continued therapy with isoniazid, rimpaficin, pyrazinamide and ethambutol. At the 2-month ultrasound examination, only a few immunoreactive lymphnodes were found, without necrotic-colliquative phenomena. Clinically, the child was in well-being, with excellent therapy compliance and good tolerance.
Learning Points/Discussion: Excluding drug resistance and the presence of immunodeficiencies, paradoxical upgrading reaction (PUR) to the medical therapy offer a plausible explanation for this phenomenon.

PV0783 / #1486

TRENDS IN EPIDEMIOLOGY OF CHILDHOOD TUBERCULOSIS IN GREECE IN THE LAST DECADE

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Tuberculosis (TB), with 9.9 million new cases and 1.3 million deaths in 2020, is still one of the major causes of mortality and morbidity worldwide, especially in low- and middle-income countries.Childhood TB is of particular importance as it is a marker of TB activity in the community. This study aims at analyzing the epidemiology of pediatric TB patients enrolled at our major referral clinic over the past decade.
Methods: We retrospectively reviewed the medical records of patients aged <16 years treated for active TB and TB infection between January 2010 and December 2019 at our pediatric TB clinic and compared the results with the patient turnover during the previous decade (2000–2009). Data on demographic and clinical characteristics were analyzed.
Results: A total of 1.110 children <16years of age (median age 6.5 years, 58% males) with positive TST were examined. Seventy two children (6.4%) were diagnosed with active TB, while 496/1.110 (39%) had TB infection. Almost half of children with active TB (49/72) originated from areas where TB was previously recognized to be highly endemic. Eighteen children (25%) had extra-pulmonary TB. Bacteriological confirmation was obtained in 40% of patients: 2 (5%) strains were multidrug-resistant. The average annual TB incidence of pediatric TB in the greater Athens area declined from 5.37/100 000 to 4.5/100.000. Time trend analysis for the 20- year- period was also performed.
Conclusions/Learning Points: Childhood TB is decreasing among native Greek children and the epidemiology of the disease is strongly influenced by immigration from endemic countries, including those with high resistance rates. Future efforts to control TB in children should especially target the high-risk immigrant population by successfully treating both adults and children with infectious TB and those with TB infection.

PV0784 / #1311

PULMONARY TUBERCULOSIS IN THE PEDIATRIC POPULATION – STILL A HOT TOPIC DURING THE SARS COV2 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Title of Case: Pulmonary tuberculosis in the pediatric population – still a hot topic during the SARS COV2 pandemic
Background: Pulmonary tuberculosis in pediatric population remains a current issue even during the SARS COV 2 pandemic. Romania has one of the highest incidence of tuberculosis (TB) in Europe. Difficult access to healthcare system during the pandemic period has led to underdiagnosed cases and patients developed severe forms of the disease.
Case Presentation Summary: We present three cases of pulmonary TB from the Pediatrics Department of "Grigore Alexandrescu" Hospital with polymorphic clinical and imaging presentation. Case 1: A 17-year-old patient admitted with dry cough, weight loss, fever and shortness of breath. Pulmonary computed tomography (CT) described a left upper lobe consolidation, pulmonary cavities in the right upper lobe and right inferior lobe that communicate with satellite bronchiectasis and right pleural effusion. Case 2: A 14-year-old patient presented with fever, dry cough and chest pain. Pulmonary radiography reveals a right-sided pleural effusion with a condensation area in the base of the right lung. Case 3: A 16-year-old patient with a history of asthma admitted for fever, productive cough and weight loss. Pulmonary radiography revealed an atelectatic left lung with shifting of the mediastinal structures towards the left side. The CT showed a complete collapse of the left lung due to atelectasis, with bronchiectatic lung parenchyma associated with parenchymal calcifications.
Learning Points/Discussion: The diagnosis of TB in children is challenging due to the paucibacillary forms and to the polymorphism of the clinical and imaging presentation. We observed that all the patients had severe pulmonary disease due to delayed presentation at the hospital during the pandemic period. In only one case the epidemiological investigation identified the source of the disease.

PV0785 / #795

CHEST X-RAY OUTCOMES IN SOUTH AFRICAN CHILDREN PRESENTING WITH PRESUMPTIVE PULMONARY TUBERCULOSIS AFTER 6-MONTHS OF FOLLOW-UP

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Little is known about end of treatment CXR outcomes in children treated for pulmonary tuberculosis (PTB). The aim of this study was to assess residual abnormalities in end of treatment CXRs of children who present with presumptive PTB.
Methods: In this prospective observational cohort study, we enrolled children (0-13 years) with presumptive PTB from November 2017 to November 2021, in Cape Town, South Africa. Treating clinicians decided on initiation of TB treatment. Both children treated for TB and symptomatic controls were followed up intensively for 6 months including CXRs taken at baseline and end of treatment. CXRs read was done retrospectively and blinded by an expert in paediatric TB.
Results: A total of 348 children with presumptive PTB were enrolled, 133 were excluded due to early withdrawal, incomplete baseline data or missing CXRs. Median age was 24.8 months (IQR 12.1-57.2), 112 (52.1%) were male and 13 (6%) children were living with HIV. TB treatment was initiated in 72/215 (33.8%) children. Of the 72 children treated for TB, 48 (66.7%) had abnormal CXRs at baseline; 30/48 (62.5%) abnormal CXRs were typical of TB, 16 (53.3%) of these deemed severe TB disease. At end of TB treatment, 23/72 (31.9%) children had residual CXR abnormalities (compared to 21/141 (14.9%) symptomatic controls (p=0.008)). Of these 23, 10 (43.5%) were confirmed and 13 (56.5%) were unconfirmed TB. Five of 21 (23.8%) symptomatic controls with residual CXR abnormalities, were classified as having TB retrospectively (1 confirmed, 4 unconfirmed).
Conclusions/Learning Points: Residual CXR abnormalities at the end of TB treatment are common in children. These findings require further investigation for the impact on diagnosis of subsequent recurrent TB episodes and for any clinical morbidity in terms of post-TB lung disease.

PV0786 / #946

DOWNSTREAM CONSEQUENCES OF LATE DIAGNOSIS OF TUBERCULOSIS IN A BONE MARROW TRANSPLANT UNIT

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Tuberculosis is a possible complication of haematopoietic stem cell transplantation (HSCT) in those with latent Mycobacterium tuberculosis infection (LTBI). Identification of patients with LTBI and treatment prior to starting immunocompromising therapy is effective to prevent transplant recipients from progressing to active disease. We describe the impact of a late diagnosis of paediatric pulmonary and disseminated tuberculosis three months following HSCT at a paediatric tertiary healthcare centre in Canada.
Methods: Outbreak summaries and outbreak meeting notes from 2017-2018 were reviewed. Actions taken at a unit level were described.
Results: The index patient was born in a TB-endemic country. They reactivated post engraftment while in a positive pressure room. They were identified when a secondary site was biopsied and sent for M. tuberculosis testing. There were no respiratory symptoms; sputum was AFB 3+. On the HSCT unit, patients are cared for in private positive pressure ventilation rooms following HSCT until engraftment as standard of care. This resulted in multiple patients, caregivers and staff potentially exposed. In total, there were 148 exposed staff and 61 exposed caregivers. Screening with tuberculin skin tests (TST) was offered. Of caregivers, 10/11 were negative, 1/11 was positive. This caregiver was foreign born and the positive result was deemed unlikely related to this exposure. There were 29 exposed HSCT patients; TST and interferon-γ release assays were presumed unreliable, while drug interactions inhibited empiric treatment. Monitoring was undertaken; none developed disease. Collaboration with public health strengthened outbreak management.
Conclusions/Learning Points: The late diagnosis of disseminated tuberculosis following HSCT had substantial implications in the care of the index case, other children, families and staff. This case illustrates the importance of having a screening program in place for LTBI prior to immunocompromise to identify patients at risk.

PV0787 / #1335

ADVERSE EVENTS IN INDUCED SPUTUM SAMPLE COLLECTION IN CHILDREN WITH SUSPECTED PULMONARY TUBERCULOSIS

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Introduction: Childhood tuberculosis (TB) is an increasingly important public health problem, particularly in developing countries. The diagnosis of tuberculosis, especially the bacteriological confirmation of pulmonary TB is notoriously difficult in children. Sputum induction is viewed as a safe and tolerable procedure, and the major advantage of this specimen is that it comes directly from the site of infection and reflects the lung microbiological organisms. We aimed to describe the adverse events in sputum induction in children with suspected pulmonary TB.
Methods: Cross-sectional study in 22 Brazilian local sites. Children between 6 months to <15 years old were prospectively enrolled in two different types of health services (hospital and specialized outpatient clinics) from December 2021 to December 2022. The main inclusion criteria for hospitalized participants was admission for lower respiratory tract infection, and for clinical ones the referral of suspected tuberculosis. All participants underwent sputum collection and were analyzed by Xpert MTB/RIF Ultra (GeneXpert® Cepheid). The hospitalized participants had a second sputum collection during the admission. The subjects who were unable to spit spontaneously had the collection done by induced sputum. This work was supported by the PROADI-SUS in collaboration with Hospital Moinhos de Vento.
Results: 161 participants were screened and 123 were included. 149 procedures of induced sputum were done (96 procedures in admitted subjects and 53 procedures in ambulatorial ones). 109/149 (73.2%) sputum aspiration procedures were done. Adverse events occurred in 3 ambulatorial subjects (2%, 3/149), two epistaxis and one vomiting.
Conclusions/Learning Points: Conclusion: These preliminary results reinforced that induction and aspiration sputum collection present few and minor adverse events, the procedures are tolerable and feasible in childrens in outpatients clinics and hospitals.

PV0788 / #1378

DIAGNOSIS PROFILE OF TUBERCULOSIS IN BRAZILIAN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS09.A. TUBERCULOSIS AND OTHER MYCOBACTERIAL INFECTIONS

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Backgrounds: Introduction: The 2022 Brazilian tuberculosis (TB) epidemiological bulletin reported that 72.3% of individuals positive for TB had a diagnosis through one of these methods of analysis (rapid molecular test, bacilloscopy or sputum culture). From the 68.271 new TB cases, 2.077 (3%) occurred in children under 15 years old. Children are considered a priority, as they are more likely to progress from the latent to active forms, have a higher incidence of severe extrapulmonary forms, and can be a long-term reservoir for the disease.
Methods: Cross-sectional study in 22 Brazilian local sites. Children between 6 months to <15 years old were prospectively enrolled in two different types of health services (hospital and specialized outpatient clinics) from December 2021 to December 2022. The main inclusion criteria for hospitalized participants was admission for lower respiratory tract infection, and for clinical ones the referral of suspected tuberculosis. All participants underwent sputum collection for Mycobacterium tuberculosis detection. Samples were analyzed by Xpert MTB/RIF Ultra (GeneXpert® Cepheid) and liquid culture (LC). The positivity of Ultra was defined as: detected or trace-positive. The presumptive diagnosis refers to a patient who presents with symptoms or signs suggestive of TB, despite the negative Ultra and LC results. This work was supported by the PROADI-SUS in collaboration with Hospital Moinhos de Vento.
Results: 161 participants were screened and 123 were included. 20/123 (16.3%) were TB positive (bacteriological or presumptive diagnosis). 6/20 (30.0%) were laboratory confirmed while the other 14 participants had presumptive TB diagnosis, despite the negative results (Ultra and LC).
Conclusions/Learning Points: Conclusion: These preliminary results indicated that Ultra presented higher sensitivity than LC in the analyzed samples.

PV0789 / #2177

HIV PATIENTS TRANSITION FROM PAEDIATRIC TO ADULT CARE: THE EXPERIENCE OF A TERTIARY HOSPITAL IN LISBON: 2015-2020 CASE SERIES AND OUTCOMES

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Title of Case: HIV Patients Transition from Paediatric to Adult care: The experience of a Tertiary Hospital in Lisbon: 2015-2020 Case Series and Outcomes
Background: Advancements in paediatric antiretroviral therapy(ART) have enabled an increasing number of adolescents living with HIV(ALHIV) to survive into adulthood. Despite that, ALHIV are the only age group with a rising HIV-related mortality. Transition to adult care has been associated with high rates of loss of follow up, virologic failure(VF) and immunological deterioration with a subsequent increase in morbidity and mortality.The aim of this study was to evaluate the impact of transition on health outcomes of a cohort of ALHIV.
Case Presentation Summary: We reviewed medical records of ALHIV followed in a tertiary hospital, at transition, and one and three years after transition to adult care, between 2015 and 2020. 38 ALHIV, 89,5% perinatally infected, were transferred at the median age of 19,5 years. At transition 52,6% had undetectable viral load(UVL), normal CD4 cell count and were 100% adherent to therapy; 68,4% had at least 3 different ART regimens. After one and three years of follow-up, retention rate, viral suppression(VS) and immunosuppression were respectively 32/38 vs 29/38; 19/32 vs 19/29 and 14/32 vs 11/29. Of the 18 ALHIV who had positive viral loads before transition, three achieved and maintained UVL three years later and two died with AIDS. Of the 20 ALHIV with UVL at transition, 15 maintained VS during the follow-up period, two had VF and three lost follow-up.
Learning Points/Discussion: Almost half of our ALHIV didn't met the ideal objectives of ART at transition to adult care, retention rate decreased overtime and two patients died from AIDS. There is a need for new ways of intervention to support ALWH during this vulnerable period.

PV0790 / #295

FACTORS INFLUENCING ADHERENCE TO PAEDIATRICS ANTIRETROVIRAL THERAPY AT ROYAL HOSPITAL IN OMAN

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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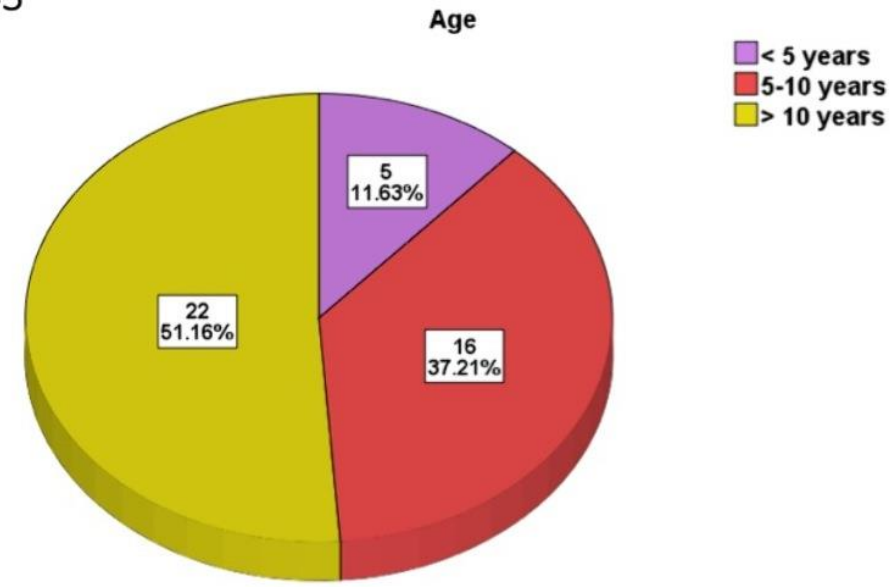
Backgrounds: In Oman 3060 is the total number of Omanis diagnosed with HIV between 1984 -2018, of which 77 patients were aged 0-4 years,120 patients were aged 5-14 years at time of diagnosis. There was a noticed reduction in the percentage of patients aged below 14 years of age at the time of diagnosis from 14.2 % in 1984-1996 to 2.9 % in 2013-2018.
Methods: ¬ Study design
Cross sectional study ¬ Characteristics of study area and target population
This study is conducted in pediatrics infectious disease clinic of Royal hospital which is a tertiary care institution. Patients are referred to this clinic from all around Oman. Our target population will be all children with HIV infection attending this clinic from August 2021 to July 2022. Patients who lost follow up will be excluded. ¬ Sampling We is include all children with HIV on ART following at Royal Hospital from August 2021 to July 2022. ¬ Variable definitions and measurements
This is include demographic data, lab investigations, ART and the questionnaire. ¬ Data collection tools and methods
♣ interview the participants in a private environment using a questionnaire and adherence assessment tool
♣use AlShifa system to access patient records to collect demographic, clinical, lab and medications data
Results: Significant results of factors affecting adherence categorized : Caregiver related factor :Age , Educational level Socioeconomic: Transportation, Income Medication: Drug finished , bad taste, lack of trust on the efficacy of medication , child not feeling sick , school schedule , missed refill (available stock at home) Appointments :
transportation

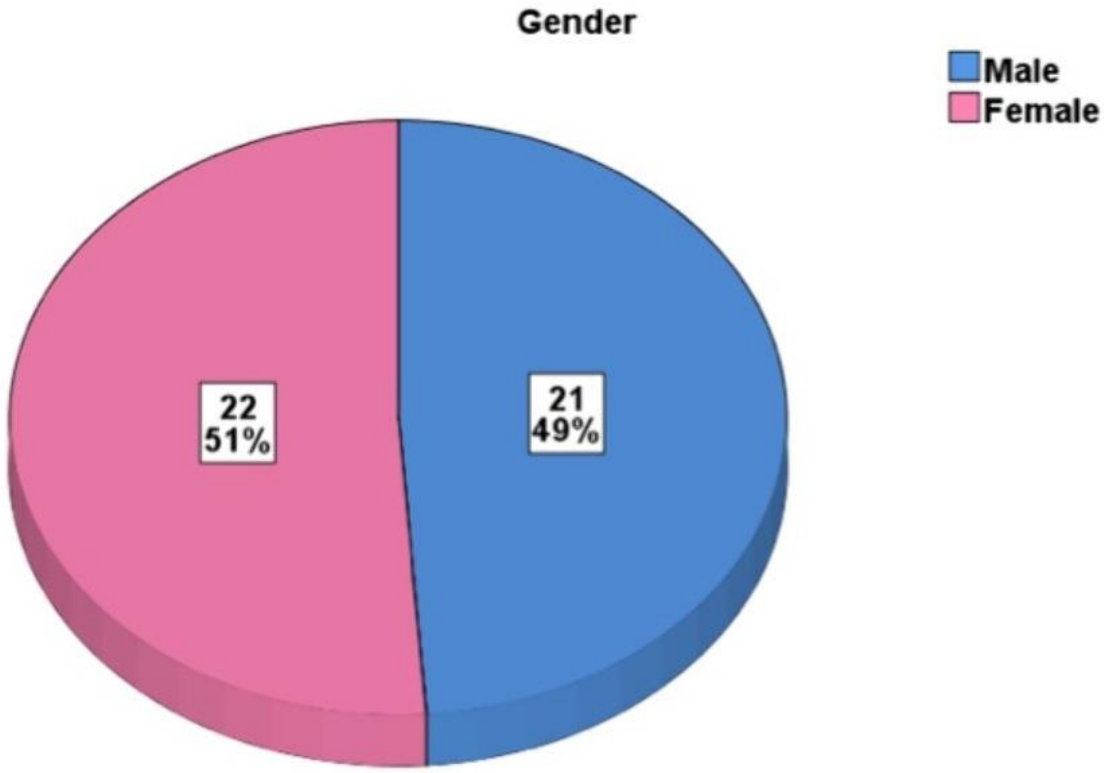
Results: Patient demographics

N= 43



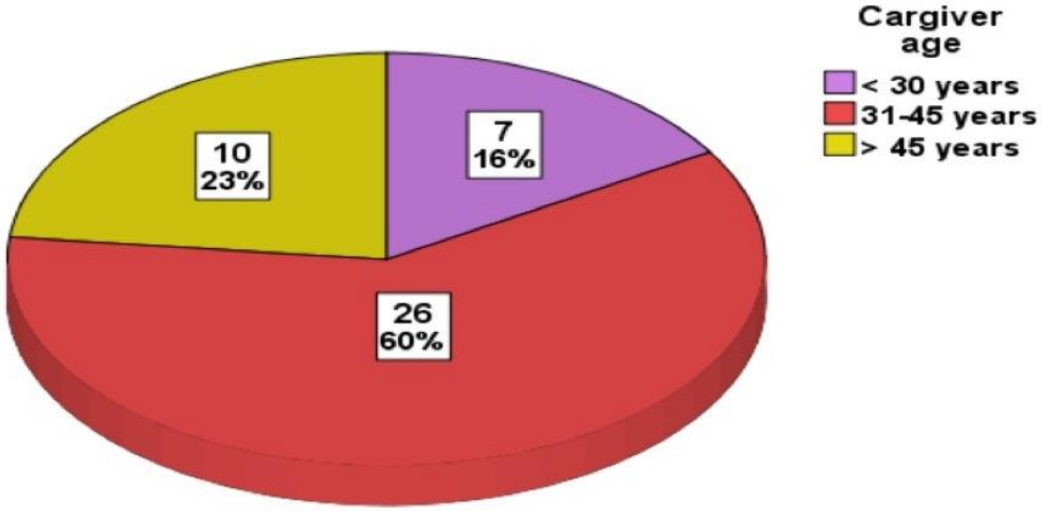
Results: Patient demographics

N= 43



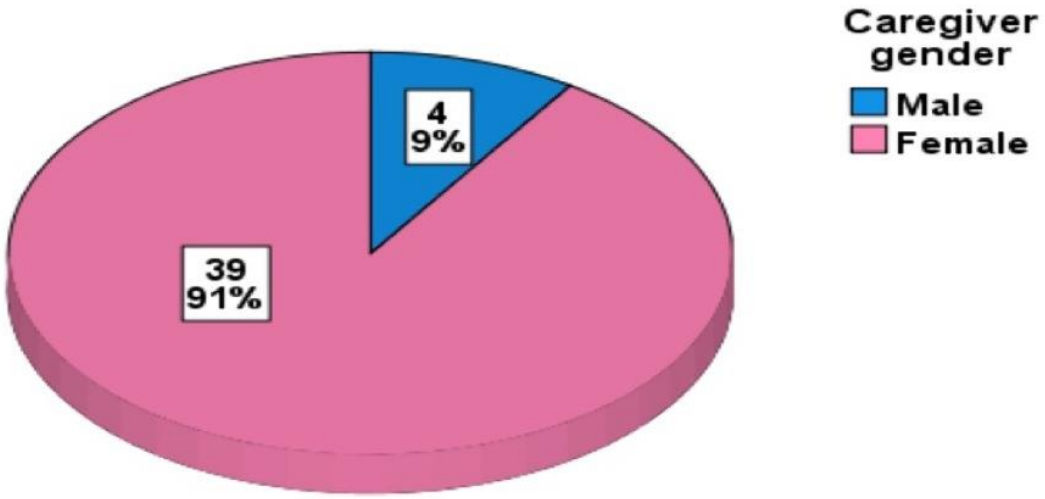
Results: Caregiver demographics

N= 43



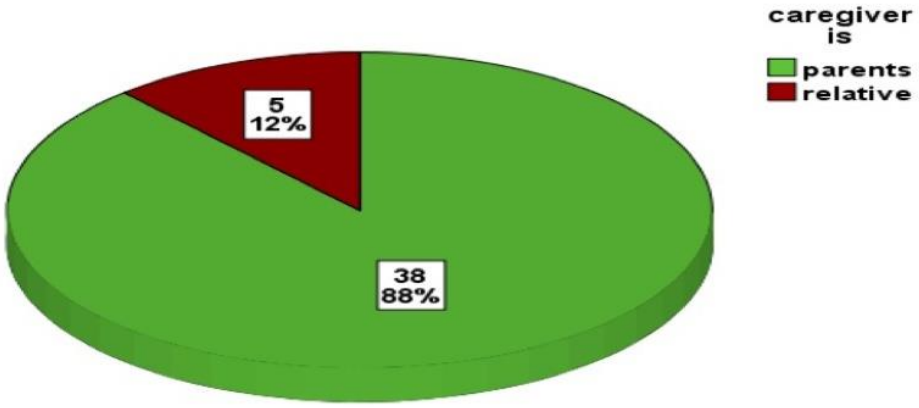
Results: Caregiver demographics

N= 43



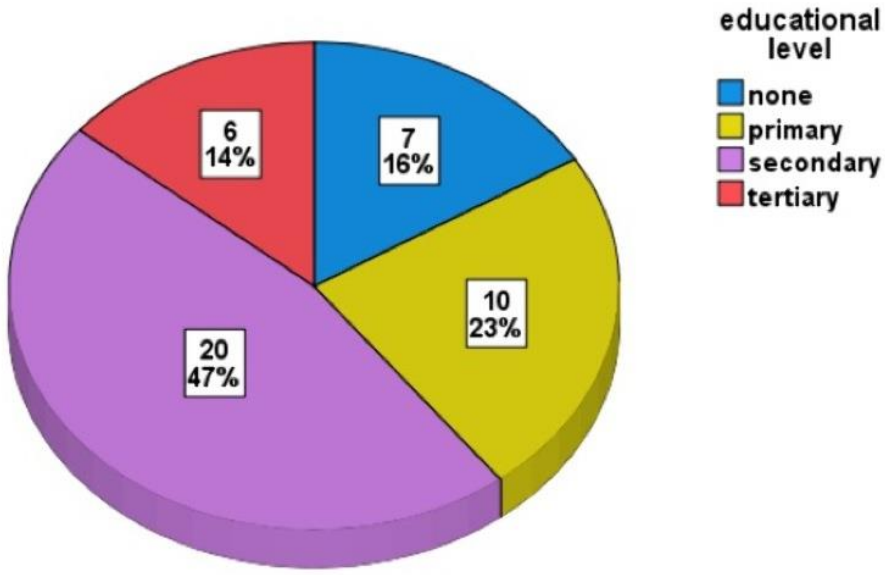
Results: Caregiver demographics

N= 43



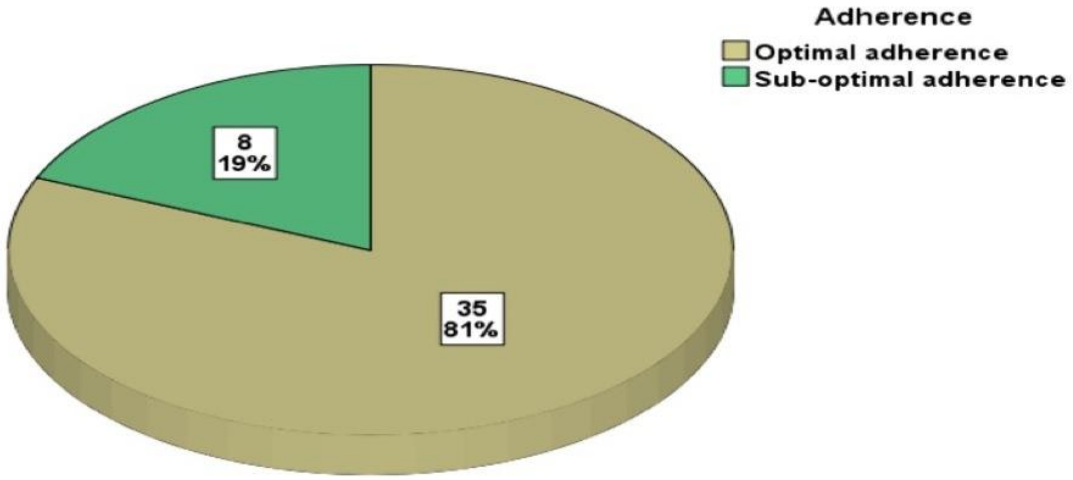
Results: Caregiver demographics

N= 43



Results: Adherence to ART

N= 43



Caregiver related factors	Adherence N= 43		P- value *
	Optimal N (%)	Sub-optimal N (%)	
Caregiver Age: < 30 years	3 (42.9)	4 (57.1)	0.009
31- 45 years	22 (84.6)	4 (15.4)	
> 45 years	10 (100)	0 (0.0)	
Educational level : None	3 (42.9)	4 (57.1)	0.022
Primary	9 (90.0)	1 (10.0)	
Secondary	19 (95.0)	1 (5.0)	
Tertiary	4 (66.7)	2 (33.3)	

*Test: Fisher's Exact Test /Likelihood Ratio

Socio-economic factors		Adherence N= 43		P- value *
		Optimal N (%)	Sub-optimal N (%)	
Available transportation to hospital:	Yes	32 (86.5)	5 (13.5)	0.067
	No	3 (50.0)	3 (50.0)	
Income:	Low	10 (62.5)	6 (37.5)	0.049
	Average	24 (92.3)	2 (7.7)	
	High	1 (100.0)	0 (0.0)	

*Test: Fisher's Exact Test /Likelihood Ratio

	Responses		Percent of Cases
	N	Percent	
forgetfullness	6	4.4%	18.8%
drug finished	10	7.4%	31.3%
caregiver was ill	5	3.7%	15.6%
too busy work schedule	4	2.9%	12.5%
family problems	6	4.4%	18.8%
child school schedule	5	3.7%	15.6%
illness of the child	2	1.5%	6.3%
presence of child's co morbid conditions	1	0.7%	3.1%
didnt understand the dosage	4	2.9%	12.5%
lack of trust on the efficacy of the drug	3	2.2%	9.4%
bad drug taste	17	12.5%	53.1%
child vomiting medications	16	11.8%	50.0%
too many drugs given to the child	7	5.1%	21.9%
child refused drugs	17	12.5%	53.1%
side effect of the drug	3	2.2%	9.4%
shared drugs with child	1	0.7%	3.1%
child was not feeling sick	5	3.7%	15.6%
caregiver gives herbal medications	2	1.5%	6.3%
missed medication refill due to available stock at home	22	16.2%	68.8%
	136	100.0%	425.0%

Medications not given due to		Adherence N= 43		P- value *
		Optimal N (%)	Sub-optimal N (%)	
Drug finished	Yes	5 (50.0)	5 (50.0)	0.010
	No	30 (90.9)	3 (9.1)	
Child school schedule	Yes	1 (20.0)	4 (80.0)	0.003
	No	34 (89.5)	4 (10.5)	
Lack of trust on the efficacy of the medication	Yes	1 (33.3)	2 (66.7)	0.084
	No	34 (85.0)	6 (15.0)	

*Test: Fisher's Exact Test /Likelihood Ratio

Medications not given due to		Adherence N= 43		P- value *
		Optimal N (%)	**Sub-optimal** N (%)	
Bad drug taste	Yes	17 (100.0)	0 (0.0)	0.014
	No	18 (69.2)	8 (30.8)	
Child not feeling sick	Yes	2 (40.0)	3 (60.0)	0.037
	No	33 (86.8)	5 (13.2)	
Missed refill due to available stock at home	Yes	14 (63.6)	8 (36.4)	0.004
	No	21 (100.0)	0 (0.0)	

*Test: Fisher's Exact Test /Likelihood Ratio

	Responses		Percent of Cases
	N	Percent	
can easy measure the syrup dose	36	13.2%	83.7%
knows when to repeat the doseif the patient spills the medications	35	12.8%	81.4%
knows how to manipulate the dose using a syringe or pouring the liquid into a cup	35	12.8%	81.4%
experience swallowing difficulties	10	3.7%	23.3%
able to defferentiate fridge item medication	43	15.8%	100.0%
child accepts the taste/tesxture of medication	31	11.4%	72.1%
missed any formulation last 3 months	7	2.6%	16.3%
need to change medication regimen due to out of stock formulation	9	3.3%	20.9%
changed formula from syrup to tablet or from combination pill to individual component	26	9.5%	60.5%
confused about different medication brand recieved from the pharmacy	11	4.0%	25.6%
difficulty in taking the medication twice daily	18	6.6%	41.9%
developed any resistance to medication	12	4.4%	27.9%
	273	100.0%	634.9%

	Responses		Percent of Cases
	N	Percent	
forgot appointment	7	7.8%	19.4%
still has drugat home	23	25.6%	63.9%
unable to get permession from work place	12	13.3%	33.3%
caregiver was ill	9	10.0%	25.0%
family problems	8	8.9%	22.2%
transportation not available	17	18.9%	47.2%
child at school	14	15.6%	38.9%
	90	100.0%	250.0%

Missed clinic appointment due to		Adherence N= 43		P- value *
		Optimal N (%)	Sub-optimal N (%)	
Transportation not available	Yes	11 (64.7)	6 (35.3)	0.031
	No	24 (92.3)	2 (7.7)	

*Test: Fisher's Exact Test /Likelihood Ratio

	Responses		Percent of Cases
	N	Percent	
service is acceptable	43	31.4%	100.0%
long waiting list for follow up	7	5.1%	16.3%
impatient or unsympathetic staff	1	0.7%	2.3%
enough time for consultation/councelling	43	31.4%	100.0%
easy to reschedule missed appointment	43	31.4%	100.0%
	137	100.0%	318.6%

Caregiver related factors

- Age
- Educational level

Socioeconomic

- Transportation
- Income

Medication

- Drug finished
- Bad drug taste
- Lack of trust on the efficacy of the medication
- Child not feeling sick
- School schedule
- Missed refill (available stock at home)

Appointments

- Transportation

Conclusions/Learning Points: •Caregiver related factors, socioeconomics and medication related factors were the main factors influencing adherence to ART among Omani children living with HIV following at Royal Hospital

PV0791 / #1525

CONTINUUM OF CARE IN NEWLY HIV DIAGNOSED ADOLESCENTS IN ADULT AND PEDIATRIC SPANISH COHORTS (CORIS-CORISPE)

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Backgrounds: A specific approach of HIV in adolescence is of global concern. Data about new HIV diagnoses in adolescents are scarce, especially in Europe. Describing UNAIDS 2020 targets (90-90-90) in this population will contribute to better approach this problematic situation.
Methods: Description of the continuum of care in newly HIV-diagnosed adolescents 12-20 years-old included in CoRIS (adult) and CoRISpe (pediatric) Spanish cohorts, until 2019. The cascade of care was analysed for the first 12 and 24 months after enrolment: (i)active HIV care (a CD4 or viral load measurement), (ii)on ART, (iii)virologically suppressed (<200 copies/ml or undetectable) and (iv)good immune status (CD4>350 cells/mm^3).
Results: From the 410 adolescents diagnosed, 75% were male, the median age was 18.8 years (IQR17.9-19.5). The main infection risk was sexual (79%), 59.5% were born in Spain and 35% presented late to care (CD4<350 cells/mm^{3}or AIDS at diagnosis). Data for the first 12 and 24 months after diagnosis were available for 393 (96%) and 368 (90%) of global cohort and thus, selected for first and second year-cascade analysis, respectively. The cascade of care improved during the study period (Table1). Nevertheless, the proportion of patients on active care significantly decreased from the first to the second year (92%vs82%;p=0.034). In addition, for the most recent period 2015-2019, UNAIDS target was reached only for patients on ART but not for those virologically suppressed for the first year (87%) or the second year (79%). Good immune status rate was also <90% both for the first and second year.

Table 1: Continuum of care in HIV newly diagnosed adolescents in Spain in the first and second year after enrolment.

Year of HIV diagnosis	<1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019	
				n (%)				p value
1st year : On active care	31/39 (79%)	15/20 (75%)	14/15 (93%)	30/32 (94%)	83/91 (91%)	89/99 (90%)	89/97 (92%)	0.085
2nd year : On active care	24/39 (62%)	12/20 (60%)	14/15 (93%)	25/32 (78%)	76/91 (84%)	78/99 (79%)	59/72 (82%)	0.245
1st year : On ART	18/39 (46%)	13/20 (65%)	12/15 (80%)	17/32 (53%)	41/91 (45%)	72/99 (73%)	87/97 (90%)	<0.001
2nd year : On ART	21/39 (54%)	15/20 (75%)	12/15 (80%)	20/32 (63%)	53/91 (58%)	76/99 (77%)	66/72 (92%)	<0.001
1st year: Among on ART: virologically suppressed *	11/18 (61%)	7/13 (54%)	7/12 (58%)	11/17 (65%)	27/41 (66%)	55/72 (76%)	76/87 (87%)	0.001
2nd year: Among on ART: virologically suppressed*	16/21 (76%)	9/15 (60%)	6/12 (50%)	11/20 (55%)	39/53 (74%)	60/76 (79%)	51/66 (79%)	0.044
1st year : Among on ART : good immune status^	3/18 (17%)	8/13 (62%)	7/12 (58%)	10/17 (59%)	27/41 (66%)	60/72 (83%)	72/87 (83%)	<0.001
2nd year : Among on ART : good immune status^	7/21 (33%)	8/15 (53%)	6/12 (50%)	10/20 (50%)	40/53 (75%)	59/76 (78%)	50/66 (76%)	<0.001
1st year : Of total cohort : virologically suppressed*	14/39 (36%)	7/20 (35%)	8/15 (53%)	11/32 (34%)	32/91 (35%)	57/99 (58%)	79/97 (81%)	<0.001
2nd year : Of total cohort : virologically suppressed*	20/39 (51%)	9/20 (45%)	7/15 (47%)	11/32 (34%)	44/91 (48%)	60/99 (61%)	53/72 (74%)	0.009
1st year : Of total cohort : good immune status^	11/39 (28%)	11/20 (55%)	10/15 (67%)	22/32 (69%)	65/91 (71%)	77/99 (78%)	78/97 (80%)	<0.001
2nd year : Of total cohort : good immune status ^	14/39 (36%)	8/20 (40%)	9/15 (60%)	18/32 (56%)	66/91 (76%)	71/99 (72%)	53/72 (74%)	<0.001

1st year: assessment until 12 months from enrolment (3 months window); 2nd year: assessment 13-24 months from enrolment (3 months window);

*Virologically suppressed: VL<200 copies/ml or undetectable; ^Good immune status: CD4 >350 cells/mm^3

Conclusions/Learning Points: Even in a cohort of adolescents already linked to HIV-care, UNAIDS 2020 targets are not reached. Efforts should be strengthened for maintaining active care and achieving virological suppression and good immune status in this challenging population.

PV0792 / #793

EXPLORING THE FOURTH 95 UNAIDS TARGET: A HEALTH-RELATED QUALITY OF LIFE SURVEY IN CHILDREN LIVING WITH HIV IN MOZAMBIQUE

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Backgrounds: Health-Related Quality of Live (HRQoL) may be affected in children living with HIV (CLHIV). Research on the HRQoL among CLHIV in low-and middle-income countries is limited and with contradictory results. This study assessed HRQoL among CLHIV in Mozambique for the first time and compared it to children without HIV infection.
Methods: We conducted a cross-sectional study from May-2021 to February-2022 at the Manhiça District Hospital, in southern Mozambique. CLHIV aged 2-10 years on ART for 12-36 months were recruited at their routine HIV visit. Children in the same age range attending either the triage with minor acute ailments or the healthy-child consultation, and with a negative HIV result in the previous 30 days were recruited as controls. HRQoL was measured using the parent-proxy version of the PedsQL™4.0 questionnaire. Mann-Whitney U test was used to compare the HRQoL scored between groups and the interquartile range ratio to compare data dispersion.
Results: A total of 49 CLHIV and 33 children without HIV infection were included. We found a good parent-reported HRQoL (Total PedsQL™score > 90/100 points) for all age groups. Although we did not find statistical differences between groups, we observed that 10% of the 2-4- and 8-10-years age groups of CLHIV had total HRQoL below 80 points, whereas none of the children without HIV infection did. HRQoL scores among CLHIV were poorer when reported by their parents compared to those reported by other non-parent relatives (p=0.018).
Conclusions/Learning Points: CLHIV in care had an overall good HRQoL. Future research is needed to elucidate determinants of lower scores in the social domain among preschooler and preadolescent CLHIV and to compare HRQoL to the general pediatric population, in order to ensure a good HRQoL beyond their viral suppression.

PV0793 / #47

INCREMENTAL NUTRITION STATUS AMONG CHILDREN WITH HIV ON ANTIRETROVIRAL THERAPY WITHIN 12 MONTHS AT TERTIARY REFERRAL HOSPITAL IN INDONESIA

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Backgrounds: Indonesia still has high perinatal HIV transmission rate and late presentation of positive cases is still a problem. Early antiretroviral (ART) treatment has been shown to increase survival. However, whether treatment at all change the nutrition status in the face of stunting is still unknown. This study is to describe increment of nutritional status during ART within 12 months.
Methods: This is a cohort observational data developed in Cipto Mangunkusumo Hospital Indonesia. Children first diagnosed with HIV within 2019-2021 were eligible. Data collected were clinical stage, initial hemoglobin, CD4, ART, weight and height measurements every 3 months for 12 months after received first ART. Nutritional status was determined using Z-score calculation (WHO-AnthroPlus) and analysed with SPSS.
Results: 81 subjects were eligible. The mean (SD) WAZ, HAZ, and BAZ at baseline were -3.00 (1.81), -2.55 (1.44), and -1.89 (1.72). Initial hemoglobin and CD4 were 10.27 mg/dL and 336.4 cells/mm^3 (69.3% <750 cells/mm^3). There were 89% on first-line; 11% on second-line ART. Proportion for severely underweight, severely stunted, and severely wasted children at baseline were 44%, 32%, and 27% and decrease to 10%, 13%, and 3% after 12 months on ART. WAZ was significantly increased from the month 0, 3rd, 6th, 9th, to 12th (3.00, -2.49, -2.17, -1.79 to -1.64); p<0.001. BAZ was increased (-1.89, -1.22, -0.93, -0.66 to -0.40); p<0.001.WAZ and BAZ mean change were significant. However, HAZ was not good (-2.55, -2.39, -2.28, -1.96 to -2.00);
p=0.331.

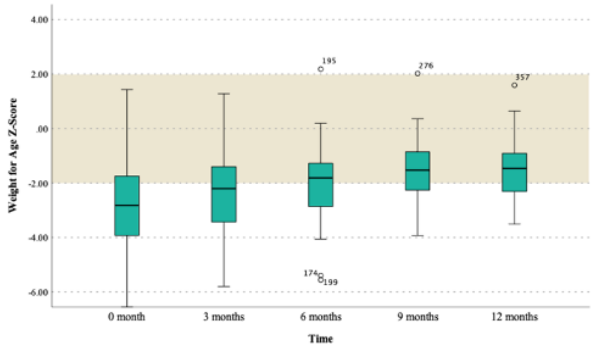

Figure 1: The mean z-score for weight for age

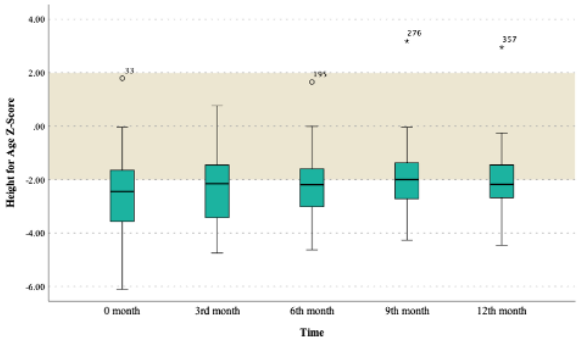

Figure 3: The mean z-score for height for age

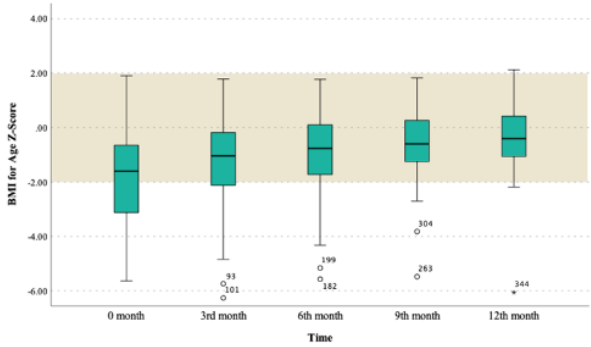

Figure 2: The mean z-score for BMI for age

Conclusions/Learning Points: ART showed to improve body weight and BMI over 12 month ART, regardless of ART type and other baseline data. However height increment did not show the same effect. This could contribute to stunting problem in the nation.

PV0794 / #1456

PROFUSE LOWER GASTROINTESTINAL BLEEDING OF HIV CHILD IN DR. SOETOMO HOSPITAL SURABAYA

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Title of Case: PROFUSE LOWER GASTROINTESTINAL BLEEDING OF HIV CHILDREN IN DR SOETOMO HOSPITAL SURABAYA
Background: Human immunodeficiency virus infection is still a difficult problem in developing countries in the era of antiretroviral treatment. Opportunistic infection (OI) leads to severe condition that brings fatal consequence. Tuberculosis, pneumonia, candidiasis esophagus, and cytomegalovirus infection are common OI that caused severe complications. Lower gastrointestinal (GI)bleeding in HIV children, even rare, can be correlated with this OI and be associated with mortality. We report a fatal case of HIV infection in children with profuse lower GI bleeding.
Case Presentation Summary: A 9-year-old girl was referred for HIV in the second month of ARV treatment, tuberculosis, pneumonia, chronic diarrhea, and severe malnutrition. There was a history of uncomplying with ART of zidovudine, lamivudine, and nevirapine. Chest x-ray showed a massive infiltrate on both lungs, high CRP, Ig M CMV positive, and sterile blood culture. We gave her antibiotics, antifungal, and ganciclovir besides continued ARV and other supportive treatment. On the second week of admission, she suffered profuse lower GI bleeding until a total of about 1800 ml for 3 days. Abdominal sonography showed normal results but a colonoscopy cannot be done because of her condition. The whole blood transfusion was given but she passed away due to hypovolemic shock.
Learning Points/Discussion: Poor ART compliance plays a role in the incidence of opportunistic infections. Lower GI bleeding in HIV is rare and the study reported it is associated with OI such as CMV colitis, mycobacterium avian complex, and candidiasis esophagus. CMV colitis should be confirmed by colonoscopy and biopsy but it is challenging in limited resources. The gancyclovir for CMV colitis, in this case, is based on CMV IgM serology, and the bleeding needs more aggressive management.

PV0795 / #2056

EX JUVANTIBUS CRITERIA FOR DIAGNOSIS OF HSV ENCEPHALITIS IN AIDS PATIENT IN A RESOURCE- LIMITED SETTING

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Title of Case: EX JUVANTIBUS CRITERIA FOR DIAGNOSIS OF HSV ENCEPHALITIS IN AIDS PATIENT IN A RESOURCE-LIMITED SETTING
Background: In 2020 there have been 1.7 million new diagnosis of HIV infection, 150.000 were in children. Perinatal transmission is responsible for most HIV infections in children. AIDS is associated with many complications, which require a correct diagnosis and treatment. We present a child with HIV diagnosed in AIDS stage.
Case Presentation Summary: A 10-year-old child was brought to Tosamaganga Hospital in Tanzania due to fever for one week. The patient also reported loss of body weight over the previous months. He was ill-looking, wasted and markedly pale. FBP showed Hb 1.9 g/dl and raised WBC. MRDT was negative. HIV antibody test positive. CD4 count was 12/mcl. The child was therefore diagnosed with AIDS. After detailed history the mother revealed being HIV+ and in ART since 5 years; the patient had never been tested. The patient received blood transfusion and started on cotrimoxazole, ceftriaxone and ART (Dolutegravir and ABC Lamivudine). The fever gradually improved and the hemoglobin increased. After 1 week of treatment the patient developed confusion associated with hallucinations, followed by catatonic state. Lumbar puncture was performed, all tests available in our setting (cell count, GRAM stain, Xpert for MTB, cryptococcal antigen) resulted negative. Since HSV encephalitis could not be excluded, empiric treatment with acyclovir was started. The neurological status of the patient quickly improved and he was discharged.
Learning Points/Discussion: In HIV high burden countries, screening and treatment of pregnant women is fundamental in preventing new HIV infections in children. Diagnosis of HSV encephalitis can be difficult in the absence of clear clinical signs, but it should be considered as a possible complication of AIDS. In low resources settings, where diagnostic tests availability is limited, clinicians may have to rely on empiric treatment.

PV0796 / #2574

KAPOSIS SARCOMA IN PEDIATRIC HIV PATIENT: CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Title of Case: KAPOSIS SARCOMA IN PEDIATRIC HIV PATIENT: CASE REPORT
Background: Kaposi's Sarcoma is a malignancy associated with HIV infection in Sub-Saharan Africa where HHV-8 is endemic and the access to antiretroviral therapy is limited.
Case Presentation Summary: We describe the case of a 16-month-old girl with multiple compressive lymphadenopathies (the largest measuring 54 x 23 mm), declivous edema, anemia and severe thrombocytopenia refractory to immunoglobulins infusion and steroids therapy. Although diagnosed with HIV infection at two months of age she lived for a long period in an HHV-8 endemic area without starting the antiretroviral therapy. The patient's symptoms, signs, and laboratory findings did not improve after the start of HAART and the immune reconstitution induced a fast worsening of lymphadenopathies with compression of mediastinal structures, the emergence of life threatening conditions with the need of intensive care. FNAB of the major lymphadenopathy showed the presence of spindle cells compatible with Kaposi's Sarcoma. Given the severity of the clinical condition, empiric therapy for Kaposi's Sarcoma with liposomal doxorubicin was started before the immunohistochemical confirmation. Subsequently, the diagnosis was confirmed at immunohistochemistry and HHV-8 was detected in blood and lymph node specimens. The patient rapidly improved after the first chemotherapy with the normalization of hemoglobin and platelet values and a significant reduction of lymph node volume.
Learning Points/Discussion: The expected survival of an HIV-positive patient with Kaposi's Sarcoma on exclusive antiretroviral therapy is 3-4% and increases to >90% if antiretroviral therapy is combined with suitable and rapid chemotherapy. Therefore, it is imperative to include HIV in the differential diagnosis of lymphadenopathies, to consider Kaposi's Sarcoma in HIV patients who have lived in an HHV-8 endemic area and to start chemotherapy as soon as possible.

PV0797 / #754

HOW BEST TO ASSESS COGNITIVE FUNCTION IN YOUNG PEOPLE LIVING WITH HIV IN SUB-SAHARAN AFRICA? A PILOT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Backgrounds: Neurocognitive dysfunction impacts on learning, education and mental health in affected children, and early accurate diagnosis is essential. There are few validated neurocogitive assessment tools for adolescents in Sub-Saharan Africa. We conducted a pilot study, to compare the feasibility and acceptability, of delivering paper and electronic cognitive assessments, among adolescents (aged 11-19 years) living in Harare, Zimbabwe, aiming to inform a future study investigating the impact of HIV on cognitive function.
Methods: Participants were selected by snowball sampling at Sally Mugabe Central Hospital outpatient clinics from August-September 2022. Participants completed three cognitive assessments: the paper-based Kaufmann Assessment Battery for Children Second Edition (KABC-II), and the tablet-based PLUS-EF and NIH Toolbox Cognition Battery (NIH-CB). The KABC-II was the designated gold standard, it requires trained assessors and takes 90 minutes to complete versus 15 for the PLUS-EF and 30 for the NIH-CB.
Results: 42 HIV negative participants (20 M, 22 F) aged between 11-19 (mean 15 years) attended for cognitive assessments. Acceptability and percived comprehension was high across all three tools. Significant positive skewing of individual subtest and total scores was seen on the PLUS EF, indicating that it was too easy for our cohort. NIH-CB scores were well distributed around the mean and demonstrated a degree of correlation with Kaufmann Mental Processing Index ($r^2 = 0.414$) and Non-Verbal Index ($r^2 = 0.4$) scores.
Conclusions/Learning Points: Cognitive assessments using the NIH-CB and KABC were acceptable to participants and feasible in a Zimbabwean hospital setting. A larger study is required to determine if they have equal sensitivity in evaluating HIV associated neurocognitive dysfunction in adolescents. Both tools will be used in a larger cross-sectional study of cognitive function and mental health in young people living with HIV.

PV0798 / #2162

EPICARDIAL ADIPOSE TISSUE IS INCREASED IN HIV INFECTED ADOLESCENT AND YOUNG ADULTS

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Backgrounds: The association between antiretroviral therapies in HIV positive subjects and the cardiovascular risk is already known in literature. To date, there are few studies investigating this association in adolescents and young adults with vertically transmitted HIV; it appears to be urgent to stratify as earlier as possibile cardiovascular risk in these patients.
Methods: In our study we enrolled 20 (mean 20 years, 10 male) vertically transmitted HIV patients aged at least 14 years with good immunovirological control. They underwent echocardiography with the evaluation of the following parameters: biventricular systolic function (LVEF, RVEF); biventricular global longitudinal strain (LVGLS, RVGLS); left ventricular diastolic function (E / A-MV, E / e ', TR, BSA); epicardial adipose tissue (EAT). The cohort thus identified was compared with a cohort of HIV-negative healthy controls matched for age and sex.
Results: Comparing HIV infected cohort to healthy controls, no statistically significant differences emerged except for the EAT, which appears to be greater in the HIV infected cohort, although the values detected are within normal limits. Using Sperman's linear correlation statistical function we evaluated whether the parameters of BMI, age and gender were related to EAT: no correlation was identified.
Conclusions/Learning Points: Our study revealed an increased thickness of EAT in the HIV infected cohort, while remaining within the normal range. Further data are needed to support these preliminary data.

PV0799 / #2169

CAROTID INTIMA MEDIA THICKNESS IS INCREASED IN HIV INFECTED ADOLESCENT AND YOUNG ADULTS

E-Posters Viewing
E-POSTER VIEWING: AS09.B. HIV/AIDS

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Backgrounds: To date, there are few studies investigating this association in adolescents and young adults with vertically transmitted HIV; it appears to be urgent to stratify as earlier as possibile cardiovascular risk in these patients.
Methods: In our study we enrolled 33 (mean age 25 years, 12 male) vertically transmitted HIV patients aged at least 14 years with good immunovirological control. They underwent ultrasound of the supra-aortic trunks with the evaluation of the thickness of the carotid intima-media (IMT). The cohort thus identified was compared with a cohort of HIV-negative healthy controls matched for age and sex.
Results: Comparing HIV infected cohort to healthy controls, we found a statistically significant difference in IMT both for right and left carotid, which appears to be greater in the HIV infected cohort, although the values detected are within normal limits. Spearman's correlation index was calculated between the mean right and left IMT value and weight, height, BMI, abdominal circumference, systolic and diastolic blood pressure in ortho and supine position, cholesterol (total, LDL, HDL, non-HDL), triglycerides, fasting blood glucose, basal insulin, HOMA-index, glycated hemoglobin, CD4+ lymphocyte count and average over the years elapsed since the initiation of ART therapy. No correlation was found for the left IMT value. There was a significant correlation with abdominal circumference ($r = 0.42$) (p value 0.012) and BMI ($r = 0.36$) (p value 0.03) with right IMT.
Conclusions/Learning Points: Our study revealed an increase of IMT in the HIV infected cohort, while remaining within the normal range, apparently related to the patient's metabolic state. Further data are needed to support these preliminary data.

PV0800 / #2469

USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY AS A NEW PUBLIC HEALTH SURVEILLANCE TOOL DURING COVID-19 PANDEMIC IN THE STATE OF SÃO PAULO, BRAZIL

E-Posters Viewing
E-POSTER VIEWING: AS10.A. DECISION SUPPORT TOOLS

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Background: In Brazil, the Covid-19 surveillance is based on case/deaths notification by Severe Acute Respiratory Syndrome (SARS) and Influenza-like illness. The pandemic brings the importance of using information and communications technology (ICT) as a new public health surveillance resource for monitoring and integration between databases in real time. This study aims to describe the introduction process of ICT as a public health tool during the Covid-19 pandemic in the State of São Paulo (SSP).
Methods: This is a descriptive study about the implementation of CENSO Covid-19 since the health services notification to issuing epidemiological alerts.
Results: Due to the need to update in real time suspected/confirmed cases of COVID-19 in wards and Intensive Care Units, all health centers must fill the form available on http://censocovid19.saude.sp.gov.br/ (Resolution SS nº. 42/2020) developed by the technical advisors of epidemiological surveillance. Both public and private health services have informed daily the quantitative and follow-ups. Along 6 months, an information system was developed with programming language and dashboards, using many variables, such as hospitalized adults and pediatrics patients, hospital beds for Covid-19/non-Covid-19, new and discarded cases and exits, and different colors to facilitate filling out the form. The CENSO Covid-19 has been an important tool for monitoring the Covid-19 outbreak in the SSP in the short, medium, and long term, giving real time information about hospital occupancy, support many studies about structures for pandemic service and planning of distribution of inputs, medicines, and protective equipment for professionals.
Conclusions/Learning Points: New ICTs allow improving the epidemiological surveillance and the analytical capacity of the system at the regional level, strengthening the Health Care Network helping to detect or prevent changes in individual or collective health patterns of the population.

PV0801 / #803

A MACHINE-LEARNING APPROACH TO PREDICTING RISK OF SEPSIS IN LOW-RESOURCE NEONATAL UNITS USING ROUTINE HEALTHCARE DATA FROM NEOTREE

E-Posters Viewing
E-POSTER VIEWING: AS10.A. DECISION SUPPORT TOOLS

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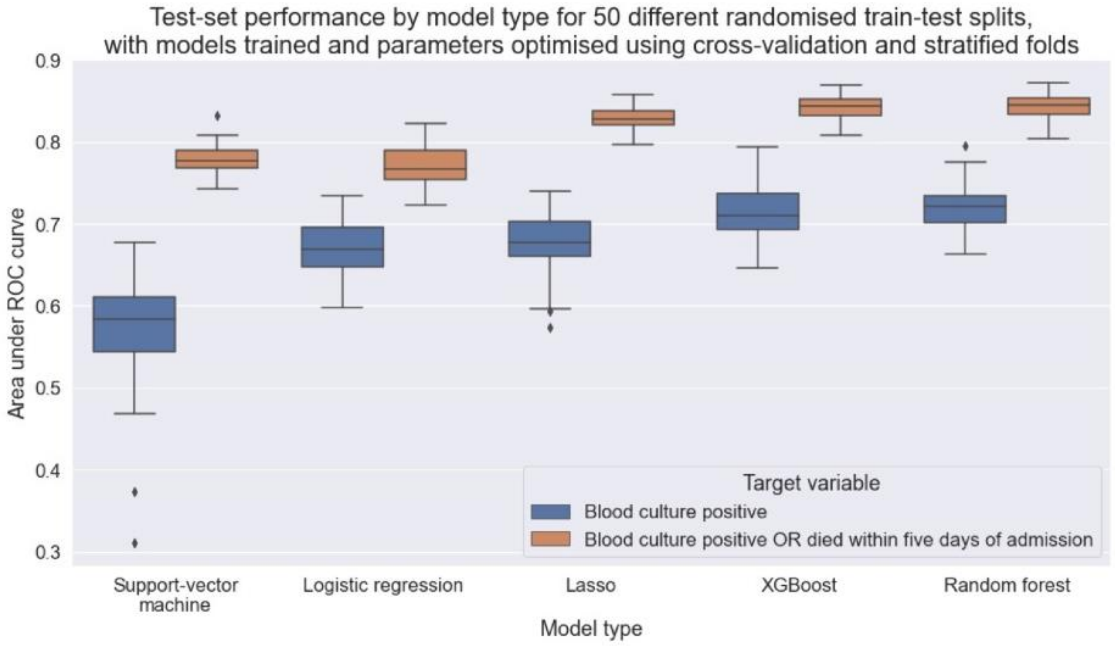
Backgrounds: Neonatal sepsis is a major cause of morbidity and mortality in low-resource settings. Where microbiological diagnostics are scarce, clinical prediction models developed using local data are potentially useful alternatives. We assessed the performance of clinical prediction models derived using machine learning from routine clinical data in Zimbabwe.
Methods: We included data from 7,126 neonates admitted to the neonatal unit in Sally Mugabe Central Hospital, a tertiary teaching hospital in Zimbabwe and 2,390 neonatal blood culture results. Data were collected using the Neotree app, a digital quality improvement tool from February 2020-September 2022. We assessed two outcomes: 1. Positive blood culture results for early onset neonatal sepsis (within 72 hours of admission) 2. Positive blood culture results or death within 5 days of admission, as blood cultures were not consistently available for the study duration. Performance of support vector machine, lasso, extreme gradient boosting and random forest algorithms were tested compared with a baseline logistic regression model, using area under the ROC curve (AUC) as an accuracy metric.
Results: Overall Lasso (AUC=0.68; 0.82), XGBoost (0.69; 0.83), and Random Forest (0.70; 0.83), performed better than the baseline model (AUC=0.66; 0.78) for outcomes 1 and 2 respectively, with Random Forest the most computationally efficient (Figure). The AUC remained similar for neonatal deaths between 3 and 8 days of admission. Use of larger datasets may result in more robust models as model performance varied across random splits of training and test datasets
(Figure).



Conclusions/Learning Points: We have demonstrated proof of concept for using machine learning techniques to derive clinical prediction models from routine clinical data to predict early onset sepsis and/or neonatal death with a good degree of accuracy. External validation of this model is now required.

PV0802 / #258

RECURRENT SKELETAL AND GASTROINTESTINAL INFLAMMATIONS WITH PAIN AND FEVER: CHALLENGES FACED BY A TUNISIAN FAMILY

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: In response to diverse triggers, inflammasome sensor proteins are activated leading to caspase-1 activation and pro-inflammatory cytokines release. Mutations in the components of inflammasome complexes are implicated in multiple hereditary periodic fever syndromes. Irregularly repeated acute episodes of fever and tissues inflammation (joints, gut, chest, etc.) related to these syndromes are clinically challenging, as they sometimes lead to different misdiagnosis. Here, we report the clinical management scheme of a three-generation Tunisian family, in which recurrent gastrointestinal inflammations led to inappropriate surgical interventions.
Methods: During our genetic counselling for reproduction failure and congenital disorders as well as genetic conditions, a 30-year-old Tunisian woman were explored because of recurrent gynecological infections with secondary infertility. Suspecting periodic fever syndrome, she was investigated at the molecular level. Using multiplex PCR, screening of 12 mutations of the MEFV gene, that codifies for pyrin, and which is located at 16p13, was conducted. Subsequently, genetic exploration and counselling were undertaken for the three-generation family members of our patient.
Results: The investigated Tunisian female was born in Sfax (Tunisia) from a consanguineous couple. Homozygous single nucleotide substitution of exon 10 of MEFV gene (c.2040 G>C) was confirmed. Homozygous and heterozygous M680I mutations were found in symptomatic and asymptomatic members of the three-generation Tunisian pedigree. Adult patients reported their first episode at the age of 20-25 years, whereas in children the first episode happened at an earlier age. Clinical management of all mutated patients, was planned individually, according to results of the genetic testing.
Conclusions/Learning Points: Mediterranean fever is an autosomal recessive auto inflammatory disease that should be differentiated from infections and other autoimmune disorders. We emphasize on the importance of MEFV molecular testing to avoid the challenges of the clinical management .

PV0803 / #2567

RECURRENT ARTHRITIS IN A PEDIATRIC PATIENT: A DIAGNOSTIC CHALLENGE WITH A GENETIC SOLUTION

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Background: Recurrent arthritis can be caused be a variety of factors. While infections are a frequent cause, autoimmune, genetic and hereditary rheumatic disorders are also common. One such disorder is Familial Mediterranean Fever (FMF), which can present with a range of symptoms making it difficult to diagnose. Here, we present a diagnostically challenging case of a Mediterranean female child from Libya, who underwent multiple surgical interventions for recurrent arthritis episodes.
Methods: A nine-year-old female was referred to our genetic counselling by her pediatrician for a suspected genetic origin of her paroxysmal inflammatory symptoms associated to febrile episodes. The patient had a history of three arthritis episodes in the hip and knee, which were surgically managed. Despite radiographic investigations revealing arthritis of infective or inflammatory origin, no microbes were detected in joint aspiration analysis. Cytogenetic and MEFV molecular investigations were carried out to set up the diagnosis of a suspected FMF.
Results: Cytogenetic analysis revealed a 46,XX formula, without any structural abnormalities in chromosome 16, which harbors the FMF responsible gene. However, molecular screening of the 12 most frequent mutations of the MEFV gene confirmed the diagnosis of FMF. In fact, the condition was related to the most severe mutation, which was a homozygous point mutation in exon 10 of the MEFV gene: M694V.
Conclusions/Learning Points: FMF needs to be considered in juvenile recurrent arthritis. Family history and ethnic background should thus be taken into consideration. While the most severe forms of FMF are associated with exon 10 MEFV mutations (M694V and M680I), it appears that patients with homozygous M694V mutation tend to have an earlier onset of FMF, manifesting during childhood. Early genetic molecular testing is therefore crucial to avoid unnecessary medication and surgical interventions for children with recurrent arthritis.

PV0804 / #143

IMMUNOASSAY ON THE MEMEDKEY INSTRUMENT CAN DIFFERENTIATE BACTERIAL AND VIRAL INFECTIONS IN CHILDREN WITH POTENTIAL TO IMPACT ON PATIENT PATHWAYS WHEN USED POINT OF CARE

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Differentiating between bacterial and viral infections is challenging based on clinical findings alone, especially in younger children and infants or those with complex medical conditions. This can lead to children being admitted to hospital and started on empiric antibiotics. The MeMed BV® Test is an immunoassay that measures three host response proteins in serum: TNF-related apoptosis-inducing ligand (TRAIL), Interferon gamma-induced protein-10 (IP-10) and C-reactive protein (CRP). These three quantitative measurements are combined with an algorithm to generate a score (0 – 100) that predicts the likelihood of bacterial infection.
Methods: Twenty paediatric patients were identified as having a known or suspected bacterial or viral infection and their residual serum samples were stored at -80 °C. Samples (0.1 ml) were tested retrospectively. Not all patients met the test's intended for use criteria.
Results: MeMed scores for 20 patients are presented in Table 1, alongside the clinical and laboratory findings. Eleven had a score > 70 (high or moderate likelihood of bacterial infection), seven of these had a confirmed bacterial infection, one had a confirmed fungal infection and the remaining three had no pathogens detected in the laboratory. One patient with a result in the equivocal range had confirmed viral and bacterial infection. Five patients had a score < 35 (high or moderate likelihood of non-bacterial infection), two had confirmed viral infections, two had no pathogens detected and one had a confirmed bacterial infection.
Conclusions/Learning Points: The MeMed test could differentiate bacterial infections in the majority of samples tested with a rapid (< 15 minutes) time to result. We are currently evaluating the impact of this point of care test on patient pathways within the paediatric department of our

hospital.

Sample	Clinical history	MeMed Score	Clinical Findings	Laboratory Findings
1	no infection	0	Low suspicion of infection	No pathogens detected
2	fever and vomiting	7	Suspected infection	Confirmed viral infection
3	viral URTI	16	Suspected viral infection	Confirmed viral infection
4	fever and rash	20	suspected viral infection	Confirmed bacterial infection
5	fever and rash	24	suspected viral infection	No pathogens detected
6	chickenpox/necrotising fasciitis	35	Confirmed viral infection & suspected bacterial infection	Confirmed viral and bacterial infection
7	LRTI in complex patient	53	Upper respiratory tract infection	confirmed viral infection
8	LRTI in complex patient	60	Lower respiratory tract infection	confirmed viral infection
9	tonsillitis and rash	61	suspected bacterial infection	Confirmed viral infection
10	complex patient/fever/IV line	70	suspected bacterial infection	Confirmed fungal infection
11	complex patient/fever/IV line	71	suspected bacterial infection	Confirmed bacterial infection
12	complex patient/fever/IV line	72	suspected bacterial infection	No pathogens detected
13	complex patient/sepsis/IV line	87	Probable bacterial infection	Confirmed bacterial infection
14	periorbital cellulitis	92	probable bacterial infection	Confirmed bacterial infection
15	sacroilitis	95	probable bacterial infection	Confirmed bacterial infection
16	complex patient/sepsis/line infection	96	probable bacterial infection	Confirmed bacterial infection
17	complex patient/sepsis	96	Suspected bacterial infection	No pathogens detected
18	febrile seizure	97	Probable bacterial infection	No pathogens detected
19	severe sepsis/line	98	Probable bacterial infection	Confirmed bacterial infection
20	cerebral empyema	100	Probable bacterial infection	Confirmed bacterial infection

Table 1: Twenty serum samples were tested on the MeMed Key generating a score for each sample. A qualitative interpretation of the result is generated by placing the scores into the following "bins": 0-9: High likelihood of viral infection or other non-bacterial etiology (light blue); 10-34: Moderate likelihood of viral infection or other non-bacterial etiology (dark blue); 35-65: Equivocal (grey); 66-90: Moderate likelihood of bacterial infection or co-infection (light orange); 91-100: High likelihood of bacterial infection or co-infection (dark orange).

PV0805 / #632

IN FEBRILE CHILDREN FOR MORE THAN FIVE DAYS, SERUM CONCENTRATIONS OF SOLUBLE UROKINASE PLASMINOGEN ACTIVATOR RECEPTOR FAIL TO IDENTIFY THOSE WITH KAWASAKI DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: SuPAR, the soluble form of the urokinase plasminogen activator receptor, separates from the cell membrane of immunologically active cells during inflammation. It plays a role in the plasminogen activating pathway, inflammation, cell adhesion and migration. It has been used in the diagnosis and prognosis of multiple inflammatory, infectious and autoimmune conditions. We aimed, in this study, to establish if suPAR serum concentrations in febrile children can distinguish those with Kawasaki disease (KD) from those with infections, and if they are associated with the development of coronary artery complications in KD.
Methods: SuPAR was measured in children admitted to hospital with fever > 5 days and without suggestive diagnostic signs on admission using commercial Enzyme-Linked Immunosorbent Assay kits (suPARnostic™ assay, Virogates, Copenhagen, Denmark).
Results: We enrolled 17 children (median age 25 months, interquartile range 18, 53 months). Seven children had KD, of whom one developed coronary artery aneurysm (CAA) and ten had febrile infections (one bacterial pneumonia, one scarlet fever, three viral respiratory infections and five viral gastroenteritis). There was no significant difference (p=0.84) in suPAR concentrations between children with KD (5.35 ± 2.76 ng/mL) and febrile infections (5.57 ± 1.69 ng/mL), (Fig. 1). SuPAR concentrations were not significantly different (p=0.47) between bacterial and viral infections (4.75 ± 1.07 ng/mL vs 5.78 ± 1.81 ng/mL), nor between sexes (p=0.61), age groups (p=0.47) or duration of fever prior to admission (p=0.61). In KD, suPAR concentration was 4.69 ng/mL in one child who developed a CAA, compared to 5.47 ± 1.04 ng/mL in the
others.

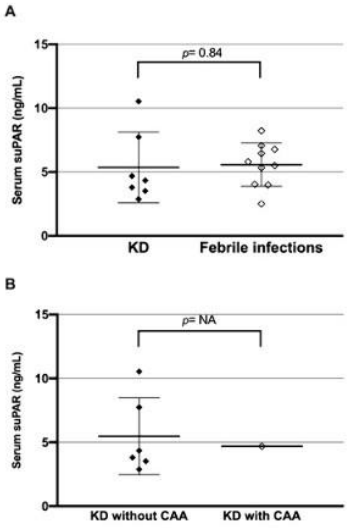

Figure 1. Soluble Urokinase Plasminogen Activator Receptor concentrations in children with Kawasaki disease and febrile infections. **Panel A**: KD and febrile infections. **Panel B**: KD with and without CAA.
Footnote: suPAR: Soluble Urokinase Plasminogen Activator Receptor ; KD: Kawasaki disease ; CAA: coronary artery aneurysm; NA: could not be computed. Horizontal lines represent mean values ± standard deviations. *P* values calculated by the 2-sided unpaired Student t-test.

Conclusions/Learning Points: In our study, serum suPAR concentrations on admission to hospital failed to distinguish between children with KD and those with febrile infections, or to predict the development of CAA in KD.

PV0806 / #1155

EVALUATION OF EARLIER PRELIMINARY NEGATIVE BLOOD CULTURE REPORTING AT 36 HOURS IN CHILDREN AGED 0-16 YEARS OLD: A UK TEACHING HOSPITAL'S EXPERIENCE.

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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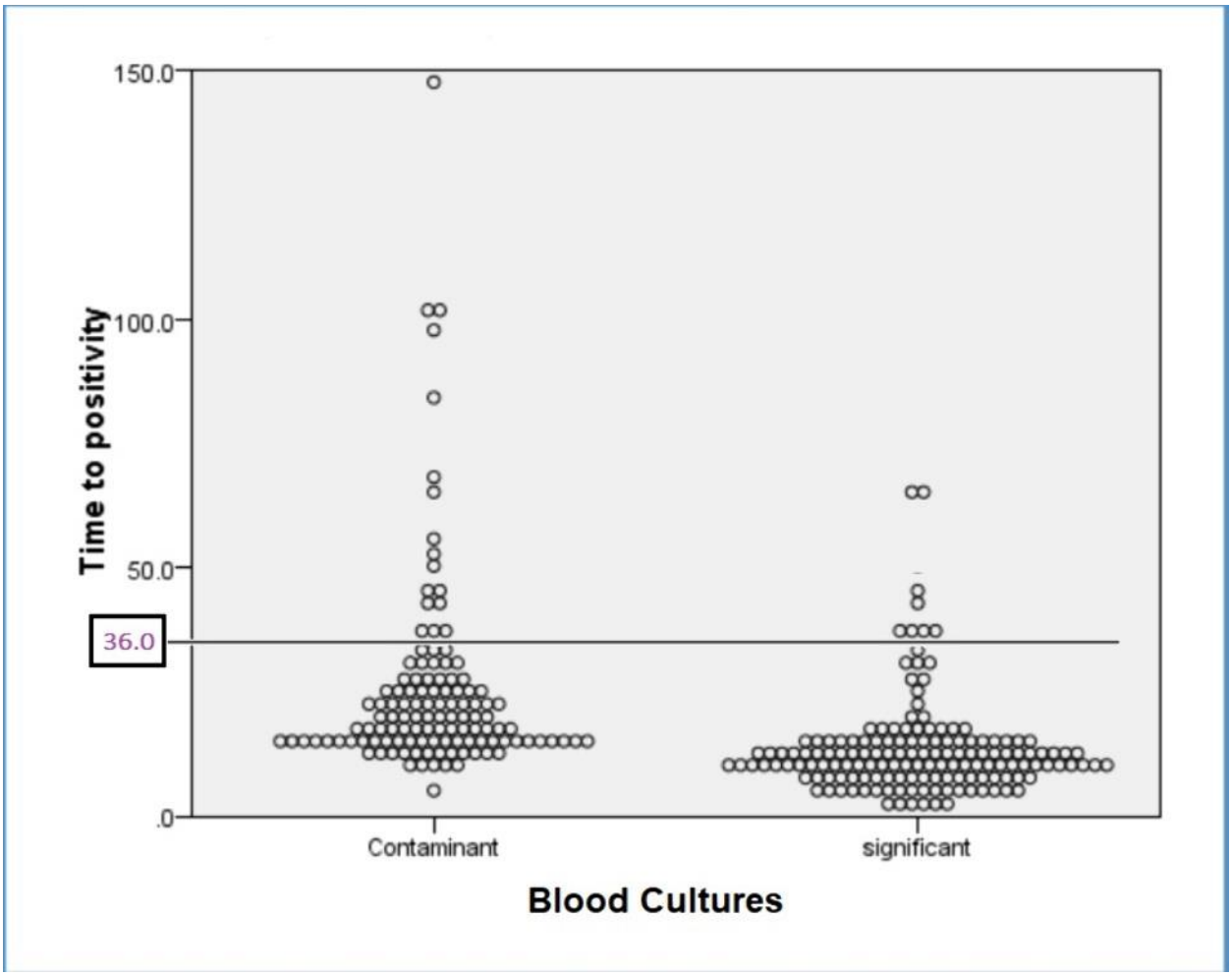
Backgrounds: Blood cultures remain the gold standard in the diagnosis of bloodstream infections. Negative preliminary blood culture reporting assist clinicians in reviewing the diagnosis of sepsis and antimicrobials initiated on admission. UK guidance recommends 36 hours blood culture reporting in neonates but no specific standards are available for children in other age groups. Historically in our centre, preliminary negative blood cultures were reported at 48 hours as with adults. We aim to review the usefulness of earlier preliminary blood culture reporting at 36 hours in children aged 0-16 years old.
Methods: All blood cultures recieved in the microbiology lab at University Hospitals of Leicester NHS Trust from patients aged 0-16 years old over a period of 1 year were included in this review. Time to positivity (TTP) of blood cultures and organisms grown were reviewed alongside clinical details available from the laboratory information system and patient's clinical notes. Blood cultures growing skin-type organisms were deemed as contaminants unless there was presence of prosthetic material and clinical suspicion of infection at the time of blood culture collection. Data was analysed using SPSS v22.
Results:



A total of 4,114 blood cultures were received, of which 274 showed positive growth. Mean TTP in contaminated blood cultures was 25.4 ± 20 hours whilst for significant blood cultures TTP was 13.6 ± 10 hours(p-value 0.017). Blood culture positivity rates at 12, 24, 36 and 48 hours were 58%, 89.5%, 94.1% and 95.3%. The sensitivity and specificity for significant cultures at 36 hours were 94% and 97%.
Conclusions/Learning Points: This review suggests that preliminary reporting at 36 hours was sensitive and specific in the detection of significant bloodstream infections in children, allowing for earlier review of patients and antimicrobials.

PV0807 / #400

IS PROCALCITONIN USED IN CLINICAL PRACTICE IN FEBRILE CHILDREN ATTENDING EUROPEAN EMERGENCY DEPARTMENTS?

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Studies on procalcitonin (PCT) for identifying sepsis were published as early as 1993 and since then, PCT has been the topic of over 8,500 studies, including several systematic reviews showing its adequate diagnostic value in febrile children. Several studies show PCT to be superior to CRP in differentiating paediatric sepsis from viral infections, especially early in the disease course. However, its actual use in clinical practice is poorly documented. Our aim was to study the use of PCT in febrile children attending the ED across Europe and compare this to the use of CRP.
Methods: The MOFICHE/PERFORM study, a prospective multicentre study, took place at 12 European EDs in eight countries and included febrile children <18 years. Descriptive analyses were performed, describing the use of PCT in all febrile children and for different age groups, foci of fever and fever duration.
Results: Nine settings used PCT in children attending the ED, leading to 31,612 paediatric febrile episodes for analyses. CRP was used in 49% of these, while PCT was used 2% of the time. When blood tests were done, CRP was performed in 98% (range 80-100%) and PCT in 4% (range 0.2-86%). PCT was most often performed in children below 3 months (8.6% versus 1.8% in older children, $p<0.001$) and in children with sepsis/meningitis (12%), inflammatory illness (8.9%) and undifferentiated fever (5.1%). PCT was used slightly more often in children with fever less than 24 hours (2.3%) than in children with longer duration of fever (1.8%, $p<0.05$).
Conclusions/Learning Points: Actual PCT use in febrile children at the ED is limited and varies largely between hospitals. Guidelines could aid in a more targeted and evidence-based approach.

PV0808 / #1078

RAPID MOLECULAR POINT-OF-CARE TEST FOR STREP A PHARYNGITIS IN REMOTE-LIVING SCHOOL AGED CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Accurate and timely diagnosis of Strep A pharyngitis in remote settings can be challenging. The availability of molecular point-of-care testing (PoCT) for Strep A pharyngitis may revolutionise primary prevention strategies in children at high risk of acute rheumatic fever. We aimed to evaluate the performance of a rapid molecular PoC test for Strep A pharyngitis in remote-living children in the Western Australia (WA).
Methods: Our primary school-based prospective surveillance program evaluated the epidemiology of Strep A infection in two towns within the Kimberley WA, comprising: (1) cross-sectional screening two times a year, and (2) weekly active surveillance visits once a week. Between April 2021 and September 2022, consented children were screened for pharyngitis and provided throat swabs for gold standard microbiological culture and PoCT using the Strep A ID NOW machine. We calculated the sensitivity, specificity, positive (PPV) and negative predictive values (NPV). PoC test performance was compared to the microbiological culture results
Results: Strep A PoCT was performed on 122 instances of sore throat. Twenty-nine (24%) tests were positive by PoCT, of which ten also produced positive culture results. One culture positive result was not detected by PoCT. We calculated a POCT sensitivity of 90.1%, specificity of 82.9%, PPV 34.5% and NPV 98.9%. Potential false positive results due to detection of other Streptococcal species (e.g. S. dysgalactiae) warrants further molecular investigation.
Conclusions/Learning Points: The high sensitivity of molecular Strep A tests may represent an advantage in detection and early treatment of pharyngitis. We confirm the value and feasibility of molecular PoC testing in remote Australian settings to improve diagnosis and treatment of Strep A pharyngitis.

PV0809 / #2683

UTILITY OF FEBRIDX POINT OF CARE TEST TO FACILITATE THE DECISION-MAKING PROCESS IN THE PEDIATRIC EMERGENCY DEPARTMENT AT PADUA UNIVERSITY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Background: Acute respiratory infections are the most frequent cause of Emergency Department (ED) visits but is not always easy to differentiate between viral and bacterial infection, thus resulting in the execution of blood tests to help the clinical decision. We evaluated the usefulness of a rapid point-of-care test, FebriDx, that simultaneously measures two key infection biomarkers, C-reactive protein and Myxovirus resistance protein A, in facilitating the decision-making process in our Pediatric Emergency Department (PED) and in reducing the time spent in the room visits.
Methods: This case-control retrospective study evaluated patients aged more than one year with fever and respiratory symptoms with no antibiotic treatment in the previous month. Patients tested with FebriDx from 03.11.2022 to 31.01.2023 (cases) were compared with patients of the same age and same duration of fever evaluated from 2016 to 2021 (between October and April) and subjected to blood tests (controls).
Results: Of the 34 cases, the mean age was 5,03 years, the mean duration of fever was 4,11 days. No one of them underwent blood tests. Twenty-three patients had a viral result (one received antibiotic for suspected urinary tract co-infection), one patient had a bacterial result, and ten patients had a negative result (one of them received antibiotic for streptococcal pharyngitis).Of the 34 controls, the mean age was 4,91 years, the mean duration of fever was 4,2 days. No one of them received an antibiotic prescription at discharge.The mean time spent in PED was 2.1 hours in the FebriDx groups and 3.12 hours in the control group ($p<0.005$).
Conclusions/Learning Points: FebriDx seems to have helped facilitate clinician decisions in reducing the time spent in the ED visits and to avoid the invasiveness due to blood tests.

PV0810 / #1645

A UNIFIED FRAMEWORK FOR DISCOVERY, VALIDATION AND RE-TRAINING OF MINIMAL GENE SIGNATURES FOR DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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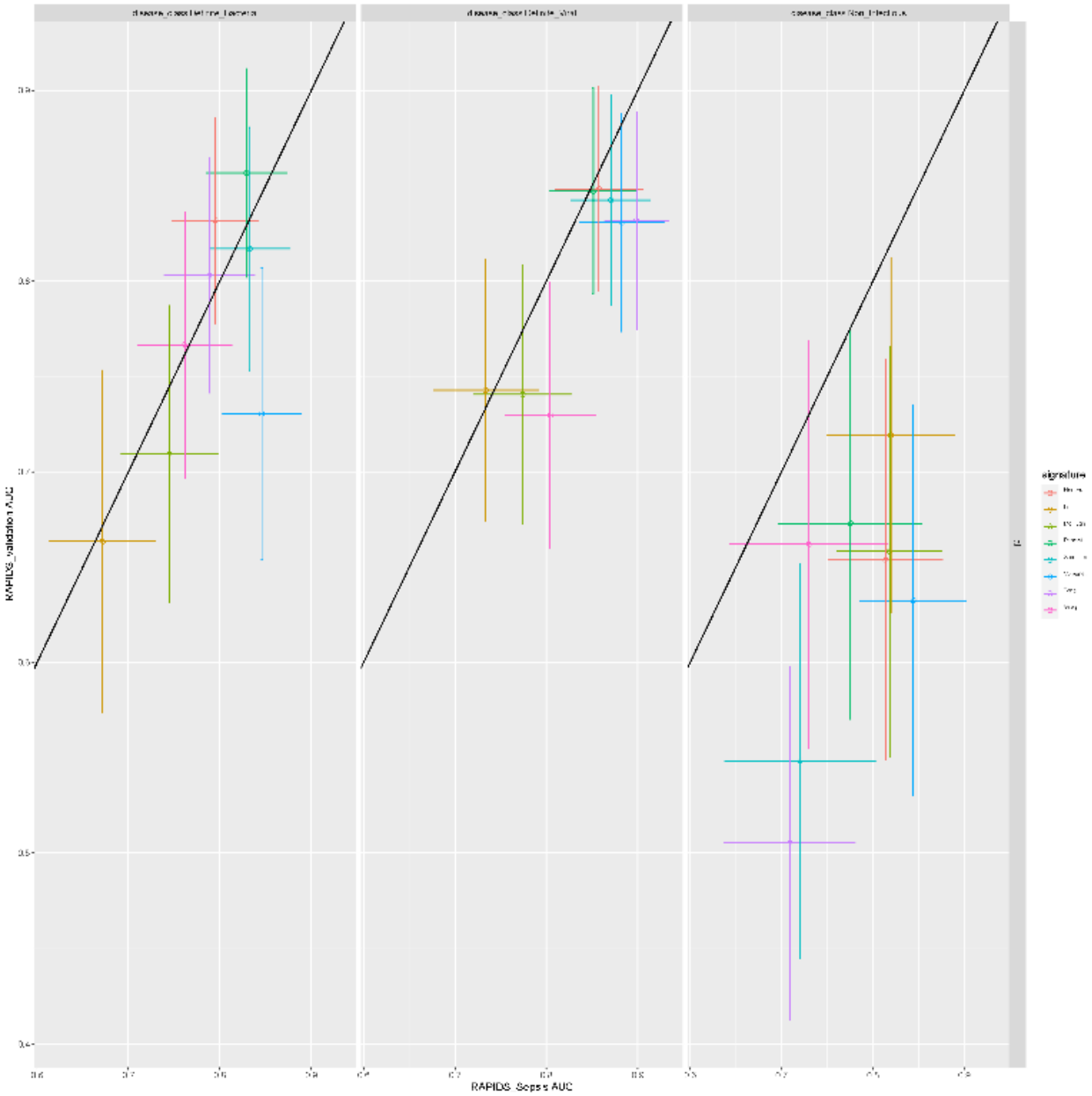
Backgrounds: Gene expression signatures have been developed for many applications, including distinguishing bacterial from viral infection; identifying specific types of infections, such as Tuberculosis and also for distinguishing severe from mild disease. The development of small gene signatures which can be deployed on rapid, low-cost, platforms for measuring gene expression has been particularly promising. However, relatively little work has been undertaken on developing tools for rapid validation of existing biomarker signatures on both new and pre-existing datasets; nor on defining frameworks for specification and sharing of models.
Methods: We have developed a web-server, and associated R package for validation and re-fitting of gene signatures (http://coinlab.mdhs.unimelb.edu.au/fspls/), coupled with a format for full model specification The model supports both binary as well as multi-class outcomes. The webserver uses encryption to enable cross-validation by different groups without requiring sharing of models or data, and can securely and efficiently access data stored in the cloud.
Results: We used a newly collected dataset comprising whole blood RNA sequencing on 911 RNA samples from children with suspected sepsis which were assigned as having a viral, bacterial or non-infectious disease based on clinical and pathology lab data, split into discovery (n=595) and validation (n=312) cohort. We used the FSPLS webserver to investigate the performance of 8 previously described signatures. These signatures generated validation AUCs up to 86% , 85% and 72% for Bacterial, Viral and non-infectious categories, respectively (Fig.
1).



Conclusions/Learning Points: The framework we have developed can be used to standardise validation of minimal gene signatures in infectious disease, leading to more robust signatures. Application of this framework to a paediatric sepsis cohort higlighted the difficulty in classification of non-infectious disease using existing models.

PV0811 / #2128

RESPIRATORY DIAGNOSTIC TEST PERFORMANCE IN PAEDIATRIC PRIMARY CARE CLINICS AND RELATION WITH PCR CYCLE THRESHOLDS AND DURATION OF ILLNESS

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Rapid diagnostic test (RDTs) for respiratory viruses have had massive development due to the pandemic but the performance of immunocromatographic test for viruses other than COVID has rarely been evaluated. PCR cycle thresholds (CTs) have also been evaluated mainly in this setting, where the findings are that CT values correlate strongly with cultivable virus. Other factor which has been found to be involved in the RDT performance is the duration of illness.
Methods: Prospective study in primary care paediatrics in Salamanca, Spain. Paediatricians recruited patients with respiratory infections from November´21 to April´22, and performed two nasopharyngeal swabs simultaneously, for RDT (Certest – RSV, Influenza A+B and Adenovirus) and for PCR viral panel which included RSV, Influenza A+B and SARS-CoV-2. A questionnaire was completed with signs and symptoms, length of illness, age and sex. CT for the PCRs was obtained from the microbiology laboratory. Statistical analysis was performed for sensitivity, specificity and association with positivity/time of illness/PCR CT. Ethical approval was obtained.
Results:

	RSV	Influenza A	Influenza B
Sensibility	45.8%	54.2%	0
Specificity	98.9%	97.1%	96.3%
Positive predictive value	89.8%	88.3%	0
Negative predictive value	89.3%	84.2%	99.8%
Prevalence	17.9%	28.5%	0.2%
Eficacy	89.4%	84.9%	96.1%
True Positives	44 (8.1%)	83 (15.2%)	0 (0.0%)
False Positives	5 (0.9%)	11 (2.0%)	20 (3.7%)
False Negatives	52 (9.5%)	70 (12.8%)	1 (0.2%)
True Negatives	435 (79.7%)	372 (68.1%)	515 (94.3%)

546 children up to age 14 were recruited, 261 under 2 years of age. Performance of the test for 3 viruses is described in Table 1. Statistical difference is found in PCR CTs between true positives and false negatives (p value<0.001). There was no evidence of differences based on the duration of illness.
Conclusions/Learning Points: Sensitivity of the respiratory viruses RDT test was generally poor but false negatives are mainly related with higher CTs. Specificity was very good for all test. More studies on

the performance of RDTs introduced in the clinics are needed in real life settings, and the results should be taken into account when interpreting the results of these tests.

PV0812 / #1601

ASSESSING THE CLINICAL VALUE IN THE USE OF PET CT/FDG IN IDENTIFYING INFECTION FOCI IN PAEDIATRIC PATIENTS WITH CONFIRMED BACTERAEMIA – A NARRATIVE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Bacteraemia of unknown source has been associated with higher mortality risk in a paediatric population. The diagnostic value of PET CT has begun to be assessed in children presenting with fever of unknown origin. However, there is sparse literature available regarding the clinical value of PET CT in identifying an infective focus in paediatric bacteraemia.
Methods: A structured search was completed in PUBMED and Embase. Inclusion and exclusion criteria were applied. Inclusion criteria; patients with confirmed bacteraemia, English speaking papers, paediatric patients (≤18 years) and PET CT as imaging modality. Exclusion Criteria; other imaging modalities, patients >18 years and fever of unknown origin with no confirmation of bacteraemia. Final papers were systematically reviewed and corresponding results were
collated.

Search Design for Embase and Pubmed
child* OR infant OR adolescent OR pediatr* OR paediatr* OR baby OR babies OR teen
bacteraemia OR bacteremia
pet ct OR pet OR positron emission tomography OR FDG OR fluorodeoxyglucose

Results: A search of PUBMED and Embase highlighted 29 and 57 papers respectively, published between 2013-2021. After application of exclusion criteria, 6 papers were identified that included a confirmed total of 23 children. Number of paediatric participants remained undisclosed for one paper. PET CT was found to have diagnostic value in identifying infection foci where other imaging modalities could not for 4/23 patient cases where information was available. It is reported to have a high diagnostic yield leading to changes in clinical management but with varying sensitivity. Reported limitations in imaging modality include the duration of imaging and image quality due to the limits in technology.
Conclusions/Learning Points: PET CT appears to have diagnostic value for children with bacteraemia of unknown source or infection foci. However, further research is paramount for greater quantification.

PV0813 / #1727

BENEFIT OF THE IMPLEMENTATION OF A PROTOCOL TO DECREASE THE TIME TO PERFORM A MAGNETIC RESONANCE IMAGING IN HOSPITALIZED CHILDREN WITH OSTEOARTICULAR INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Recent guidelines recommend the use of MRI for the diagnosis of acute osteomyelitis (AOM) and esponylodiscitis (ED) in children. The main objective of this study was to evaluate the time until an imaging study was performed in children with OAI after the implementation of a collaborative protocol.
Methods: In 2013, a collaborative OAI protocol was established between the Pediatric Infectious Diseases and the Pediatric Radiology to decrease the time until MRI in children hospitalized with OAI. Single center, retrospective, comparative study performed by reviewing the medical charts OAI between January 2008-March 2020. The cohort was divided in two groups (GroupPre 2008-2013; GroupPost 2014-2020) to determine possible changes after the protocol was implemented.
Results: 136 children were identified; 89 with AOM or ED (55 from GroupPre and 37 from GroupPost), with no differences in terms of demographics and clinical presentation. The rate of scintigraphy (77.8 GroupPre vs 17.1% GroupPost; p<0.001) and MRI (48.1 vs 85.3%; p<0.001) were different between the study groups. No difference in time until an imaging study was done was observed according to the study group (overall median time: 5 days). However, there was a significant reduction in the number of days until MRI in the GoupPost (5.0 vs 8.0 ; p=0.002) (Figure). When only children with SA were analyzed (n=46) there was a non-significant increase in the rate of MRIs performed in the GroupPost, without an increased rate of diagnosed AOM-S.
Conclusions/Learning Points: After the implementation of an imaging study protocol for children with OAI, there was a significant increase in the rate of MRI performed. The time to obtain an MRI in these children was significantly decreased. This increased rate of MRI performed did not rise the diagnosis of OAM-SA.

PV0814 / #1166

REDUCING BLOOD CULTURE CONTAMINATION RATES IN CHILDREN: A PRACTICAL APPROACH AND EXPERIENCE IN A LARGE TEACHING HOSPITAL IN THE EAST MIDLANDS, UK.

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Blood cultures are important in the management of bloodstream infections. Blood culture contamination rates reported in children varies and is thought to be as high as 22% in some centres. A previous audit found that paediatric blood culture contamination rate in our centre was 3.36%.
Methods: In an attempt to reduce our paediatric contamination rate, a quality improvement project using multi-disciplinary team approach was implemented. A literature search was performed looking at best practices in paediatric specific blood culture collection and techniques. A review of current practices against best practice reported in literature was done.
Results: Unlike in adults, we could not find agreed standards nationally or internationally in paediatric blood culture collection. Blood volume guidance varied across different organisations and between authors of published articles. We implemented an e-learning package focussed mainly on standardisation of blood culture collection technique specifically aimed at staff who takes blood cultures from paediatric patients. An age-specific blood volume recommendation was introduced within the e-learning. A paediatric hospital-wide education and roll-out was done. A re-audit found that our contamination rate in paediatric cohort has reduced to 2.9% in our centre.
Conclusions/Learning Points: A multi-faceted approach was used to reduce blood culture contamination rates in children at our centre. Standardisation of technique, optimising blood volume, education and engagement was crucial in ensuring success.

PV0815 / #1286

USE OF MYXOVIRUS RESISTANCE PROTEIN A (MXA) AS A BIOMARKER FOR THE DIFFERENTIAL DIAGNOSIS BETWEEN VIRAL AND BACTERIAL INFECTIONS IN FEBRILE INFANTS WITHOUT SOURCE (FWS)

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Febrile infants without a source are often over-investigated and overtreated while awaiting for culture results. A reliable biomarker that can distinguish between viral and bacterial infection can improve therapeutic decisions. We aimed to determine the sensitivity and specificity of FebriDx, a rapid point-of-care test that combines MxA and C-reactive protein, in the diagnosis of viral and bacterial infections in infants with FWS.
Methods: This prospective controlled study enrolled infants aged 29 days - 12 months old admitted to a tertiary care children's hospital with FWS between November 2021 and December 2022. We included 66 infants with fever (≥38°C) for <72 hours who had no source of infection on physical examination. The control group formed by 55 infants hospitalized for non-infectious cause.
Results: Among 66 infants with FWS, 34 (51,6%) proved to have a bacterial infection and 32 a viral infection; urinary tract infection was the most common bacterial infection (76,4%) while SARS-CoV-2 (31%) and rotavirus (15,6%) were the predominant viruses isolated. For bacterial infections, the sensitivity of FebriDx was 94% and the specificity was 100%. Positive predictive value (PPV) and negative predictive value (NPV) were 100% and 96,4% respectively. For viral infections, the sensitivity was 96,8% and the specificity was 92,7%. PPV and NPV were 88,5% and 98% respectively. 25% of infants with viral infection and positive MxA protein were initially treated with antibiotics.
Conclusions/Learning Points: FebriDx has been used for the management of acute respiratory infections in adults and children. This is the first prospective study on febrile infants with FWS showing high sensitivity and specificity in differentiating between viral and bacterial infections. FebriDx could potentially reduce diagnostics and antimicrobial use in this population.

PV0816 / #600

PSEUDO-OUTBREAK OF ROTAVIRUS INFECTION IN A NEWBORN NURSERY

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Newborns under the age of rotavirus vaccination coverage are still vulnerable to this infection and rotavirus may cause outbreaks in neonatal units. Rapid antigen tests for rotavirus are done in many newborn nurseries as a screening test for early detection of rotavirus infection. A significant increase in stool samples testing positive for rotavirus antigens in the newborn nursery of a university hospital was observed without any suggestive clinical features. We strengthened infection control measures and conducted additional tests to confirm the diagnosis.
Methods: A rotavirus reverse transcription polymerase chain reaction (PCR) test was performed on stool samples that were positive in the rotavirus rapid antigen test immunochromatographic assay (ICA).
Results: From October 2021 to June 2022, 28 newborn infants were detected positive for rotavirus ag ICA kit. Repeated tests for the same stool samples using a PCR test showed negative results in all 28 neonates. All false positive test results were derived from the rotavirus rapid test device from the same company.
Conclusions/Learning Points: Rotavirus antigen rapid test is easy to perform and provides quick results. However, interpretation of the results should be done with caution. In the case of an increase in rotavirus rapid antigen test positivity without clinical symptoms or epidemiological relevance, false positives and pseudo-outbreaks should be considered. False-positive rapid antigen test results may be related to the timing of the test, prevalence of disease, or product issues.

PV0817 / #1862

LONGITUDINAL ANALYSIS OF QUANTIFERON TEST IN PEDIATRIC POPULATION

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

Patricia Martínez Paz[1], Sandra Moya Herranz[1], Ana Méndez Echevarría[1], Milagros García López-Hortelano[1], Teresa Del Rosal[2], Fernando Baquero-Artigao[3], Cristina Calvo[4], Miguel González Muñoz[1], Jara Hurtado-Gallego[1], Sonia Alcolea[1], Rocío Sanchez[1], Talia Sainz[5], Paula Rodriguez Molino[6]
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Backgrounds: Children are at higher risk of developing tuberculosis, severe and disseminated forms. However, diagnosis is more difficult than in adults. The performance of QuantiFERON® test (QFT) is lower in children, and there is little data regarding their results' long-term evolution. Our aim is to perform a longitudinal analysis of the results of the QFT test in children.
Methods: An ambispective longitudinal study in a tertiary hospital in Madrid was performed between February 2012-January 2023. Patients with history of tuberculosis disease (TB) or latent tuberculosis infection (LTI), <18 years at the time of diagnosis, and a first positive result of QFT test were offered to repeat the test. Results with an interval of >6 months were included.
Results: Fourteen patients with a median age of 8.10 years [IQR (3.78-2.86)] were included: 8 TB, 6 LTI. All completed anti-tuberculosis treatment with good adherence, except one with a loss of follow-up. The 2º QFT was performed with a median interval of 4.86 years [IQR (1.63-6.86)]. In 5/14 (35.7%) the test became negative and in 9/14 (64.3%) remained positive, regardless of the time between tests. In patients with persistently positive results, the median time (4.56 years [1.42-6.05]) between determinations was lower than those that revert to negative (6.84 years [2.85-8.89]). There were no differences in the reversal rate between patients with LTI (2/5) or TB (3/5).
Conclusions/Learning Points: It is essential to know the trend and evolution of QFT in different age ranges, especially in pediatric population. In our work, more than half of the patients still have positive test after almost 8 years. This fact requires more investigation to be interpreted properly, particularly in high burden-settings where there is an increased risk of exposure to the disease.

PV0818 / #1295

ONCOSTATIN M: A NOVEL BIOMARKER FOR BACTERIAL PNEUMONIA IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

Clare Mills[1], Cathal Roarty[1], Oenone Rodgers[1], Hannah Norman-Bruce[2], Peter Cosgrove[2], Thomas Waterfield[1]
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Backgrounds: Oncostatin M (OSM), a cytokine belonging to the interleukin 6 cytokine family, is a potential biomarker of pneumonia in adults. There have been no studies investigating the role of OSM in paediatric pneumonia. The aim of this study was to assess the diagnostic accuracy of OSM in diagnosing bacterial pneumonia in children admitted to the paediatric intensive care unit (PICU).
Methods: Children with clinician diagnosed pneumonia confirmed on chest radiograph were recruited from the Royal Belfast Hospital for Sick Children between April 2020 and December 2022. Detailed clinical data was recorded including the paediatric sequential organ failure assessment (pSOFA), treatments given, levels of care, length of stay and survival. Blood plasma was collected and OSM tested by ELISA. A final diagnosis of bacterial, viral or mixed viral and bacterial pneumonia was provided by an independent paediatric intensivist based on clinical data and results from blood culture, broncheoalveolar lavage and sputum.
Results: A total of 27 children were included in the study. The median age was 1.7 (IQR: 0.5-6.8) years and 48% were male. 22/27 (81%) received invasive ventilation, and 3/27 (11%) died. There were 15/27 (56%) cases of viral pneumonia, 9/27 (33%) cases of bacterial or mixed pneumonia and 3/27 (11%) with an unclear aetiology. OSM demonstrated excellent diagnostic test accuracy for identifying bacterial pneumonia with an area under the curve (AUC) of 0.89(95% CI 0.72-1.1). The optimum cut-off for OSM was 5.3pg/ml with a sensitivity of 0.93 (95%CI 0.68 to 0.99) and specificity of 0.78 (95%CI 0.45 to 0.96).
Conclusions/Learning Points: This small cohort study provides the first evidence that OSM could be used as a blood biomarker of bacterial pneumonia in children.

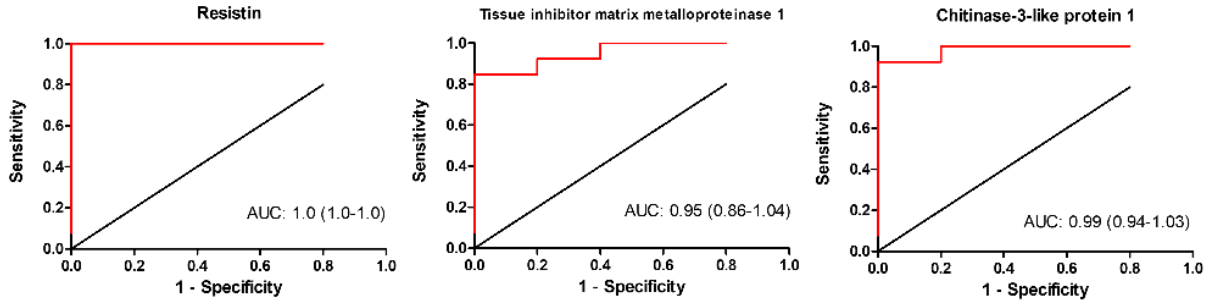
PV0819 / #1533

NOVEL HOST BIOMARKERS COULD HELP TAILOR ANTIBIOTIC USE IN CHILDREN ADMITTED TO PICU WITH PNEUMONIA

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

Clare Mills[1], Cathal Roarty[1], Oenone Rodgers[1], Hannah Norman-Bruce[2], Peter Cosgrove[2], Thomas Waterfield[1]
[1]Queen's University Belfast, Wwiem, Belfast, United Kingdom, [2]Royal Belfast Children's Hospital, Paediatric Department, Children's Ed, BT BA, United Kingdom

Backgrounds: Much research has been carried out to identify novel host biomarkers that can accurately discriminate between bacterial and viral pneumonia in children. However, pneumonia biomarker discovery has not been carried out in a paediatric intensive care unit (PICU) setting, where children have high rates of co-morbidities and relatively indiscriminate administration of antibiotics. This study aims to identify robust novel biomarkers of bacterial pneumonia in this population.
Methods: Children with clinician-diagnosed pneumonia, confirmed on chest radiograph, were recruited from the PICU at the Royal Belfast Hospital for Sick Children between April 2020 and December 2022. Blood plasma was collected and analysed using two O-Link proteomic multiplex proximity extension assays. An independent paediatric intensivist provided a final diagnosis of bacterial, viral or mixed viral and bacterial pneumonia based on clinical data and results from blood culture, bronchoalveolar lavage and sputum.
Results: A total of 27 children were included in the study. The median age was 1.7 (IQR: 0.5-6.8) years and 48% were male. There were 15/27 (56%) cases of viral pneumonia, 9/27 (33%) cases of bacterial or mixed pneumonia and 3/27 (11%) with an unclear aetiology. Bacterial (n=5) and viral (n=13) samples were analysed by O-Link. 126 proteins were found to be differentially expressed between the two groups. Statistical analysis and correlation with published literature identified three promising biomarkers: Resistin, Tissue inhibitor matrix metalloproteinase 1 and Chitinase-3-like protein 1, AUCs are shown below.



Conclusions/Learning Points: Additional biomarkers could help clinicians tailor antibiotic prescribing for pneumonia in the PICU. Technical verification of biomarkers is ongoing in our remaining samples and larger validation studies will be needed to assess the use of biomarkers in this group of patients.

PV0820 / #2165

IMPACT OF PCR-BASED DIAGNOSTIC TESTING IN RESPIRATORY INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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[1]Centro Hospitalar Tondela Viseu, Pediatrics, Viseu, Portugal, [2]CH Tondela-Viseu EPE, Pediatric Department, Viseu, Portugal

Backgrounds: Lower respiratory tract infections (LRTI) are a significant cause of morbidity in children. Viruses are one of the most frequent etiologies of community-acquired pneumonia (CAP), especially in younger children. Early and quick identification of viral agents in respiratory samples could result in a decrease in antibiotic use, although several studies show contradictory results. The aim of this study was to analyze the impact of a positive viral detection in children admitted with LRTI.
Methods: Single center, 5-year, retrospective analysis of hospitalized children who underwent respiratory sample collection to perform a multiple-target RT-PCR diagnostic panel.
Results: A total of 166 patients were included, median age of 1.75 years (IQR 0.4-3), with identification of a respiratory virus in 164 (98.8%) cases. Most frequently isolated pathogens were rhinovirus-enterovirus (56%), followed by adenovirus (21%), respiratory syncytial virus (RSV) (20%) and metapneumovirus (10%). A diagnosis of CAP was considered in only 33.1% of patients, with chest radiography performed in 56% (92.7% of CAP) and antibiotic therapy prescribed in 46.4% (100% of CAP). Interestingly, identification of RSV or influenza did not influence decision on antibiotic therapy nor length of stay. Additionally, we found a stronger association between adenovirus and onset of empirical antibiotic therapy (63.1% vs. 36.8%, p-value 0.018) and CAP (32.7% vs. 67.2%, p-value 0.034).
Conclusions/Learning Points: Despite a high yield of viral identification, the use of multiple-target RT-PCR panel in our cohort did not make a significant impact in decision-making regarding antibiotic use or length of stay. However, its use was focused primarily on children with protracted clinical resolution or fever of unknown origin. Further studies must be considered to assess if children with mild illness share the same impact.

PV0821 / #1798

MICRORNA PROFILING IN PATIENTS CO-INFECTED WITH CHRONIC HEPATITIS B VIRUS (CHBV) AND HUMAN IMMUNODEFICIENCY VIRUS (HIV) IN A HIGH PREVALENCE SETTING.

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

Lulama Mthethwa
University of KwaZulu-Natal, Department Of Virology, mayville, durban, South Africa

Backgrounds: HBV and HIV/HBV co-infection are significant public health issues, despite the availability of an effective HBV vaccine for nearly three decades. HBV and HIV both modulate microRNA (miRNA) expression to support viral replication. It has been estimated that 2.7 million people are co-infected with HBV and HIV worldwide. South Africa is an endemic setting for HBV and HIV infections. The role played by microRNAs in HBV replication and pathogenesis is being increasingly recognized.
Methods: Plasma microRNA, specific to HBV, were measured by reverse-transcription quantitative polymerase chain reaction (qRT-PCR) in HBV and HIV negative healthy controls (n = 23) and in patients coinfected with chronic HBV-HIV (n = 50). MicroRNA expression levels were measured and compared between patients with high vs low HBV viral load. Data were analysed using unpaired Mann-Whitney U test, Spearman's correlation coefficient (r) and the false discovery rate was corrected by using the Benjamini–Hochberg FDR method.
Results: Significantly higher expression levels of hsa-miR-122-5p, hsa-miR-192-5p and hsa-miR-193b-3p were observed in samples with high HBV viral load. A significant moderate positive correlation was observed between HBV viral load and the expression levels of hsa-miR-122-5p, hsa-miR-192-5p and hsa-miR-193-3p.
Conclusions/Learning Points: Our study was able to demonstrate the potential role of hsa-miR-122-5p, hsa-miR-192-5p and has-miR-193b-3p in being prognostic and diagnostic markers in chronic HBV disease progression.

PV0822 / #747

QUALITY IMPROVEMENT OF THE PRE-LABORATORY PHASE OF BLOOD CULTURE PROCESSING IN A TERTIARY HOSPITAL IN ZIMBABWE

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

Felicity Fitzgerald[1], Tinashe Mwaturura[2], Katharina Kranzer[3], Gwendoline Chimhini[4], Mutsa Bwakura[4], Svitlana Austin[5], Cecilia Ferreyra[6], Birgitta Gleeson[6]
[1]Imperial College London, Infectious Diseases, London, United Kingdom, [2]Biomedical Research and Training Institute, Clinical Research, Zimbabwe, Zimbabwe, [3]London School of Hygiene and Tropical Medicine, Clinical Research Department, London, United Kingdom, [4]University of Zimbabwe, Paediatrics, Harare, Zimbabwe, [5]Ministry of Health and Child Care, Paediatrics, Zimbabwe, Zimbabwe, [6]FIND Diagnostics, Medical Affairs, Geneva, Switzerland

Backgrounds: Accurate identification of pathogens causing sepsis in low-resource settings is crucial for reducing morbidity and mortality. We conducted a quality improvement programme to improve the pre-analytic phase of blood culture processing at a tertiary hospital in Zimbabwe (Sally Mugabe Central Hospital, SMCH).
Methods: Issues raised at initial stakeholder meetings highlighted lack of stock availability as a barrier to taking blood cultures. With clinicians from Neonatology and Paediatrics departments, we developed Standard Operating Procedures (SOPs) for blood culture collection to reduce contamination and increase blood volumes. We then trained rotating junior doctors bimonthly, collecting contemporaneous feedback, and performed stock checks. Blood culture bottles were weighed pre/post-collection of blood. We introduced a Laboratory Blood Culture Logbook to improve documentation of sample receipt.
Results: The programme ran from 10.3.22-10.10.22. Thirteen, half-hour trainings were conducted with 8-15 junior doctors in each session. Feedback was collected from 37 participants, Trainees reporting themselves 'confident' in collecting blood cultures increased from 18/37(48%) to 34/37(92%) pre/post-training. Consensus was that the training was very useful, particularly the demonstration of aseptic techniques. Most stock was consistently available, excepting butterfly needles. 55% of samples had blood volumes <0.01ml. Contamination rates were high and did not change over time: neonatology 26% (196/761 cultures) overall, and paediatrics: 26% (303/1169 cultures) overall (Table). 1490 samples were recorded in the logbook over 4
months.

Table of Blood Culture Contamination Rate by Month, 2022

	Neonatal Unit		Paediatrics	
	n/N[1]	% Contamination [95% Confidence Interval]	n/N	% Contamination [95% Confidence Interval]
Overall	196/761	25.8 [22.7 - 29.0]	303/1169	25.9 [23.4 - 28.5]
June	40/146	27.4 [20.3 - 35.4]	33/138	23.9 [17.1 - 31.9]
July	46/178	25.8 [19.6 - 32.9]	54/236	22.9 [17.7 - 28.8}
August	46/181	25.4 [19.2 - 32.4]	103/342	30.1 [25.3 - 35.3]
September	49/204	24.0 [18.3 - 30.5]	86/347	24.8 [20.3 - 29.7]
October	15/52	28.8 [17.1 - 43.1]	27/106	25.5 [17.5 - 34.9]

1. Contaminated blood culture/ total cultures taken

Conclusions/Learning Points: Despite the appetite for improvement and training, high contamination rates and low blood volumes persisted. Incorrect beliefs that stock were unavailable might lead to fewer cultures being taken. Improving pre-laboratory blood culture processing is a multifaceted and complex issue requiring contextual intervention and long term monitoring.

PV0823 / #271

THE ROLE OF TOLL-LIKE RECEPTOR (TLR)-2 AND TLR-4 IN PEDIATRIC PATIENTS WITH PNEUMONIA

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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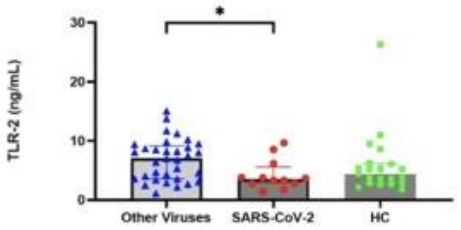
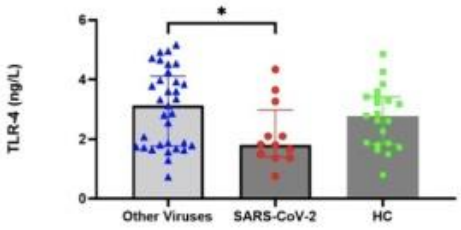
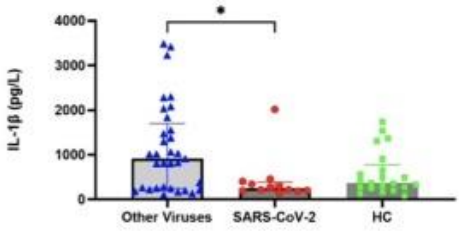
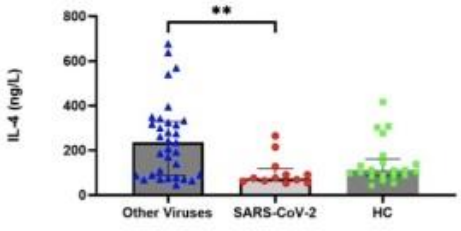
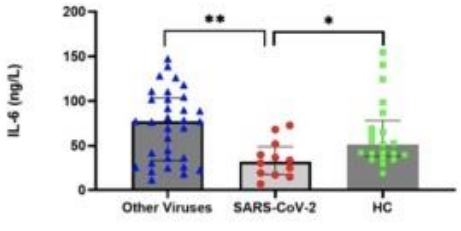
Backgrounds: Since rapid and accurate diagnosis of pneumonia and the determination of its severity are challenging, especially in childhood, we aimed to evaluate the role of toll-like receptors (TLRs) in pneumonia, the investigation of which has been limited in animal and adult studies.
Methods: TLR-2, TLR-4, interleukin (IL)-1β, IL-4, IL-6, IL-10, interferon (IFN)-α, and tumor necrosis factor (TNF)-α levels were evaluated in the serum samples of 67 pediatric patients with community-acquired pneumonia (CAP) (43 inpatients and 24 outpatients) and 22 healthy pediatric controls. Saliva samples from 30 pediatric patients with CAP (19 inpatients and 11 outpatients) and 20 healthy pediatric controls were also investigated.
Results: In saliva samples obtained at the time of diagnosis, the threshold levels were 1.16 $2^{-(\Delta\Delta Ct)}$ for TLR-2 and 1.28 $2^{-(\Delta\Delta Ct)}$ for TLR-4 to differentiate patients with and without pneumonia, respectively. The sensitivity of salivary TLR-2 and TLR-4 assessment was 0.80 and 0.86, respectively. In the serum samples, TLR-2, TLR-4, IL-1β, IL-4, IL-6, IL-10, IFN-α, and TNF-α levels were significantly decreased in patients with novel coronavirus disease 2019 (COVID-19) compared with other viruses ($p<0.05$ for all). In the serum samples of patients with pneumonia due to COVID-19, IL-6 and IFN-α levels were significantly lower than in the control group ($p<0.05$ for
all).

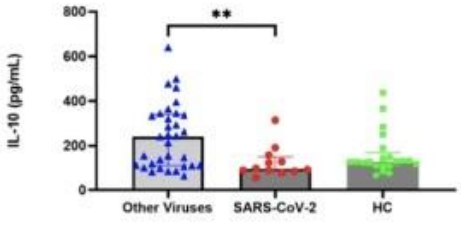

TLR-2 (ng/mL)
30
20
10
0
*
Other Viruses
SARS-CoV-2
HC

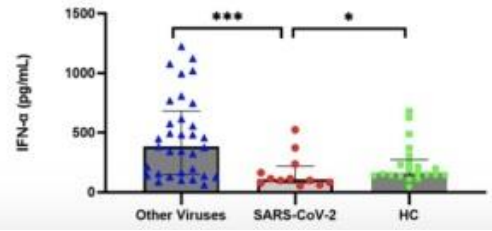

TLR-4 (ng/L)
6
4
2
0
*
Other Viruses
SARS-CoV-2
HC

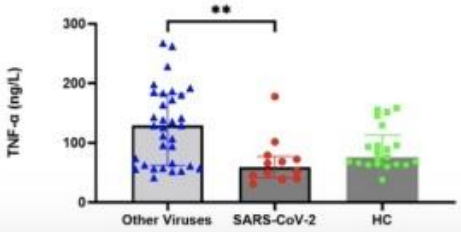

IL-1β (pg/L)
4000
3000
2000
1000
0
*
Other Viruses
SARS-CoV-2
HC

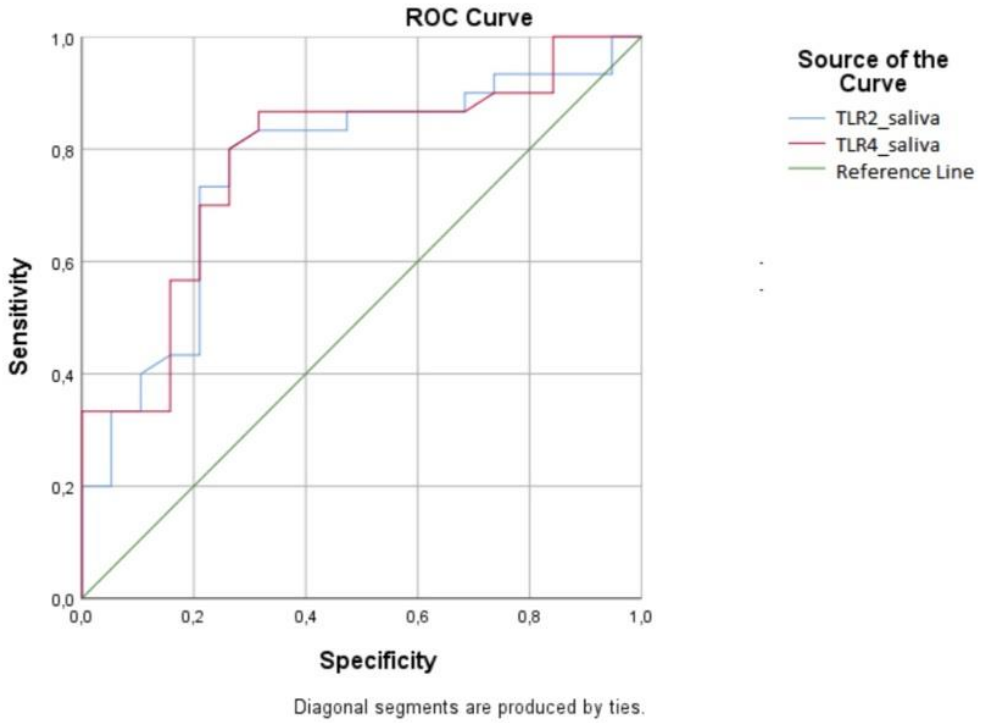

IL-4 (ng/L)
800
600
400
200
0
**
Other Viruses
SARS-CoV-2
HC


IL-6 (ng/L)
200
150
100
50
0
**
*
Other Viruses
SARS-CoV-2
HC

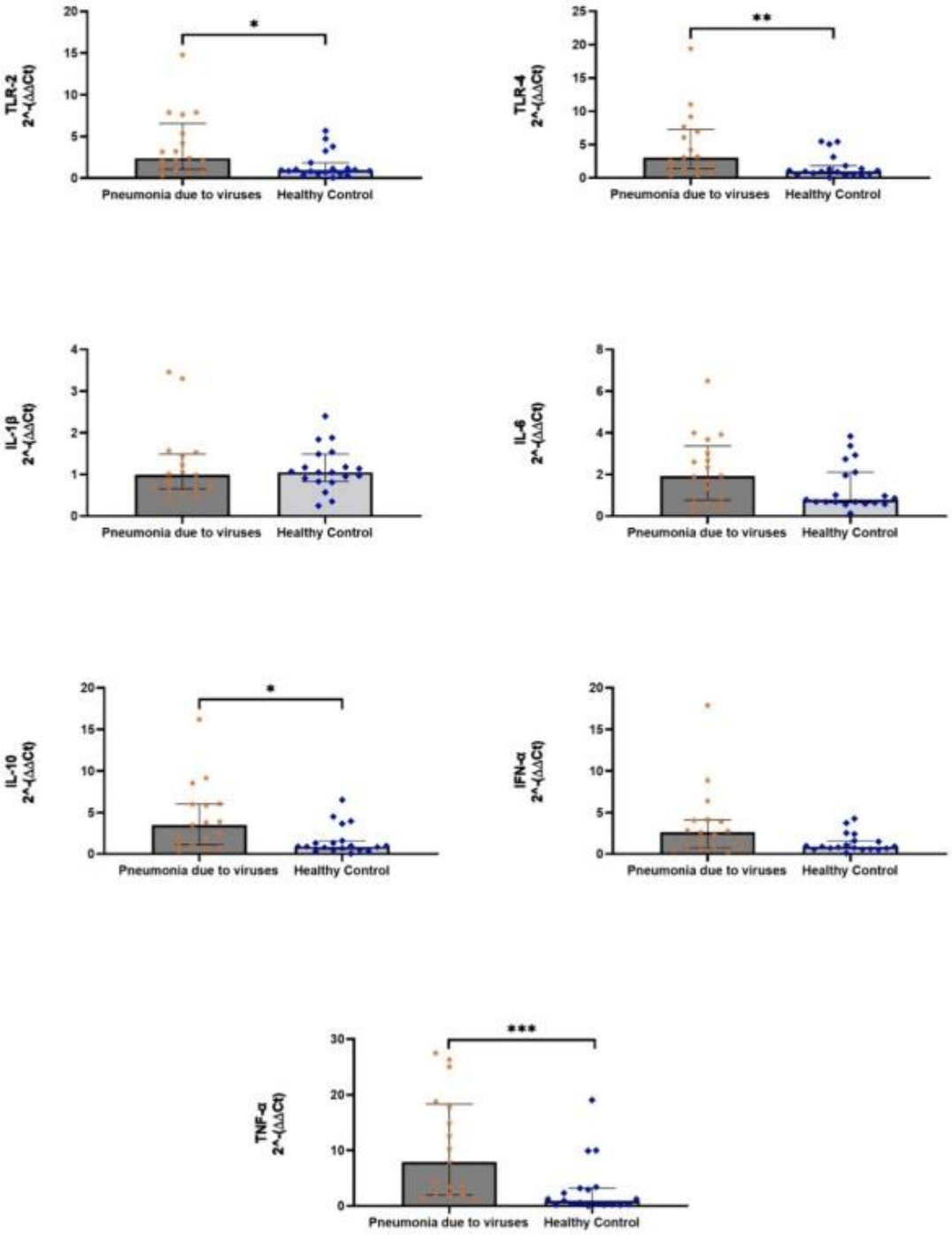

IL-10 (pg/mL)
800
600
400
200
0
**
Other Viruses
SARS-CoV-2
HC


IFN-α (pg/mL)
1500
1000
500
0
***
*
Other Viruses
SARS-CoV-2
HC


TNF-α (ng/L)
300
200
100
0
**
Other Viruses
SARS-CoV-2
HC



Diagonal segments are produced by ties.



Conclusions/Learning Points: Salivary analysis of TLR-2 and TLR-4 is beneficial in the diagnosis of severe pneumonia, especially in childhood.

PV0824 / #1573

THE SUCCESSFUL DESIGN OF A POINT-OF-CARE DIAGNOSTIC TEST FOR RESPIRATORY VIRAL INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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[1]Imperial College, London, Infectious Disease, london, United Kingdom, [2]Imperial College London, Department Of Infectious Disease, London, United Kingdom, [3]Imperial College London, Faculty Of Medicine, Department Of Infectious Disease, Section Of Paediatric Infectious Disease, London, United Kingdom, [4]Imperial College, Electric And Electronic Engineering, London, United Kingdom, [5]Imperial College, Infectious Disease, London, United Kingdom

Backgrounds: The most common acute conditions resulting in general practitioner consultations and antibiotic prescriptions are respiratory tract infections, despite the fact that 70% of these infections are viral, and many others are minor self-limiting bacterial infections. Antibiotics should therefore be preserved rather than used indiscriminately in such circumstances. As part of our efforts to accomplish this goal, we have developed a diagnostic platform capable of identifying and distinguishing SARSCoV2, FluA, FluB, RSV, and HRV.
Methods: Using a UKAS accredited independent laboratory, we were able to validate the diagnostic kit's performance by comparing it with an authorized extraction kit (alphaPrepTMViral DNA/RNA Extraction Kit) and RT-qPCR assay (PROmate COVID-19 RT-qPCR assay). A total of 435 archived clinical nose and throat swabs were obtained and subsequently classified as 163 positives and 265 negatives using the comparator RT-qPCR.
Results: The results obtained when compared to the reference standard PROmate® COVID-19 CE-IVD RT-PCR kit, showed 99.35% (95% CI: 96.46% -99.98%) sensitivity for Ct values < 34.71 (< 800 copies/mL) and 97.35% (95% CI: 93.80% -99.32%) sensitivity including Ct values <37.66 (>120 copies/mL). Among the 435 clinical samples tested, 265 were negative by both platforms, and no sample amplified beyond 37.66 Ct limit of the blank cut-off. Accordingly, the calculated specificity for our platform was 100.00% (95% CI: 98.62% -100.00%). Precision of measurement experiments showed a LoD of 500 copies/mL for SARS-CoV-2, 25,000 copies/mL for Flu A/B and RSV, and 822 copies/mL for HRV.
Conclusions/Learning Points: The validation results showed high sensitivity and a low limit of detection (LOD). This allows patients to receive prompt diagnosis and treatment. Speed and ease of diagnosis contrast with the standard PCR approach that is generally processed over the course of a 24-hour period in laboratory settings.

PV0825 / #1642

HOW GOOD ARE WE AT IDENTIFYING THE CAUSE OF ILLNESS IN CHILDREN PRESENTING WITH FEVER? EXPERIENCE FROM DIAMONDS CONSORTIUM

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Fever is one of the most frequent presenting complaints. A European study, DIAMONDS (2020-2025), aimed to characterise febrile children attending Emergency Departments (ED), exploring appropriateness of diagnosis and management.
Methods: Children <18years with fever or suspected infection and diagnostic venepuncture attending EDs of DIAMONDS network (22 hospitals in 11 European countries, plus Gambia, Nepal and Taiwan), between April 2020-December 2022. Demographic, clinical and routine laboratory data were collected and analysed.
Results: 5800 cases included in this interim analysis. Median age: 5.4years (SD:7.5 years). 55.8% males. 36.1% had comorbidities. Main presenting symptoms: fever (71.0%), gastrointestinal (43.0%) and respiratory (26.1%). 31.5% ill appearance at presentation. Abnormal results were found in 10.6% (N=130/578) of rapid pathogen detection tests, 47% (N=1032/2192) of X-rays and 10.6% (N=223/2106) of urine analysis. Main clinical syndromes: 16.5% COVID-related inflammation, 12.9% lower respiratory infections (pneumonia) and 11.9% gastrointestinal infections. 10.5% had bacteremia or septic shock. Pathogens were identified in 3076 (53%) cases, but a definite causative agent could be assigned to only 1439 cases [definite bacteria (N=662), definite viral (777)]. Main causative bacteria were: E.coli (18.9%,N=148), S.aureus (11.6%,N=91) and Coagulase Negative Staphylococcus (8.3%,N=65). Main causative viruses were: SARS-COV-2 (33.3%,N=339), rhinovirus (10.3%,N=105), and enterovirus (8.9%,N=91). 59.9% admitted, 9.8% directly to pediatric intensive care unit(PICU). 0.8% died. 22.5% received antibiotics at discharge from ED, 56.7% on admission to the ward and 91.2% on admission to PICU. Furthermore, 52.2% (N=3025) cases were prescribed antibiotics, although only 35.1% (N=1062/3025) of these had bacterial-related phenotypes.
Conclusions/Learning Points: Despite application of best standard diagnostic investigations, a causative pathogen was identified in half of the patients. Antibiotics remains excessively and inadequately used in children presenting with fever.

PV0826 / #2021

CMV-RNA, A NEW MARKER FOR FOLLOW UP CMV INFECTION AFTER HEMATOPOIETIC STEM CELL TRANSPLANTION IN PEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: Letermovir blocks CMV infection by inhibiting the viral terminase and the virion maturation, without blocking viral-DNA production. Approved in adults, it represents an attractive alternative for CMV-treatment also in children. Effective lab tests for monitoring the drug efficiency are missing, mostly because the CMV-DNA is unable to properly evaluate antiviral efficacy. We present preliminary data on CMV monitoring by a new assay for CMV-RNA detection and quantitation in a cohort of hematopoietic stem cell transplanted children after antiviral treatments.
Methods: Between July-to-November 2022, 53 children were treated with Letermovir after HSCT at the Bambino Gesù Children's Hospital. Thirty-six received primary or secondary prophylaxis, 17 pre-emptive or treatment therapy (median dosage 240 mg/mq, range 120-480). CMV-DNAemia was evaluated twice a week (artus® CMV-TM-PCR_Qiagen_ Hilden, Germany). In 30/53, CMV-RNA was also investigated in plasma samples using CMV-RNA ELITe MGB® (Kit-ELITe_InGenius System: ELITechGroup).
Results: 61 samples, referred to 30 patients (median age 10, IQR 1-21 years), were collected to perform simultaneously CMV-DNAemia and CMV-RNAemia. In 54/61 samples (88.5%) CMV-DNA was persistently present (median 848 copies/mL, IQR 314-3995), while only in 16/61 (26.2%) CMV-RNA was detected (median 23 copies/mL, IQR 6-150). When CMV-DNAemia was quantified <1000 copies/mL (26/54 samples including 11 samples pre-treated with DNAsi), RNA-CMV resulted not detected or below 30 copies/mL. Under pre-emptive therapy/treatment of infection, all patients achieved CMV-DNA negativization in blood within 20 days.
Conclusions/Learning Points: Despite the presence of positive CMV-DNA, the clinical evolution was compatible with the absence of CMV activity thus suggesting that the undetectability of CMV-RNA is driven by the infection evolution and not by the lack in the method sensitivity. The CMV-RNA may represent an accurate marker to monitor clinical antiviral efficacy, more than CMV-DNA.

PV0827 / #1865

PREDICTIVE FACTORS FOR POSITIVE SYNDROMIC DIAGNOSTIC TESTING RESULTS IN CHILDREN TREATED FOR RESPIRATORY INFECTIONS.

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: BIOFIRE® FILMARRAY® (FA) Respiratory panel (bioMerieux, USA) allows the rapid simultaneous detection of a wide number of pathogens causing acute respiratory infections in children. The aim of this study was to identify predictive factors for positive FA Respiratory panel results.
Methods: Clinical and laboratory characteristics of children with respiratory infection, for which FA Respiratory panel was performed, were recorded retrospectively and correlated with the result of the method.
Results: FA Respiratory panel was performed in 45 children. Respiratory viruses were detected in 30/45 (66,7%) cases. Shortness of breath (60% in positive results versus 20% in negative, p=0,011), cough (80% versus 33,3% respectively, p=0,002) or rhinitis (90% versus 66,7% respectively, p=0,05) were strongly correlated with positive results in FA Respiratory panel. In addition, clinical symptoms indicative of acute bronchiolitis were suggestive of detection of pathogens in FilmArray (57,1% in positive tests versus 0% in negative, p=0,001). Parameters such as the season (winter versus summer, p=0,399), gender (p=0,826) or presence of fever (p=0,737) were not correlated with the result of the method. Finally, CRP levels and white blood cell count (WBC) were not found to be predictive of the result of FA Respiratory panel.
Conclusions/Learning Points: This study suggests that clinical suspicion of acute bronchiolitis may be predictive of positive results in FA Respiratory panel, which indicates the need for optimizing communication between physicians and medical laboratory scientists. Predictive factors of positive FA results should be identified in order to establish a cost-effective approach in the rapid diagnosis of respiratory infections.

PV0828 / #1466

INCIDENTAL DETECTION OF ALTERNARIA SINUSITIS IN A PEDIATRIC HSC PATIENT VIA FDG-PET SCAN: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Title of Case: Incidental Detection of Alternaria Sinusitis in a pediatric HCT patient via FDG-PET scan: A Case Report
Background: Pediatric patients who undergo hematopoietic cell transplant (HCT) are at high risk for serious, invasive infection. However, identifying infection in this population remains a diagnostic challenge. Recently, limited data advocates for the utility of fluorodeoxyglucose-positron emission tomography (FDG-PET) scans in detecting infection in febrile immunocompromised patients. This is a case report of a pediatric HCT patient who had incidental detection of invasive fungal sinusitis, later identified as Alternaria, during a 100-day post-transplant disease evaluation FDG-PET scan.
Case Presentation Summary: A four-year-old male with history of relapsed acute myeloid leukemia, presented with new non-neutropenic fever day +92 post haploidentical HCT. Enterococcus faecium bacteremia was identified and treated with 10 days of vancomycin and line removal. Despite appropriate therapy, he remained intermittently febrile with rising c-reactive protein. On day 100 post-transplant he underwent an FDG-PET scan for disease evaluation. A small focus of uptake was noted in the left anterior nasal cavity which prompted ENT evaluation and surgery. Histopathology of biopsy from the left middle turbinate revealed numerous fungal hyphae with tissue invasion and he was started on posaconazole. His fevers resolved and Alternaria species grew on tissue culture.
Learning Points/Discussion: Immunocompromised pediatric patients with prolonged fever will often experience a delay in diagnosis of infection or have prolonged exposure to antimicrobials without an infectious etiology identified. This case report highlights the need to explore the utility of FDG-PET scans over other diagnostic methods in detecting infections in this population.

PV0829 / #1087

SERUM YKL-40 AS A POTENTIAL BIOMARKER FOR SEPSIS IN TERM NEONATES – A PILOT STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Backgrounds: To determine the diagnostic value of serum YKL-40 levels in term neonates with sepsis and to compare YKL-40 with other biomarkers already used in clinical practice.
Methods: 45 term neonates, aged between 4 to 28 days old, were included in this prospective study conducted in a single tertiary hospital. 30 septic neonates comprised the case group and 15 healthy neonates the control group. Sepsis was diagnosed according to the International Pediatric Sepsis Consensus Conference criteria. Blood samples were obtained from the septic neonates at admission (acute phase of sepsis – day 1) and remission of sepsis (day 7-10) while from the healthy neonates only once at admission. Routine laboratory tests included complete blood count, C-reactive protein (CRP) and cultures. Measurements of YKL-40 levels were performed by Elisa.
Results: In septic neonates, 7 blood and 13 urine cultures were positive. Serum YKL-40 levels [median (25th-75th percentile)] were significantly higher at the acute phase of sepsis [35.5 (27.9-54.2) pg/ml] than in remission [24.1 (18-35.5) pg/ml; p=0.004] and in controls [21.5 (18.9-31.2) pg/ml; p=0.003]. Serum YKL-40 levels did not differ significantly between patients in remission and controls (p=0.431). Serum YKL-40 levels at the acute phase of sepsis were also higher in patients with positive cultures [38.6 (31-63.1) pg/ml] compared to those with negative cultures [31.5 (21.3-35.9) pg/ml; p=0.061]. Positive correlations between serum YKL-40 levels and white blood count, absolute neutrophil count and CRP levels at enrollment were also observed. In ROC analysis, YKL-40 levels at admission resulted in significant area under the curve (AUC) to identify patients with sepsis [AUC=0.771 (95%CI 0.632-0.911); p=0.003].
Conclusions/Learning Points: Serum YKL-40 might be considered as a potential biomarker for the diagnosis and monitoring of neonatal sepsis.

PV0830 / #1739

METHICILLIN-SUSCEPTIBLE S. AUREUS -ASSOCIATED SEVERE AND INVASIVE INFECTIONS. A CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Title of Case: METHICILLIN-SUSCEPTIBLE S. AUREUS -ASSOCIATED SEVERE AND INVASIVE INFECTIONS. A CASE SERIES
Background: Methicillin-susceptible S.aureus(MSSA) is a major cause of severe infections and its morbidity is largely attributed to various toxins including Panton-Valentine leukocidin(PVL).Herein we describe the clinical, microbiological and molecular characteristics of MSSA strains in a case series with severe and complicated infections.
Case Presentation Summary: Clinical characteristics of 3 non-immunocompromised children hospitalized within 2 months due to severe MSSA infections are presented. Species identification and susceptibility testing were performed with Phoenix (BD) automated system.MecA/C and virulence genes including pvl (lukF/S-PV), enterotoxins (sea,seb,sec), exfoliative toxins (eta, etb), hemolysins (hla, hlb) and adhesion factor genes (fnbA, fnbB, clfA) were detected by PCR.The first 3,5 year-old boy was hospitalized with MSSA bacteremia, and extensive hip arthritis and osteomyelitis of the right femur. The second 11 year-old boy was hospitalized with left hip arthritis, femoral pandiaphysitis, MSSA bacteremia, lung septic emboli and femoral vein thrombosis. Both children underwent repeated surgical management and extended due to non-responsive clinical picture treatment. The 3rd boy was a 22-days old neonate with MSSA bacteremia, omphalitis, and skin abscesses.Susceptibility testing revealed PEN and PEN/SXT resistance of strains isolated from the two cases with osteoarticular (OA) infections. All isolates were mecA/C, lukF/S-P,V seb, eta, etb, hlb and fnbA negative and clfA and hla positive. Strains from the 1st and 2nd OA cases carried sec and sea genes respectively, while strain from the 3rd case carried fnbB gene.
Learning Points/Discussion: PVL genes are not the only highly virulent ones. A combination of genes including enterotoxin sea and sec appear to be associated with higher immunological responses leading to host tissue damage and prolonged infections, as in the two complicated OA infections. Literature supports this finding.

PV0831 / #2701

DIAGNOSTIC VALUE OF A MODERN MARKER IN DETECTING EARLY NEONATAL SEPSIS

E-Posters Viewing
E-POSTER VIEWING: AS11. DIAGNOSTICS AND BIOMARKERS

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Background: The use of markers in the diagnosis of neonatal sepsis for early verification during the "golden hour", the appointment of timely antibacterial therapy, and subsequently the establishment of the prognosis are extremely important.
Methods: A comprehensive examination of 260 newborns with neonatal sepsis was conducted. The control group consisted of 17 children who were in the ward for follow-up examination without signs of an infectious process.The content of presepsin (Human sCD14, ng/ml) in blood serum was investigated using the reagent: Hycult Biotech NK 320, Netherlands.
Results: The level of presepsin in the blood serum has a positive correlation with the severity of the condition (SNAPII) and, accordingly, the length of the bed-day ($p<0.05$). High concentrations >800 pg/ml indicated a severe course of the disease ($p<0.05$).The study of the risk indicators of immunological markers in the detection of neonatal sepsis showed that the relative risk indicator (RR) for presepsin is 21.8 (95%CI: 12.97-36.6) and the absolute risk is 0.8. Based on the obtained data, a 21-fold increase in the risk of detecting neonatal sepsis has presepsin at a breakpoint of 300 ng/ml.
Conclusions/Learning Points: The research results showed that presepsin is an effective and reliable marker of early neonatal sepsis.

PV0832 / #164

LEAD LEVELS IN DOMESTIC WATER AND BREAST MILK OF LACTATING MOTHERS

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Lead acts as anti-essential trace element in the human body. Breast milk is the ideal nutrient for the newborn, lead reach into breast milk through passive transfer.The aim of the present work is to correlate between the lead levels in domestic water and breast milk of lactating mothers.
Methods: this study was performed on fifty-two drinking tap water samples collected from different districts and fifty-two breast milk samples from lactating mothers hosted in different hospitals. Drinking water and breast milk samples were analyzed for lead levels using Zeeman (USA) 4100 ZL atomic absorption spectrophotometer with graphite furnace unit.
Results: Lead level in drinking groundwater showed higher levels than in drinking surface water. In addition, an elevation of lead levels in breast milk of mothers drinking groundwater was noticed when compared with that of mothers drinking surface water. The comparison between mean lead levels in drinking water and mothers' breast milk samples showed positive relationship. Lead concentrations in breast milk of the studied samples were elevated by exposure to smoking.
Conclusions/Learning Points: Lead is excreted in breast milk and may reach high levels in women living in polluted areas, and those exposed to passive smoking compared to non exposed women. This may exceed the daily hazard to suckling infants. Prolonged contact with lead plumbing can increase the lead content in tap water with subsequent increase of lead burden in infant fed formula and infant blood. the chemical analyses must be carried out periodically to ensure the water suitability for domestic purposes. Passive exposure to smoking during lactation should be avoided. Children should be screened at least at their first birthday, unless the community in which these children live does not have a childhood lead poisoning problem.

PV0833 / #2680

EXPERIENCES OF COMPLIANCE WITH HAND HYGIENE AMONG PEDIATRIC INTENSIVE CARE NURSES: A QUALITATIVE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Background: Pediatric intensive care nurses can be exposed to a greater risk of occupational exposure to microorganisms and acquiring infections especially in emergency situations. The primary strategy to prevent and control microorganisims transmission is compliance with Hand Hygiene (HH). However, previous research has indicated that compliance with HH is low among nurses. Most studies regarding infection control practice are quantitative and have identified some barriers to good infection control practice. However, these studies do not explain why and how those factors affect compliance with HH by paediatric nurses'. Neither has the literature provided a clear and fundamental rationale for the lack of compliance with infection control guidelines. The aim of the study was to study the factors that influence pediatric intensive care nurses' experiences of being compliant with HH in order to avoid occupational exposure to pathogens, by employing a qualitative research approach.
Methods: A descriptive qualitative study was conducted in two Jordanian hospitals and used purposive sampling of 12 pediatric intensive care nurses who had at least one year of work experience in pediatric critical care. Data were gathered from face to face semi-structured interviews which were audio-taped. Data were analyzed using thematic analysis.
Results: Barriers and facilitators that influence nurses' compliance with HH were identified by participants. Barriers included; conflict in emergency situations; shortage of staff and equipment; and lack of knowledge. While facilitators included; risk perception; reminder system; and good communication.
Conclusions/Learning Points: Changing current behavior of pediatric intensive care nurses requires knowledge of the factors that may influence their compliance with HH. The findings of this study could inform infection control programs and training that targets pediatric intensive care nurses.

PV0834 / #1050

ROLE OF CARBAPENEM-RESISTANT ENTEROBACTERIACEAE COLONIZATION/INFECTION IN CHILDREN ATTENDED IN PEDIATRIC HOME CARE SERVICE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Carbapenem-resistant Enterobacteriaceae (CRE) is one of most important group of concern to development of new antibiotics and treatment, according to the World Health Organization (WHO). Few data are available in children attended in pediatric home care services. Our aim is to measure the importance of CRE in children attended in pediatric home care service.
Methods: We performed a retrospective descriptive study in all patients attended in a pediatric home care service of Rio de Janeiro city, Brazil during four years of follow-up (2019-2022). We analysed all cultures collected, respiratory samples (tracheal aspirate and bronchoalveolar lavage) and urinocultures.
Results: We analyse 188 patients, with 383 positive cultures, being 296/383 (77.3%) Gram-negative bacteria, 79/383 (20.6%) Gram-positive bacteria and 8/383 (0.8%) funghi. CRE were isolated in 6/383(1.6%), Carbapenem-resistant Pseudomonas aeruginosa (CRPa) in 14/383 (3.7%) and Carbapenem-resistant Acinetobacter baumannii in 4/383 (1%). When we analysed urinocultures, 91 samples were positive, being 78/91 (85.7%) Gram-negative bacteria, 4/91 (4.4%) were funghi and 3/91 (3.3%) were Gram-positive bacteria. CRE represented 3/91 (3.3%) of positive urinocultures and CRPa 2/91 (2.2%). We detected 159 positive respiratory samples, being 144/159 (90.6%) due to Gram-negative bacteria, 13/159 (8.2%) Gram-positive bacteria and 2/159 (1.3%) funghi. CRPa were isolated in 12/159 (7.5%), CRAb in 3/159 (1.9%) and CRE in 1/159 (0.6%).
Conclusions/Learning Points: Gram-negative bacteria were the most common group in positive cultures of admitted children in home care services. CRE, CRPa and CRAb were uncommon, even in this population, but an expressive percentual of CRPa were detected in respiratory samples.

PV0835 / #1961

CASE REPORT: PINWORM INFECTION AS A CAUSE OF IRON DEFICIENCY

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: CASE REPORT: PINWORM INFECTION AS A CAUSE OF IRON DEFICIENCY
Background: Iron deficiency is the most prevalent nutritional disorder globally and the main cause of anemia associated with dietary errors, blood loss or rapid growth, being a common and underdiagnosed condition in adolescence. This deficit impairs neuropsychomotor development, learning ability, appetite, growth and immune response, making it crucial to determine its etiology and appropriate treatment.
Case Presentation Summary: 16-year-old caucasian male referred to the Outpatient Clinic for Adolescents due to iron deficiency anemia. At anamnesis, he presented clinically asymptomatic, without objective blood loss, without relevant personal or family history. He mentioned a nutritionally balanced diet, practice of federated football 2-3 times a week and restful sleep. Physical examination showed good general condition, slightly discolored mucous membranes, no palpable adenopathies, no significant weight loss, height at P50 (WHO growth curves), no other particularities. He started oral iron at a therapeutic dosage and blood analysis follow-up, at 3, 6 and 9 months, showed initial improvement and subsequent worsening of anemia, persistence of iron deficiency, as well as new eosinophilia. Vitamin B12, C and D deficiencies, as well as thyroid and celiac disease screenings were negative. Other laboratory data, such as inflammation markers were normal. A gastrointestinal endoscopic study revealed multiple small live worms, compatible with pinworms. Adequate treatment with Albendazole, continued iron supplementation and implementation of hygienic-dietary measures resulted in resolution of both anemia and iron deficiency.
Learning Points/Discussion: Anemia and iron deficiency are prevalent and serious problems in pediatric age. Intestinal parasites should be included in its possible etiologies list, particularly when the condition is refractory to iron therapy. Awareness of this entity is important because intestinal parasitic infection is common and easily curable with proper treatment.

PV0836 / #496

SEVERE DIABETIC KETOACIDOSIS WITH AN ACUTE MEDIASTINITIS COMPLICATING A FUNGAL BRONCHOPNEUMONIA: A PEDIATRIC CASE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: Severe Diabetic Ketoacidosis with An Acute Mediastinitis Complicating A Fungal Bronchopneumonia: A Pediatric case
Background: Type 1 diabetes mellitus (T1DM) is the most common metabolic disorder occurring in childhood with significant morbimortality. Uncontrolled diabetic patients are exposed to fatal hyperglycemic emergencies such as Diabetic ketoacidosis (DKA) characterized by hyperglycemia, acidosis, and ketosis. Although infections remain the predominant precipitating factors for (DKA), its association with mediastinitis is, to date, a rare situation. The objective of this study was to bring the importance of diagnosing the underlying etiological precipitants during DKA to enhance the management of this complication and reduce its mortality.
Case Presentation Summary: The authors report during this article the case of a 7-year-old male patient, known type 1 diabetic on insulin therapy for 3 years, admitted to the pediatric intensive care unit in A.H hospital in Casablanca for severe diabetic ketoacidosis with febrile reparatory distress and in whom the non-improvement of the symptomatology leads us to diagnose an acute mediastinitis complicating its fungal bronchopneumonia.
Learning Points/Discussion: This report will review the precipitant factors, relayed by literature, associated with acute metabolic decompensation of diabetes in pediatric patients and the incidence of fungal lung infection in the diabetic population. The authors also highlight the lack of scientific data concerning the mediastinitis complicating pulmonary infections, especially in the pediatric population. To conclude Acute mediastinitis is a serious medical condition, commonly misdiagnosed due to the polymorphic and unspecific clinical presentation that can be related to the bronchopneumonia itself. This fatal complication being an etiological factor of a DKA considerably increases its mortality as reported in our case.

PV0837 / #1262

RHEUMATIC FEVER IN EUROPE NOT GONE NOR FORGOTTEN: TWO CASES OF SYDENHAM'S CHOREA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: Sydenham's chorea
Background: Group A β-haemolytic Streptococcus (GABHS) is one of the most frequent infectious agents in children. Although pharyngitis is the most common presentation, unusual manifestations such as acute rheumatic fever (ARF) may exist. Sydenham's chorea is the most common form of acquired chorea in children and one of the major criteria of ARF; 20 to 35% of patients may present with hemichorea. In these two cases, hemichorea was the main clinical manifestation.
Case Presentation Summary: Case 1: A six-year-old portuguese boy was brought for consultation due to a three-week history of migratory arthralgia, asthenia, and involuntary movements of the right limbs associated with fever and odynophagia. He presented with a systolic heart murmur and chorea of the right limbs. Laboratory tests showed elevated antistreptolysin O titres (ASLO) - 1824 U/mL. Echocardiogram revealed moderate mitral insufficiency and mild aortic insufficiency. Case 2: A seven-year-old boy was brought to the emergency department due to trunk ataxia, involuntary movements of the right arm and leg and emotional lability in the previous week. He came from Switzerland where he was treated for an ulnar osteomyelitis. He presented involuntary movements of the right upper and lower limbs and right-sided muscle weakness. Laboratory tests revealed elevated ASLO - 399 U/mL. Echocardiogram showed mild aortic insufficiency and moderate mitral insufficiency. Both cases were treated with haloperidol for two months and maintained furosemide, captopril and benzathine penicillin. On long term follow-up, both showed resolution of chorea and improvement of cardiac changes.
Learning Points/Discussion: These cases highlight the necessity of a GABHS vaccine in the infant population in order to avoid long term neurologic and cardiac complications. Despite the low incidence of ARF in developed countries, the disease and its manifestations cannot be neglected.

PV0838 / #843

COMPARED IMPACT OF NIRSEVIMAB AND MATERNAL VACCINE FOR THE PREVENTION OF RSV MA-LRTI IN A UK BIRTH COHORT EXPERIENCING THEIR FIRST RSV SEASON

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Respiratory syncytial virus (RSV) is a leading cause of hospitalization in infants. Several preventative interventions will soon be available and the assessment of their impacts on healthcare resource utilization is critical to inform future recommendations. The objective of this modeling study was to estimate the impact of nirsevimab and maternal vaccine on RSV medically attended lower respiratory tract infections (RSV MA-LRTI) in a UK birth cohort compared to the current standard of practice (SoP).
Methods: We used a static decision analytic model to estimate health outcomes related to RSV under SoP and with prophylaxes. Assumptions for interventions were documented based on clinical results for nirsevimab, and top-line data of Ph3 global trial for maternal vaccine. Implementation was defined year-round for maternal immunization, and seasonal for nirsevimab, considering equal coverage rate.
Results: We estimated 249,927 MA LRTIs under SoP over the first RSV season of infants, including 24,381 hospitalizations. RSV MA-LRTIs was predominantly observed among infants born before the season (67%), whereas hospitalizations were equally distributed between infants born before and during the season. Nirsevimab prevented consistently 64% of RSV MA-LRTIS across the birth cohort. Maternal vaccine prevented overall 29% of events, with 20% avoided in infants born before the season, and 48% in infants born during the RSV season.
Conclusions/Learning Points: Our model estimates that nirsevimab is most effective at reducing the number of MA-RSV LRTI. With timely immunization and durable protection over time, the RSV disease burden can be addressed in the full birth cohort.

PV0839 / #1544

ROTAVIRUS GASTROENTERITIS PREVENTION INTO THE ITALIAN NATIONAL IMMUNIZATION PLAN (NIP): COMPARISON BETWEEN OFFICIAL RECOMMENDATION AND IMMUNIZATION COVERAGE TRENDS IN EUROPE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Rotavirus (RV) is the leading cause of severe gastroenteritis in children, and it is responsible for approximately 30% of diarrhea deaths among children aged <5 years. Two effective oral live attenuated vaccines (2-dose monovalent and 3-dose pentavalent vaccines) are available since 2006 to prevent RV disease. The aim of this study is to describe the Italian recommendations for RV prevention, to provide an overview of the current European RV vaccine offer and to compare vaccination coverage (VC) rates in Europe.
Methods: The Italian National Immunization Plan and the “ECDC-vaccine scheduler” were consulted to retrieve information on the European schedules; Rotavirus VC data were collected through the WHO/UNICEF and the Italian Ministry of Health websites (years 2008-2021).
Results: Since 2017, RV vaccination is recommended in Italy for all infants starting from the 6th week of life and vaccination cycle should be completed no later than 8 months of age. It can be co-administered with the other vaccinations of the first year of life. RV vaccination is not universally recommended in Europe, some countries offered it only to specific risk groups (pre-term and low weight at birth infants). VC vary between EU countries, ranging from 20% in Greece to 96% in Norway in 2021. There has been an increase in the annual VC in Europe from 12% in 2014 to 34% in 2021. Italian VC reached its peak (63%) in 2021, while it settled to 70.4%, according to Italian national data.
Conclusions/Learning Points: Italy has recently started a national universal program against RV and VC exceeds, almost two folds, the annual average VC data at European level. Efforts should be done to increase VC and to extend RV vaccination in Europe.

PV0840 / #2691

MANAGEMENT OF FEVER IN SICKLE CELL DISEASE IN THE PEDIATRIC EMERGENCY WARDS (PEW) ACCORDING TO FRENCH GUIDELINES

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Background: Main complication of Sickle cell disease (SCD) is infection susceptibility related to functional asplenia. The French guidelines recommends encapsulated-germs-optimized vaccination, early V-penicillin-prophylaxis, and criteria for outpatient/hospitalization management of fever. The aim of this restrospective study was to describe the population of children visiting the pediatric emergency wards (PEW) with fever, and to describe compliance of hospitalization and broad-spectrum IV-antibiotic prescription according to the French guidelines.
Methods: Historical cohort study of children with SCD visiting the PEW (hospital of Angers-France), for fever (January 2015-June 2022).
Results: Out of 128 febrile episodes seen in PEW visits, 33 visits (26%) lead to ambulatory management; 1 toddler was further hospitalized with pneumonia (guideline deviation for inadequate age range), and 94 (74%) lead to hospitalization. In the latter, 24 severe bacterial infections (SBI, 26%) were found: 17 pneumonia/acute thoracic syndrome, 6 pyelonephritis, and 1 soft tissue infection. Median age of the hospitalized children (n=94) was 5,4 years, sex ratio was 1.41, and the French guideline compliance for preventive measures was 75% for vaccines and was 95% for antibioprophylaxis. Four children required PICU-ventilatory support. Neither clinical factors nor guideline criteria were significantly associated to SBI. Only CRP was significantly higher in children with SBI.
Conclusions/Learning Points: The French guidelines allow to safely ambulatory manage children when criteria are followed. The prevalence of SBI was 26% despite prophylactic measures. Early detection of SBI stay a high priority. Reliable criteria to rule-out children seem a priority to safely avoid hospitalization and systematic IV-antibiotherapy. They still need to be strengthen to manage febrile children with SCD, and we will carry out further research to development and validation of a decision tree to guide physicians in the clinical management.

PV0841 / #1271

BOTULISM – CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: BOTULISM – CASE REPORT
Background: Botulism is a rare and life-threatening syndrome of diffuse, flaccid paralysis caused by a neurotoxin produced by Clostridium botulinum. It results from an irreversible blockage of pre-synaptic cholinergic receptors at the neuromuscular junction. It presents by early involvement of the cranial nerves with progressive muscle weakness, descending and symmetrical.
Case Presentation Summary: A 3 years-old boy with developmental delay was admitted to the Emergency Department with prostration, eating difficulties with dysphagia for liquids and solids, and bilateral eyelid ptosis lasting 24 hours. Parents reported vomiting and diarrhea the day before the admission and soil consumption one week before the onset of symptoms. History of fever, honey, or unpasteurized dairy product consumption was denied. At presentation, physical examination revealed prostration, bilateral eyelid ptosis, and sialorrhea. No limitations in eye movements or facial asymmetries were observed, osteotendinous reflexes were present and symmetrical, and the child was hemodynamically stable. There was no clinical worsening, including respiratory compromise or proximal muscle weakness. On day two, as deficits persisted without an established cause (normal brain imaging and negative anti-acetylcholine receptor antibody), botulism was considered, and heptavalent botulinum antitoxin was administered. There was gradual improvement in eating difficulties and ptosis. Although the search for botulinum toxin in serum, gastric aspirate, and feces was negative, a clinical diagnosis of botulism was assumed since there was an improvement in neurological deficits after specific therapy. The recovery was complete.
Learning Points/Discussion: A careful history and physical examination are essential for the diagnosis of botulism, which can be made based on clinical and epidemiological findings. Early administration of botulinum antitoxin neutralizes free neurotoxin and should not be delayed until diagnostic confirmation. This approach may reduce the severity, duration, and mortality of this disease.

PV0842 / #1652

MANAGEMENT AND OUTCOME OF CARBAPENEM-RESISTANT BACTERIAL (CRB) INFECTIONS IN A TERTIARY PEDIATRIC SURGERY UNIT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Carbapenem resistance rates in pediatric patients are increasing. Their management is challenging and may include the use of newer antibiotics such as ceftazidime-avibactam (CAZ-AVI) or older ones, such as the aminoglycosides, colistin and fosfomycin, alone or in combination. We herein describe our clinical experience with CRB infections in pediatric surgical patients.
Methods: Review of medical records of consecutive patients with confirmed CRB infections hospitalized in a tertiary pediatric surgery unit from 1/1/2022 till 12/31/2022. Carbapenem susceptibility was assessed with Vitek®2 system using EUCAST breakpoints.
Results: Five patients with CRB infections were included [median age 11 months (5-18 months), 4 males]: 2 with bacteremia and 3 with urinary tract infection (UTI). Three of these patients had short gut syndrome and central venous catheter. All isolated microorganisms were Klebsiella pneumoniae. 3 of these patients had received meropenem (2) or cefepime (1) as initial empirical treatment with no response. Based on susceptibility results, the 2 patients with bacteremia received CAZ-AVI plus colistin and those with UTI received: CAZ-AVI plus fosfomycin, gentamicin plus fosfomycin, or gentamicin plus ciprofloxacin, respectively. Antimicrobial dosages were CAZ-AVI, 150 mg/kg/d of ceftazidime divided 8-hourly; colistimethate sodium, 300,000 IU/kg/day (equivalent to 9.9 mg colistin base activity/kg/d) divided 8-hourly; fosfomycin, 400 mg/kg/day divided 6-hourly; gentamicin, 6 mg/kg/d q24hr; ciprofloxacin, 30 mg/kg/d divided 8-hourly. The duration of treatment was 14 days for bacteremia and 10 days for UTI. All patients had a favorable outcome with no relapse and no adverse events.
Conclusions/Learning Points: Successful treatment of CRB infections in pediatric surgical patients was accomplished using a combination of two in vitro active agents in high doses.

PV0843 / #292

HOSPITAL-ACQUIRED MEASLES: A SYSTEMATIC REVIEW USING THE OUTBREAK REPORTS AND INTERVENTION STUDIES OF NOSOCOMIAL INFECTION (ORION) STATEMENT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Several outbreaks of nosocomial measles with rapid dissemination and increased severity in developed countries have been reported; therefore, there is a need for a comprehensive review of hospital-acquired measles.
Methods: The Outbreak Reports and Intervention Studies of Nosocomial Infection (ORION) statement provides standardized methodology for transparent reporting of nosocomial outbreaks. This statement aids in the comparison of nosocomial investigations and assimilation of evidence as well as provides consensus guidelines, which can increase our understanding of the outbreak and limit the consequences of hospital-acquired infections in terms of morbidity, mortality, and cost. Publications related to measles infection in hospital settings were selected. We then evaluated the quality of outbreak reports of nosocomial measles infection worldwide using the ORION statement findings and recommendations.
Results: We reviewed 24 studies in accordance to the ORION statement. Measles transmission in healthcare settings is a significant burden on the morbidity, mortality, and economy of measles. The healthcare workers' booster vaccination guidelines should be monitored and enhanced during the post-elimination period of measles. The outcomes of infections must be explicit for outbreak reports.
Conclusions/Learning Points: Our findings highlight that the ORION statement can improve the quality of reporting and provide strong evidence for infection control policies in hospitals.

PV0844 / #2565

PERITONSILLAR ABSCESS IN COVID-19 PEDIATRIC PATIENTS-PRESENTATION OF TWO INTERESTING CASES

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: PERITONSILLAR ABSCESS IN Covid-19 PEDIATRIC PATIENTS-PRESENTATION OF TWO INTERESTING CASES
Background: The SARS-CoV-2 usually causes symptoms related to the lower respiratory system (fever, cough, pneumonia, ARDS), however it can also affect the upper respiratory system (anosmia, nasal congestion, runny nose). In the year 2021 at the ENT clinic of General Children's Hospital Penteli two active Covid-19 children presented with ENT symptomology.
Case Presentation Summary: A 15-year-old female patient (suffering from Covid-19 for a week) presented to our Hospital due to sore throat, dysphagia and fever since two days. During the clinical examination, peritonsillar cellulitis was found (with a negative fine needle aspiration) and the patient was placed on intravenous antibiotic treatment. On the 2nd day of her hospitalization, persistent tachypnea was observed and the patient complained of chest pain. Laboratory testing revealed elevated serum troponin, and after pediatric and cardiology evaluation, a diagnosis of Covid-19 myocarditis was made. A second case of a 16-year-old female patient presented to the ENT Clinic due to sore throat, mandibular trismus and fever since 24 hours. During the clinical examination, a peritonsillar abscess was found (2nd episode). A surgical drainage of the abscess was performed. During the standard molecular testing for Covid-19, a positive PCR test was found. The patient was hospitalized for intravenous antibiotic treatment and 45 days after her discharge, she underwent a tonsillectomy.
Learning Points/Discussion: Our cases dictate the need for vigilance by the medical community for SARS-CoV-2 -related ENT manifestations, including peritonsillar cellulitis and abscess. Considering that new data are constantly appearing in the pathological spectrum of the disease, more studies are undoubtedly needed to draw safe conclusions.

PV0845 / #1323

CANDIDURIA IN A 5-MONTH-OLD INFANT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Upper urinary tract fungal infections are uncommon and are predominantly diagnosed in neonates,infants with severe underlying conditions and in immunosuppressed individuals.Fungal bezoar (ball) formation is rare and management options include intravenous antifungal agents and percutaneous nephrostomy with antifungal instillation of antifungal agents.
Methods: A 3-month-old boy,antenatally diagnosed with left hydronephrosis and hydroureter,was initially admitted to a local Hospital due to pyelonephritis.No culture was available.He was treated with intravenous ceftazidime, ceftazoline and amikacine for 3 weeks.Ultrasound (US) and voiding cystourethrogram (VCUG) demonstrated hydronephrosis grade II with megaureter due to ureterovesical junction obstruction and reflux grade I.A urine catheter was implemented monitoring urine function.He was discharged with cotrimoxazole prophylaxis.On a 2-week follow up,he received asymptomatic oral 3rd generation cephalosporin for 10 days due to pyuria.1 week after antibiotic cessation,he was admitted to our Hospital due to fever.
Results: Urine analysis showed basically yeasts besides leukocytes.Culture showed Candida albicans sensitive to fluconazole.Blood cultures were negative.US demonstrated several mobile echogenic masses suggesting fungal balls without parenchymatic involvement.Inflammation markers and renal parameters were normal.He started on antifungal therapy for 4 weeks.Follow-up US showed complete eradication of fungal balls.He was discharged with cotrimoxazole and fluconazole prophylaxis and he was referred to the Urologic Department for further evaluation of his obstructive uropathy and for surgical circumcision.
Conclusions/Learning Points: We believe that the main high risk factors for the renal fungal bezoar formation in our patient were the bladder catheterization and the prolonged broad-spectrum antibiotic use.The aim of this case is to underline the necessity of prudent antimicrobial use in patients with urinary tract abnormalities, mostly obstructive uropathies, and the cautious use of urinary tract drainage devices in order to reduce the possibility of opportunistic infection by fungus.

PV0846 / #275

GRAM-NEGATIVE BACTEREMIA, THE RISK FACTORS, AND OUTCOME IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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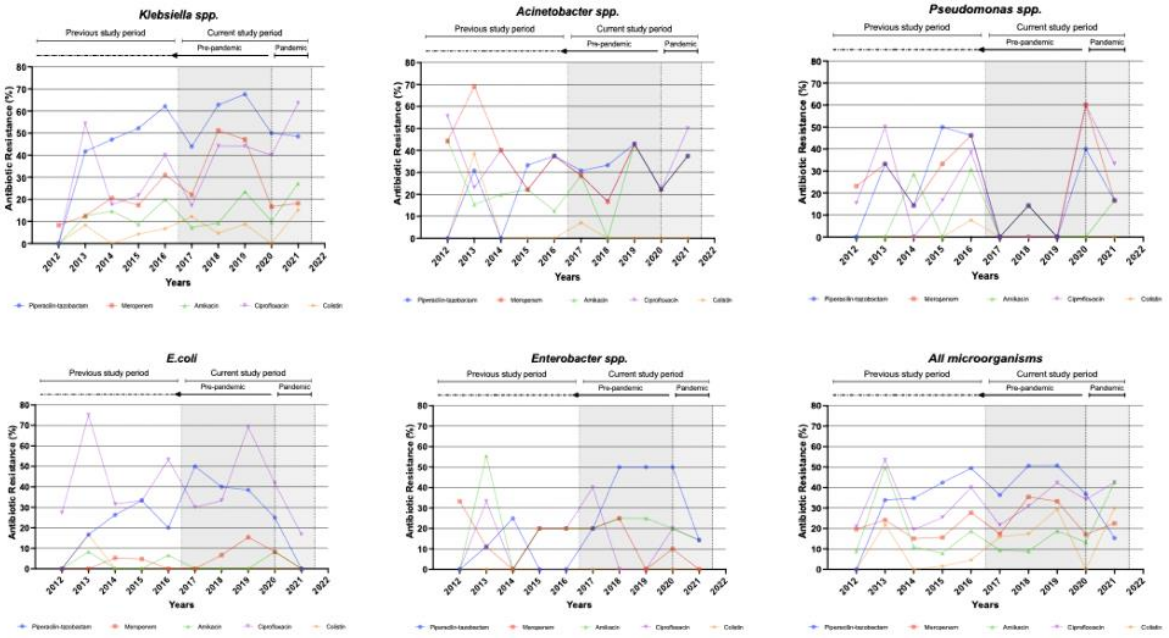
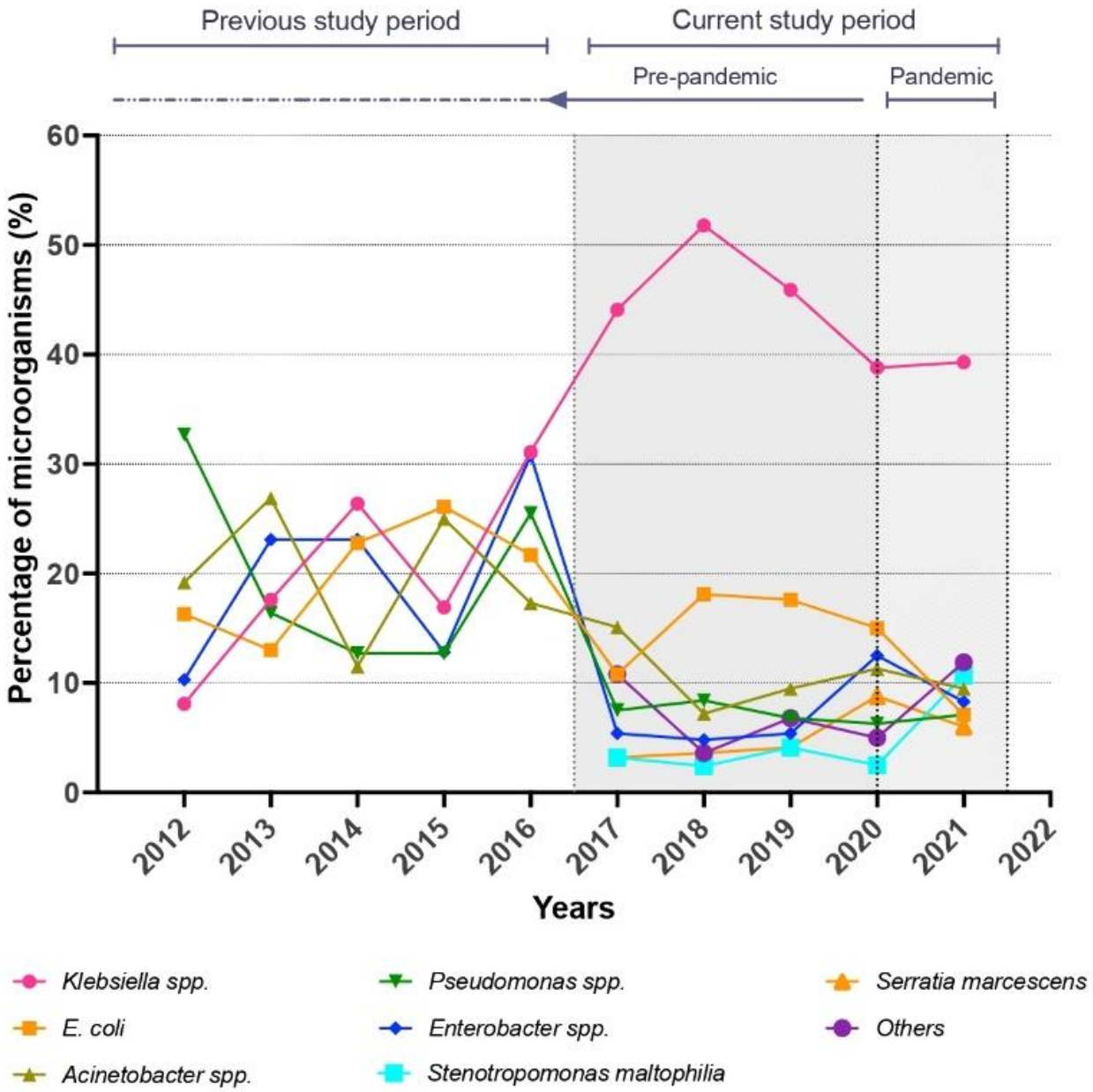
Backgrounds: Bloodstream infections caused by gram-negative bacteria emerge as an important cause of mortality and morbidity in pediatric clinics. In this study, we aimed that to determine the isolated gram-negative bacteria from blood cultures, their resistance patterns and the epidemiologic changes over the years, clinical status of the patients according to bacteria, the risk factors and outcome.
Methods: In the study, 412 episodes of 349 children aged 0-18 years and were hospitalized in a Turkish tertiary care university hospital with the diagnosis of Gram-negative bacteriemia between 2017 and 2021 were retrospectively analyzed. In addition, the data were compared with our previous findings.
Results:





The most common microorganisms were Klebsiella spp. (43.9%), followed by E. coli (13.5%) and Acinetobacter spp. (10.6%). Klebsiella spp were persistent and predominant causative agents over the years. Carbapenem resistance (CRGN) was revealed in 27.6% of all Gram-negative bacteria and 41.2% of the bacteria were multi drug resistance (MDR), 13.5% were extensively drug resistance (XDR) and 0.4% were pan-drug resistance (PDR). In addition, it was determined that carbapanem and colistin resistance increased over the years. The most common risk factors were the presence of a central venous catheter (77%), hospitalization in the intensive care unit (67%) and the use of broad-spectrum antibiotics within the last month (45.6%). Clinical response and infection-related mortality were 74% and 15.7%, respectively in cases infected with CRGN.

Conclusions/Learning Points: The increase in multi-resistant Klebsiella spp. seems to be one of the biggest obstacles ahead in our fight against nosocomial infections. Increasing CRGN bacteria over the years affects both the clinical response of bloodstream infections and mortality. Close follow-up of these local data is very important both in the determination of resistance patterns and the ideal empiric antimicrobial treatments.

PV0847 / #1986

INFECTIONS ASSOCIATED WITH KAWASAKI DISEASE IN QATAR

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Infectious agents have been considered a predisposing factor for KD. Although both viral and bacterial agents may be related to the onset of KD, the actual mechanism remains unknown. It has been hypothesized to be secondary to the activation of cytokine production. Aim To identify the common infection associated with KD in Qatar's children under five.
Methods: In a cross-sectional retrospective study done in Qatar from 2009 -2019, two hundred children confirmed to have KD were included, their records reviewed, and children were included based on confirmed infection Positive culture (blood, urine or throat culture) Pneumonia proved by clinical or radiological Positive blood virology or respiratory panel PCR Lymphadenitis proven by clinical or radiological
Results: Among the 200 cases of KD, 32% were proven to have associated infections. Among all diagnosed patients, 22.5% had a viral infection, and 14 % had a bacterial infection. EBV virus was found in 24.4%, followed by 13% of Adino virus. Influenza, rhino, and CMV were equal to around 11.1 %. RSV was found in 6% of patients; Other viruses' percentage was less than 5%. Step pyogen throat infection was the most common bacterial infection among all KD patients. Followed by Ecoli UTI at 25%.
Conclusions/Learning Points: Conclusion : Infection was associated with one-third of all children with KD in Qatar, EBV was the most common virus, and strep pyogen was the most common bacterial infection. Infection was not affecting the prognosis or the outcome of the disease.

PV0848 / #121

DRUG RESISTANCE AMONG WOMEN ATTENDING ANTENATAL CLINICS IN THE ERA OF COVID-19 IN THE NORTHERN PART OF GHANA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Background:
Initial evidence from resource-limited countries using the WHO HIV drug resistance (HIVDR) threshold survey suggests that transmission of drug-resistance strains is likely to be limited. However, as access to ART is expanded, increased emergence of HIVDR is feared as a potential consequence. We have performed a surveillance survey of transmitted HIVDR among recently infected persons in the geographic setting of Northern Ghana.
Methods:
As part of a cross-sectional survey, 2 large voluntary counseling and testing centers in Temale enrolled 50 newly HIV-diagnosed, antiretroviral drug-naive adults aged 18 to 25 years. Virus from plasma samples with >1,000 HIV RNA copies/mL (Roche Amplicor v1.5) were sequenced in the pol gene. Transmitted drug resistance-associated mutations (TDRM) were identified according to the WHO 2009 Surveillance DRM list, using Stanford CPR tool (v 5.0 beta). Phylogenetic relationships of the newly characterized viruses were estimated by comparison with HIV-1 reference sequences from the Los Alamos database,
Results::
Subtypes were predominantly D (39/70, 55.7%), A (29/70, 41.4%), and C (2/70; 2, 9%). Seven nucleotide sequences harbored a major TDRM (3 NNRTI, 3 NRTI, and 1 PI- associated mutation); HIVDR point prevalence was 10.0% (95%CI 4.1% to 19.5%). The identified TDRM were D67G (1.3%), L210W (2.6%); G190A (1.3%); G190S (1.3%); K101E (1.3%), and N88D (1.3%) for PI.

Conclusions/Learning Points: Conclusion; In Northern Ghana, we found a rate of transmitted HIVDR, according to the WHO threshold survey method, falls into the moderate (5 to 15%) category. This is a considerable increase compared to the rate of <5% estimated in the 2006-7 survey among women attending an antenatal clinic. As ART programs expand throughout Africa, incident infections should be monitored for the presence of transmitted drug resistance.

PV0849 / #1576

IMMUNIZATION STATUS AND CLINICAL OUTCOME OF PATIENTS ADMITTED WITH PEDIATRIC COMMUNITY ACQUIRED PNEUMONIA, COVID-19 SUSPECT AT OSPITAL NG MAYNILA MEDICAL CENTER FROM MARCH 2020 TO SEPTEMBER 2021

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Pneumonia remains to be one of the main leading causes of morbidity and mortality among children worldwide, accounting for 17% of deaths in children under the age of five. In the Philippines, 11% of deaths were caused by pneumonia making this disease the major cause of mortality in this age group. Routine immunization against vaccine-preventable childhood illnesses has been recognized as one of the most effective public health approaches to prevent pneumonia. However due to COVID-19 pandemic, vaccination services were interrupted because of limited access to transportation and fear of parents in bringing children to health facilities for fear of exposing themselves to the COVID-19 virus. GENERAL OBJECTIVE: To determine the immunization status and clinical outcome of patients admitted with Pediatric Community Acquired Pneumonia (PCAP), COVID-19 Suspect
Methods: SETTING: Tertiary government hospital STUDY DESIGN: Retrospective cross-sectional study MATERIALS AND METHODS: Charts of pediatric patients aged 2 months to 18 years old admitted with PCAP C or D, COVID 19 suspect from March 2020 to September 2021 were retrieved. Data gathered included: Age, Sex, Place of residence, Immunization status, Disease severity, COVID status, Length of hospital stay and Disposition. SPSS version 10 was utilized for data analysis.
Results: The prevalence of patients with PCAP-D was significantly higher among those with incomplete immunization status versus those with complete immunization status based on Expanded Program on Immunization (EPI), with 34% and 15.9% respectively. Higher mortality rate was noted among those with incomplete EPI status (17%) than those with complete EPI status (3.2%).
Conclusions/Learning Points: Complete Expanded Program on Immunization (EPI) status play a significant role in improving clinical outcomes for pediatric patients admitted with PCAP. No significant association was noted between immunization status and COVID-19 infection.

PV0850 / #1452

COVID-19 VACCINATION HESITANCY AMONG PARENTS OF CHILDREN AGED 5 TO 11 YEARS OLD AT A TERTIARY HOSPITAL IN MANILA, PHILIPPINES

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: While the COVID-19 vaccine roll-out is still ongoing, parental vaccine hesitancy, defined as “delay in acceptance or refusal of vaccination despite the availability of vaccination services,” serves as a significant barrier to its success, making it a major predicament for achieving herd immunity. Studies regarding COVID vaccine hesitancy among parents in the Philippines is limited hence we embark on this study, aiming to determine reasons behind parental COVID vaccination hesitancy.
Methods: SETTING: Tertiary government hospital
STUDY DESIGN: Prospective cross-sectional study
MATERIALS AND METHODS: Parents of patients 5 to 11 years old at Ospital ng Maynila Medical Center were asked to answer an adopted structured questionnaire. Pilot testing was also done to ensure validity. SPSS version 23 for Windows was used for data analysis.
Results: Parents who have not vaccinated their children due to vaccine hesitancy were noted at 59.7%, majority of which was attributed due to fear of side effects of the vaccine. Results revealed vaccine hesitancy was significantly higher proportion in females, parents with children <8 years old, who had preexisting comorbidities and with incomplete Expanded Program for Immunization (EPI) status. Lastly, parents with no or incomplete COVID-19 vaccination were also vaccine
hesitant.

Association Between Sociodemographic Profiles & COVID Vaccine Hesitancy of Parents of Children Aged 5-11 Years Old in Ospital ng Maynila Medical Center (n=164)

	n	Vaccine Hesitancy		*p-value**
		Yes (n=103)	**No** (n=61)	
Sex				
Male	15	6 (40.0%)	9 (60.0%)	0.05 (S)†
Female	149	97 (65.1%)	52 (34.9%)	
Age of Child				
5	33	25 (75.8%)	8 (24.2%)	
6	37	28 (75.7%)	9 (24.3%)	
7	24	18 (75.0%)	6 (25.0%)	
8	28	15 (53.6%)	13 (46.4%)	0.008 (S)†
9	18	7 (38.9%)	11 (61.1%)	
10	12	6 (50.0%)	6 (50.0%)	
11	12	4 (33.3%)	8 (66.7%)	
Preexisting Comorbidities of Children	26	21 (80.8%)	5 (19.2%)	0.03 (S)†
Yes	138	82 (59.4%)	56 (40.6%)	
No				
Covid Vaccination status of Parent				
Yes, one dose	3	3 (100%)	0	
Yes, two doses or more	151	90 (59.6%)	61 (40.4%)	0.01 (S)†
No	10	10 (100%)	0	
Complete EPI of Children				
Yes	136	79 (58.1%)	57 (41.9%)	0.006 (S)†
No	28	24 (85.7%)	4 (14.3%)	

Conclusions/Learning Points: COVID-19 vaccine hesitancy among parents of 5-11 years old children is prevalent. The sex of the parent, age of children, preexisting comorbidities and EPI status of children and COVID-19 vaccination status of parent were noted to be significantly associated with vaccine hesitancy. Perceptions on the susceptibility and severity of COVID-19 infection, also the barriers and benefits of COVID-19 vaccination play a crucial role in the acceptance of the parents on vaccination. The main reason for vaccine hesitancy is due to fear of side effects of the vaccine.

PV0851 / #2147

CHARACTERISTICS AND OUTCOMES OF THE PATIENTS ON THE PAEDIATRIC ENVIN-HELICS DATABASE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: The aim of this study is to describe the epidemiological characteristics and outcomes of the patients with healthcare-associated infections (HAI) diagnosed in Paediatric Intensive Care Units (PICU) from the annual Spanish registry Paediatric-ENVIN-HELICS in 2021.
Methods: Multicentre, prospective and observational study about HAI diagnosed in 25 Spanish PICUs, during a three-month period (April-June 2021). The characteristics and outcomes were analysed with Epidat 4.1 software.
Results: There were 1986 patients recruited with a mean of 79 per unit. The median age was 39 months (58.1% under 5 years), predominantly male (58.91%). 46.98% of admissions came from the operating room (80.81% programmed surgeries), predominantly postoperative cardiac surgery (21,15%) and neurosurgery (19.4%). 48.79% of the patients were non-surgical (79.9% from the emergency department and 4.9% were trauma patients). Predominating respiratory (26.49%), neurological (22.56%) and haemodynamic pathologies (21.85%). 30.46% of patients had previous comorbidities, with a mean of 1.4 comorbidities and 2.71 risk factors for HAI per patient. The mean PRISM-III was 3.11 (2.63-3.57). Invasive devices were present in 62.8%, with a 2.4% rate of HAI. The mean PICU length of stay has decreased over the years of the registry from 7.82 to 5.55 days (5.22-5.68), with 81.7% of patients staying for less than a week. Mortality at PICU discharge was 1.21% which has also decreased (3.6% to 1.21%). It was significantly related to PRISM-III on admission, emergency surgeries, and the presence of comorbidities or risk factors for HAI or presenting HAI ($p<0.01$).
Conclusions/Learning Points: The Paediatric-ENVIN-HELICS registry, which has been operating since 2013, is a useful tool to evaluate different patient types, infections and its evolution. The results showed a significant decrease over the years in the length of stay and mortality.

PV0852 / #855

CHALLENGES TO AND RESOURCES NEEDED FOR KANGAROO MOTHER CARE (KMC) FOR SMALL AND SICK NEWBORNS IN AFRICA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Newborn deaths from healthcare-associated infections (HAIs) occur disproportionately in low and middle-income countries. As KMC can significantly reduce HAIs as well as severe respiratory illnesses,[1] we assessed KMC practices in African hospitals caring for small and/or sick newborns to identify strategies to improve KMC. [1] doi:10.1002/14651858.CD002771.pub3
Methods: The study team, including African collaborators, developed an infection prevention and control (IP&C) practice survey that included questions assessing KMC resources and challenges and created a virtual assessment tool to 'visit' the KMC areas. African hospitals caring for small and/or sick newborns <30 days old were eligible to participate. Survey items for KMC were analyzed using descriptive statistics.
Results: The survey was administered from May 2021-October 2022; 45 hospitals from 20 countries (11 Francophone) participated, including 8 smaller district hospitals. KMC was available in 42 (93%) hospitals; 33/42 (79%) had a separate KMC area. Respondents reported KMC challenges and support needed to further improve KMC (Table 1). The virtual assessments found that 23 (52%) hospitals had KMC in crowded conditions. Table 1: Support Needed to Improve and Challenges to Providing KMC

Educational material/training	35 (78%)
Maternal medical condition	31 (69%)
Infant medical condition	28 (62%)
Adequate space	27 (60%)
Maternal comfort/access to necessities	24 (53%)
Staff knowledge/support	14 (31%)
Maternal knowledge	12 (27%)
Family/staff support	7 (15%)
Other[1]	5 (11%)

[1] Financial (n=2), distance to hospital (n=2), infant monitoring equipment (n=1)
Conclusions/Learning Points: Most hospitals adopted KMC. In addition to previously described challenges[2], respondents also identified previously unrecognized needs, i.e., providing maternal comfort and necessities. Furthermore, efforts to address cultural barriers and develop educational materials could improve KMC in African hospitals.
Funded by the Bill and Melinda Gates Foundation. [2] doi: 10.1186/s12913-021-07086-9.

PV0853 / #759

ASSESSMENT OF WATER, SANITATION AND HYGIENE (WASH) PRACTICES IN AFRICAN HOSPITALS CARING FOR SMALL AND SICK NEWBORNS

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Compared with higher-income countries, neonatal mortality from healthcare-associated infections (HAIs) is 10-15 times higher in low- and middle-income countries (LMIC) and disproportionately caused by multi-drug resistant Gram-negative organisms. To combat HAIs, WHO has increasingly emphasized infection prevention and control (IP&C), including WASH practices.[1] We assessed WASH practices in African hospitals caring for newborns. [1]https://www.who.int/publications/i/item/9789240051164
Methods: The study team, including African collaborators, developed a survey to assess IP&C, including WASH practices, in African hospitals caring for small and/or sick newborns <30 days old. Survey responses for WASH practices were analyzed using descriptive statistics.
Results: From May 2021-October 2022, 45 hospitals from 20 countries (11 francophone) participated. Thirty-eight (84%) hospitals taught staff how and when to perform hand hygiene (HH) using posters and demonstrations; 34 did not monitor HH adherence and 9 did not teach HH after touching environmental surfaces. Tap water was used to prepare infant formula and clean reusable respiratory therapy equipment in 15 and 16 hospitals, respectively. Many hospitals reused/shared pulse oximeters (96%), nasal cannula (85%), thermometers (76%) and CPAP equipment (50%). Most used chlorine-based solutions to clean environmental surfaces at least daily as per CDC recommendations for LMIC (Table).[2] [2] https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-RLS-H.pdf Table: Cleaning agents for selected surfaces

Agent	Floors	Counters
Chlorine-based	84%	75%
Soap/water	9%	18%
Alcohol-based	4%	7%
Adequate cleaning supplies available		
Yes	78%	78%
Frequency of cleaning		
At least daily	93%	75%

Conclusions/Learning Points: Many hospitals had implemented WHO and CDC guidelines, but opportunities to improve WASH practices were identified. Future learning collaboratives could be used to expand evidence-based IP&C and WASH practices in African Hospitals. Funded by the Bill and Melinda Gates Foundation.

PV0854 / #1214

DESCRIPTIVE INTERIM ANALYSIS OF THE SAMPLING STRATEGY IN ANONYMOUS REPEATED CROSS-SECTIONAL SAMPLES IN EUROPEAN NEONATAL INTENSIVE CARE UNITS (NICU)

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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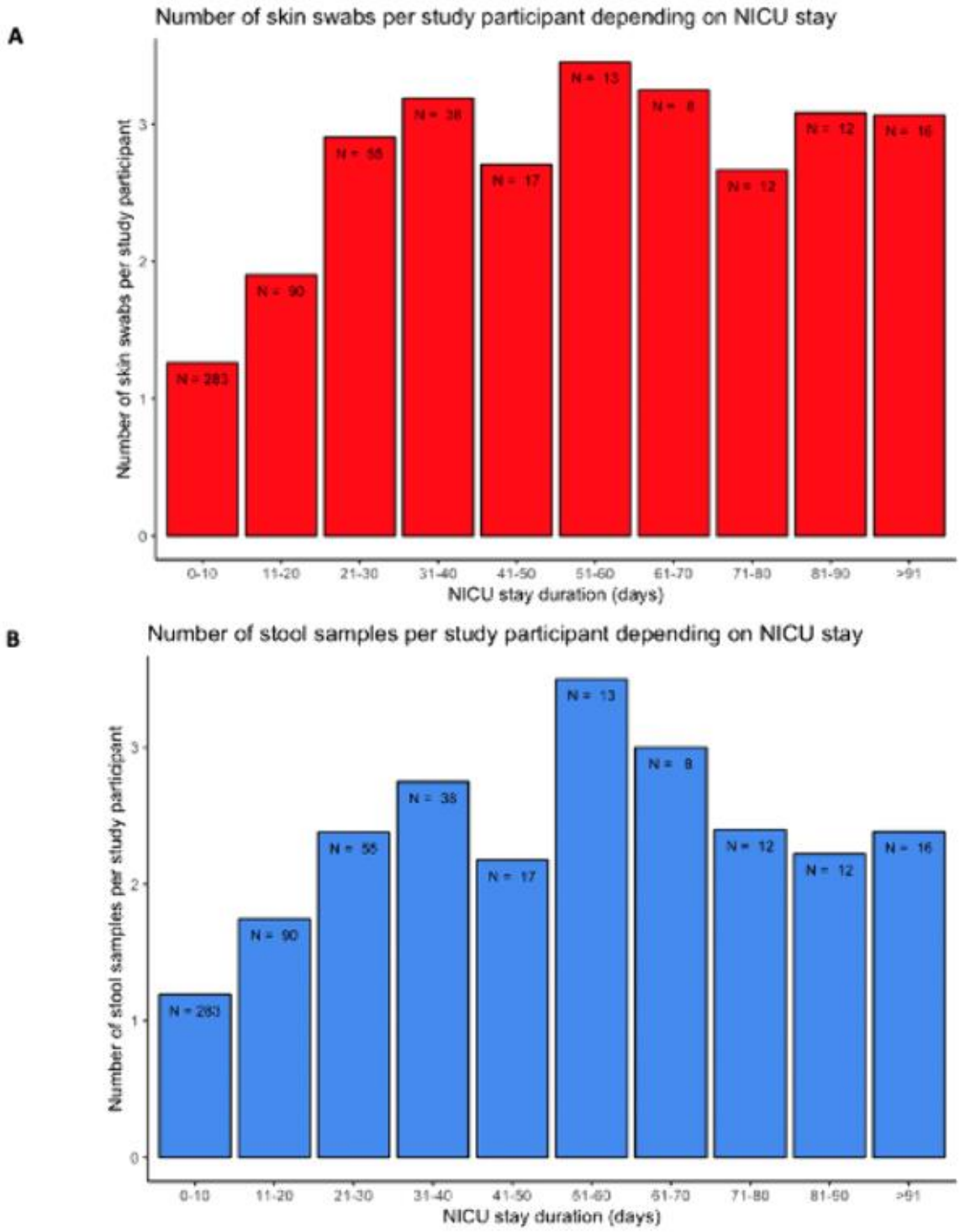
Backgrounds: The NeoIPC Unit Level Resistant Bacterial Colonization Surveillance project aims to foster infection prevention and control implementation in the high risk setting of European NICU to reduce resistant bacterial colonization and infection. The main objective of this study is to assess feasibility of a proposed tailored sampling strategy for skin swabs and stool samples in neonates.
Methods: This is an initial descriptive analysis of the sampling strategy in anonymous repeated cross-sectional non-invasive samples from neonates. The proposed strategy consisted of 4 colonization point prevalence surveys of skin swabs and stool samples per infant (minimum of 4 and maximum of 14 days apart) to capture the main breaks in the cumulative colonization curve having a colonization pressure >20%.
Results: By November 15th 2022, 546 neonates were included in 15 European study sites. There were 6 to 78 participants per study site. A total of 969 skin swabs and 767 stool samples were collected. A proportion of 24.0% of neonates had ≥4 stool samples collected and 30.5% had ≥4 skin swabs. A total of 283 neonates remained in the NICU for <10 days and had at least one skin or stool sample drawn, while 16 stayed for >3 months. Neonates remaining in the NICU between 51 and 60 days had >3 stool samples collected. The interval between two consecutive samples per infant was mainly 4, 7 and 14 days. Figure 1 – Mean number of skin swabs (A) and stool samples (B) per study participant depending on NICU stay.



Conclusions/Learning Points: Allowing for sampling time intervals rather than fixed timepoints allows for more variability enhancing scientific and clinical usefulness of results. Colonization data will enable to assess resistant bacterial colonization pressure and model infant colonization dynamics.

PV0855 / #780

HEPATOSPLENIC CAT-SCRATCH DISEASE - FASTER RECOVERY WITH STEROIDS?

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: Hepatosplenic cat-scratch disease - faster recovery with steroids?
Background: Cat scratch disease (CSD) is a Bartonella henselae granulomatous infection that typically presents with regional lymphadenopathy associated with a papule in the scratched skin area. Disseminated bartonellosis with organ involvement such as bone, heart, liver, spleen, and central nervous system may present even in immunocompetent children.
Case Presentation Summary: We report a previously healthy 2-year-old boy who presented to the emergency department with fever and a tender left inguinal lymphadenopathy for the last 3 days. Laboratory tests showed mildly elevated CRP (4.68 mg/dL) and ESR (37 mm/h). Firstly, he was prescribed amoxicillin/clavulanate plus clindamycin, and was noted regression of inflammatory signs of the inguinal lesion, but no fever improvement occurred. New data when interviewing parents was a history of regular exposure to kittens. The chest radiograph was unremarkable. The abdominal CT scan showed multiple hepatic hypodense nodules, a maximum of 5mm sized. EBV, CMV, toxoplasma, HIV, HBV, HCV, Brucella, Borrelia, and Rickettsia were ruled out. Bartonella-PCR in blood, IGRA, and tuberculin skin tests were negative. The inguinal ganglion excision biopsy demonstrated a granulomatous inflammatory reaction without necrotic areas. Results of Bartonella serology IgM <1/20 and IgG 1/256 were interpreted as systemic CSD presentation. He received azithromycin, rifampicin for 10 days, and prednisolone for 14 days with clinical improvement and apyrexia from day one.
Learning Points/Discussion: This case reinforces the importance of epidemiologic contextualization during complete medical history. Serology is used for the diagnosis of CSD and IgG titers ≥ 1/256 strongly suggest active or recent infection. There is no consensual management for hepatosplenic cat-scratch disease but a double antibiotic regimen associated with steroids may provide a safe and faster resolution of the disease.

PV0856 / #1955

STREPTOCCOCUS PNEUMONIAE: SEROTYPE DISTRIBUTION AND ANTIMICROBIAL RESISTANCE IN THE ERA OF PNEUMOCOCCAL CONJUGATE VACCINE (PCV) - 13 AND DURING COVID-19 PANDEMIC

E-Posters Viewing

E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: The aim of this study was to analyze all Streptococcus pneumoniae isolates from mucosal and invasive pneumococcal diseases, in children admitted at the Clinical Children's Hospital Brasov Romania after the introduction of PCV-13 in our National Immunization Program (NIP) and during COVID-19 pandemic.

Methods: A prospective on-going study was designed in our hospital and 216 S. pneumoniae isolates were collected between October 2019 throughout June 2022, from children with mucosal and invasive disease.

Results: The majority (70.8%) came from rural areas, 41.2% had low income and poor life conditions, 26.3% had more than 3 siblings, 15.2% were exposed to passive smoking and 51.8% had a recent medical history. Only 33.3% completed our NIP vaccination schedule. The most common serotype was 23F (14.8%), followed by 19F (14.3%), 11A (9.25%), 6B (7.87%), 3 (6.48%), 19A (5.55%) and 23A (4.64%). Antimicrobial resistance pattern was high, with 76.8% at penicillin (minimal inhibitory concentration (MIC) ≥2.0µg/ml), 62.9% at ceftriaxone (MIC values ≥0.5µg/ml), 65.5% at oxacillin, 31.3% at tetracycline, 57.7% at trimethoprim-sulfamethoxazole, 45.8% at erythromycin, 43.5% at clindamycin and 28.2% at cotrimoxazole. The susceptibility to chloramphenicol was 100%. More than a half, 55.0% of the isolates were multidrug resistant (MDR) with a predominance of 19F, 6B, 11A, 19A, 6A. PCV-13 coverage for the isolates in this study is 58.3%, PCV-15 – 59.7% and PCV-20 – 77.3%, while for MDR isoltaes PCV-13, PCV-15 is 90.7% and PCV-20 - 100%.

Conclusions/Learning Points: At 5 years after the introduction of PCV-13 in our NIP, most of the isolates are covered by PCV-13 while the best coverage rate is offered by PCV-20, including MDR isolates.

PV0857 / #2008

HIGH RESISTANCE PATTERN OF INTESTINAL MICROORGANISMS TRANSLOCATED TO BLOODSTREAM INFECTION IN PEDIATRIC ONCOLOGY AND HEMATOLOGY PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Immunocompromised oncology/hematology patients have high risk of infection-related mortality. It is of importance to evaluate intestinal colonization with resistant pathogens which might be a source for bloodstream infections.
Methods: Data of positive stool cultures, collected routinely at admission for identification of intestinal colonization, and positive blood cultures, collected during febrile episodes from pediatric patients (<18 years) treated at the tertiary center for pediatric oncology and hematology during the 2018-2022 period, were retrospectively analyzed. Cases with matching microorganisms in blood and stool cultures were identified and further investigated.
Results: In total, 420 positive stool (n=224) and blood (n=196) cultures from 120 patients were identified. Predominance of gram-negative bacteria in stool and gram-positive bacteria in blood was documented (n=164 (74%) and n=128 (66%), respectively). In 22 (11% of all positive blood cultures) episodes of bacteremia, the same pathogen was identified in the stool. Severe neutropenia (ANC <0.5x10^9/l) was present in 16/22 cases (73%) of positive blood cultures. Most of the matched pathogenes, identified in both stool and blood cultures (Klebsiella pneumoniae, n=9/22, Eschericia coli, n=5/22, Pseudomonas aeruginosa, n=4/22, Staphylococcus haemolyticus, n=1/22) showed highly antimicrobial resistant pattern with ≥50% of tested cultures being resistant to one or more of: piperacillin-tazobactam, second or third generation cephalosporins or fluoroquinolones, or other first-line or alternative tratment. However, all tested cultures were susceptible to amikacin. Other less frequently detected pathogens (Stenotrophomonas maltophilia, n=1/22, Enterobacter cloacae, n=1/22, Candida albicans, n=1/22) did not exhibit significant resistance.
Conclusions/Learning Points: Screening for intestinal colonization of resistant pathogens is of importance for individualization of empirical febrile episodes treatment to reduce infection-related mortality risk.

PV0858 / #145

EVALUATION OF PEDIATRIC HYDATID CYST CASES: A SINGLE CENTER TEN-YEAR EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Hydatid cyst is a zoonotic disease caused by echinococcal tapeworms. Hydatid cysts can occur in any place such as the liver, lung, spleen, kidney, brain, and soft tissue. We aimed to present the demographic characteristics, clinical symptoms and type of surgery of patients with hydatid cysts.
Methods: Eighty-four pediatric cases followed between 2012-2022 in Eskişehir Osmangazi University Medical Faculty Hospital were included. The epidemiological, clinical features, laboratory and radiological findings and treatment of the cases were evaluated.
Results: Fifty (59.5%) of 84 patients were male, mean age was 137(15-216) months .48(47.1%) of the cases lived in rural areas and 38 (45.2%) of them had animal contact. While 16.7% of the cases had anaphylaxis, 14.3% had lung and liver rupture. Indirect hemagglutination assay test was positive in 54.8% of the cases and 48.8% had eosonophilia. While 41.7% of the cases had lung cysts, 32.1% liver, 23.8% had lung and liver cysts, bladder in one patient, ovary in one patient and heart in one patients. According to Gharbi scoring, 60.5% of the patients had Type-3 hydatid cysts, 18.5% had Type-2, 11.1% had Type-1, 6.2% had Type-5 and 3.7% had Type-4 hydatid cysts. Cysts were >5 cm in 58% of cases, and <5 cm in 42%. As treatment, albendazole and surgery were used in 73.8% of the cases, only albendazole in 25% and PAIR in 1 case.
Conclusions/Learning Points: Our country is one of the endemic regions for hydatid cyst, and it may cause very different clinical findings and various organ involvements. For this reason, hydatid cyst should be kept in mind in patients who apply with prolonged clinical findings and have a history of living in rural areas and animal contact

PV0859 / #660

ETIOLOGICAL EVALUATION OF LYMPHADENOPATHIES IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Lymphadenopathies are one of the most common causes of hospital admission in childhood. Many reasons such as infections, malignancies and rheumatological diseases play a role in its etiology. Here, it is aimed to evaluate the clinical and epidemiological features of pediatric cases presenting with lymphadenopathy
Methods: Patients followed up in Eskişehir Osmangazi University Pediatric Infection Clinic between 2012 and 2022 due to lymphadenopathy were included in the study. The clinical and epidemiological features of the cases were evaluated retrospectively.
Results: Of the 249 patients included in the study, 157(60.9%) were male and the mean age was 7.5 years. The most common symptoms were neck swelling(74%), fatigue(29.5%), fever(21.3%) and anorexia(14.2%). 80.2% of the cases were cervical, 10.7% submandibular, 4.7% axillary, 3.1% inguinal region.In etiology; Ebstein-barr virus in 13.9% of cases,Cytomegalovirus in 4.9%, group A beta-hemolytic streptococcus in 4.8%, malignancy in 2.5%(2 lymphomas, 1 leukemia, 1 langerhans cell lymphohistiocytosis,1 rhabdomyosarcoma),tuberculous lymphadenitis in2%, mumps in 1.6%,cat scratch in 1.2%,PFAPA syndrome in 1.2%, congenital cyst in 1.2% ,kawasaki disease in 0.8% , brucella in 0.8%,toxoplasma in 0.4%, tularemia in 0.4%, and sarcoidosis in 0.4%.While biopsy was performed in 13.1% of the cases,most common pathological findings were; granulomatous infections, congenital cysts, tuberculous lymphadenitis and malignancy.While antibiotic treatment was given to 38% of the cases, 2 cases were operated due to deep neck infection.
Conclusions/Learning Points: Although lymphadenopathy often develops after viral infections and upper respiratory tract infections in childhood, rarer chronic infections such as tuberculosis and cat scratch, malignancy and rheumatological diseases should be kept in mind. Especially the cases that last for a long time and unresponsive to treatment or accompanied by systemic symptoms should be examined in detail, so that early diagnosis and treatment should be arranged.

PV0860 / #1628

COMPARED IMPACT OF NIRSEVIMAB AND MATERNAL VACCINE FOR THE PREVENTION OF RSV MA-LRTI IN A US BIRTH COHORT EXPERIENCING THEIR FIRST RSV SEASON

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Respiratory syncytial virus (RSV) is the leading cause of hospitalization in infants. Several preventative interventions will soon be available and the assessment of their impacts on healthcare resource utilization is critical to inform future recommendations. The objective of this modeling study was to estimate the impact of nirsevimab and maternal vaccine on RSV medically attended lower respiratory tract infections (RSV MA-LRTI) in a US birth cohort compared to the current standard of practice (SoP).
Methods: We used a static decision analytic model to estimate health outcomes related to RSV under SoP and with prophylaxes. Assumptions for interventions were documented based on clinical results for nirsevimab, and top-line data of Ph3 global trial for maternal vaccine. Implementation was defined year-round for maternal immunization, and seasonal for nirsevimab, considering equal coverage rate.
Results: We estimated 528,872 MA LRTIs under SoP over the first RSV season of infants, including 46,880 hospitalizations. RSV MA-LRTIs was predominantly observed among infants born before the season (69%), whereas hospitalizations were equally distributed between infants born before and during the season. Nirsevimab prevented consistently 54% of RSV MA-LRTIS across the birth cohort. Maternal vaccine prevented overall 25.6% of events, with 20% avoided in infants born before the season, and 38% in infants born during the RSV season.
Conclusions/Learning Points: Our model estimates that nirsevimab is most effective at reducing the number of MA-RSV LRTI. With timely immunization and durable protection over time, the RSV disease burden can be addressed in the full birth cohort.

PV0861 / #1730

A REVIEW ON THE COMPREHENSIVE BURDEN OF GONORRHOEA IN EUROPE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Emerging evidence on the 4CMenB vaccine's gonorrhoea cross-protection raised hopes for targeted gonorrhoea prevention. Whilst incidence is increasing, men-having-sex-with-men (MSM) and individuals between 15-25 years are disproportionally affected, particularly in the United Kingdom (UK). This targeted literature review synthesized the burden of gonorrhoea in selected European countries to understand the comprehensive disease burden and inform decision-making on the potential delivery of the vaccine.
Methods: Findings reported here for the UK, France, Germany, Italy and Spain were part of a global search where observational, health-economic and review studies in MEDLINE were screened from 2012 to 30/06/2022. Excluding grey literature and global reviews, relevant local studies were reviewed by title/abstract and synthesised by medical, humanistic, and economic burden.
Results: Five medical (3 German, 1 French, 1 UK) and one humanistic burden study (UK) were identified. Two German studies showed increasing azithromycin antimicrobial resistance (AMR) (5.6% of analysed samples). Another German study reported prevalence ranges (7.4-14.8%) for MSM, highest among HIV-negative pre-exposure prophylaxis users. The French study showed most patients were diagnosed symptomatic (women-having-sex-with-men 53.3%, men-having-sex-with-women 90%). MSM had the highest HIV-coinfection level (13.9%). The UK (Brighton) study found 12% of samples collected >1 year were genetically related, suggesting long-term asymptomatic carriage of gonorrhoea. No local studies assessing infections per anatomical sites, sequelae, AMR beyond MSM and co-infections beyond HIV were captured. Gaps in humanistic burden in patients and spillovers to others remain, a UK study assessed quality-of-life of only 2 patients. No economic burden studies were captured in relevant geographies. Overall, no studies were identified in Italy and Spain.
Conclusions/Learning Points: To better understand the role and target of emerging prevention options against gonorrhoea, more local disease burden evidence is needed.

PV0862 / #895

ADENOVIRUS CONJUNCTIVITIS OUTBREAK IN A NEONATAL UNIT IN NEW DELHI

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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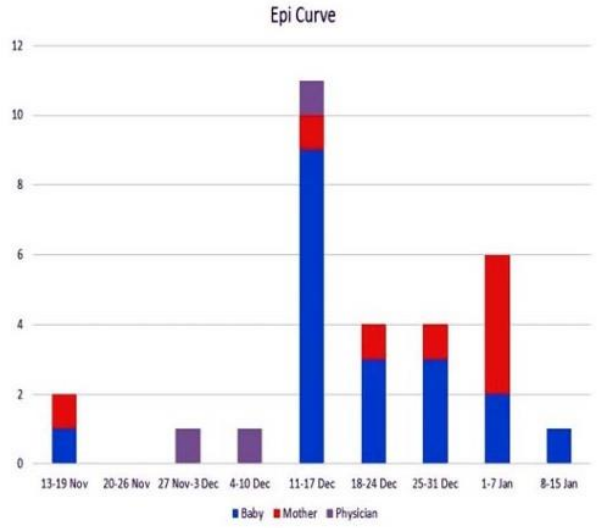
Title of Case: ADENOVIRUS CONJUNCTIVITIS OUTBREAK IN A NEONATAL UNIT IN NEW DELHI
Background: Nosocomial spread of Adenovirus has been reported in adult and pediatric medical units. This hardy virus is resistant to numerous disinfectants and has potential to cause outbreaks. In this communication we present our experience in evolution, investigation and control of an Adenovirus conjunctivitis outbreak in our unit.
Case Presentation Summary: Outbreak occurred in 50 bedded NICU between 13th November 2022 to 15 January 2023. Once outbreak was suspected infection control team was informed and data collected, regarding gender, weight, gestation, clinical signs and symptoms, mother's involvement. Conjunctival swabs were sent for bacterial cultures and in VTM for real time PCR for Adenovirus. A total of 19 babies, 8 mothers and 3 physicians had conjunctivitis (Fig). Conjunctival swabs could be sent for 17 babies out which 4 were positive for Adenovirus. Swab from one physician and mother was also positive. During the middle of the outbreak we realised that the most of the babies had prior ROP examination. It was noted that there was frequent rotation of the ROP screening team and each team had only one set of instruments which they were washing with soap and water. Eye congestion, purulent discharge and lid edema were the common presentations. Five patients had pseudomembrane (Fig). A meeting of all stakeholders was held. Five new sets of instruments were immediately procured. ROP team was requested to use only autoclaved instruments. Infected babies and mothers were cohorted and hand hygiene among all patient attendants, doctors and nurses was
reinforced.



Profile of affected babies

Parameter	Number (N=19)
Weight	
<1000 gm	6
1000-1500 gm	2
1500-2500 gm	5
>2500 gm	6
Prior ROP Examinations	11
Interval ROP and symptoms days M(IQR)	6 (3) Range 1-20
Eye Symptoms	
Congestion	19
Purulent Discharge	16
Lid edema	18
Papillary Hypertrophy	2
Pseudomembrane	5
Corneal Involvement	0
Mother infected after baby	6 (2 before)
Interval between baby's and mother's symptoms days M(IQR)	5 (13) Range 3-18
Conjunctival Swab Report (N=17)	Adenovirus 4, Adenovirus + Enterococcus 1 and Klebsiella sp 2

Learning Points/Discussion: In an outbreak of conjunctivitis Adenovirus should be considered. Instruments used for ROP examinations should be properly sterilized. Infection control practices especially hand hygiene should be followed rigorously.

PV0863 / #783

THUNDERSTRIK-ING YEAR. A THREE-FOLD INCREASE OF FEBRILE SEIZURES INCIDENCE IN 2022 COMPARED TO 2021.

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: Influenza one of the most common pathogen, highest CrP, longest hospitalization, a positiv case with complex seizure. Should vaccination be considered for children with a history of reccurent febrile seizures?
Background: Febrile Seizures are one of the most common emergency department presentations. Nevertheless is a devastating experience for the family members resulting to parental anxiety in any future fever episodes. In our study we noticed a three-fold increase on the admitted cases of febrile seizures in the year 2022 compared to 2021. Data of patient age, date of admission, seizure characteristic, fever focus, isolated pathogen, C-reaktive Protein, WBC, Monocytes, Neutrophil to Lymphocyte Ratio. Metabolic parameters ammoniac and phosphate, CSF inflammatory parameters Initially 32 patients for the year 2021, and 105 for the year 2022 were admitted for further investigation and treatment in our hospital due to seizures secondary to fever or infect. Following definition criteria for febrile seizures patients above the age of 6, preexisting neurologic abnormality, and CNS infection were excluded leaving 28 patients for the year 2021 and 92 patients for the year 2022.
Case Presentation Summary::

Seasonal Variation of most common Viruses

	Adeno-	Rota-/Norovirus	Rhino-/Enterovirus	Influenza	Sars-Cov-2	RSV
Autumn 2022	2	0	1	0	2	0
Winter 2022	0	1	2	5	4	3
Spring 2022	1	1	3	0	6	0
Summer 2022	0	0	2	1	1	0

Seasonal Variation of Complex Seizures

Autumn 2022	6
Winter 2022	2
Spring 2022	0
Summer 2022	2

Learning Points/Discussion: Seasonal distribution similar to those of community acquired respiratory infections. Influenza Vaccine should be recommended for all children aged 6 months and above especially with predisposition to febrile seizures. Influenza

is highly pyrogenic with the ability to induce neuronal excitability and reduce convulsion threshold.

PV0864 / #1936

SHORT-TERM PERIPHERAL VENOUS CATHETER–RELATED STAPHYLOCOCCUS AUREUS BLOODSTREAM INFECTIONS IN PEDIATRIC PATIENTS, MADRID 2017-2021

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Despite the widespread use of peripheral venous catheters (PVCs) in hospitalized pediatric patients, infectious complications, such as PVC-related bloodstream infections (PVCR-BSIs), are commonly underestimated. Among the different microorganisms, Staphylococcus aureus shows high morbidity.
Methods: Retrospective descriptive study including pediatric patients diagnosed with PCVR-BSIs by S. aureus 2017-2021 in two tertiary hospitals in Madrid (Spain). An adapted definition of catheter-related BSI was used, defining confirmed (PVC tip's culture) or probable (phlebitis or resolution of symptoms after catheter removal).
Results: A total of 17 episodes of PCVR-BSIs by S. aureus in 17 patients were identified (8.5% of total S.aureus bacteremias). PCV tip was not cultured in any case. Ten (58%) were males, with a median age of 51 days (IQR:30-199). All but one patient were <1 year. The median time of hospital admission at PCVR-BSI was 8 days (IQR:3-32). The most common reasons for the admission were a respiratory infection (n=5;29%), prematurity (n=5;29%) and congenital heart disease (n=4;24%). None of them had a central line. The PVC responsible for the BSI was considered not necessary for patient's management in 24% of the patients. One (6%) of the cases was due to methicillin-resistant S. aureus. A metastatic infection was diagnosed in 6 (35%) cases: skin and soft tissues(n=4), pneumonia(n=2), osteoarticular(n=2), and endocarditis(n=1). Ten (59%) patients required PICU admission because of PCVR-BSI. One patient died related to the PCVR-BSI and another had osteoarticular sequelae.

Total of bacteriemias due to *S.aureus*	201
PVC-related bloodstream infections	17 (8.5%)
Type of PCVR-BSI	Confirmed: 0 Probable: 17
Concomitant use of a central line	0
Sex	Male: 10 (58%), Female: 7 (42%)
Age	<1 year 16 (94%), ≥1 years: 1 (6%) Median age: 51 days (IQR:30-199)
Income unit	General Pediatrics: 6 (35%) Neonatology: 6 (35%) Pediatric Intensive Care: 4 (24%) Others: 1 (6%)
Reason for admission	Respiratory infection: 5 (29%) Prematurity: 5 (29%) Cardiopathy: 4 (24%) Other causes: 3 (18%)
Presence of comorbidities	No: 4 (24%), Yes: 13 (76%)
Type of comorbidity	Prematurity <27 weeks: 6 (46%) Cardiopathy: 4 (30%) Solid organ neoplasm: 1 (8%) Pierre-Robin sequence: 1 (8%) Metabolic disease: 1 (8%)
Median time of hospital admission at PCVR-BSI	8 days (IQR:3-32)
Metastatic infection	No: 11 (65%) Yes: 6 (35%) Locations: Endocarditis: 1, Lung: 2, Osteoarticular: 3, Skin and soft parts: 4.
Median of total antibiotherapy time	10 days (IQR:6-21)
Need for ICU due to bacteremia	No: 10 (59%), Yes: 7 (41%)
Need for inotropics	No: 13 (43%), Yes: 4 (57%)
Need for oxygen therapy	No: 0 (0%), Yes: 7 (100%)
Need for noninvasive mechanical ventilation	No: 0 (0%), Yes: 7 (100%)
Need for invasive mechanical ventilation	No: 2 (29%), Yes: 5 (71%)
Sequelae related to the PCVR-BSI	1 patient (6%), osteoarticular
Death related to the PCVR-BSI	1 patient (6%)

Conclusions/Learning Points: Our study describes a relevant morbidity of PCVR-BSIs in children, with high proportion of metastatic infections and PICU admissions. Patients were mainly infants <1year old. PVCR-BSI diagnosis is challenging as PVC tips are not usually sent for culture. Training on the care of PVC, decreasing its use if not indicated, seems relevant.

PV0865 / #2310

RISK FACTORS ASSOCIATED WITH AN INCREASE IN ESBL ENTEROBACTERIA CARRIAGE IN A PEDIATRIC HEMATOLOGY-ONCOLOGY UNIT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: An increase in the carriage of extended-spectrum betalactam enterobacterial (ESBLE) in the pediatric population has been observed. Following the observation of an increase in ESBLE carriage in the pediatric hematology oncology unit, the hypothesis of a causal link between exposure to antifungal treatment and ESBLE carriage was put forward. The objectives of this study was to describe patients with ESBL and to determine possible risk factors associated with carriage of ESBLE.
Methods: A single-center retrospective observational study was conducted. Patients under 18 years of age hospitalized in the pediatric hematology oncology department with ESBL carriage were included between January 1, 2017 and December 31, 2020. The factors possibly involved in the acquisition of ESBL germs were extracted from the medical record data.
Results: Of the 242 patients screened over the four years, 61 children were included. The median age was 7.5 years (1-17). The two predominant ESBL bacterial species were Escherichia coli and Klebsiella pneumoniae. Among the patients screened, the proportion of ESBL carriers has increased from 18% in 2017 to 33% in 2020 (p=0.007). No difference was identified between each year concerning the number of central venous lines, exposure to antibiotic treatment (prophylaxis or treatment) in the last 3 months, hospitalization with or without stay in intensive care in the last 3 months, origin or stay in a country with high ESBL endemicity, presence of mucositis, previous history of urinary tract infection. Only exposure to an anti-fungal drug increased from 56% in 2017 to 79% in 2020.
Conclusions/Learning Points: Exposure to antifungal therapy appears to be a risk factor associated with the increase of EBLSE carriage. Larger studies looking at the impact of antifungal prescription on the microbiota of children should be conducted.

PV0866 / #1418

PAEDIATRIC INVASIVE PNEUMOCOCCAL DISEASE: A 30-YEAR STUDY FROM A TERTIARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Streptococcus pneumoniae (SP) is the leading cause of morbidity due to pneumonia, meningitis, and bacteremia worldwide. Pneumococcal 13-valent conjugate (Pn13) vaccines are part of the Portuguese National Vaccination Program (PNV) since 2015, conferring protection against invasive pneumococcal disease (IPD). However, these vaccines have a limited serotype coverage and are associated with serotype replacement. The aim of this study was to characterize IPD in a tertiary paediatric hospital over the last 30 years.
Methods: A retrospective study was performed including all the patients under 18 years-old with a diagnosis of IPD at our department between 1993-2023. The identification occurred by culture and/or molecular biology in products obtained from sterile sites.
Results: A total of 74 patients were included, with a median age of 25 months (1m–17y) and a male predominance (63.5%). Analyzing by 5-year periods, the number of infections were similar. The most frequent diagnosis were pneumonia (31.1%), meningitis (28.4%), bacteraemia (27.0%) and sepsis (24.3%). There was a reduction in meningitis ($p=0.036$) with an increase in pneumonia ($p<0.01$). The SP identification was predominantly in blood culture (48.6%), followed by cerebrospinal fluid (28.4%) and pleural fluid (27.0%). Twenty-three patients (31.1%) had serotype identification - serotype 3 was the most frequent (10.8%). After 2015, there was a reduction in sepsis and bacteraemia ($p=0.002$; $p=0.010$).
Conclusions/Learning Points: There was a reduction in sepsis and bacteraemia after introduction of Pn13 vaccine in the PNV, but not in the overall number of IPD. This may be related with serotype replacement and improved molecular biology diagnosis in the last decade. The high prevalence of serotype 3, in complicated pneumonia, may be caused by the low protection from Pn13 vaccine to this serotype as previously reported.

PV0867 / #1402

FREQUENCY OF RESISTANT MICROORGANISMS IN PATIENTS TRANSFERRED TO THE NEONATAL UNIT AT HOSPITAL UNIVERSITARIO SAN IGNACIO

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Infections by Multidrug-resistant organisms have increased in the population, strategies have been developed for the control and prevention of these infections, such as taking rectal swabs. Objective: Evaluate the incidence and prevalence of multiresistant microorganisms that were transferred or had a previous admission to the neonatal unit at Hospital Universitario San Ignacio during a 40 month timeframe.
Methods: Chart review and univariate analysis descriptive statistics. Bivariate analysis between colonization and infection by multiresistant organisms. Logistic regression analysis to evaluate association between baseline characteristics and colonization by multiresistant organisms.
Results: A Total of 722 patients were included in the study. 68 of them were colonized with multiresistant organisms (9.42%). The main resistant microorganisms found were enterobacteriaceae ESBL not E Coli. The prevalence of infections associated with multiresistant organisms was 2.94%. The only statistically significant association between baseline characteristics and mutiresistant organism colonization was the previous use of antibiotics. OR 2,149 (IC 1,139 - 4,053, p 0.000).
Conclusions/Learning Points: Multiresistant organisms infections are more frequent in patients colonized with multiresistant organisms and this is more frequent in patients with previous antibiotic therapy.

PV0868 / #1019

COMPARISON BETWEEN TWO GROUPS OF CHILDREN WITH INFLUENZA FROM BRASOV, CENTRAL ROMANIA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Background: The dramatic increase in the number of influenza cases constitutes a burden to the Romanian healthcare system. Despite this fact, flu vaccination rates among Romanian children remain low (< 3%.) Aim of the study: to compare different flu strain characteristics of children that were evaluated at the Children Hospital of Brasov during two consecutive flu seasons.
Methods: A retrospective-observational study which enrolled a total of 1831 children who presented at the ER department of Children Hospital of Brasov. All children had positive rapid antigen tests for influenza. Group 1 is represented by 309 children who presented during January-April 2019, and group 2 enrolled 1522 children, from January-April 2020.
Results: All studied children were aged between 0-17 years old (SD=4.63), came from urban or rural areas of Brasov county and both genders were included. Boys were slightly more prevalent - 54.5% in 2019 and 52,3% in 2020 in the studied groups. Differences arose when checking the demographic characteristics- in 2019, more patients from rural areas presented in the ER (54.5%), while in 2020 urban areas were better represented (64.7%) (p=0.039). In both groups, respiratory symptoms and fever were prevalent (p=0.0003), while gastrointestinal symptoms were less common (p=0.002). Influenza A was prevalent in group 1-97.7%, while in the second group, more patients presented with Influenza B-61.5% (p=0.037)
Conclusions/Learning Points: Conclusions: There were differences in the prevalent influenza strain in these two groups. The demographic backgrounds of these two groups varied.

PV0869 / #1117

A CASE OF VARICELLA COMPLICATED BY IMPETIGO AND PERIORAL CELLULITIS

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: A Case of Varicella Complicated by Impetigo and Perioral Cellulitis
Background: Varicella has been known to be a harmless childhood disease. However, it has been reported that severe complications have taken place following varicella infection. Bacterial superinfection of skin and soft tissues are the most frequent complications in both immunocompetent, as well as immunocompromised, individuals.
Case Presentation Summary: A healthy 2-year-old male patient was initially presented with 2-day-history of a papulovesicular rash all over his body, and varicella was clinically diagnosed. Three days later he was referred to emergency service with fever (maximum of 40ºC), food refusal and swelling, redness, and pain around the mouth, with purulent exudate. He presented edema surrounding the mouth, erythema, purulent exudate and widespread rash consistent with chickenpox. The diagnosis was varicella with perioral cellulitis and impetigo, which results in eating difficulties leading to patient hospitalization. There was no evidence of immunodeficiency or chronic disease. Seven days before he was diagnosed with acute otitis and NSAIDs (Ibuprofen) were prescribed for pain. The laboratory parameters results were within normal limits (Leukocytes 9800/uL, Neutrophils 5760/uL, Platelets 511000/uL, CRP 0.6 mg/dL). The patient was treated with intravenous flucloxacillin and glucose solution until the second day of hospitalization, which resulted in progressive improvement in fever, skin lesions and food tolerance.
Learning Points/Discussion: Varicella could cause serious complications including hospital admission. Previous studies demonstrated an increased risk of severe skin and soft tissue infectious complications associated with the use of NSAIDs, such as Ibuprofen, in children with chickenpox. In this case, the consumption of NSAIDs prior to the cutaneous manifestations of chickenpox may have been responsible for the exuberant skin condition. Therefore, fever and pain associated with varicella should be treated with paracetamol, not a NSAIDs.

PV0870 / #962

SERRATIA MARCESCENS ENDOCARDITIS. ARE GRAM-NEGATIVE BACTERIA A NEW PARADIGM IN PAEDIATRIC INFECTIVE ENDOCARDITIS?

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: SERRATIA MARCESCENS ENDOCARDITIS. ARE GRAM-NEGATIVE BACTERIA A NEW PARADIGM IN PAEDIATRIC INFECTIVE ENDOCARDITIS?
Background: Infective endocarditis (IE) is a rare disease in children associated with significant morbimortality. The most frequent aetiological agents for paediatric IE are Staphylococcus aureus and viridans streptococci but, in recent years, other previously rare causative organisms are increasing such as coagulase-negative staphylococci, non-HACEK Gram-negative bacteria and fungi. We describe two cases of Serratia marcescens endocarditis, which has seldom been reported in children.
Case Presentation Summary: 4 months-old female infant with a polymalformative syndrome (ventricular septal defect, renal hypoplasia, cleft palate, polysplenia) admitted to the PICU due to RSV-bronchiolitis. A central venous line was placed. After 2 months of PICU admission, she presented with sepsis symptoms and S. marcescens was isolated in 8 different blood cultures in a 2-weeks period. Echocardiogram showed severe mitral regurgitation and 2.7x3.5mm mitral vegetation. IE was complicated with an apical myocardial abscess. Roth's spots were found on fundoscopy. She received cefepime(20 days)/meropenem(4 weeks) and ciprofloxacin(6 weeks IV, 2 weeks PO) after first negative blood culture. No surgical management was required. 6 weeks-old female infant admitted to the NICU (with central venous line placement) due to preterm birth at 24 weeks gestational age. She presented with haemodynamic instability and S. marcescens was isolated in 6 different blood cultures in a 7-days period. Echocardiogram showed intracavitary vegetation at right atrium. She received a 6 weeks-course meropenem+ciprofloxacin after first negative blood culture, with uneventful recovery.
Learning Points/Discussion: Due to increasing complexity of health care in our setting, there had been changes in paediatric IE microbiological aetiology and risk factors (such as venous central line placement, NICU/PICU admission or immunosuppression). Paediatricians attending patients with suspected IE should be aware of these changes.

PV0871 / #505

OUTBREAK OF CANDIDA PARAPSILOSIS IN NEONATAL INTENSIVE CARE UNIT: INFECTION CONTROL AND CHARACTERISTICS OF BIOFILM

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: We dealt with the occurrence of an outbreak of Candida parapsilosis in a neonatal intensive care unit (NICU) in September 2020. Though there have been several reports of C. parapsilosis outbreaks in NICUs, both the transmission rout and the characteristics of biofilm are not often uncleared. In this study we describe our investigation into the transmission route and the biofilm.
Methods: C. parapsilosis strains were detected in three inpatients and in two environmental cultures in our NICU. One environmental culture was isolated from the incubator used by a fungemia patient, and another was isolated from the humidifier of an incubator that had been used by a nonfungemia patient. The humidifier had not been cleaned after using. To prove their identities, we tested them by micro satellite analysis. We used two methods, dry weight measurements and observation by electron microscopy, to confirm biofilm.
Results: Microsatellite analysis showed the five C. parapsilosis cultures were of the same strain. Dry weight measurements and electron microscopy showed C. parapsilosis formed biofilms that amounted to clumps of fungal cells by massive extracellular matrix.
Conclusions/Learning Points: We concluded that the outbreak happened due to horizontal transfer through the humidifier of the incubator and that the C. parapsilosis had produced biofilm, which promoted an invasive and infectious outbreak. After the outbreak, we suggested that NICUstaff should check all the humidifiers of incubators during daily rounds in order to prevent next outbreak. Additionally, biofilm is closely associated with pathogenicity.

PV0872 / #1969

DOMINANCE OF CC22 CLONAL LINEAGE AMONG INDIAN PEDIATRIC STAPHYLOCOCCUS AUREUS STRAINS: HIGHLIGHTS VIRULENCE AND HOST FACTORS FAVORING SUCCESS OF ENDEMIC CLONES

E-Posters Viewing

E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Staphylococcus aureus(SA) is recognized as an important cause of invasive disease in children. Methicillin resistant Staphylococcus aureus(MRSA) is endemic in India and is a dangerous pathogen for hospital acquired infections among children. Data on the prevalence of SA infection among children are scarce in India. This study was aimed at elucidating genomic epidemiology of SA strains in childhood and explore associations of antimicrobial resistance genes and virulence factors with clinical phenotypes
Methods: 57 paediatric non-repetitive MRSA isolates obtained from nine states of India mainly from pus samples of inpatients from 2014-2019 were studied. Phenotypic ID/AST was performed on Vitek-2 platform. Sequencing was performed in Illumina MiSeq Platform and data was analyzed following GHRU bioinformatic pipeline. Isolates carrying novel SCCmec cassettes were further characterized using long-read sequencing
Results: ST22, ST772 & ST2371 were the major clones identified with CC22 (42%) and CC1 (28%) predominant among MRSA isolates. Varied diversity of 22 different spa types was identified, with predominant spa-t657 type and was present solely in CC1-MRSA isolates (n=14). The CC22 MRSA strains carried SCCmec types IVa (54%) & IVc (46%) and belonged to spa types t005(n=8), t852(n=7) and t309(n=3). Fifteen MRSA isolate carried a novel SCCmec type V and four isolates had type IIIa. The luk-PV and tsst-1 genes were present in 76% and 24.5% of MRSA isolates, respectively. Phylogeographic analysis of the collection performed revealed that the major STs(ST22 and ST772) were present across the entire country for entire duration of the study
Conclusions/Learning Points: The present multicentric study provides crucial current knowledge about the epidemiology of MRSA in the paediatric population in India. Applying a clinical-genomic surveillance technique in India can enhance current infection control and antibiotic stewardship procedures

PV0873 / #526

EPIDEMIOLOGICAL DATA OF STREPTOCOCCAL INFECTIONS IN HOSPITALIZED CHILDREN IN ALBANIA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

Bashkim Nezaj[1], Geogina Kuli-Lito[2], Raida Petrela[3], Ferit Zavalani[1], Blerina Gjoni[3], Diana Shtembari[2], Sosjana Baja[4], Marsida Kurti[5], Sara Zavalani[6]
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Backgrounds: All members of the streptococci genus are Gram-positive, catalase-negative cocci that grow in pairs or short chains and are classified mainly according to the type of hemolysis and their clinical importance
Methods: This is a retrospective and descriptive study which describes epidemiological data in 467 children, hospitalized with streptococcal infection, in the Pediatric Infectious Disease Service, QSUT, during the period January 2017 - December 2021
Results: The incidence of streptococcal infections in hospitalized children in Albania has undergone continuous changes. The highest percentage of hospitalized cases is observed in 2017. The largest number of cases resulted in Tirana in 83.94%. of the cases. The most frequent clinical manifestation was purulent tonsillitis in 80.08% of the cases. Streptococcal infection appear to be more frequent in the spring season (March, April, May) and in the cold months of the year (November, December, January). The most frequently hospitalized age group is 1-5 years old with an average age 4 years old. Men predominate with 58.45% of the cases. 12.41 % of the cases had concomitant diseases but the predominance of a particular pathology as co-morbidity is a random finding. The minimum hospitalization day is 1 and the maximum 21 days, with an average of 5.97 hospitalization days. 10.06% of the cases, resulted with positive culture and 17.77% resulted with high titer of ASO (from the total number of these, cases with a positive throat culture are 42.16%)
Conclusions/Learning Points: Streptococcal infections remain a daily challenge for general pediatricians. Evidence of epidemiological and demographic data are an added help to diagnose and treat these infections at the right time, reducing so the contagiousness and avoiding complications

PV0874 / #1144

POOR STATUS OF THE PRIMARY HEALTH CARE IN NIGERIA-IMPLICATION FOR CHILD HEALTH

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

Oliver Odikamnoro
Ebonyi State University, Applied Biology, Abakaliki, Nigeria

Title of Case: POOR STATUS OF THE PRIMARY HEALTH CARE IN NIGERIA-IMPLICATION FOR CHILD HEALTH
Background: In Nigeria, most heath policies are poorly implemented. One of the worst affected is the primary health care, widely regarded as the cornerstone of essential healthcare, Access to Universal Health Care, and the attainment of health-related Sustainable Development Goals, SDGs, and health security remain a mirage.
Case Presentation Summary: Summary: The Primary Healthcare Centres, PHCs, which are the first point of contact with the healthcare system, are not meeting the needs of Nigerians for essential health services as a result of years of neglect and poor funding
Learning Points/Discussion: Investigations revealed that many of the PHCs especially in rural communities in the six geo-political regions of the country are overwhelmed by challenges of poor staffing, inadequate equipment, substandard infrastructure, shortage of health workers, and lack of essential drug supply among others. Several of the health centres are in bad state and not providing the required comprehensive health care, maternal and child healthcare services, essential drugs and diagnostic services or referrals to secondary and tertiary healthcare institutions. This survey revealed poor implementation of the Primary Health Care as it concerns child health. The remoteness of some rural communities and lack of easy accessibility makes it difficult for health progrmmes to get to the grassroot. There is the need to train a large number of Village-Based Health Volunteers, who should step up community mobilizaion and health education campaigns.

PV0875 / #1191

PAEDIATRIC SCHISTOSOMIASIS IN RURAL COMMUNITIES OF SOUTHEAST NIGERIA-A NEGLECTED HEALTH CHALLENGE OF CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

Oliver Odikamnoro
Ebonyi State University, Applied Biology, Abakaliki, Nigeria

Backgrounds: Background: Human schistosomiasis is an important and widespread infection in the tropics. It gives rise to a complex of acute and chronic diseases with widely differing signs and symptoms. It is the second most prevalent parasitic disease after malaria in the developing world with a huge impact on public health and socio-economic development. It is classified by the World Health Organization as a neglected tropical disease.
Methods: Aggregated studies were carried out in selected primary schools to establish the prevalence and intensity of Schistosoma haematobium infection in some rural communities of Ebonyi state, southeast Nigeria, using the filtration quantitative technique. Primary school children were used as tracers.
Results: Results;The results showed a high prevalence of urinary schistosomiasis among primary school children in the study area.In Abakaliki urban, out of the 800 pupils examined from Afikpo north and Ezza south respectively, 182 (29.5%) and 160 (40.0%) were infected with S. haematobium respectively,.In the 13 locations surveyed, the prevalence of urinary schistosomiasis ranges from 3.97% to 59%.. There was a gradual increase in the disease prevalence with increasing age of the study subjects. About 90% of the infected persons were aged 8 – 14 years. Statistical analysis revealed that the prevalence, intensity and visible haematuria were significantly higher ($P > 0.05$) in subjects between the age 8 and 14 years than subjects below 8 years of age. Results from other endemic areas of the state showed similar trends.Some of the water bodies found in the area that predispose people to the site of infection are streams, ponds, rivers, well. Humans are infected through water contact activities.
Conclusions/Learning Points: Conclusions: Urinary schistosomiasis has a low mortality, its morbidity has great impact on the health of children

PV0876 / #1274

BACTERIAL COLONIZATION IN A NEONATAL INTENSIVE CARE UNIT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Newborns admitted to Neonatal Intensive Care Units (NICU) are highly vulnerable to colonization and infection by multi-drug resistant bacteria (MDRB). Healthcare associated infections due to MDRB are an emerging threat, associated with significant morbidity and mortality. We aimed to analyse the MDRB colonization rate and its associated risk factors, as well as the subsequent development of infection.
Methods: Case review of clinical files of all newborns admitted to a level III NICU, between November 2018 and November 2019. Rectal and nasal swabs were performed upon admission and weekly until discharge for detection of MDRB. Demography, colonization status and infection were recorded. Statistical analysis was performed with SPSS, version 25.0.
Results: 294 newborns were included: median gestational age was 35 weeks (IQR 32-38) with a prematurity rate of 61,2%, 8,2% being extremely preterm. The median birth weight was 2175 grams (IQR 1498,8-3090). The overall MDRB colonization rate was 28,2% (83/294). The most frequent MDR colonizer was ESBL-producing Enterobacteriaceae (n=48). Colonization with MDRB was associated with mothers' admission at least one week prior to delivery (p=0,009), infants' lower gestational age (p<0,001) and birth weight (p<0,001), longer hospitalization (p< 0,001), antibiotic therapy upon admission (p<0,001), mechanical ventilation (p<0,001) and central line (p<0,001). Colonization with a MDRB was an important risk factor for subsequent infection during hospitalization, as 31,3% (26/83) of colonized-infants developed late-onset sepsis, compared to 5,2% of non-colonized ones (p<0,001).
Conclusions/Learning Points: The increase of MDRB in NICUs is a growing concern and the prevention of colonization among hospitalized infants is key to minimize infection. Early detection of colonized patients through screening with subsequent implementation of strict contact precautions and cohorting of patients and healthcare staff helps controlling the spread of MDRB.

PV0877 / #569

BOTTLENECK ANALYSIS TO ASSESS THE BARRIERS TO DELIVERY OF EFFECTIVE AZOLE PROPHYLAXIS IN HAEMATO-ONCOLOGY PATIENTS AT TERTIARY CHILDREN'S HOSPITAL IN IRELAND

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Antifungal prophylaxis is recommended in patients with a >10% risk of developing invasive fungal disease (IFD) during anti-cancer therapy. Oral azoles are popular but effective therapeutic levels can be difficult to attain mandated therapeutic drug monitoring (TDM). The aim was to assess rates of effective azole prophylaxis, compliance with existing guidelines for TDM and bottlenecks to delivery of effective coverage at our institution.
Methods: This was a retrospective audit of eligible patients from July - December 2021. The main outcomes were compliance to TDM guidelines with additional bottleneck analysis using a Tanahashi model. Data was collected from pharmacy and laboratory databases and inpatient records.
Results: There were 16 eligible patients, 12 males, and four females. The median age 11 years (range 1-16 years). Fifteen out of the 16 patients received doses according to the hospital formulary at the start of prophylaxis. Therapeutic levels were all checked at or after 7 days. Fourteen patients achieved the therapeutic level with one requiring switching to Posaconazole from Voriconazole. The median duration to reach the therapeutic range was 4 weeks (range 1 week to 48 weeks) with a mean of 16 weeks with Itraconazole and 9 weeks with Posaconazole. The only patient on Voriconazole achieved the level after 1 week. There was no breakthrough IFD. Bottleneck analysis identified a slow turnaround time for reporting therapeutic levels (median 7 days, range 1-19 days) and inappropriate dose adjustment as barriers to effective coverage.
Conclusions/Learning Points: While compliance with initial dosing and TDM strategies was good, effective coverage was negatively impacted by available drug preparations and health system barriers. Our methods could be replicated in similar institutions to support local interventions to optimize effective coverage.

PV0878 / #1488

BOTTLENECK ANALYSIS TO ASSESS THE BARRIERS TO DELIVERY OF EFFECTIVE AZOLE PROPHYLAXIS IN HAEMATO-ONCOLOGY PATIENTS AT TERTIARY CHILDREN'S HOSPITAL IN IRELAND

E-Posters Viewing

E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

Bazlin Ramly[1], Kara Tedford[2], Valerie Broderick[3], Niamh O'Sullivan[4], Pamela Evans[3], Andrea Malone[3], Jane Pears[5], Eileen Butler[6], Timothy Leahy[1], Sarah Geoghegan[1], Bridget Freyne[1]
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Results: There were 16 eligible patients, 12 males and four females. The median age 11 years (range 1-16 years). Fifteen out of the 16 patients received doses according to the hospital formulary at the start of prophylaxis. Therapeutic levels were all checked at or after 7 days. Fourteen patients achieved the therapeutic level with one required switching to Posaconazole from Voriconazole due to side effect. The median duration to reach the therapeutic range was 4 weeks (range 1 week to 48 weeks) with mean of 16 weeks with Itraconazole and 9 weeks with Posaconazole. The only patient on Voriconazole achieved level after 1 week. There was no breakthrough IFD. Bottleneck analysis identified a slow turnaround time for reporting of therapeutic levels (median 7 days, range 1-19 days) and inappropriate dose adjustment as barriers to effective coverage.
Conclusions/Learning Points: While compliance with initial dosing and TDM strategies was good, effective coverage was negatively impacted by available drug preparations and health system barriers. Our methods could be replicated in similar institutions to support local interventions to optimize effective coverage.

PV0879 / #2239

HOSPITALIZATIONS FOR INFECTIVE ENDOCARDITIS IN CHILDREN: 14 YEARS ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Infective endocarditis (IE) is a challenging diagnosis with high morbidity and mortality. Furthermore, life-saving medical interventions like the use of implanted prosthetic material lead to a higher incidence of these infections. This study aimed to analyse all admissions for IE in a tertiary hospital.
Methods: A retrospective study examining pediatric IE cases treated between 2008 and 2021 at our hospital was conducted. Clinical presentation, treatment, complications, outcome of IE and underlying microorganisms were reviewed.
Results: During this period, there were 25 admissions for pediatric IE. The last years had higher numbers, with 3-fold magnification from 2008 to 2021. The median age was 8.8 years (Q1-Q3:4-14), hospital admissions had a median duration of 43 days (Q1-Q3:25-56) with a maximum of 113 days, and 2 deaths occurred. Heart disease was present in 88%(n=22) of patients which 95%(21/22) was congenital, 50%(11/22) had prosthetic material and of these, 45%(5/11) had mechanical valve. Moreover, 8% of patients had primary immunodeficiency disease. Only one patient did not have fever at presentation. Regarding diagnosis, 36% of patients had no vegetations in imaging exams. In 24% of cases, positron emission tomography was performed. Complications occurred in 44% of patients, with 32% having cerebral or pulmonary emboli. Regarding underlying organisms, Staphylococcus aureus (48%), epidermidis (16%), and streptococcus (16%) were the most frequent. There were no culture negative IE. The mean duration of antibiotic therapy was 6.8 weeks, and 32% were submitted to surgery.
Conclusions/Learning Points: The number of IE diagnoses increased over the years in our hospital. Streptococci are still described as the most prevalent aetiology but Staphylococci are known to becoming more frequent, as shown in our sample. Awareness of IE in patients with heart disease and implanted prosthetics material is crucial.

PV0880 / #2099

MICROORGANISMS AND ANTIMICROBIAL RESISTANCE OF HEALTHCARE-ASSOCIATED INFECTIONS ON THE PAEDIATRIC ENVIN-HELICS DATABASE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: To describe the etiology and antimicrobial resistance pattern of device-associated infections in Paediatric Intensive Care Units (PICUs).
Methods: Multicentre, prospective and observational study based on the Paediatric-ENVIN registry in 25 PICUs. Device-associated infections were analysed in patients admitted for more than 24 hours, during a three-month period (April-June 2021).
Results: From 1986 patients 47 (2.4%) developed 182 infections, and 60 were device-associated: 12(20%) ventilator-associated pneumonia, 17 (28%) catheter-associated urinary tract infections, and 31(52%) catheter-related bloodstream infections/bacteriemia of unknown origin. The causative micro-organism was isolated in 51 infections. The most common microorganisms were Gram-negative bacteria (GNB) 35 cases (62.5%) followed by Gram-positive bacteria (GPB) 14 (25%) and 5 fungal (8.9%), without differences with 2013-2020.

GNBs	Escherichia coli (9; 16%) Pseudomonas aeruginosa (8; 14.3%) Klebsiella pneumoniae (4; 7.1%) Enterobacter cloacae (3; 5.3%) Stenotrophomonas maltophilia (3; 5.3%) Klebsiella spp (2; 3.5%) Serratia marcescens (2; 3.5%).
GBPs	Enterococcus faecalis (5; 8.9%) Staphylococcus aureus (4; 7.1%) Staphylococcus coagulase negative (3; 5.3%)
Fungal	Candida parapsilosis (2; 3.5%) Candida lusitaniae (2; 3.5%) Candida albicans (1 case; 3.5%)

Table 1. Most common isolated micro-organisms Eighty-eight patients (4.4%) were previously colonized by a multidrug-resistant microorganism (MRM). Thirteen patients (1.4%) had an MRM infection. No extended-spectrum β-lactamase or carbapenemase-producing microorganisms were isolated. One case of Pseudomonas aeruginosa was resistant to 4th generation cephalosporins, 2 to quinolones, and one to piperacillin-tazobactam. One Serratia marscescens was resistant to 3rd generation cephalosporins and aminoglycosides. GPB were sensitive to vancomycin and teicoplanin (except one case teicoplanin resistant).

Conclusions/Learning Points: The most frequently isolated microorganisms in device-associated infections in PICUs during the studied period were GNB, most of them being sensitive to standard antibiotics. This profile of micro-organisms remains similar to previous years.

PV0881 / #1742

BLOOD CULTURE CONTAMINATION IN CHILDREN: CHARACTERIZATION OF A CHALLENGING ISSUE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: The rate of contaminated blood culture (CBC) represents an individual healthcare quality indicator. The aim of this study is to describe the characterization of the patients with a CBC in our center.
Methods: We conducted a retrospective observational study, including all patients <15 years who had a blood culture performed in our center during 2021. We defined CBC as the growth of a commensal microorganism in a blood culture. We calculated the contamination rate and analyzed the clinical, epidemiological, and technical characteristics of CBC cases.
Results: CBC rate: from 459 cultures performed, 71 were contaminated (15.5%). The median age of the CBC group was 14 months and the median weight 11.5kg. 63.7% were male. The main organism identified was Coagulase-negative Staphylococci (80.6%), followed by Streptococcus sp (5.3%) and Bacillus sp (4.3%). Technical characteristics: 88.7% of CBC samples were collected at the Emergency Department. The highest rates of CBC ocurred in winter (December) and summer (June-July). Only 65.5% were taken during the fever peak. Clinical features and management: the main symptom to indicate the test was fever (89.2%), higher than 38ºC on the 72.3%. Only 42.6% had a blood test with bacterial infection signs according to Rochester criteria.
The 64.7% of the patients were admitted with a medium stay of 5 days. The 48% received antibiotic (26.1% intravenously). The leading diagnosis was viral infection (30%), followed by low respiratory tract infection (20.5%).
Conclusions/Learning Points: Our center has a higher rate of CBC (15.5%) than recommended by main guidelines (3%). Most of them were collected at the Emergency Department during work peak periods. A deeper study focused on the pediatrician healthcare team is needed to identify points of improvement and establish an effective intervention plan.

PV0882 / #287

ASSESSING SURVEILLANCE DEFINITIONS AND INFECTION RATES FOR HEALTHCARE-ASSOCIATED RESPIRATORY SYNCYTIAL VIRUS (HA-RSV) INFECTIONS IN HOSPITALIZED CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Although HA-RSV infections increase morbidity and healthcare utilization, surveillance strategies are not standardized. We assessed existing surveillance definitions in children with HA-RSV infections and calculated infection rates.
Methods: From October-April 2016-2017, 2017-2018, and 2018-2019, and from October 2020-November 2021, HA-RSV infections were identified in hospitalized children with new-onset respiratory symptoms and RSV-positive PCR tests >=72 hours after admission to six U.S. children's hospitals. We determined the proportion of children with HA-RSV infection who met the U.S. CDC's surveillance definitions for upper respiratory tract infections (URTI) and pneumonia (PNA). To compare HA-RSV infection rates over time, we calculated the respiratory viral infection transmission index (number of HA-RSV infections per 100 hospitalized community-acquired RSV infections).
Results: We identified 122 children with sporadic HA-RSV infections; no outbreaks were identified. Overall, 39% and 10% children with HA-RSV met URTI and PNA definitions, respectively. Infants =<12 months old were less likely to meet the URTI definition than older children (9.4% vs. 52.2%, p<0.001). The median transmission index was stable over time, but varied among sites (Table 1). Table 1: HA-RSV Infection Transmission Index during Three Respiratory Viral Seasons

Respiratory Season April-October	Median, (Interquartile Range, IQR) Transmission Index of HA-RSV per 100 C
2016-2017	0.79 (IQR 0.52, 1.73)
2017-2018	0.63 (IQR 0.46, 1.53)
2018-2019	1.06 (IQR 0.70, 1.70)

Conclusions/Learning Points: Revising surveillance definitions could improve detection of HA-RSV infections and likely other respiratory viral infections. Longitudinal trending of the transmission index could help assess HA-respiratory infection prevention efforts. Mitigation strategies for HA-respiratory viral infections should be prioritized to decrease patient harm. Funded by Merck Sharp & Dohme LLC, subsidiary of Merck & Co., Inc., Rahway, NJ, USA.

PV0883 / #1005

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS EPIDEMIOLOGY - A 6-YEAR ANALYSIS IN A PEDIATRIC HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Staphylococcus aureus (SA) is responsible for common infections, mainly in the skin/soft tissue, but it can occasionally cause more severe ones. Resistant SA, namely Methicillin-resistant Staphylococcus aureus (MRSA) have been arising, making clinical challenges to its approach.
Methods: Retrospective cohort study including pediatric patients with positive cultures for SA, performed at a tertiary pediatric center, from 2017 to 2022.
Results: There were 328 identifications of SA, obtained from 147 patients (51.7% males), with median age of 13 years-old (YO) (IQR 11-15 YO). Most patients (78.2%) presented chronic diseases, the most frequent being cystic fibrosis (21.1%). The majority of these samples were from respiratory secretions (64.3%), or from skin/soft tissue lesions(26.8%). About a third (35.6%) were associated to health-care settings. The most frequent therapeutic option was amoxicilin-clavulanate (21.6%). MRSA was detected in 21 samples (6.4%), collected from 18 patients (55.6% males), with median age of 14 YO (IQR 14-15 YO). Prevalence of chronic pathologies was 88.9%. Most samples were obtained from skin/soft tissue lesions (55.6%) and a third (33.3%) had a antibiotic use in the last 3 months. Vancomycin was the most frequent therapeutic option (41.2%). One case of health-care associated MRSA was also resistant to vancomycin.
Conclusions/Learning Points: MRSA prevalence in our sample was similar to previous studies in Portugal/Europe (~7%). MRSA detection was high in chronic diseases, and with recent antibiotic use. MRSA prevalence has been arising owing to decades of unnecessary antibiotic use, and should be considered when initial therapies are not effective.

PV0884 / #1438

HEPATITIS A: A CASE REPORT WITH IMPORTANT ANALYTICAL CHANGES – THE IMPORTANCE OF THINKING ABOUT THE MOST PREVALENT INFECTIONS OF IMMIGRANT'S ORIGIN COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: Hepatitis A: a case report with important analytical changes – the importance of thinking about the most prevalent infections of immigrant's origin countries
Background: The incidence of hepatitis A infection has decreased with the improvement of sanitary conditions and accessibility to immunization. Nowadays, the majority of cases reported in Portugal are imported from other countries. The main transmission route is fecal-oral.
Case Presentation Summary: The authors report a case of a previous healthy 11-years-old boy, who recently emigrated from Angola, observed in the emergency department due to abdominal pain. Mentioned fever since the previous day to admission, was well malaise, anorexia, vomiting, jaundice and choluria with one day of evolution. The blood analysis demonstrated elevation of bilirubin (total bilirubin 15.64mg/dL; direct bilirubin 14.58mg/dL); alkaline phosphatase 405 IU/L; gamma-glutamyl transferase 251 IU/L; aspartate aminotransferase 4465 U/L; alanine aminotransferase 4581 U/L; lactate dehydrogenase 2390 IU/L; prothrombin time 23.20 seconds; activated partial thromboplasmin clotting time 33.2 seconds. Hepatitis A serologies positive for immunoglobin M and negative immunoglobin G. Acute hepatitis A infection was presumed. The treatment was supportive, focusing on symptoms control and fluid therapy. During hospitalization, the maximum total bilirubin was 44.46 mg/dL and direct bilirubin 33.42mg/dL. A mild hepatomegaly and bilateral pleural effusion was showed by abdominal ultrasound. On the 10th hospitalization day, the patient has been discharged with good clinical and analytical evolution.
Learning Points/Discussion: In recent years, the rate of immigration to Portugal has increased and with that the number of less frequent disorders, in particular infectious diseases. Given this endemic context, the authors agree that it is necessary to value the child's history and cover all diagnostic hypotheses, improving the quality of health care and limiting outbreaks.

PV0885 / #2143

COMPLIANCE WITH HAND HYGIENE IN PAEDIATRIC WARDS: A LITERATURE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Healthcare Associated Infections (HCAI) are a major issue in clinical practice worldwide that increase patient morbidity and mortality. It is clear that healthcare professionals' compliance with hand Hygine (HH) is the cornerstone of reducing HCAI. However, it is commonly understood that non-compliance with HH remains and negatively impacts on paediatric patients by increasing their hospital stay and exposing them to the complications of infections. This literature review has been designed to explore and critically analyses existing studies on paediatric nurses' compliance with HH. This review focuses on understanding the factors that affect compliance with HH among paediatric nurses.
Methods: A systematic approach was used to review the literature. The literature as a whole is critically searched, through the use of inclusion and exclusion criteria. The search strategy was designed to retrieve studies from 2010 to 2020, using CINAHL, PsycINFO, Academic Search Premier, Medline, and Cochrane Database of Systematic Reviews.
Results: The literature suggests that the reliable use of HH can prevent transmission of HCAIs and improve patient and healthcare safety. However, compliance to HH among healthcare professionals is suboptimal. Existing studies have evaluated compliance rate and examined factors that influence compliance with guidelines in different clinical areas such as availability of sinks and hand washing agents, and insufficient time and personnel. However, these studies do not fully address the views and perceptions of paediatric nurses in relation to infection control practice, and the factors that affect their compliance with HH.
Conclusions/Learning Points: It is necessary that we have a thorough understanding of the factors influencing compliance with HH. It is especially important that we understand why paediatric nurses sometimes choose not to comply with HH. It is suggested here that further research is necessary to explore this issue.

PV0886 / #2061

KANGAROO CARE AS A POTENTIAL INFECTION PREVENTION AND CONTROL (IPC) MEASURE IN NEONATAL INTENSIVE CARE UNITS

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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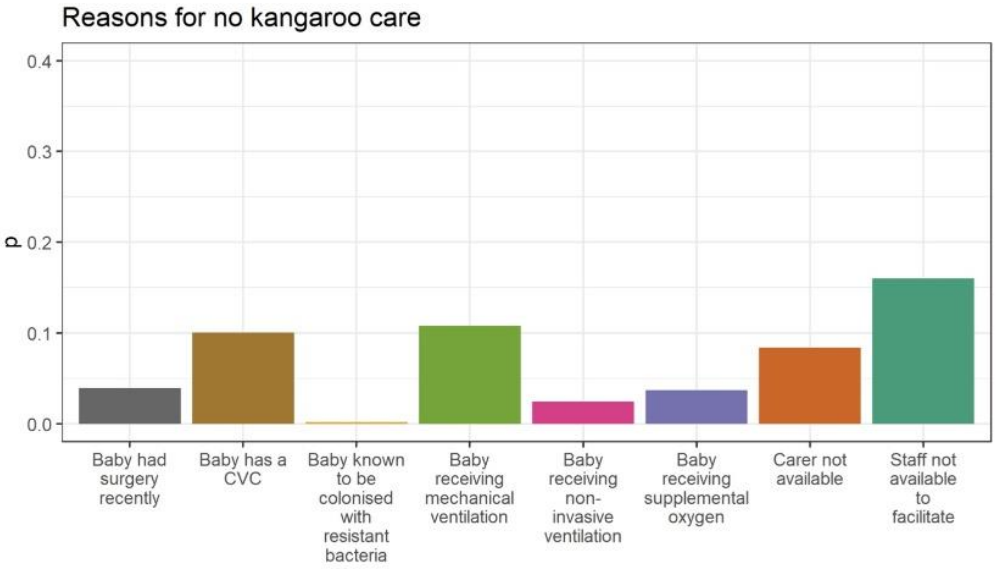
Backgrounds: Kangaroo care (KC) has been shown to be protective against hospital-acquired neonatal sepsis. One suggested mechanism includes the reduction in neonatal bacterial colonisation through skin-to-skin contact, as previously shown for Methicillin-Oxacillin-Resistant Staphylococcus aureus, thus leading to fewer invasive bacterial infections.
Methods: The NeoIPC colonisation assessment is an EU Horizon 2020 (No 965328) funded multi-centre study characterizing bacterial colonisation in hospitalised neonates. KC practices were captured for each participating centre in a standardized questionnaire which included general and neonatal-specific IPC aspects. In addition, actual receipt of KC was collected in up to 4 colonisation surveys for each participant.
Results: By December 2022, 16 European NICUs had completed the IPC questionnaire. 11/16 (69%) units indicated offering KC, mainly to mothers and fathers. Overall median duration of a session was 105 min (IQR 60-165min). Barriers to KC indicated by the units were mostly surgery (8/11), mechanical ventilation (5/11) and carer known to be colonised with resistant bacteria (3/11). Written guidance and training were available in 7/11 units. The colonisation assessment had 545 participants contributing to 1062 surveys. 307/545 (56%) received KC at some point during their hospitalisation up to the last survey they were included in. Overall in 1062 surveys, 510 participants (48%) had received KC in the 24 hours prior to the survey, these rates were similar in neonates < 32 weeks and >=32 weeks. Most common reasons for not receiving KC included presence of central lines, mechanical ventilation and unavailability of staff/carers (Figure
1).



Conclusions/Learning Points: While KC is potentially an effective neonatal specific IPC intervention, the results indicate that real-world implementation of KC varies strongly across European NICUs thus offering the potential to optimise this technique as an IPC strategy.

PV0887 / #997

CANDIDA AURIS AS THE PREDOMINANT SPECIES CAUSING NOSOCOMIAL CANDIDEMIA IN NEONATES AND CHILDREN IN MUMBAI, INDIA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: Candida auris as the predominant species causing nosocomial candidemia in neonates and children in Mumbai, India
Background: Candida is an important cause of nosocomial blood stream infections in neonates/ children. C. auris is currently one of the most important candida species to reckon with.
Case Presentation Summary: This is a retrospective chart review of all newborns and children who had nosocomial candidemia between 2015-2022 at a private tertiary care hospital in Mumbai India. Identification and susceptibility testing was done on VITEK-2 (Biomerieux, France). Data related to risk factors, species distribution, antifungal susceptibility and outcomes were extracted and analysed. There were 19 patients who met the criteria for nosocomial candidemia during the study period. These included 9 newborns (age < 90 days), 7 infants (3-12 months) and 3 children. The risk factors were cardiac surgery in 12 children, prematurity in 3 and pediatric critical care admission in 4 patients. Candida auris was the commonest species accounting for 37% of the isolates (7 cases, 6 neonates) followed by C. parapsilosis (4 isolates), Candida tropicalis/ C. albicans/ Candida pelliculosa in 2 each and Candida famata/krusei in 1 each. The overall fluconazole and amphotericin B susceptibility rates of the candida isolates were 50% and 70% respectively. All the isolates were susceptible to the echinocandins. The C. auris isolates were uniformly resistant to fluconazole and voriconazole/ amphotericin B and flucytosine susceptibility was seen in only 2/7 isolates. CSF examination was abnormal in 1 baby with C.parapsilosis but none with C. auris. The overall crude mortality rate was 21% (4 deaths) while the mortality rate in those with C. auris candidemia was 30% (2/7 deaths).
Learning Points/Discussion: Emergence of C. auris in neonates/children poses significant challenges in treatment and infection control.

PV0888 / #1073

THE MOLECULAR EPIDEMIOLOGY OF METHICILLIN-SENSITIVE STAPHYLOCOCCUS AUREUS IN A NEONATAL INTENSIVE CARE UNIT

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Isolation rates of methicillin-resistant Staphylococcus aureus (MRSA) have decreased due to disseminated infection control in neonatal intensive care units (NICUs). In contrast, the frequency of isolation of methicillin-sensitive Staphylococcus aureus (MSSA) has not decreased. Therefore, the control of MSSA infection is expected to contribute to the improvement of neonatal prognosis in the future. We performed a molecular epidemiological analysis of isolated MSSA strains in the NICU and attempted to elucidate their genetic characteristics.
Methods: Samples were collected from neonates admitted to the NICU at Juntendo University Hospital, their parents, and healthcare workers of the NICU. DNA was extracted from the isolated MSSA, and whole genome analysis was performed using a next-generation sequencer. Multilocus sequence typing (MLST) and search of resistance genes and pathogenic genes were performed based on whole genome information.
Results: MSSA was detected in 69 cases, including 16 neonates. In the Clonal Complex classification by MLST, CC30 was the most common with 13 samples (12 strains), followed by CC45 with 11 samples (6 strains), and CC1 with 7 samples (4 strains). There was no obvious difference in distribution between neonates and adults. In the search for pathogenic genes, tst was detected in 17 samples and eta in 5 samples.
Conclusions/Learning Points: The distribution of major CCs was similar between adults and neonates, and no bias in resistance or toxin genes was observed. From this, it is speculated that MSSA isolated from neonates is not circulating in the NICU, but is transmitted to neonates from adults carrying MSSA. Additionally, many strains with the tst gene, which encodes a superantigen toxin (TSST-1) that causes neonatal TSS-like eruption (NTED), have been identified. This result suggests that more stringent infection control measures are needed in NICUs.

PV0889 / #2089

CENTRAL-LINE ASSOCIATED BLOODSTREAM INFECTIONS IN CHILDREN WITH INTESTINAL FAILURE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Children with intestinal failure (IF) on parenteral nutrition (PN) are at high risk for bacteremia. Pediatric central line–associated bloodstream infections (CLABSIs) cause morbidity and increased health care use.
Methods: A retrospective review of the medical records of pediatric patients who are or were dependent of home PN. Medical records were evaluated from January 2004 to December 2022.
Results: A total of 39 patients with IF were selected, 21 (53.8%) were male. After excluding the 5 deceased patients, 34 patients were included. Median age was 8 years (IQR 3-11). Sixty five percent of the patients had short bowel syndrome and 14.7% chronic intestinal pseudoobstruction. The median time on parenteral nutrition was 39 months (IQR 12-108), with a median number of CVC of 3.5 per patient (IQR 2-5.5). Each patient was hospitalized in our center an average of 1.5 times per year (IQR 1-2.25) with a median of 8,5 days (IQR 4-16). 79 CLABSIs were registered, with a ratio of 1.3 CLABSIs per 1000 days of catheter. 51% were caused by gram-positive bacterias, 47% were gram-negative and 2 fungal infections were recorded. The most prevalent bacteria isolated was Staphylococcus epidermidis (n=20), followed by Pseudomonas aeruginosa (n=10), Staphylococcus aureus (n=5) and Klebsiella pneumoniae (n=5). Antibiotics were adjusted to antibiotic susceptibility testing. Even though the number of patients with IF and CVC is increasing the percentage of infection per year is decreasing.
Conclusions/Learning Points: The diagnosis of CLABSIs is challenging and has a great impact on the quality of life of these patients. Although patients dependent of devices such CVC are increasing, education of CVC management with the practice of consistent guidelines is important to reduce CLABSIs.

PV0890 / #683

A CASE OF TOXOCARIASIS IN AN 11 YEAR OLD GIRL IN URBAN AREA OF CENTRAL GREECE

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Title of Case: A CASE OF TOXOCARIASIS IN AN 11 YEAR OLD GIRL IN URBAN AREA OF CENTRAL GREECE
Background: Parasitic nematodes of Toxocara are important zoonotic pathogens. The parasites are usually directly transmitted to the human host via the faecal-oral route causing toxocariasis. Toxocariasis can be associated with severe neural, ocular and visceral larva migrans disease.
Case Presentation Summary: An 11-year old girl presented with a 3 day history of abdominal pain, nausea and loose stools. On examination she was afebrile, with no abdominal tenderness. Laboratory tests revealed leukocytosis with eosinophilia (12400 eosinophils/ml), normal hematocrit and platelets, normal CRP and liver biochemistry and elevated IgE (1230 IU/ml). Parasitosis was suspected and chest x-ray and ophthalmologic examination were performed with no abnormal findings. On abdominal ultrasound marginally enlarged liver and spleen, as well mesenteric lymph nodes were found. She was started on oral mebendazole for a 3 day course. Serology tests were sent for echinococcus, toxocara spp, leishmania, cysticercus, trichinella and dirofilaria. Parasitology stool testing was negative. Serology testing initially was positive for echinococcus. Our patient was clinically well, asymptomatic on follow-up and blood eosinophilia was gradually improving on oral mebendazole. Serology tests were repeated twice with positive IgG and IgM antibodies (+3) for toxocara canis and negative for echinococcus. She had another 3-day course of mebendazole 15 days after the first. She had no relapse of symptoms and blood eosinophils were in normal range on follow-up.
Learning Points/Discussion: Toxocara is a worldwide human helminthiasis. The disease is mostly asymptomatic. In cases of eosinophilia toxocariasis should be included in the differential diagnosis. Serology tests can give false positive cross reactions with other parasites and need to be repeated and correlated to the clinical presentation.

PV0891 / #2635

ANALYSIS OF A SEROLOGICAL STUDY OF PERTUSSIS AMONG CHILDREN AND ADOLESCENTS IN THE REPUBLIC OF KAZAKHSTAN

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Background: In 2018 over 151 000 cases of whooping cough were reported worldwide. In the Republic of Kazakhstan the incidence of whooping cough has always remained relevant. The incidence is recorded mainly among children under 14 years of age, whose share is 96–100% of the total incidence in certain years. It should also be noted that 82,9–96% of sick people are not vaccinated against whooping cough.
Methods: For the study included medical organizations in the cities of Aktobe, Karaganda, Taldykorgan, Shymkent. Participants aged 10–14 years who were hospitalized in children's hospitals and 15–18 years old who visited polyclinics were invited to participate in the study.
Results: Among 520 participants aged 10–14 years – 200 (38.5%) and 15–18 years – 320 (61.5%), including boys – 284 (54.6%), girls – 236 (45.4%). Just over half of the children (276 or 53.1%) also received the whooping cough vaccine at age 6. In biological blood samples of 17 participants (3.3%) antibodies of the IgA class were detected in 245 samples (47.1%) – antibodies of the IgG class. Of the 17 participants with IgA antibodies, 15 also tested positive for IgG. In total antibodies of the IgA and IgG classes were detected in 247 participants which amounted to 47.5%.
Conclusions/Learning Points: Thus an increase in whooping cough and a decrease in protective vaccine immunity among older age groups can be stated which raises concerns about transmission of the infection in the home to vulnerable children and the need to strengthen vaccination strategies.

PV0892 / #947

EPIDEMIOLOGY OF CARBAPENEMASE-PRODUCING ENTEROBACTERALES COLONIZATION IN A PAEDIATRIC TERTIARY HOSPITAL IN CANADA

E-Posters Viewing
E-POSTER VIEWING: AS12. HEALTH ASSOCIATED INFECTIONS, INFECTION PREVENTION AND CONTROL

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Backgrounds: Infections caused by carbapenemase-producing Enterobacterales (CPE) are associated with high mortality rates and treatment is complicated by limited antibiotic therapy options. Guidelines recommend patient CPE screening and use of additional precautions for CPE-colonized patients to prevent transmission in healthcare settings. Knowledge of CPE epidemiology in hospitalized children is limited. We aimed to describe CPE colonization in a paediatric tertiary healthcare centre in Canada.
Methods: Hospital-wide point-prevalence CPE screens of inpatients were completed in April of 2017, 2019, and 2022. Families provided verbal consent. If CPE was identified in stool/rectal swab, medical charts were reviewed for history of travel or hospitalization outside of Canada.
Results: In 2017, specimens were obtained from 242 of 270 inpatients (89.6%). CPE was isolated in one patient (0.4%): with an OXA-48-like gene Escherichia coli. This patient had prolonged hospitalizations in Lebanon, where OXA-48 outbreaks have been reported. In 2019, specimens were obtained from 278 of 299 inpatients (93.0%). CPE were isolated in two patients (0.7%): both E. coli with OXA-48-like genes. These patients were Canadian born with histories of long-term travel to India the prior year. In 2022, 220 specimens were obtained from 236 inpatients (93.2%). CPE were isolated in two patients (0.9%). One carried NDM-positive E. coli and Klebsiella pneumoniae with OXA-48-like genes with prior hospitalization in Turkey. The other had NDM-positive E. coli and history of travel to Afghanistan and Pakistan.
Conclusions/Learning Points: This study highlights the importance of periodic CPE surveillance in Canadian paediatric hospitals. Identified risk factors included receiving healthcare or living outside Canada. T Targeted screening programs should include these risk factors to identify colonized patients and prevent transmission in hospital.

PV0893 / #1467

ANTI-SARS-COV-2 ANTIBODIES ISOLATED FROM PHAGE DISPLAY ANTIBODY LIBRARY NEUTRALIZES SARS-COV-2 WILD-TYPE AND DIFFERENT VARIANTS OF CONCERN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Therapeutic application of scFv antibodies can be a suitable alternative to costly full IgG monoclonal antibodies. Neutralization of different SARS-CoV-2 variants can be achieved by scFv antibodies isolated from antibody libraries constructed from convalescent plasma of COVID-19 recovered patients. The objective of this study was to evaluate the neutralizing activity of anti-SARS-CoV-2 scFv antibodies isolated from phage display antibody library against different SARS-CoV-2 variants.
Methods: Phage displayed antibody library was constructed from ten COVID-19 recovered patients of Indian origin. Biopanning was done against SARS-CoV-2 proteins viz. S1, S2, and RBD. Phage ELISA screened binders were evaluated for virus neutralizing assay by transducing spike pseudotyped virus to ACE2 + HEK293T cells and corelated with luciferase assay. Neutralizing activity of different scFv antibodies was investigated against SARS-CoV-2 wild-type and different variants. ACE2-IgFc microbody was used a positive control for neutralization assay. DNA sequencing of these scFv antibodies was performed to determine the novelty of CDRs.
Results: As a result of stringent biopanning and primary screening by phage ELISA, 15 scFv clones were identified as suitable candidates for DNA sequencing and based on novel CDR sequences, 7 were shortlisted for neutralization assay of SARS-CoV-2 (Wuhan-wild type, Alpha, Delta, and Omicron). Two clones were found to neutralize all 4 strains of SARS-CoV-2 and can be considered as suitable candidates for future therapeutic applications.
Conclusions/Learning Points: Neutralizing activity of Wuhan-wild type and SARS-CoV-2 variants (Alpha, Delta, and Omicron) was successfully demonstrated by two scFv antibodies isolated from phage displayed antibody library constructed from convalescent plasma of COVID-19 recovered patients from Indian population.

PV0894 / #2657

MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN: AN OVERVIEW

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection was first identified in China in late 2019 and has quickly spread across the world, with subsequent epicenters being recognized in Europe and the U.S. As per the previous reports of SARS-CoV-2 infection, it was not seen very commonly in young children. This could be due to a lack of detection because of predominantly asymptomatic or mild disease in this age group. In the latter part of April 2020, a new syndrome in children and adolescents termed "multisystem inflammatory syndrome in children" (MIS-C) with likely relation to SARS-CoV-2 infection was first described.
Methods: Methodology: The review is a comprehensive research of PUBMED, Google Scholar, and WHO official page from the year 2005 to 2021.
Results: In a very short duration of time, a lot has been learned about MIS-C temporally associated with COVID-19; however, numerous uncertainties still exist. It is a rare disease and consists of a variable spectrum of symptoms and severity. It may have a turbulent course consisting of multiple organ failure and the need for intensive care. Causality with SARS- CoV-2 cannot be proven, but the temporality associated with COVID-19 is remarkable, emphasizing the importance of conducting serology and viral research.
Conclusions/Learning Points: Conclusion: In a very short duration of time, a lot has been learned about MIS-C temporally associated with COVID-19; however, numerous uncertainties still exist. It is a rare disease and consists of a variable spectrum of symptoms and severity. It may have a turbulent course consisting of multiple organ failure and the need for intensive care. Causality with SARS- CoV-2 cannot be proven, but the temporality associated with COVID-19 is remarkable, emphasizing the importance of conducting serology and viral research.

PV0895 / #1529

THE INFLUENCE OF COVID-19 PANDEMIC ON INFLUENZA IMMUNIZATION IN ALHASA REGION: CROSS-SECTIONAL STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Influenza vaccination is the primary control measure for severe complications caused by influenza viruses. Moreover, in the face of the COVID-19 pandemic, Saudi Arabia recommends vaccinating people at risk against influenza to minimise co-infection risk with SARS-CoV2. Therefore, this study aims to assess the Saudi population's knowledge, attitude, and practice toward influenza vaccination during the COVID-19 pandemic. Moreover, we evaluate the impact of the COVID-19 pandemic on seasonal influenza vaccination.
Methods: This cross-sectional study was conducted using an online survey in AlHasa region between March 2022 to Novmber 2022. Participants were invited to complete the questionnaire through a survey link sent to social media platforms.
Results: A total of 3240 participants were included in this study. Our data demonstrate a lack of practice, attitude, and knowledge, especially on the influenza virus's symptoms, viral transmission, and vaccine efficacy. Moreover, this study showed that the COVID-19 pandemic significantly impacted seasonal influenza vaccination in the AlHasa region population by 1.3-times compared to the previous years.
Conclusions/Learning Points: COVID-19 pandemic has increased the hesitancy of participants in influenza vaccination due to the lack of knowledge. As the pandemic of COVID-19 is fading, awareness campaigns are needed to encourage the public about the importance of receiving the influenza vaccine, especially for those at high risk each year.

PV0896 / #1291

FIRST-LINE TREATMENT OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN RELATED TO COVID-19 - A SYSTEMATIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: MIS-C associated with COVID-19 is a rare and severe complication, that usually occurs up to 4 weeks after of SARS-CoV-2 infection. Consensus has no been on the best treatment strategy has not yet been reached. The present review aims compare the outcomes of the currently most used treatment options: intravenous immunoglobulin (IVIG), corticosteroids and their combination.
Methods: This systematic review followed PRISMA 2020 guidelines. Initial search was conducted until december 2022, through EBSCOhost databases (including MEDLINE and Cochrane), as well PubMed. The algorithms used were constructed with strategically chosen MESH terms. Studies eligible for inclusion were randomized controlled trials, case-control and cohort studies of patients diagnosed according to WHO, CDC or RCPCH criteria and treated with either or both drugs. The included studies' quality of evidence and risk of bias were assessed using the Newcastle-Ottawa Scale and ROBINS-I tool, respectively.
Results: Of 445 papers identified in the search, 10 retrospective cohort studies were included. Of the five studies that used cardiovascular dysfunction as an outcome, four found that using a combined treatment as first-line therapy resulted in a significantly shorter time to recover from cardiovascular disfunction when compared to only IVIG. Concerning the subsidence of fever, four of five studies, that analysed this outcome, concluded it occurs more rapidly in patients on an initial treatment containing corticosteroids from the beginning.
Conclusions/Learning Points: Although most included studies suggest addition of corticosteroids to initial MIS-C treatment leads to better outcomes, we still found many disparities. Randomized controlled trials are needed to come to a clearer conclusion.

PV0897 / #1819

COVID-19-ASSOCIATED MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C): EPIDEMIOLOGICAL AND CLINICAL LABORATORY DATA IN ISOLATION UNIT OF "MURATSAN" UNIVERSITY HOSPITAL COMPLEX, YEREVAN, REPUBLIC OF ARMENIA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Both statistically and clinically significant association between COVID-19 and KD was shown in many trials. Those cases were clinically similar to incomplete Kawasaki disease and that's why called Kawasaki-like syndrome (nowadays: COVID-19-associated Multisystem Inflammatory Syndrome in Children, MIS-C).
Methods: A retrospective analysis was performed of medical files in a period from July 2020 to January 2021. Sixteen patients were included.
The aim of our study is to analyze the clinical and laboratory data of patients with MIS-C treated in the Isolation Unit.
Results: The male-to-female ratio was 11 to 5. A definitive diagnosis of MIS-C was made among 15 patients. Only 1 out of 16patients has a negative test for COVID-19 antibodies(6.25%). Of 15(93.75%)patients presented to the clinic with a fever. Only one patient has no fever at presentation due to belated admission (9^{th}day of the disease). Of 14(87.5%) complained of rash, another 2 developed rashes during 2-3days of hospital stay. Enlarged lymph nodes were seen in 13 and conjunctivitis in 11patients at presentation but, later, the other 5patients had conjunctivitis too. Gastrointestinal symptoms like diarrhea and vomiting were reported among 5patients(31.25%). The results of laboratory investigations are depicted in Table 1 and Table
2

	At presentation			Before discharging			
	Min	Mean	Max	Min	Mean	Max	Reference
RBC	3.36	4.175	4.66	3.41	4.19	5.08	3.8-6.0 * 10^{12}/L
Hb	88	112.125	130	91	115.125	153	115-170 g/L
PLT	90	234.1875	439	433	618	731	150-400 * 10^{9}/L
WBC	5.17	8.8	16.55	7.93	17.81	30.44	3.5-10 * 10^{9}/L
Neu	2.42	6.44	13.89	3.09	8.16	16.85	1.6-7 * 10^{9}/L
Lym	0.38	1.6	3.17	3.02	7.77	14.59	1-3 * 10^{9}/L
ESR	19	41	85	9	26.5	60	2-10 mm/hr

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	At presentation			Before discharging			
	Min	Mean	Max	Min	Mean	Max	Reference
Albumin	26.8	32	40.7	25.1	38.21	46.8	39-52 g/L
Triglycerides	0.73	2.21	5.24	0.95	2.33	4.83	0.45-1.8 mmol/L
ALT	4.5	31.8	111.4	8.2	26	84.8	< 40 U/L
AST	9.3	31.9	121	11.7	28.3	67.2	< 35 U/L
CRP	36.39	151	200	0.75	3.17	8.49	< 5 mg/L
Ferritin	30.9	459.93	1333.7	17.6	152.48	278	14-124 µg/L
COVID-19 Ab	1,05	69.5	152.4	-	-	-	< 1

Blood cultures were negative(n=16). Cardiovascular involvement were totally reported in 10(62.5%)patients. IVIG was administered to 15(93.75%) patients, of 12(80%) with clinically good responses to therapy. Two of three IVIG-treatment-resistant patients were treated with Methylprednisolone pulse therapy and one with Infliximab. Dexamethasone was given to 15(93.75%), Aspirin to 16, and antibiotics to 9(56.25%)patients.

Conclusions/Learning Points: The absence of a rash cannot exclude COVID-19-associated MIS-C. High platelet levels were also seen among our patients during the last days of hospitalization. Low-dose Aspirin and surveillance is good measures for these patients.

PV0898 / #568

TREATMENTS FOR PEDIATRIC COVID-19 IN ADMITTED CHILDREN IN BRAZIL. A THREE-YEAR FOLLOW UP

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Introduction/Aim: Despite of improving in pediatric COVID-19 care remains the necessity of analysis of treatments for admitted children in the “real life”, The aim of the manuscript is to describe treatments used in hospitalized children with confirmed COVID-19
Methods: We performed a temporal serie of confirmed pediatric COVID-19 cases. All children less than 18 years admitted in two pediatric hospitals of Rio de janeiro city, Brazil were included. We analysed the folowwing treatments: antimicrobials, corticosteroids, immunoglobulin and anticoagulants. A descriptive analysis was conducted.
Results: We analyse 333 patients, being 95/333 (28.5%) in 2020, 150/333 (45%) in 2021 and 88/333 (26.4%) in 2022. One-hundred twenty seven (38.1%) were younger than 2 years, 67/333 (20.1%) had between and 2 and 5 years, 70/333 (21%) had between and 5 and 10 years and 69/333 (20.7%) had between 10 and 18 years. One-hundred ninety (57.1%) were admitted in pediatric intensive care units and 143/333 (42.9%) in wards. At least one antimicrobial was prescribed in 282/333 (84.7%) patients being 262/333 (78.7%) of them antibiotics, two antimicrobials in 169/333 (50.8%), three or more antimicrobials in 108/333 (32.4%) children. Corticosteroids were prescribed in 142/333 (42.6%) children, imunnoglobulin in 19/333 (5.7%) patients, tocilizumab in 3/333 (0.9%) and anticoagulants in 7/333 (2.1%) patients. Of 88 children admitted in 2022, 82 (93.25) didn’t receive any dose of COVID-19 vaccine.
Conclusions/Learning Points: Antimicrobials were extensively used for children with COVID-19 in this temporal serie, especially antibiotics, probably to initial difficulty to diffentiate associated bacterial infections. Corticosteroids were prescribed for almost half of patients.

PV0899 / #877

EPIDEMIOLOGY AND CHARACTERISTICS OF MISC IN CYPRUS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: EPIDEMIOLOGY AND CHARACTERISTICS OF MISC IN CYPRUS
Background: Multisystem inflammatory syndrome in children(MISC) is a rare but severe complication of SARS-CoV2 infection in children, and typically occurs 2-6 weeks after acute infection. MISC can present with three main distinct phenotypes: Kawasaki-like disease, cases admitted with shock and cases with fever and inflammation. The aim of this study is to evaluate the burden and clinical characteristics of MISC in Cyprus.
Case Presentation Summary: We reviewed the medical records of patients, younger than 16-year-old admitted to hospitals in Cyprus with MISC, that fulfilled the criteria of Center for Disease Control US between May 2020 and May 2022. 34 children were hospitalized with MISC, during the 2 year-period. The incidence of MISC was higher during the domination of Alpha(55/100000) and Delta(51/100000), in contrast to Omicron variant(16/100000). The median age of children was 5 years(3 months to 13,6 years). MISC occurred equally in males and females. Only one adolescent had vaccination history. Despite no death, 26% of children required intensive care. Children who presented with shock(38%), had a median age 8 years. Patients with the phenotype of fever and inflammation(32%) had a similar median age. Kawasaki-like phenotype(29%), had a median age 2,5 years-old. In acute phase, 38% of children developed coronary artery dilatations, 24% mitral valve regurgitation and 12% affected myocardial function. Temporary acute kidney injury was reported in 3 cases. All the children received treatment, most of them(56%) IVIG and low dose prednisolone for initial treatment.
Learning Points/Discussion: The epidemiological and clinical features of MISC in Cyprus is in accordance with studies in other European countries and USA. MISC remains a rare but possibly life-threatening complication of covid-19 in children. Vaccination appears to be protective in many studies.

PV0900 / #2001

ATTITUDES OF PARENTS AGAINST COVID19 VACCINATION IN CYPRUS.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Covid-19 vaccines have been approved for children ≥12 and 5-11 years since September 2021 and December 2021, respectively. However, many parents still hesitate to vaccinate their children against covid-19. The aim of this study is to investigate the parents' attitudes to offer the vaccine to their children.
Methods: This is a cross-sectional study, in which questionnaires were distributed to parents whose at least one child was 5 to 18 years, and who visited a primary care paediatrician's office across all regions of Cyprus. Data on demographic characteristics and parental beliefs for routine and covid-19 vaccinations were collected.
Results: A total of 600 questionnaires were completed. 80.8% of participants were female, and the majority were 30-49 years (85.1%). 45.4% of participants were educated at bachelor and 32.9% at master/doctoral level. 30.2% of parents have already vaccinated their children, 9.3% intended to do so, 24.2% have not decided yet and 35.6% refused to offer the vaccine. The main reason for which parents were not willing to vaccinate their children, were concerns regarding related adverse events (68%). However, the history of recent covid-19 infection of the child was the most common reason which positively affected parents who intended to vaccinate but they have not done yet. The top factors which affected parents' decisions against vaccination were the internet (41.3%) and social media (20.6%), whereas the majority of participants whose children have been vaccinated answered that their decisions were affected by their paediatrician (65.2%).
Conclusions/Learning Points: Vaccination in childhood is a very important tool which protects children from acute disease and its complications. According to our findings, one third of parents in Cyprus vaccinated their children, whereas the majority were against or have not decided yet.

PV0901 / #401

THE ASSOCIATION OF NEONATAL SARS-COV-2 ANTI-SPIKE PROTEIN RECEPTOR-BINDING DOMAIN ANTIBODIES AT DELIVERY WITH INFANT COVID-19 INFECTION UNDER AGE 6 MONTHS: A PROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: To assess the association between neonatal SARS-CoV-2 antibody level at delivery and infant COVID-19 infection under age 6 months, and to identify predictive factors for neonatal antibody level at delivery.
Methods: In a prospective observational study, conducted between September 2021 and mid-February 2022, cord blood sera were tested for SARS-CoV-2 anti-spike receptor-binding domain antibodies after maternal BNT162b2 vaccination or infection. Infants were followed for 6 months for COVID-19 infection.
Results: Sixty-seven mother-infant dyads were enrolled; nine did not meet eligibility criteria. Of the 58 included, 6-month follow-up data were available for 57. The mean log SARS-CoV-2 anti-spike antibody level at delivery was lower among infants who were COVID-19-positive versus negative during follow-up (3.41±0.74 AU/mL, n=12 vs 3.87±0.84 AU/mL, n=46, p=0.036); a log titre ≥4.07 AU/mL (11,750) at delivery was associated with a significantly lower likelihood of infant infection [OR 0.54 (95%CI: 0.32, 0.90), p=0.018]. A spline curve model showed a linear decrease in antibody levels when the last dose was administered at ≤30 weeks' gestation (50 days before delivery), after which the antibody levels increased (R^2=0.50). In multivariate analysis, more vaccine doses, prior maternal infection and last administered dose at ≥31 weeks' gestation were associated with higher antibody level at delivery.
Conclusions/Learning Points: Higher anti-spike antibodies at delivery were associated with decreased risk for COVID-19 infection at age <6 months; the antibody level decreased linearly when the last dose was administered at ≤30 weeks' gestation. Future research should assess the effectiveness of a second booster during pregnancy against infant infection.

PV0902 / #1273

TUBERCULOUS OSTEOMYELITIS IN A PATIENT WITH FORMER HISTORY MIS-C

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Tuberculous osteomyelitis in a patient with former history MIS-C
Background: Extrapulmonary tuberculosis in children tends to be severe, while in infants it is rarely described. Due to the late diagnosis, correct treatment is delayed, and there is a high mortality rate.
Case Presentation Summary: We report a case of an 8-month-old infant, with a former history of MIS-C, admitted at the Childrens Clinic Hospital, Brasov, Romania for fever with an onset of 2 days before admittance. Physical examination revealed a lump on the left thigh. The ultrasound of the soft-tissues shows a 3/3 cm abscess in the left thigh, while CRP=35.91 mg/dl (N=0-1 mg/dl). Surgical drainage was performed with aspiration, culture and testing for TB being requested. Patients evolution was initially favorable, with CRP=16.7 mg/dl. His general condition worsened, with an increase in CRP=36.05 mg/dl, while chest x-ray showed a typical image for TB. CT examination revealed multiple osteolytic lesions, with a suggestive aspect for bone septic dissemination, left thigh abscess, and bilateral pulmonary septic dissemination. Drain tube was placed at the level of the bone abscess in the left iliac wing after surgery. Cultures came positive for TB. Mixed pulmonary and bone tuberculosis was diagnosed. He received the first line TB treatment (HRZE scheme) with complex therapy. Three weeks later, he developed a pathological fracture at the left humerus. The patient worsened respiratory acidosis and oro-tracheal intubation mechanical ventilation were initiated, but he presented cardiac arrest and died.
Learning Points/Discussion: We present a case report of disseminated TB at an infant 8 month old with previous history of MIS-C.

PV0903 / #1833

THE CALCULUS OF RISK: PARENTAL PERSPECTIVES AND DECISION-MAKING ON SARS-COV-2 VACCINES FOR THEIR CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Increasing the uptake of SARS-CoV-2 vaccine in children presents unique challenges. Understanding what shapes parental decision-making to vaccinate their children can provide important insights into vaccine hesitancy to ultimately optimize vaccination programs and campaigns. We performed a qualitative study to understand what influenced parents' decision-making on SARS-CoV-2 vaccination for their child(ren).
Methods: We conducted a qualitative study that included online focus group discussions (FGDs) with caregivers of children aged 5-11 years. Data was collected between July 26th to November 8th, 2022. A total of seven FGDs were conducted. The FGDs were audio-recorded and transcribed verbatim. Thematic analysis was conducted by the first author, and peer debriefing was used to ensure methodological rigor.
Results: Findings revealed that both parents of vaccinated and unvaccinated children employed language of cost-benefit analysis to inform their decision-making. For parents of unvaccinated children, the perception of the risk posed by COVID-19 to their child was not considered as harmful compared to potential vaccine side effects. Parents of vaccinated children were concerned about the health of family members, decreasing the risk of spread in the community and the potential risk of long COVID-19 in their child. Participants also perceived a lack of transparency from the government and public health agencies, highlighting inconsistent messaging which had fractured their trust in COVID-19-related recommendations and mandates.
Conclusions/Learning Points: Our results point to the need for clear and accessible evidence about the benefits of vaccines, the risk of COVID-19, and further transparency of what is underlying shifting in messaging as the science evolves.

PV0904 / #2198

NEUROLOGICAL SYMPTOMS IN PEDIATRIC PATIENTS AFFECTED BY LONG COVID: CLINICAL CHARACTERISTICS AND RISK FACTORS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The long-term persistence of symptoms after the acute phase of COVID-19 has been observed also in the pediatric population. In accordance with the definitions provided by WHO and CDC, long-COVID consists of symptoms occurring or persisting after 3 months from the infection and lasting for at least 2 months. Long-term neurological symptoms have been observed in 80% of cases. The aim of the study was to describe the clinical features of pediatric patients affected by long COVID with neurological manifestations.
Methods: This prospective multicenter study enrolled patients aged less than 17 years with a previous confirmed SARS-CoV-2 infection. Clinical manifestations were investigated using a previously validated questionnaire at median time-points of 2.4 (range 2.0-2.9), 5.4 (range 5.0-5.9) and 8.4 (range 8.0-8.8) months after the infection. The first survey was conducted during a medical examination.
Results: The study enrolled 925 patients and 252 (27.2%) presented at least one neurological symptom in the first 3 months. Prevalence of neurological symptoms at 6 and 8 months was 33.7% and 28.2%, respectively. Patients reporting neurological symptoms were significantly older (9.7 ± 3.3 vs 7.4 ± 4.3 years; $p<0.001$), more often female (57.5% vs 44.3%; $p< 0.001$) and more frequently affected by comorbidities (44.0% vs 34.9%; $p=0.01$). Patients who later developed neurological forms of long COVID experienced more frequently headache (56.8% vs 32.5%; $p<0.001$) and "cognitive fog" (3.6% vs 0.3%; $p<0.001$) during the acute phase. Headache and impaired concentration were the main symptoms reported in all evaluations.
Conclusions/Learning Points: Neurological symptoms involve ¼ of children with long COVID. The main factors associated with the onset of neurological forms of long-COVID are the presence of comorbidities and the occurrence of neurological symptoms during the acute phase.

PV0905 / #2227

COMPARISON OF CLINICAL CHARACTERISTICS OF ADULT AND PEDIATRIC PATIENTS AFFECTED BY LONG COVID AND EVALUATION OF AGE AND GENDER AS ASSOCIATED RISK FACTORS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Long COVID is defined as symptoms occurring or persisting 3 months after the infection and lasting for at least 2 months and has been observed in both adult and pediatric patients. The pathophysiological mechanisms and predisposing factors are still poorly understood. The aim of the study was to describe and compare the clinical characteristics of adults and children affected by long COVID and to investigate the role of age and gender.
Methods: This study analyzed data from two independent prospective cohorts of adult and pediatric patients with prior confirmed SARS-CoV-2 infection. The adult cohort consisted of patients hospitalized while pediatric patients were enrolled regardless of the severity of the infection. Clinical data collection was performed using adult- and child-specific versions of previously validated questionnaires. The mean time points of the surveys were 2.5-3.3 months, 5.4-6.9 months, and 8.4-9.9 months in the two cohorts.
Results: The study enrolled 425 adults and 925 children. Overall, adults experienced at least one symptom more frequently than children (62% vs. 85%; p<.001), with no significant differences between males and females but with a clear association with increasing age (0-5 years: 59%; 6-11 years: 64%; 12-50 years: 71%; > 50 years: 85%, p<0.001). Analyzing age subgroups, female gender represents a significant protective factor for children aged < 5 years (HR: 0.64; 95%CI: 0.45-0.91, p=0.012) and a risk factor in patients aged 12-50 years (HR: 1.39; 95%CI: 1.04-1.86; p=0.025).
Conclusions/Learning Points: The clinical manifestations of long COVID in childhood are overall less frequent than in adulthood. Increasing age represents a significant risk factor while the role of the female gender seems limited to patients aged 12-50 years, probably due to specific hormonal factors.

PV0906 / #718

A RETROSPECTIVE REVIEW OF PAEDIATRIC COVID-19 ADMISSIONS TO AN IRISH TERTIARY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: While children are considered as susceptible to SARS-CoV-2 infection as adults, they reportedly constitute a small proportion of COVID-19 hospital admissions. We aimed to characterize COVID-19 admissions to a tertiary hospital in Dublin, Ireland.
Methods: Paediatic admissions to Children's Health Ireland (CHI) Temple Street, tested for SARS-CoV-2 from March 2020 to December 2022 were identified using an electronic hospital enquiry database. Patients >18years old or with incomplete data were excluded. Data on demographics, presentation (symptomatic/asymptomatic), presenting complaint, ventilation requirement, and length of stay (LOS) were collected and analysed using Jamovi and Microsoft Excel. Symptomatic patients were defined as SARS-CoV-2 PCR test positive AND ≥ at least one COVID-19 defining symptom or identification of COVID-19 as causative by the admitting paediatrician.
Results: A total of 3761 paediatric admissions to CHI Temple Street were tested for SARS-CoV-2 over the 33-month study. 365 (9.7%) tested positive and 2659 (89.1%) negative for SARS-CoV-2. 252 (69.6%) SARS-CoV-2 positive admissions were <6years of age, with a primarily (172, 47.5%) <1year age. Among positive cases, male (56.2%) and female (43.8%) presentations were similar. 244 (68%) SARS-CoV-2 positive admissions were symptomatic: respiratory symptoms (128, 52.5%), isolated fever (48, 9.6%) and GI symptoms (30, 12.3%). Median LOS of SARS-CoV-2 positive admissions was 2 days (IQR 1, 6); median LOS was prolonged in 10-12 year olds (5.5 days, IQR 1.25, 10). Median LOS was longer in asymptomatic SARS-CoV-2 positive cohort (3 days, IQR 1-11.5). 51 (20.9%) symptomatic and 10 (8.4%) asymptomatic patients required ventilation.
Conclusions/Learning Points: In keeping with international experience, symptomatic SARS-CoV-2 cases constituted a relatively small proportion of total paediatric admissions to our single tertiary centre during the pandemic. In additon, the majority presented with respiratory symptoms and/or isolated fever.

PV0907 / #893

CLINICODEMOGRAPHIC PROFILE AND OUTCOME OF NEWBORNS BORN TO COVID-19 CONFIRMED MOTHERS IN A TERTIARY GOVERNMENT HOSPITAL IN BATAAN FROM AUGUST 2020 TO SEPTEMBER 2021

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Little is known about the impact of COVID-19 virus on vulnerable population like pregnant women and their fetuses and newborn. This study aimed to determine the clinical and demographic characteristics, and outcome of newborns of COVID-19 confirmed mothers.
Methods: All charts of newborns born to COVID-19 confirmed mothers at a tertiary government in Bataan from August 2020 to September 2021 were reviewed from electronic medical record. The following data were collected: demographic characteristics, clinical profile as to manner of delivery, APGAR score, birthweight, age of gestation, appropriateness of weight based on gestational age, signs and symptoms and initial laboratory evaluation. Length of hospital stay, disposition, associated complications and mortality rate were also documented.
Results: Majority were delivered via NSD (64.3%), term (92%), birthweight more than 2,500grams (84.9%) and good APGAR score (97.7%). Only 4.5% were symptomatic presenting with difficulty of breathing and vomiting. COVID-19 RT PCR results done at 24th and 48th hour of life showed that majority (99%) tested negative, however three (0.7%) and four (0.9%) revealed positive results respectively but asymptomatic. Hemoglobin, leukocyte level, CRP, AST, ALT and chest xray were requested mostly revealing normal results. COVID-19 protocol continued to evolve leading to decrease of tests requested for these newborns. Median length of stay was 5 days. Majority (9.5%) of comorbidities was neonatal hyperbilirubinemia. Eight newborns succumbed to death of which, three (30%) was due to respiratory distress syndrome. Vast majority (98.9%) of mothers presented with mild symptoms but two mothers with concomitant disease expired and were categorized as severe COVID-19 infection.
Conclusions/Learning Points: Newborn outcomes were affected by underlying illness rather than degree of COVID-19 infection. Perinatal transmission is greatly reduced with strict adherence to infection prevention measures.

PV0908 / #1817

SARS-COV-2 INFECTIONS AMONG CHILDREN AND STAFF IN 69 DAY-CARE CENTERS DURING PERIODS OF DIFFERENT TEST CONCEPTS IN THE COVID-19 PANDEMIC IN GERMANY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Closures of day-care centers (DCC) were frequently used non-pharmaceutical interventions during the COVID-19 pandemic. We analyzed SARS-CoV-2 infections and associated closures in DCC during periods with or without mandatory SARS-CoV-2 surveillance testing.
Methods: From October 2020 to January 2022, we collected data on DCC closures due to SARS-CoV-2 infections among children and childcare workers (CCW) at 69 DCC in Würzburg, Germany. SARS-CoV-2-infections of children and CCW, the number of secondary infections (SI), the number of closures and the applied test concept were recorded.
Results: The 69 DCC comprised a total of 4750 children and 814 CCW. During the 15-months observation period from October 2020 to December 2021 (period without mandatory testing) there were 104 (2.2%) infections in children and 56 (6.9%) in CCW, corresponding to an average of 11 infections/month. These resulted in 89 closures with 0-11 SI (Median 0, IQR 0-1) including 57 closures without SI. From January 2022 to beginning of February 2022 (period with mandatory testing) there were 260 (5.5%) infections in children and 95 (11.7%) in CCW with 36 associated closures with 0-39 SI (Median 5, IQR 0-16); this corresponded to approximately 284 infections/month. During mandatory testing, no differences regarding the proportion of closures (4/7 vs. 32/62) or median of SI (4 vs. 5) were observed between DCC applying pooled PCR-tests (7 DCC) or rapid-antigen-tests (62 DCC).
Conclusions/Learning Points: Infection rates in DCC children were lower than for CCW. Before January 2022, only few SARS-CoV-2 infections were detected, followed by a 26-fold increase in SARS-CoV-2 infections and associated DCC closures, presumably due to the emergent, more infectious omicron variant. The applied mandatory SARS-CoV-2 surveillance method had no impact on DCC closure rate or number of SI.

PV0909 / #1077

MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C) DUE TO COVID-19 WITH SEVERE DENGUE PRESENTING AS SEVERE LEFT VENTRICULAR DYSFUNCTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C) DUE TO COVID-19 WITH SEVERE DENGUE PRESENTING AS SEVERE LEFT VENTRICULAR DYSFUNCTION
Background: Multisystem inflammatory syndrome in children (MIS-C) associated with COVID 19 , has many manifestations similar to dengue.Like both type of infections may have fever, erythematous rash, vomiting, abdominal pain and shock.Timely identification as well as management is often a challenge.
Case Presentation Summary: A 5 year old child was brought to our hospital emergency with complaints of fever and pain abdomen for last 4 days,vomiting,bodyaches and congestion of eyes for 2 days.On examination child was lethargic with cold peripheries and a prolonged capillary refill time.Her vitals were : pulse rate of 138/mt,respiratoryrate of 38/mt and a blood pressure of 80/60 mmHg.Child was managed initially as a case of hypotensive shock with a possibility of MIS-C.Laboratory investigations revealed a WBC of 7600/dl with 87.2% polymorps and 7.1% lymphocytes and a platelet count of 560000/dl.D-Dimer levels were greater than 1000ng/ml,CRP of 288mg/L,ferritin of 390 ng/ml,IL-6 of 5000 pg/ml.Anti SARS COV-2 antibody levels were 106.8.2D echocardiography revealed an ejection fraction of 22 % with normal coronaries.Patient was given a single 2gm/kg dose of intravenous immunoglobulin along with a 3 days pulse therapy with inj methylprednisolone.Child became afebrile in 48 hours .However the platelet counts started falling to a low of 28000/dl.Suspecting dengue fever,dengue serology was done which subsequently came out to be positive.Progressive D-Dimer levels also showed a falling trend and repeat echocardiography done showed improved left ventricular function.
Learning Points/Discussion: Covid 19 infection although not a big problem in children but MIS-C poses a diagnostic as well as management challenge in children.As dengue infection is more prevalent in India and many features overlap with MIS-C,managing such coinfections becomes more problematic.

PV0910 / #127

ATAXIA IN A CHILD WITH COVID-19: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Ataxia in a child with COVID-19: a case report
Background: SARS-CoV-2 confirmed cases could have neurological symptoms and complications. Some common disorders related to CNS are encephalomyelitis- like changes, myelitis and cranial nerve enhancement.
Case Presentation Summary: A 10-year-old boy, previously healthy, with complete vaccinations according to the Argentinian immunization schedule, is taken to the emergency room due to a one-day history of gait disturbance. No medication or toxins exposure. He had not received any vaccinations in the previous month. He was afebrile (36.5°), with normal vital signs. All cranial nerves were intact, and there was no speech or sensory dysfunctions. Muscle tone, strength, and deep tendon reflexes were normal. Cerebellar examination revealed impaired finger to nose, heel to shin, and rapid alternative movements. Gait was ataxic and he could not walk without help. Laboratory tests: WBC 7,800 (70% neutrophils, 22% lymphocytes), liver enzymes, renal functioning, inflammatory markers including erythrocyte sedimentation rate and C reactive protein were normal. Toxics in urine, amphetamines, barbiturates, benzodiazepines, cocaine, phencyclidine, marijuana, methylenedioxymethamphetamine, morphine, opiates were negative. Nasopharyngeal swabs with antigen and PCR-SARS-CoV-2 were positive. A lumbar puncture was performed, and CSF with glucose 67 mg/dl, proteins <10 mg/dl, leukocytes 4/ul, 100% mononuclear was obtained. Bacteriological culture and viral PCR for enterovirus, varicella zoster virus and SARS-CoV-2 were negative. Brain MRI with gadolinium showed no pathological finding. The patient was diagnosed with ataxia associated to COVID-19 according to the result of the test performed and the neurologist criteria. He was hospitalized for 4 days, with good clinical evolution, presenting a clear improvement in his admission condition.
Learning Points/Discussion: COVID-19 causes neurological manifestations such as ataxia in children. Workout to exclude this infection is necessary in patients with march disturbances.

PV0911 / #1887

CLINICAL AND LABORATORY CHARACTERISTICS OF COVID-19 AND INFLUENZA PATIENTS 2021/2022

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Seasonal epidemics of respiratory viruses cause significant morbidity among children worldwide. The aim of the study was to compare the most important clinical and laboratory characteristics and outcomes of COVID-19 and influenza pediatric patients.
Methods: A single-center observational study was performed at the Pediatric emergency department in Vilnius University Hospital Santaros Klinikos from 1 October 2021 to 30 April 2022.
Results: In total 5127 children with respiratory symptoms were tested for SARS-CoV-2 and influenza A/B by reverse transcription-polymerase chain reaction (RT-PCR) tests. We found 997(19.4 %) SARS-CoV-2-positive and 827(16.1 %) influenza-positive (influenza A - 99.2 %) patients. The median age of COVID-19 patients was 1.5 (0.7–4.5), influenza patients - 6.6 (4.2-9.6) years. Respiratory distress symptoms (6.9% vs 1.3%, p<0,001) and the need of prolonged supplemental oxygen (1.5% vs 0.4%, p<0,001) were significant more frequent in COVID–19 patients compare to influenza patients. White blood cell count (7.6 (5.5-11.0) vs 6.3 (4.6-8.3), p<0,001), lymphocites count (2.36 (1.20-4.14) vs 1.37 (0.83-2.30), p<0,001) and platelets level (262 (218-320) vs 221 (188-260), p<0,001) were higher for COVID-19 patients compared to influenza patients with opposite for hemoglobin level (122 (115-129) vs 126 (120-133), p<0,001) beings higher for influenza patients. The hospitalization (17.1% vs 6.2%, p<0,001) and admission to PICU rate (2.9% vs 0.6%, p<0,001) were higher for COVID-19 patients compared to influenza patients. There was no significant difference in neutrophil level and length of hospital stay. The peak of patient visits to emergency department for influenza was in April, while for SARS-CoV-2 in February.
Conclusions/Learning Points: Pediatric patients with COVID-19 were younger, had more severe respiratory symptoms, reflected by more frequent hospitalization and need for respiratory support and PICU assistance compared to influenza patients.

PV0912 / #873

COVID-19, HERPES-6 OR ANTIBIOTIC – WHOSE FAULT IS IT?

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Covid-19, Herpes-6 or Antibiotic – Whose fault is it?
Background: Cutaneous rashes in paediatrics may occur associated with multiple clinical conditions. The final diagnosis demands a comprehensive clinical history and physical examination, along with clinical and analytical investigation to the most probable cause.
Case Presentation Summary: A previously healthy six-month-old boy was brought to the Emergency Department (ED) with a two-day fever; he was diagnosed with acute otitis media and was treated with amoxicillin (for the first time). On the 3rd day of antibiotic, maintaining fever and having productive cough and rhinorrhea, he was re-evaluated in the ED and tested positive for Covid-19. He completed 7 days of amoxicillin; 24 hours after discontinuing it, a non-pruritic, morbilliform erythematous rash on the chest and abdomen appeared, without any other symptoms, which resolved spontaneously in 3 days. From the study performed in a follow-up paediatric appointment, he had positive Sars-Cov2 IgG antibodies, negative Herpes-6 DNA and negative total and specific IgE for amoxicillin (5kU/L and 0,15kU/L, respectively). He was later referred to an allergy appointment, and a drug provocation test for amoxicillin was performed - negative.
Learning Points/Discussion: Covid-19 infection in children is characterized by a myriad of clinical manifestations, with skin lesions being among the most common. These may mimic several diseases (like the exanthem subitum) since lesions present with the same distribution and appearance and appear in apyrexia. They can also resemble an antibiotic hypersensitivity reaction. It is, therefore, often necessary to refer the patient to a consultation, to reach a definitive diagnosis and to exclude, with certainty, an allergy to amoxicillin, since a hasty diagnosis can compromise therapeutic options in the future.

PV0913 / #2016

A CASE REPORT OF MIS-C IN A 34 MONTH OLD CHILD

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: A CASE REPORT OF MIS-C IN A 34 MONTH OLD CHILD
Background: Since 2020 there has been an increasing number of cases resembling a Kawasaki-like syndrome regarding SARS-CoV-2 positive diagnostic testing. This new entity named by the Center for Disease Control, Multisystem Inflammatory Syndrome in Children (MIS-C), shows an average diagnosis age of 9 years. A positive diagnostic is considered with current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test. The diagnostic criteria include an individual <21 years with fever, laboratory evidence of inflammation, clinically severe illness requiring hospitalization, with multisystem organ involvement.
Case Presentation Summary: This is a case of a 34 month old child, previously healthy, without known contact with SARS-CoV-2 infection or COVID-19 vaccination. He presented in the emergency room with 24h of high fever and conjunctival hyperemia and was discharged with supportive care. He returned within 72h, maintaining previous symptoms, with prostration and ill appearance. Analytically showing lymphopenia, thrombocytopenia, hypoalbuminemia, elevated d-dimer and inflammatory markers. He also presented with cardio-renal dysfunction, with glomerular filtration rate of 62 ml/min/1.73m2 and an echocardiogram showing cardiac abnormalities. The child was admitted to the intensive care unit with hypotensive shock requiring vasopressors. He became apyretic 36h after immunoglobulin. The final diagnosis of MIS-C was made by serology.
Learning Points/Discussion: With this case, we aim to emphasize the young age of MIS-C presentation of our patient and that SARS-CoV-2 infection may be asymptomatic, making this a demanding diagnosis. Although clinically it may be similar to Kawasaki disease, laboratory values present differences that can help guide the diagnosis. We should remember this entity in a patient with persistent fever and multisystemic organic dysfunction, even in younger age groups, as prompt recognition may alter the final outcome.

PV0914 / #2481

CHANGE IN SEVERITY AND CLINICAL MANIFESTATION OF MIS-C OVER SARS-COV-2 VARIANT OUTBREAKS IN KOREA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: There is a difference in the incidence of MIS-C in patients with different variants of SARS-CoV-2, however, little is known about the epidemiology in Asian countries. We investigate and compare the epidemiology of the MIS-C during Omicron-dominant period with that of previous periods in South Korea.
Methods: We obtained clinical, epidemiological and laboratory data on MIS-C cases from national MIS-C surveillance in South Korea. We defined Pre-Delta period as Jan 2020 - May 2021; Delta period as Jun 2021 - Dec 2021; and Omicron period as Jan 2022 - Apr 2022. We describe the clinical characteristics and outcomes of MIS-C patients by period.
Results: A total of 91 cases were assessed to be MIS-C cases. Number of MIS-C cases have increased from six cases during Pre-Delta period to 66 cases during Omicron period, while incidence rate has decreased from 38.5 cases per 100,000 (95% CI, 14.1-83.9) during Pre-Delta period to 1.6 cases per 100,000 (95% CI, 1.2-2.0) during Omicron Periods. During Pre-Delta period, 66.7% and 100% had hypotension and gastrointestinal involvement, respectively; while during Omicron period, 12.1% and 6.1% had such clinical manifestations. 50% of Pre-Delta MIS-C patients were taken ICU cares, while 10.6% of patients during Omicron periods were in ICUs.
Conclusions/Learning Points: Omicron period was associated with less severe clinical manifestation compared to Pre-Delta and Delta periods. Although the incidence rate of MIS-C was lower for the Omicron period than Pre-Delta and Delta periods, a number of patients reported with MIS-C may pose a substantial clinical burden.

PV0915 / #980

VACCINE EFFECTIVENESS OF CORONAVAC AND BNT162B2 AGAINST SEVERE OUTCOMES AMONG CHILDREN AND ADOLESCENT PATIENTS WITH SARS-COV-2 OMICRON

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Hong Kong is providing two types of vaccines for citizens - the inactivated and mRNA vaccines, while the population, particularly in children and adolescent had limited protection from natural infections before the Omicron epidemic. In this study, we used real-world data to estimate the vaccine effectiveness (VE) against hospitalization caused by the Omicron variant among children and adolescent patients.
Methods: A case-control design was employed using administrative registered data of COVID-19 patients aged >18 years in Hong Kong. The analyses were restricted to an Omicron-predominated period from January 1, to November 27, 2022. A propensity score matching was conducted for all case-control matches. Vaccine effectiveness was determined as 1 minus the adjusted odds ratio obtained by conditional logistic regression adjusted with covariates.
Results: Totally 3,208 hospitalizations and 12,684 matched controls were included the study. Of the patients aged 12 to 17 years, the VE against hospitalization of CoronaVac increased from 46.4% (4.3-70.0) at the first dose to 52.9% (33.2-66.7) at the second dose, and to 51.8% (22.4-70.1) at the third dose, whereas that of BNT162b2 changed from 73.7% (62.4-81.6) at the first dose to 73.7% (65.6-79.8) at the second dose, and to 66.2% (49.1-77.5) at the third dose. A similar change of VE by the number of doses is observed among the patients aged 5 to 11 years. However, two doses and three doses of CoronaVac only had a VE of 23.3% (10.0-34.7) and 34.0% (9.4-51.9) respectively.
Conclusions/Learning Points: Our analyses demonstrated that the CoronaVac had a lower VE than BNT162b2 in general, and its protection against hospitalization was insufficient among children patients. A revision of vaccination programmes in this subpopulation involving inactivated CoronaVac vaccines warrants a further consideration.

PV0916 / #871

UNUSUAL SYMPTOMS OF PEDIATRIC PATIENTS WITH MIS-C AND COVID-19: PRESENTATION OF THREE CASES IN A PRIVATE HOSPITAL IN BUENOS AIRES, ARGENTINA.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Unusual symptoms of pediatric patients with MIS-C and Covid-19: Presentation of three cases in a private hospital in Buenos Aires, Argentina.
Background: Although pediatric age presents a lower risk of serious infection and they usually undergo fewer diagnostic tests than adults, the infection incidence by Covid-19 is similar to adults patients. It is associated with MIS-C in less than 1%.
Case Presentation Summary: Analyze different types of uncommon clinical symptoms of MIS-C in a private hospital in Buenos Aires
Learning Points/Discussion: Every patient with clinical and epidemiological criteria for SARS-CoV-2 infection was swabbed between March 16, 2020 and December 15, 2021, according to the public health authority's protocol using the PCR-RT method. Those who met criteria for MIS-C were analyzedResults: From samples of 4,713 patients, 538 were confirmed as positive (11.4%). Just three of them developed MIS-C. First Case: Male, 186 months old. Fever during 6 days and chest pain, ECG with repolarization disorder. Second Case: Male, 85 months old. Fever during 4 day. Stomach ache, conjunctival injection, erythematous rash and palmar-plantar desquamation. Third Case: Male, 136 months old, fever during 5 days. Apendicitis. Serology for SARS COV2+, myalgia, headache, edema and bipalpebral erythema. Positive PCR-RT were present in the first and the second cases by SARS-CoV-2. The three of them showed increasing parameters for Troponin, D-dimer, ferritin and atrial natriuretic peptide. Treatment given: 2g/kg/dose of intravenous immunoglobulin and an initial dose of 80 mg/kg/day of acetylsalicylic acid. Two of them also have received corticosteroids. Conclusion: Even through the incidence of MIS-C and Covid-19 in our hospital was in a low rate, we think that cardiology and gastrointestinal symptoms should be considered as suspicious of MIS-C in Covid-19 patients

PV0917 / #1096

PERSISTENT SYMPTOMS AFTER 1 YEAR IN HOSPITALIZED CHILDREN WITH COVID-19, COMPARED TO CONTROLS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: We aimed to describe the prevalence of persistent COVID in hospitalised paediatric population 1 year after admission compared to a control group.
Methods: Prospective observational study, in 2 hospitals. We included patients aged 0-18 years hospitalised for acute COVID-19 more than 1 year ago and controls, matched by age and sex, hospitalised for causes other than COVID-19, and with no history of COVID-19 at recruitment or during the follow-up. Families were contacted and a standardised survey was conducted. Persistent disease was defined as the presence of symptoms with onset in the first 3 months after admission and with persistence for more than 2 months.
Results: 50 cases and 46 controls were analysed, 58.3% male, 35.9% £5 years. Families were interviewed a median of 1.89 years (interquartile range; 1.25-2.07) after hospitalisation. The definition of persistent disease was met in 34% of COVID-19 cases vs. 37% of controls (p=0.767). Symptoms persisted >=11 months in 24% (12/50) of cases vs. 13% (6/46) (p=0.182), with no differences by age group. The most frequent symptoms at 1 year among cases were fatigue (8%), headache (6%), poor appetite (6%), abdominal pain (6%) and variations in heart rate (6%). In controls, persistent symptoms were abdominal pain (6%) and poor appetite (6%). Readmissions occurred in 11/50 (22%) in cases and 6/46 (13%) in controls (p=0.267). On emotional/behavioural items, 16/50 (32%) of cases reported that their state was worse or much worse than before admission, compared to 16/46 (34.7%). No risk factors associated with the development of persistent symptoms were found, except the length of hospitalisation (p=0.043).
Conclusions/Learning Points: In this study, the prevalence of persistent symptoms 1 year after hospitalization was not different in hospitalized patients who had COVID-19 than in controls.

PV0918 / #1386

MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN: SINGLE-PEDIATRIC CENTER EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem inflammatory syndrome in children (MIS-C) is a hyperinflammatory condition associated with preceding severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection. In this single center study, we wanted to determine MIS-C clinical and laboratory characteristics that may be associated with cardiac involvement and severe clinical presentation. We also analyzed whether there were differences in clinical presentations coinciding with change in viral variants reported in the US.
Methods: This prospective observational study included all MIS-C patients diagnosed and treated at Nationwide Children's Hospital between June 2020 and January 31, 2022. We reviewed clinical and laboratory findings and treatment outcomes of the patients.
Results: 146 patients were diagnosed with MIS-C. Sixty-six (45.2%) patients had evidence of cardiac dysfunction, 26 (17.8%) had coronary artery abnormalities (CAA) and 15 (10.2%) had both cardiac dysfunction and coronary artery abnormalities. Cardiac dysfunction, intensive care admission rates, vasopressor use were significantly higher in older patients, and in those presenting with abdominal pain. Lower absolute lymphocyte (ALC) and platelet counts; elevated C-reactive protein (CRP), procalcitonin (PCT), ferritin, fibrinogen, d-dimer, interleukin-6 (IL-6); and lower serum albumin levels were associated with cardiac dysfunction. All patients had improved cardiac function in their follow up evaluations while we have observed possible steroid associated side effects in few patients.
Conclusions/Learning Points: We found patients with cardiac involvement had lower ALC, higher inflammatory markers. We have identified possible complications of utilized treatments. Identification of clinical and laboratory characteristics as well as treatment complications could aid in appropriate management of patients with MIS-C.

PV0919 / #1634

IN CHILDREN LOW BIRTH WEIGHT MAY CONTRIBUTE TO THE DEVELOPMENT OF SEVERE COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: It was previously recognised that patients with high cardiovascular risk or established cardiovascular disease have a greater chance to develop severe COVID-19. Low birth weight (LBW) is knownt to be associated with increased risk of cardiovascular disease. Our goal was to investigate whether LBW can contribute to the development of severe COVID-19 in children.
Methods: In our single center observational study 325 COVID-19 patients hospitalized between September 1, 2020 and July 31, 2022 were identified. Infants under 1 year were excluded from our study. Data on 213 patients were retrospectively collected, among them 142 children had birth weight data available and enrolled in our study. We used Fisher's exact testto assess the representation of LBW among the admitted patients compared to the national average. Kaplan-Maier method and Cox proportional-hazards model was used to test the relationship between the length of hospital stay and birth weight.
Results: LBW children were significantly overrepresented among patients needed hospital admission (12.58% vs. 8,37% nationwide, p = 0.0464*). LBW was also associated with a longer hospital stay (+3 days median value, p = 0.00083*). Obese patients were not hospitalized longer (p = 0.094). Chronic conditions including chronic kidney failure (p = 0.16), chronic liver disease (p = 0.7), cystic fibrosis (p = 0.15) and developmental disorders (p = 0.086) had no significant impact on length of hospital stay.
Conclusions/Learning Points: We conclude that LBW is associated with a higher probability and longer hospital admission so it may contribute to the development of severe COVID-19 in pediatric patients.

PV0920 / #1332

VARIOUS POST-COVID-19 MANIFESTATIONS IN CHILDREN – SINGLE CENTER STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The symptoms of an ongoing SARS-CoV-2 infection are well known. Atypical manifestations from various systems that begin after recovery fremain the subject of research. The aim of the study was to assess the state of health of children who underwent COVID-19.
Methods: The reported complaints, abnormalities on physical examination, laboratory and imaging tests were analyzed. The study group contained 106 subjects – 49 girls(46%) and 57 boys(54%) aged 9 months to 17 years, hospitalized between March and June 2022. The time between the end of the infection and the onset of symptoms ranged from 2 weeks to 18 months. The inclusion criterion was: history of SARS-CoV-2 infection confirmed by positive PCR or antigen test or the presence of IgG-class antibodies. Children with PIMS/MIS-C multisystem inflammatory syndrome were excluded from the analysis.
Results: The main manifestations involved the respiratory(45%), cardiovascular(30%), nervous(19%) and gastrointestinal system. The most commonly reported symptoms were cough, rhinitis, chest pain, palpitations, fainting, feeling of cardiac arrhytmia, weakness, fatigue headaches, concentration and behavioral disorders, depression. Lung ultrasound and chest X-rays examinations has revealed lung lesions in 31% and 47% x-ray respectively. FeNO test levels were found in 47%, abnormal FOT values in 46% of children. There were abnormalities in ECG(21%) and 24-hour Holter-ECG(63%). Additional tests has shown elevated values of d-dimers, lactate dehydrogenase, creatinine kinase and reduces values of ferritin and vitamin D3 levels.
Conclusions/Learning Points: The analysis has shown that children, who recovered form SARS-CoV-2 infection presented a wide spectrum of long term health complications, especially from the respiratory, cardiovascular and nervous systems, as well as psychological problems. It should be remembered that these may be late complications of COVID-19. Electrocardiography, 24-hour Holter-ECG, lung ultrasound and chest X-ray are helpful diagnostic methods.

PV0921 / #1728

THE IMPACT OF MIS-C ON CHILDREN'S PHYSICAL ACTIVITY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem inflammatory syndrome in children (MIS-C) is a rare but severe systemic complication of SARS-CoV-2 infection. A considerable number of affected children develop acute but reversible heart failure, and many also have myocarditis features. Most of the children showed adequate response to treatment and good recovery. Long-term follow-up seems favorable but current data are limited. We have been tracking reports of MIS-C in Poland since May 2020 (MOIR CoR Study). In this study, we investigated how MIS-C affected children's physical activity.
Methods: Telephone surveys with parents of patients with MIS-C history were collected. Comparison of the demographical data and the assessment of the child's physical activity before and a median of 1,4 years (505 days) after MIS-C was performed.
Results: 84 children (aged median 9 years old, 69.4% males; hospitalized due to MIS-C between 26/05/2020 and 27/10/2022) were enrolled. In general, children in our cohort were very active before MIS-C and by the time of the survey majority of them regained their activity as presented in Figure 1. 63.1% of children before MIS-C and 56.0% after were attending extra sports classes. In total, before MIS-C children spent a median of 225 hours/week on physical activity, and two years after MIS-C it was a median of 195 hours/week. They gained weight more than expected with age with a median of 0.3 z-score for BMI increase. Analysis of the recommendations they received from doctors considering physical activity after having MIS-C were very inconsistent and often imprecise.

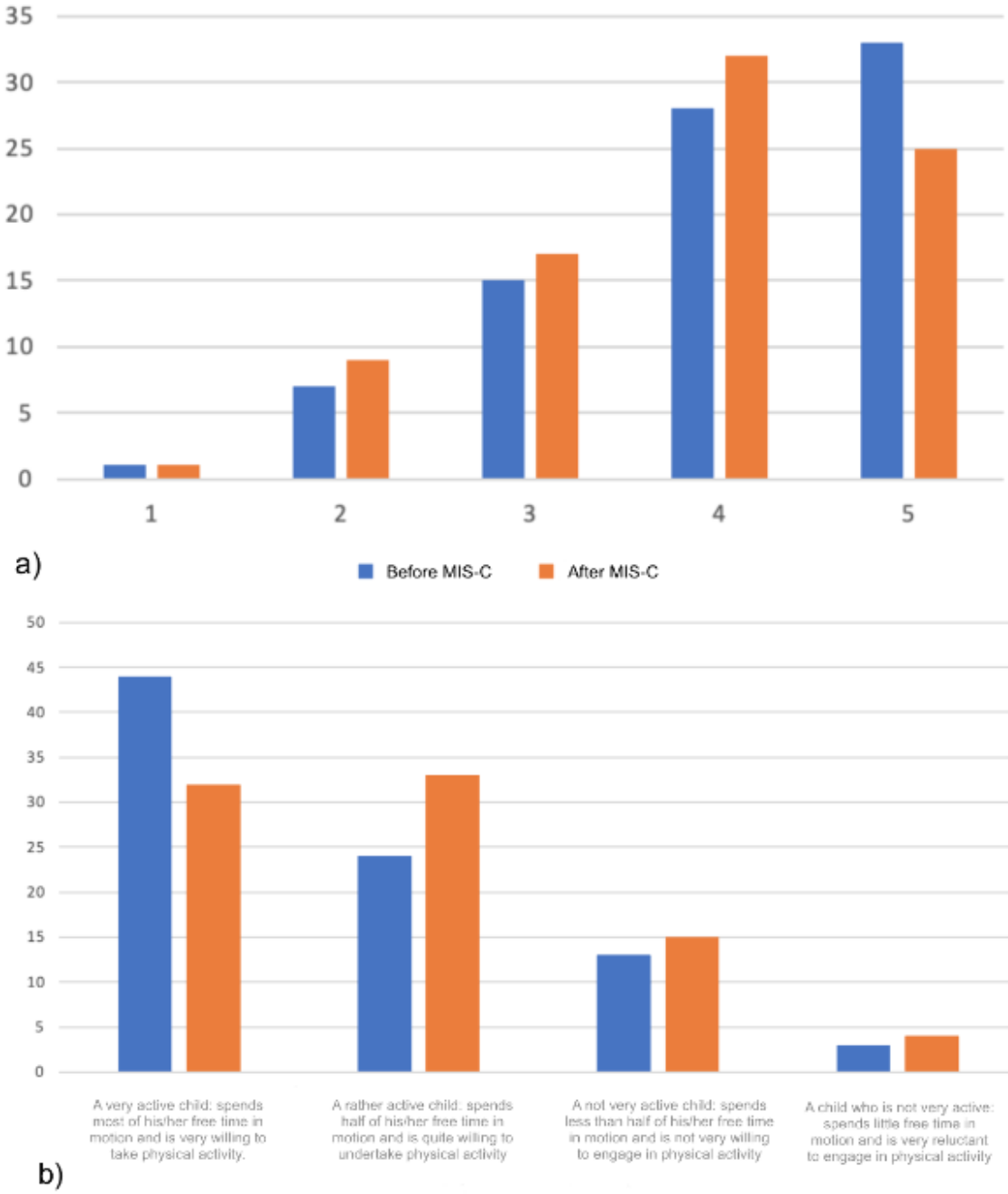

Figure 1.

a) Parent's assessment of the child's physical activity before and after MIS-C on a numerical scale from 1 (lack of activity) to 5 (child constantly physically active).

b) Parent's verbal assessment of the child's physical activity before and after MIS-C.

Conclusions/Learning Points: MIS-C impacted children's physical activity in long-term observation.

PV0922 / #2519

COVID-19 VACCINATION COVERAGE AMONG CHILDREN AND MINORS IN THE STATE OF SÃO PAULO, BRAZIL

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: Covid-19 vaccination campaign has advanced throughout the state of São Paulo (SSP), considering priority groups (health professionals, immunosuppressed and elderly). Although minors (people under 18 yo) and children had been vaccinated after August 2021, because of the gradual vaccine's availability and sanitary recommendations, these groups represent a high percentage of the vaccinated population. This study aims to describe the schedule of vaccination in the people under 18yo and show the vaccination coverage (VC) for this group in the SSP and how it impacts the health of this population.
Methods: This is a descriptive study using the VaciVida database, the official system for registration of Covid-19 vaccination of SSP, managed by São Paulo State Health Department (SHD-SP).
Results: VaciVida sends the dose records to the Ministry of Health within 24 hours, and it has been allowed that SHD-SP monitoring in real-time the VC among children and minors, available vaccine used (Sinovac/Butantan, AstraZeneca/Oxford University/Fiocruz and Pfizer/Wyeth), how many doses were administered (one/second/booster) and the percentages of complete schedule and absentees. By February 2023, there were vaccinated with 1 booster dose over 60% of 12-17yo, over 4% of 5-11yo and 0.6% of 6monts-2yo. The VaciVida system has been being very important for epidemiological surveillance for monitoring the Covid-19 VC, especially among under 18yo, and it has been useful to analyze VC and encourage adherence, avoid serious cases, hospitalizations, and deaths, in addition to prevent new variants of SARS-CoV-2.
Conclusions/Learning Points: VaciVida shows an increase on the applied doses of the Covid-19 vaccine in children and minors. For children between 5 to 12yo the campaign goal (90%) was reached, for the first dose, and the VC for this group and under have been also progressing over time.

PV0923 / #2499

HEPATIC INVOLVEMENT IN CHILDREN WITH MULTISYSTEM INFLAMMATORY SYNDROME RELATED TO SARS-COV-2

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: In both acute SARS-CoV-2 infection and MIS-C, gastrointestinal manifestations may represent a relevant aspect of the clinical picture. In MIS-C, diarrhea, vomiting and abdominal pain represent the most frequent gastrointestinal manifestations. Less typically, acute liver injury (ALI) in a wide range of children with Multisystem Inflammatory Syndrome related to SARS-CoV-2 (MIS-C) has been reported.
Methods: We analysed 51 cases of MIS-C patients for hepatic involvement and their correlation with severity. Demographic, clinical, laboratory and imaging features of children with MIS-C were prospectively collected. ALI was defined in presence of ALT elevation > 40 U/L. ALI was defined as severe in case of ALT >200 U/L.
Results: Mean age of cases were 7.89 ± 4.61 years. Gastrointestinal system was involved in 78.4% cases. Presenting GI symptoms were fever, 51 cases (100%), abdominal pain, 20 cases (39.2%), vomiting, 22 cases (32%), and diarrhoea 10 cases (19.6%). Ultrasound abdomen findings seen were moderate ascites (35.3%), gall bladder oedema (5.9%), hepatomegaly (2%), renal echogenicity, mesenteric adenopathy, and splenomegaly (2% each). Raised serum bilirubin (> 1.5 mg/dL) was seen in 7/51 cases (13.7%). ALI was seen in 30/51 cases (58.8%), while severe ALI was seen in 11/51 cases (21.6%). The mean max AST in MIS-C with shock cases were higher, 1213.05 ± 2104.17 compared to without shock 36.92 ± 167.73 (P = 0.016),
Conclusions/Learning Points: Hepatic involvement were commonly observed in the cohort of MIS-C patients. However, liver impairment was not severe in the majority of cases, and did not seem to be correlated with poor prognosis.

PV0924 / #2694

HYBRID IMMUNITY UPON MRNA VACCINES INDUCE A STRONGER AND DURABLE SARS-COV-2 IMMUNE RESPONSE IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: mRNA vaccines trigger a higher humoral response to SARS-CoV-2 in adults after a previous infection. This study aimed to profile the early and long-term humoral response to the BNT162b2 vaccine in children with or without a previous COVID-19.
Methods: A multicentre prospective study was conducted on 5-11 years old children attending the University Hospital of Padua and Bambino-Gesù Hospital in Rome (Italy) between Dec-2021 to Dec-2022. Blood samples were collected pre-, 1-, and 6 months after vaccination. Neutralizing antibodies (NAbs) and anti-S-RBD IgG titers were analyzed through Plaque Reduction Neutralization Test (PRNT) and chemiluminescent immune-enzymatic assay (CLIA), respectively. Geometric mean titers (GMTs) and median of variables were compared according to pre-existing confirmed COVID-19.
Results: Sixty children (43% female, median age=9.2 years [IQR=7-10.7]) were enrolled in the study, including 46 subjects with a molecular-documented previous COVID-19 (Group-A) and 14 “naïve-vaccinated” peers defined as the absence of antigen-specific antibodies before vaccination (Group-B). Forty children were healthy [HC], while 8, 4, and 8 subjects had underlying immunomodulant conditions [IM], solid organ transplant [SOT], and a previous MIS-C [MIS-C]. Overall, Group-A recorded higher antibody titers than Group-B, at both 1 and 6 months after vaccination ($p<0.001$ for each antibody titer). However, antibody titers appeared depressed in SOT recipients in each Group at both times. Both Groups recorded a decrease in antibody titers of ~100-250% from 1-6 months. However, all individuals in Group-A, except SOT recipients, showed higher antibody titers at 6 months post-vaccination than those detected at pre-vaccination
(table).

Table. *Neutralizing antibodies (NAbs) and anti-receptor-binding-domain IgG antibodies (anti-S-RBD IgG) titers in children with (Group A) and without a previous SARS-CoV-2 infection (Group B) at pre-, 1, and 6 months after mRNA vaccination: overall and stratifying according to pre-existing pathologies (healthy children. [HC], children with a condition that can potentially affect the immune system [IM], solid organ transplant recipients [SOT], and children with a previous diagnosis of Multisystem inflammatory syndrome in children [MIS-C]).*

	Group A - COVID-19 positive					Group B - COVID-19 negative		
	S-RBD-IgG[§] pre Median (IQR)	S-RBD-IgG 1 mo. (kBAU/L) Median (IQR)	S-RBD-IgG 6 mo. (kBAU/L) Median (IQR)	% Decrease from 1-6mo.	% Increase from pre-6mo.	S-RBD-IgG 1 mo. (kBAU/L) Median (IQR)	S-RBD-IgG 6 mo. (kBAU/L) Median (IQR)	% Decrease from 1-6mo.
Overall	227.33 (58.46 - 335.58)	3469.20 (2338.63 - 4130.28)	1629.81 (912.76 - 2897.20)	-113%	85%	853.01 (377.14 - 2968.22)	325.18 (6.06 - 349)	-162%
HC	59.1 (37.24 - 272.79)	3130.16 (2338.63 - 7430.28)	1576.77 (943.51 - 2723.14)	-99%	94%	3095.95 (853.01 - 5338.89)	599.92 (349 - 850.85)	-416%
IM*	217.58 (61.92 - 373.25)	16014.51 (4533.51 - 27495.5)	8142.78 (1715.11 - 14570.45)	-97%	97%	377.14 (377.14 - 377.14)	6.06 (6.06 - 6.06)	-6121,4%
SOT	1043.53 (1043.53 - 1043.53)	980.31 (980.31 - 980.31)	329.51 (329.51 - 329.51)	-198%	-217%	1507.92 (47.63 - 2968.22)	165.62 (6.06 - 325.18)	-810%
MIS-C	254.17 (214.34 - 408.32)	5079.31 (2776.4 - 6581.6)	1823.58 (912.76 - 3605.59)	-179%	87%	-	-	-

	Parental NAbs[§] pre GMT (95% CI)	Parental NAbs 1 mo. GMT (95% CI)	Parental NAbs 6 mo. GMT (95% CI)	% Decrease from 1-6mo.	% Increase from pre-6mo.	Parental NAbs 1 mo. GMT (95% CI)	Parental NAbs 6 mo. GMT (95% CI)	% Decrease from 1-6mo.
Overall	127.25 (68.26 - 237.22)	5783.01 (7289.12 - 4588.09)	1677.8 (1214.96 - 2316.95)	-245%	92%	196.98 (1269.54 - 30.56)	74.64 (12.91 - 431.54)	-164%
HC	109.28 (46.73 - 255.55)	6018.81 (7527.15 - 4812.71)	1650.39 (1160.03 - 2348.05)	-265%	91%	1280 (-)	226.27 (-)	-466%
IM*	190.27 (0.09 - 403160)	12177 (2892965 - 51.26)	5120 (7.22 - 3632560)	-138%	96%	190.27 (45203 - 0.8)	56.57 (0 - 3192614)	-236%
SOT	452.55 (-)	640 (-)	320 (-)	-100%	-29%	80 (40269456 - 0)	56.57 (0 - 3192614)	-41%
MIS-C	105.9 (6.06 - 1850.37)	5120 (14674 - 1786.4)	1644.43 (436.01 - 6202.09)	-211%	96%	-	-	-

	BA.2 NAbs[§] pre GMT (95% CI)	BA.2 NAbs 1 mo. GMT (95% CI)	BA.2 NAbs 6 mo. GMT (95% CI)	% Decrease from 1-6mo.	% Increase from pre-6mo.	BA.2 NAbs 1 mo. GMT (95% CI)	BA.2 NAbs 6 mo. GMT (95% CI)	% Decrease from 1-6mo.
Overall	30.9 (18.19 - 51.76)	922.21 (1196.57 - 710.76)	337.54 (236.73 - 481.28)	-173%	91%	22.45 (238.07 - 2.12)	14.14 (5.14 - 38.91)	-59%
HC	22.19 (13.09 - 37.62)	960.83 (1218.81 - 757.46)	343.79 (238.44 - 495.68)	-179%	94%	113,14	28,28	-300%
IM*	28.28 (0.04 - 20067)	3044.37 (723241 - 12.81)	905.1 (1.28 - 642152)	-236%	97%	10 (-)	10 (-)	0%
SOT	10 (-)	40 (-)	10 (-)	-300%	0%	10 (-)	10 (-)	0%
MIS-C	95.14 (15.13 - 598.37)	844.49 (1525.08 - 467.62)	413.48 (149.78 - 1141.44)	-104%	77%	-	-	-

[§]Anti-S-RBD IgG titer was considered negative <4.33 kBAU/L;

[§]The neutralization titer was defined as the reciprocal of the highest dilution resulting in a reduction of the control plaque count >50% (PRNT50). The neutralization titer was estimated for the Parental and Omicron BA.2 variants. Samples recording titers equal to or above 1:10 were considered positive. Log2 of fold dilution of PRNT50 was used for the analyses.

*IM includes: juvenile idiopathic arthritis and nephrotic syndrome.

Conclusions/Learning Points: Vaccines trigger a higher humoral response in children with previous COVID-19. Inferior antibody titers were observed in SOT recipients. These findings provide insight into boosting preexisting immunity and the need for additional preventive strategies in immunocompromised children.

PV0925 / #1563

SARS-COV-2 ANTIBODY KINETICS IN UNVACCINATED HOSPITALIZED CHILDREN WITH COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Antibody levels decline a few months post-acute COVID-19, but humoral memory persists in adults. Age and disease severity may affect antibody responses. This study aims to evaluate the presence and durability of antibody responses in children with COVID-19.
Methods: A prospective, single-center study, involving unvaccinated children aged 0-16 years old, hospitalized with COVID-19 between October 2020 and December 2021, was conducted. Children with a history of reinfection were excluded. COVID-19 severity was defined according to the NIH classification. Serological testing for anti-Spike SARS-CoV-2 IgG and neutralizing antibodies was performed at diagnosis and at 1, 3, 6 and 12 months post-infection. Analysis was performed using mixed effects models and random effects on time. The antibodies were naturally logged transformed to approximate normality.
Results: A total of 65 immunocompetent children were enrolled [mean age(+/-SD):6.7(+/-6.4) years; males:56.9%]. At 3 months, 40/44 (91%) children were seropositive; seropositivity persisted in 22/26 (85%) children at 6 months and in 10/12 (83%) children at 12 months. There was no evidence that age was modifying the prediction of variance of SARS-CoV-2 IgG levels. In contrast, SARS-CoV-2 IgG levels varied with time and disease severity. The association with time was non-linear, so that with increasing time there was significant reduction in SARS-CoV-2 IgG levels (coef-.044 [95%CI:0.061-0.028], $p<0.001$). For each increment of time the higher disease severity group was associated with 0.9 lower SARS-CoV-2 IgG levels. Each individual varied from the average effect of time with a SD of 0.01, suggesting that individuals may have different trajectories across time.
Conclusions/Learning Points: Disease severity but not age has an effect on antibody titers among children hospitalized with COVID-19. SARS-CoV-2 infection induces durable seroconversion in these children with detectable IgG levels at 1 year after infection.

PV0926 / #1173

RISE OF NEUROLOGICAL MANIFESTATIONS DURING SARS-COV-2 OMICRON WAVE IN CHILDREN WITH COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Omicron variant wave is characterized by less severe, but more contagious infection, resulting in higher rates of community transmission and pediatric COVID-19 hospitalizations. Omicron variant may present a more epileptogenic profile. This study aims to evaluate the frequency and clinical characteristics of children with neurological COVID-19-related symptoms during Omicron period and compare them with the previous waves.
Methods: A retrospective, single-center study, involving children aged 0-16 years of age with COVID-19, admitted to a tertiary Children's hospital, was conducted. Clinical characteristics and incidence of neurological manifestations were compared between the two study periods, the first one before the emergence of Omicron variant (March 2020-December 31st, 2021) and the second one, when Omicron variant was predominant (January 1st, 2022-April 15th, 2022).
Results: A total of 571 children were enrolled (first period: 311 children; second period: 260 children). COVID-19-related neurological manifestations were observed in 25 children (8%) during the pre-Omicron period and in 58 children (22.3%) during the second period ($p<0.0001$). Febrile seizures significantly increased during the Omicron wave ($p=0.012$), while headache was more frequent during the pre-Omicron period ($p=0.002$). Electroencephalogram was performed in 9 children during the second period and it was abnormal in 4 of them, while brain MRI was performed in 5 children and it was normal in all of them. Treatment with anticonvulsants was administered for 3 months in 12 children and it was discontinued without complications during the follow-up period in all.
Conclusions/Learning Points: The period of Omicron variant predominance was characterized by an increased rate of neurological manifestations, and especially febrile seizures, among children with COVID-19. Further collaborative studies are required to determine the prevalence and the full spectrum of neurological manifestations among SARS-CoV-2 infected children.

PV0927 / #1189

SARS-COV-2 SEROPREVALENCE AMONG CHILDREN IN GREECE ACCORDING TO DIFFERENT VARIANTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The Omicron variant is associated with increased transmissibility, but evidence regarding the impact of Omicron in seropositivity of children is limited. The purpose of this study is to evaluate SARS-CoV-2 seroprevalence in children during the different variants' periods.
Methods: A prospective multicenter study was conducted in Greece. Children from different age groups admitted to the hospital or examined in outpatient clinics for reasons other than COVID-19 and their parents were tested for anti-Spike SARS-CoV-2 IgG in serum. The study period was divided into three different subperiods: 01/03/2021-30/6/2021 (Alpha predominance), 1/11/2021-31/1/2022 (Delta predominance) and 01/02/2022-30/06/2022 (Omicron predominance).
Results: A total of 2054 children (0–16 years) were enrolled. In the first period with alpha variant predominance, 414 children (males: 219/414 (52.9%); median age (IQR): 8.1 (5.4)) were included. In the second period with delta variant predominance, 468 children (males: 262/468 (55.9%); median age (IQR): 6 (6)), while in the third period with omicron predominance, 1172 children (males: 670/1172 (57.2%); median age (IQR): 4.9 (5)) were included. Seropositivity rate increased significantly from Alpha to Delta period (59/414 (14.3%) vs 157/468 (33.5%) seropositive children, respectively) (P-value<0.0001), as well as from Delta to Omicron period (157/468 (33.5%) vs 750/1172 (63.9%) seropositive children, respectively) (P-value<0.0001). Seropositivity increased for all age groups (P-value<0.0001). No significant differences were observed in seropositivity with respect to gender, origin, or hospitalization status.
Conclusions/Learning Points: During the Omicron period, seropositivity significantly increased in the paediatric population, as a result of higher transmissibility or reinfection rates. Continuous surveillance seroprevalence studies are needed in children, in order to determine the true extent of SARS-CoV-2 in this population.

PV0928 / #1150

EVALUATION OF T CELL RESPONSES WITH THE QUANTIFERON SARS-COV-2 ASSAY IN INDIVIDUALS WITH 3 DOSES OF BNT162B2 VACCINE, SARS-COV-2 INFECTION, OR HYBRID IMMUNITY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Cellular immunity after SARS-CoV-2 infection or immunization may be important for long-lasting protection against severe COVID-19 disease. We investigated cellular immune responses after SARS-CoV-2 infection and/or vaccination with an interferon (IFN)-γ release assay.
Methods: Children and adults who were convalescent and/or vaccinated for COVID-19 were included. Whole blood with heparin samples were obtained for the evaluation of cellular immune responses using the SARS-CoV-2 QuantiFERON assay (QFN). Serum samples were also obtained and measured for SARS-CoV-2 anti-Nucleocapsid (Abs-N), anti-Spike (Abs-S) and Neutralizing (NAbs) antibodies against SARS-CoV-2 wild type and Omicron variant.
Results: In the study were included 41 participants; unvaccinated children (6) and adults (5) and vaccinated uninfected (16) or vaccinated convalescent adults (14). All vaccinated adults had received three doses of the BNT162b2 COVID-19 vaccine at 6.2-10.9 months prior to their inclusion to the study. All the unvaccinated participants were tested negative with QFN. Regarding the vaccinated population, 50% (8/16) of the vaccinated uninfected adults and 57.1% (8/14) of the vaccinated convalescent adults were tested positive. Among the QFN positive individuals, a reactive response to antigen (Ag) 1 ($CD4^+$ epitopes) and to Ag2 ($CD4^+$ and $CD8^+$ epitopes), was detected in 68.8% (11/16) and 87.5% (14/16) respectively, while 56.3% (9/16) had a reactive response to both antigens. Ag1 IFN-γ values correlated with Abs-S ($P<0.001$) and NAbs against wild type ($P=0.039$) levels, but not with NAbs against Omicron variant ($P=0.09$) and Ag2 IFN-γ values correlated only with Abs-S ($P=0.009$).
Conclusions/Learning Points: The SARS-CoV-2 QFN assay did not detect cellular responses in unvaccinated individuals and in a significant number of vaccinated individuals. Further comparative studies with different immunology assays are required to elucidate whether this is the result of waning immunity or low sensitivity of the assay.

PV0929 / #2218

CLINICAL FEATURES IN INFANTS HOSPITALIZED WITH COVID-19 (OMICRON)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The omicron variant has resulted in a large number of pediatric cases of COVID-19 worldwide, including Romania. The aim of this study was to characterize the clinic of infants hospitalized with omicron in the largest infectious disease hospital in Romania.
Methods: We performed a retrospective analysis of the clinical characteristics of all infants hospitalized with RT-PCR-confirmed SARS-CoV-2 infection in 2022. Infants with other co-infections and those without complete data were excluded from the analysis.
Results: A total of 613 infants (58.9% male) with median age of 5 months (IQR:3-8 months) required hospitalization. Fever was the most common clinical manifestation (96.4%, n=591), followed by cough (64.8%, n=397) and loss of appetite (63.3%, n=388). Digestive manifestations were present in 49.6% of infants, being more common in infants older than 7 months ($p<0.001$). Overall, 11.3% of infants had dyspnea. Median length of hospital stay was 4 days (IQR:3, 5 days) being significantly higher by 1 day in infants under 3 months ($p<0.001$). The outcome was favourable in all cases.
Conclusions/Learning Points: We identified a high number of infants hospitalized with omicron. Although the outcome was favorable in all cases, the burden of disease was significant. Continuous monitoring of circulating variants of SARS-CoV-2 is a necessity for taking appropriate measures to limit the spread of infection including in infants.

PV0930 / #1205

IS D-DIMER A USEFUL DIAGNOSTIC TEST FOR MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN?

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: D-dimer have been used along with other clinical indicators to aid diagnosis of MIS-C. However, there is limited published data on D-dimer values in acutely unwell children with febrile and non-febrile illnesses. We describe the range of D-dimer values and association with severity markers in children admitted to intensive care to assess whether D-dimers are uniquely raised in MIS-C or whether it is a nonspecific marker of acute disease.
Methods: Retrospective observational study of pseudo-anonymised, routinely collected data from electronic health records of paediatric (<18 years) patients admitted to PICU with a D-dimer request between 01/05/2017 – 01/06/2020.
Results: Fifty-seven patients were included, 22/57 (38%) were female, median age 5.9 years (IQR 1.0–11).10/57 (17%) were managed as MIS-C; 6/10 met the WHO MIS-C criteria. Other primary diagnoses included: bacterial infections (11/57, 19%), viral infections (10/57, 17%), status epilepticus or autoimmune encephalitis (9/57, 16%) and other (17/57, 29%). D-dimer levels did not discriminate between gender (p=0.9) or ethnicity (p=0.6); a weak positive correlation was seen with age (R2=0.29, p=0.03). The median D-dimer in MIS-C was 3329ng/mL (IQR 2192–7173), vs 3307ng/mL (IQR 1064-15577) in other diagnoses (p=0.61). When comparing D-dimer levels in febrile illnesses, no significant differences were seen (p=0.1) (Figure1a). One patient had confirmed deep venous thrombosis - their D-dimer was below the median at 2223ng/mL. Raised D-dimers were associated with shock (median levels: shock - 5407ng/mL, no shock - 1714ng/mL, p=0.0004), cardiac involvement defined as abnormal echocardiogram/electrocardiogram (median levels: cardiac involvement - 5542ng/mL, no cardiac involvement - 2363ng/mL p=0.05), but not mechanical ventilation (median levels: MV-2227, No MV-4787, p=0.6)
(Figure1b).

Figure 1a: D-dimer levels by febrile illness

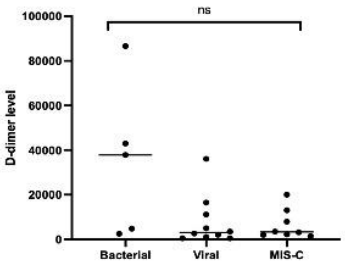
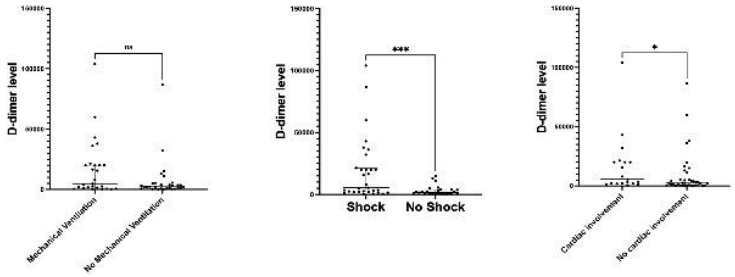


Figure 1b: association of d-dimers with markers of severity



Conclusions/Learning Points: In our cohort, raised D-dimer levels were not specific for MIS-C and were a marker of severe disease regardless of aetiology.

PV0931 / #2072

LONG COVID SYMPTOMS IN EXPOSED AND INFECTED CHILDREN, ADOLESCENTS AND THEIR PARENTS ONE YEAR AFTER SARS-COV-2 INFECTION: A PROSPECTIVE OBSERVATIONAL COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: There is a lack of understanding on long COVID in children, particularly due to a lack of well-controlled studies with long-term follow-up. In addition, the impact of the family context on persistent symptoms following SARS-CoV-2 infection is unknown. Here, we examined long COVID symptoms in a cohort of infected children, adolescents, and adults and their exposed but non-infected household members approximately 1 year post-infection and investigated clustering of persistent symptoms within households.
Methods: 1267 members of 341 households (404 children, 140 adolescentsand 723 adults) were prospectively enrolled across 4 centers and categorized as having had either a SARS-CoV-2 infection or household exposure to SARS-CoV-2 with-out infection, based on three serological assays and history of laboratory-confirmed infection. Participants completed questionnaires assessing the presence of long COVID symptoms 11-12 months after infection in the household using online questionnaires.
Results: The prevalence of moderate or severe persistent symptoms was statistically significantly higher in infected than in exposed women (36.4% [95% CI: 30.7-42.4%] vs 14.2% [95% CI: 8.7-21.5%]), infected men (22.9% [95%CI: 17.9-28.5%] vs 10.3% [95% CI: 5.8-16.9%]) and infected adolescent girls (32.1% 95% CI: 17.2-50.5%] vs 8.9%[95%CI: 3.1-19.8%]) while infected adolescent boys and children did not show a higher frequency of persistent symptoms. In addition, we found clustering effects within households, meaning that the risk that a participant experienced one additional moderate or severe persistent symptom increased by 12% for every additional symptom present in this household.
Conclusions/Learning Points: In this controlled, multi-centre study, infected men, women and adolescent girls were at increased risk of negative outcomes 11-12 months after SARS-CoV-2 infection. Amongst non-infected adults, persistent symptoms were also frequent. Prolonged symptoms tended to cluster within families, suggesting family-level interventions for long COVID could prove useful.

PV0932 / #1063

CONCORDANCE OF UPPER AND LOWER RESPIRATORY TRACT SARS-COV-2 RT-PCR RESULTS IN PEDIATRIC PATIENTS ADMITTED AT A TERTIARY REFERRAL HOSPITAL IN MANILA, PHILIPPINES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Nasopharyngeal swab SARS-CoV-2 RT-PCR remains the standard for COVID-19 diagnosis. Efforts to improve yield given its moderate sensitivity and the implications of a missed diagnosis led to our institution's protocol of routine paired upper (URT) and lower (LRT) respiratory tract sampling. The resulting delays in disposition, substantial increase in cost, conflicting data in published literature on the optimal specimen for testing, have made determining the concordance of these two samples and comparing the clinical profiles of positive patients with concordant versus discordant results a worthwhile endeavor.
Methods: This is a retrospective cross-sectional study that reviewed the medical records of pediatric patients admitted to the largest COVID-19 referral hospital in the Philippines from May 1, 2020 to May 31, 2022 with URT and LRT SARS-CoV-2 RT-PCRs performed within 24 hours of each other.
Results: A total of 241 paired tests obtained during the 1st week of illness from 171 unique patients displayed moderate concordance (k = 0.45). Two hundred and eleven (88%) were concordant, with 195 (81%) testing negative and 16 (7%) positive. Meanwhile, 30 (12%) were discordant, of which 23 (77%) were positive on URT, and 7 (23%) on LRT sampling. Test positivity was higher for URT (84.8%) compared to LRT (50%) specimens. Concordant positives had lower cycle threshold values. Majority (33, 72%) of all positive cases were categorized as severe or critical, but a greater number of non-severe cases had discordant results. Otherwise, the groups were similar.
Conclusions/Learning Points: The moderate concordance of URT and LRT SARS-CoV-2 RT-PCRs, and higher test positivity rate of URT sampling suggest that routine paired testing is unnecessary for patients on the 1st week of illness. LRT testing can be considered for URT negative cases suspicious for COVID-19.

PV0933 / #2040

IMMUNOLOGICAL PECULIARITIES IN CHILDREN WITH SARS-COV2 INFECTIONS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Children and adolescents exhibit a broad range of clinical outcomes from SARS-CoV-2 infection, with the majority having minimal to mild symptoms. The incidence rate of pediatric COVID-19 cases ranges between 1%–5% of all COVID-19 cases worldwide. However, this rate is likely to be underestimated, given the high proportion of underdiagnosed mild symptomatic and asymptomatic cases. Host immune responses to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), especially in children, are still under investigation.
Methods: Our study aim was to compare the association of clinical presentation of the disease with the development of IgG antibodies against SARS-CoV-2 in children.
Results: Our study included 47 study subjects with a positive RT-PCR test result for SARS-CoV-2. Mean age of our subjects was 6.53 ±0.98 years. Most reported cases of infected children were attributed to contact with an infected family member. Of all cases, 2% presented mild forms, 60% of cases - moderate forms, 38% of cases were severe. Febrile syndrome was present in 89% of children. Signs and symptoms in children were similar to tadults, but were lower in frequency. Children often experience robust antibody production within the first 3 weeks post infection and an estimated seroconversion time to IgG antibodies in the first week. Additionally, there is an increase in IgG specific B-cell rates in children with SARS-CoV-2, indicating a rapid humoral immune response. It was found that children with antibodies more frequently had chronic pathologies (41% vs 17% of cases), more frequently developed pneumonia (82% vs 70%) and dyspnea (53% vs 33%)).
Conclusions/Learning Points: Children who developed antibodies showed a more severe course of the disease. The spread of viral variants among unvaccinated pediatric populations could change the spectrum of disease in children.

PV0934 / #2246

BAROTRAUMATIC COMPLICATIONS DURING COVID 19 IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The start of 2020 was marked by the outbreak of the COVID-19 pandemic. The first cases were identified in December 2019. The pandemic is secondary to an infection with the severe acute respiratory syndrome coronavirus 2, known as SARS-COV-2. Patients with COVID-19 are also susceptible to barotraumatic complications, such as pneumomediastinum, pneumothorax, and subcutaneous emphysema. The objective was to identify the profile of patients with COVID-19 who developed these barotraumatic complications for effective management.
Methods: We report cases concerning 3 patients under five years old, suffering from COVID-19 hospitalized in the pediatric intensive care unit of EL HAROUCHI hospital of the CHU IBN ROCHD in Casablanca during the period from 09/15/2022 to 15/ 10/2022, and who presented on admission or during hospitalization, one of the following complications: pneumomediastinum; pneumothorax or subcutaneous emphysema
Results: The mean time to onset of these complications was 3 days after patient admission. The average age was 3 years with a male predominance. 2 patients did not have a pathological history, with one patient presenting with a notion of neonatal asphyxia with viral bronchiolitis. The chest scanner objectified lesions very suggestive of COVID-19 with the presence of pneumothorax in one patient, pneumomediastinum and subcutaneous emphysema in 2 patients. Regarding ventilation, 3 patients were on invasive ventilation. Evolution was favorable in 2 patients, with worsening of one patient and death after 24 hours of hospitalization. The main cause of death was related to profound hypoxemic respiratory failure
Conclusions/Learning Points: The presence of barotraumatic complications in patients with COVID-19 poses a problem of ventilatory management. Better recognition of the natural history of this disease and multidisciplinary care between emergency physicians, resuscitators, pulmonologists and radiologists will offer better care and improve survival.

PV0935 / #2037

ANTIBIOTIC USE IN HOSPITALIZED CHILDREN WITH COVID-19 DURING THE THREE YEARS OF PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: COVID -19 in pediatric population is thought to be asymptomatic or mild. However, antibiotic administration is not uncommon especially among pediatric patients with underlying conditions.Our aim was to study the antibiotic use among hospitalized children with COVID-19 in our hospital.
Methods: A retrospective study was performed among children hospitalized with COVID-19 in the largest tertiary Children's Hospital in Greece during March 2020-December 2022. Demographic, clinical and laboratory data were collected.
Results: Of the 1497 hospitalized children, 250 (16.7%) received antibiotic treatment. Patients' age ranged from 1 day to 20 years old. Seventy-two (28.8%) patients had confirmed bacterial or viral coinfection. Among them, 21 patients (29%) had a urinary tract infection and 7(9.7%) had bacteremia. Antibiotic use was quite common among patients with increased inflammatory markers (n=120, 48%) and underlying comorbidities (n=69, 27.6%) including malignancy (n=14), prematurity (n=5), respiratory (n=7), or hematological (n=7) disease. However, coinfection was detected only in 37/120 and 14/69 respectively. Moreover, antibiotic treatment was initiated in patients aged less than 90 days old (n=66, 26.4%)and those who received oxygen supplementation (n=25, 10%). Coinfection was detected in 19/66 and 4/25 respectively.
Conclusions/Learning Points: Children with COVID-19 even those with an underlying disease have low rates of bacterial or viral coinfection; therefore, antibiotics should be used with caution. Clinicians should apply diagnostic criteria to avoid overprescribing antibodies for COVID-19.

PV0936 / #386

CONVALESCENT PLASMA AND MONOCLONAL ANTIBODY ON A PERSISTENT COVID-19 INFECTION IN A SEVERE COMBINED IMMUNODEFICIENCY (SCID) INFANT IN A ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION SCHEDULING.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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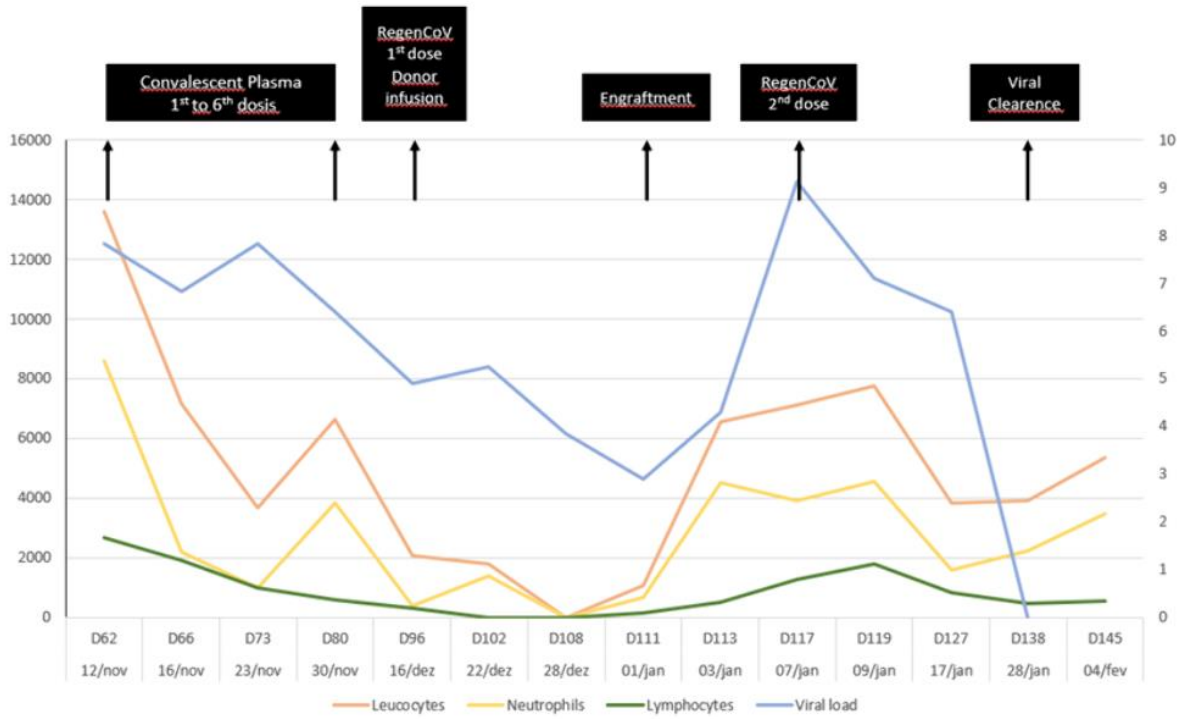
Title of Case: Convalescent plasma and monoclonal antibody on a persistent COVID-19 infection in a severe combined immunodeficiency (SCID) infant in a pre-allogeneic hematopoietic stem cell transplantation scheduling.
Background: We aim to assess clinical and virological effects of convalescent plasma and monoclonal antibody in SARS-CoV-2 infected infant with inborn error of immunity without viral clearence after more than 60th days in a hematopoietic stem cell transplant program.
Case Presentation Summary: We report a COVID-19 infection with long time shedding in a 17-month-old patient with SCID in transplantation program. The mieloablative conditioning could made this pacient a high risk for severe COVID-19 due to high viral load in nasopharyngeal samples and his infective capacity confirmed after Vero CCL-81 cells culture. Sanger sequencing of part of S gene revealed a infection caused by a gamma variant which persists in all detections. Initially five doses of convalescent plasma were administrated with no improve in viral load and in sixth infusion had a anaphylactic reaction with his suspension. Then, monoclonal antibody (REGEN-COV) was used to allow mielossupression regimen with a slightly viral load decrease and still no control. During all the time he remains assymptomatic and a full clearence was only possible after immune recovery in post-transplantation status.



Learning Points/Discussion: In SCID children a complete absence lymphocytes reduces inflammatory damage in target organs and innate response promotes infection containment which promoves mild infection as seen in our patient and a delayed resolution would be explained due to absence of memory cells and no sustained specific antibody response. The presence of neutralizing antibodies after convalescent plasma and REGEN-COV could guarantee the absence of symptoms, but no clearence was achieved before a immune reconstitution. So, this case highlights the importance of cellular immunity in viral clearance.

PV0937 / #2011

MULTISYSTEM INFLAMMATORY SYNDROME (MIS-C) IN CHILDREN, THE NEW DISEASE OF A THOUSAND FACES - ABOUT A CLINICAL REPORT

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Multisystem inflammatory syndrome (MIS-C) in children, the new disease of a thousand faces - about a clinical report
Background: MIS-C is a severe inflammatory syndrome following recent infection with SARS-CoV-2, similar to Kawasaki disease or toxic shock syndrome. However MIS-C can have multiple presentations in children.
Case Presentation Summary: A previously healthy 4-year-old boy, whose mother had COVID-19 3 weeks earlier, presented with a 6-day history of fever and sore throat, aggravated with right cervical swelling and erythematous rash. Blood tests showed 21 × 109 white blood cells/L, 19 × 109 neutrophils/L, 1.3 × 109 lymphocytes and a C-reactive protein level of 244 mg/L. Because of a suspected retropharyngeal abscess, he was started on amoxicillin/clavulanic acid and clindamycin. There was clinical worsening with persistent fever, abdominal pain, progression of the rash, right cervical erythema, painful neck stiffness and trismus. Computed tomography (CT) of the neck showed multiple adenopathies, but excluded retropharyngeal abscess or cellulitis. Abdominal CT showed peritoneal and right pleural effusion. On day 8, he became tachycardic and hypotensive, and was started on peripheral dobutamine. Echocardiogram showed decreased ventricular contractility, with mitral and tricuspid insufficiency. This led to further workup that was suggestive of MIS-C (elevated ferritin, NT-proBNP, troponin, and positive COVID-19 IgG). There was clinical improvement following treatment with dobutamine, immunoglobulin and methylprednisolone. Repeated echocardiograms showed gradual increase of ventricular function and inflammatory markers trended down to normal.
Learning Points/Discussion: MIS-C can be a challenging diagnosis, even mimicking other diseases. We report a clinical case where the initial presentation resembled a retropharyngeal abscess. The unfavorable clinical progress, with multisystemic compromise, led us to consider MIS-C. We therefore emphasize the importance of early considering this diagnosis when faced with prolonged fever.

PV0938 / #550

SAFETY AND DURABILITY OF MRNA-1273-INDUCED SARS-COV-2 ANTIBODY RESPONSES IN ADOLESCENTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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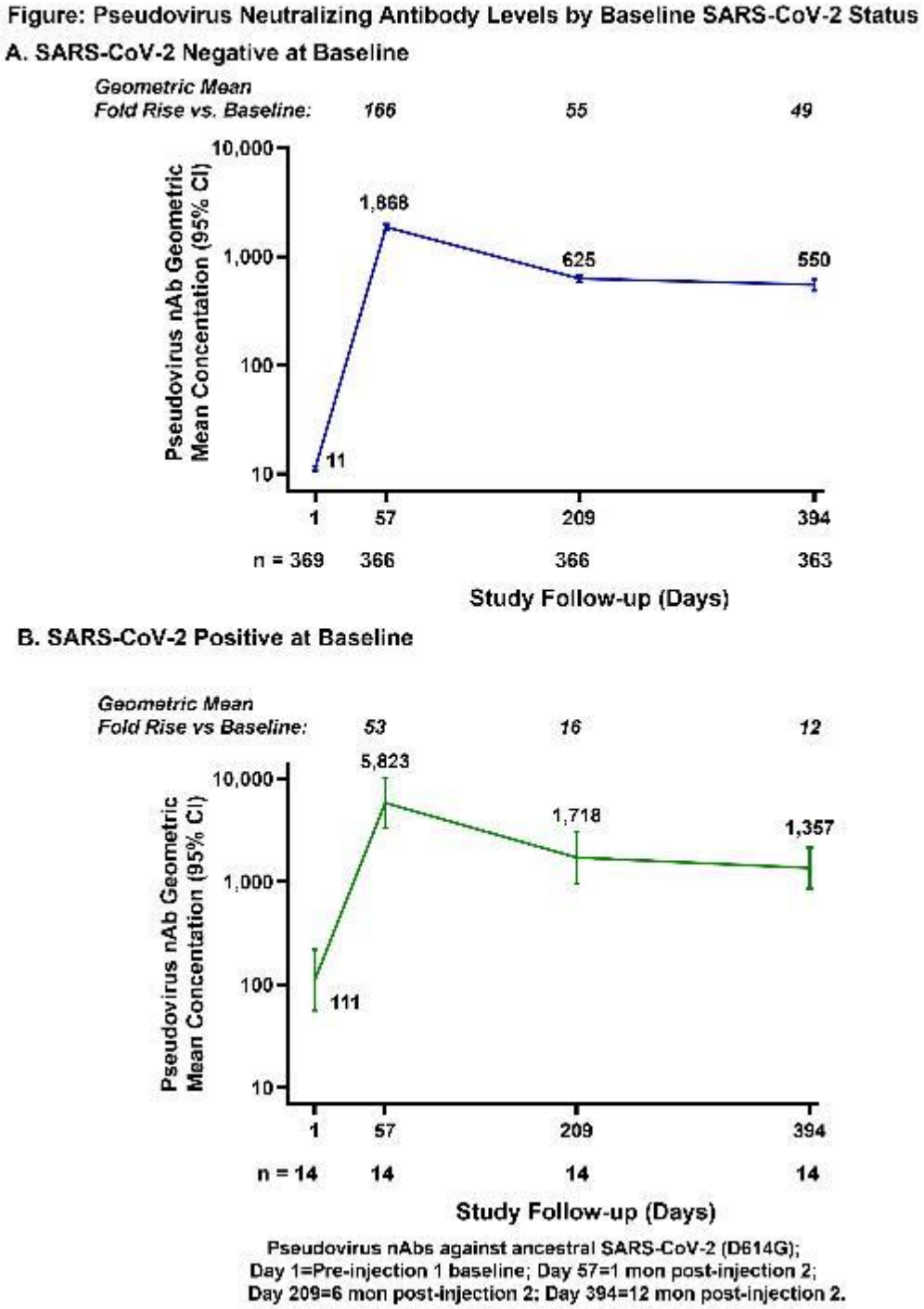
Backgrounds: TeenCove is a Phase 2/3 randomized, observer-blind, placebo-controlled study in adolescents aged 12-17 years randomized to receive two injections of 100-µg mRNA-1273 vaccine (n=2490) or saline placebo (n=1243), 28 days apart. After authorization of COVID-19 vaccines in adolescents, placebo recipients were offered to receive mRNA-1273. Here, we present the long-term safety, immunogenicity, and antibody persistence results up to 12 months post-mRNA-1273 primary series.
Methods: 2486 mRNA-1273 recipients and 91 placebo recipients who received mRNA-1273 were monitored for COVID-19 and AEs (leading to discontinuation, SAEs, medically-attended, and AEs of special interest). Up to 12 months post-injection 2, we measured neutralizing (nAb) and binding antibodies (bAb) against ancestral SARS-CoV-2 spike protein; and bAb against alpha, beta, delta, and gamma variants.
Results: In SARS-CoV-2 baseline-negative adolescents(n=366), mRNA-1273 induced robust nAb responses 28 days post-injection 2, (Geometric Mean Concentration [GMC] 95% confidence interval [95% CI]=1868[1759,1985) vs. baseline (11[11,12]); strong nAb persistence was observed at 6 months [625[583,670] and at 12 months (550[490,618]) (Figure). Similar trends were observed in bAb including responses to variants. Robust nAb and bAb responses were also observed in participants who were SARS-CoV-2 baseline-positive. Overall, COVID-19 incidence rates were low through 1-year post-injection 2 (8.735/1000 person-months). During the Omicron wave, COVID-19 incidence rates increased in Dec 2021 (23.443/1000 person-months) and Jan 2022 (92.616/1000 person-months). mRNA-1273 was generally well-tolerated and the reactogenicity profile was consistent with that observed in thePhase 3 COVE study in adults. There were no deaths, investigator-reported vaccine-related SAEs, or MIS-C. One reported case of nonserious, moderate, probable acute myocarditis resolved by 8 days from symptom onset.
Conclusions/Learning Points: Antibody responses were durable through 12 months after mRNA-1273

primary series vaccination. The overall benefit-risk profile of mRNA-1273 remains favorable in

Figure: Pseudovirus Neutralizing Antibody Levels by Baseline SARS-CoV-2 Status



Pseudovirus nAbs against ancestral SARS-CoV-2 (D614G);
Day 1=Pre-injection 1 baseline; Day 57=1 mon post-injection 2;
Day 209=6 mon post-injection 2; Day 394=12 mon post-injection 2.

adolescents.

PV0939 / #1588

A 32-MONTH SARS-COV-2 SEROEPIDEMIOLOGY STUDY IN THE PEDIATRIC POPULATION OF ATHENS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Limited prospective long-term SARS-CoV-2 serosurveillance data have been reported in children. We investigated COVID-19 seropositivity in children between 1/5/2020-31/12/2022, representing SARS-CoV-2 Wuhan (Wh), Alpha, Delta and Omicron variants predominance periods in Greece.
Methods: Serum samples from children who presented to the emergency department or were hospitalized to the major tertiary Greek pediatric hospital “Aghia Sophia” for any cause, except for COVID-19, were randomly collected monthly and tested for SARS-CoV-2 nucleocapsid protein antibodies. Study periods were divided as: 1/5/2020-31/12/2020 (Wh), 1/1/2021-30/7/2021 (Alpha), 1/8/2021-31/12/2021 (Delta) and 1/1/2022-31/12/2022 (Omicron).
Results: A total of 1412/4963 (28.5%) seropositive children were detected. Their mean (±SD) age was 87.6(±63.4) months and males were 759/1412 (53.8%). Seropositivity rates in Wh, Alpha, Delta and Omicron periods were 1.7%, 12.7%, 23.8%, and 62.4%, respectively (P-value<0.001). The lowest seropositivity was detected in August 2020 (0.0%) and the highest were detected in October 2022 (80.6%) with statistical dependency between seropositivity and month detected (P-value<0.001). Seropositivity significantly increased from Wh to Omicron period for all age groups (P-value<0.001), reaching 44.1% in 0–1-year-old, 55.0% in 1-4 years, 65.4% in 4-6 years, 71.6% in 6-12 years and 67.2% in 12-16 years in Omicron period. No significant differences were detected between males and females (P-value=0.528). Seropositivity was not significantly higher in hospitalized (28.6%) than in non-hospitalized children (28.1%) (P-value=0.730). However, seropositivity was significantly higher in non-Greek (31.7%) compared to Greek children (27.3%) (P-value=0.003).
Conclusions/Learning Points: In Omicron period, SARS-CoV-2 seropositivity in pediatric population considerably increased suggesting either enhanced transmissibility or reinfection rates. Continuous surveillance of seroepidemiological data in children is required to estimate the true extent of pediatric COVID-19 prevalence.

PV0940 / #1389

SHORT-TERM OUTCOMES OF ELECTIVE PAEDIATRIC ORTHOPAEDIC SURGERY DURING THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The COVID-19 pandemic has posed significant challenges on healthcare services. The impact on safe delivery of surgical care remains uncertain, due to the unknown nature of the coronavirus and its future impact on surgical patients. There is a sparsity of reliable data in the paediatric population, given their potential to remain asymptomatic despite exposure. In our unit, the median COVID-19 admission rates per day was 1.4 (S.D 1.3), between December 2021 to September 2022, therefore our study assessed the effect of COVID-19 exposure in children, on post-operative complications.
Methods: We report on 60 elective cases admitted to our unit between January and September 2022. Vaccinated patients, equivocal results and loss to follow up, formed our exclusion criteria. All were consented for a SARS-CoV-2 antibody blood test pre-operatively, after obtaining research ethics and governance approval. Clinical reviews occurred up to three months and any complications noted. Data was collected through electronic patient records.
Results: Surgical procedures varied from metalwork removal to complex hip reconstruction. 53 patients were included, with 43 (81.1%) testing antibody positive and 10 (18.9%) testing antibody negative. We report no COVID-19 related complications in our cohort. 2 children (4.7%) in the antibody positive group and 1 (10%) in the antibody negative group developed post-operative pyrexia, requiring antibiotics. Statistical analysis using Fisher's Exact Test (95% C.I.), demonstrated no statistically significant association between SARS-CoV-2 antibody result and post-operative complication rate (0.47, $p>0.05$).
Conclusions/Learning Points: Our study demonstrates that although a large proportion of the paediatric population have had peri-operative exposure to COVID-19, in the absence of respiratory symptoms and active infection, early post-operative complication rate was not increased and the elective paediatric orthopaedic operations were safely carried out.

PV0941 / #1285

CERVICAL INVOLVEMENT IN MULTISYSTEM INFLAMMATORY SYNDROME – A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Cervical Involvement in Multisystem Inflammatory Syndrome – A Case Report
Background: Multisystem inflammatory syndrome in children (MIS-C) is a severe but rare complication of coronavirus disease 2019 (COVID-19). It has various clinical features, mainly fever and a rash, as well as cervical involvement.
Case Presentation Summary: A 13-year-old white boy, presented with a 5-day history of high fever, vomiting and anterior neck pain with edema, erythema and an enlarged (3cm), tender left anterior cervical lump. He referred a cervical sunburn the previous week when surfing. Workup revealed normal leucocyte count, increased C-reactive-protein (119,3 mg/L). Cervical US showed multiple bilateral mainly left posterior adenopathies with no retropharyngeal involvement on CT. He was admitted on intravenous amoxicillin plus clavulanic acid and clindamycin for presumed cervical adenophlegmon. At day 5 of antibiotics fever persisted, bilateral conjunctival hyperemia was noted, neck erythema progressed to generalized macular exanthema and he became ill-appearing and hypotensive. Subsequent workups excluded cervical complications and showed hepatosplenomegaly (US), cardiac involvement (troponin I 19,3pg/mL, NT-proBNP 3.357pg/mL), elevated inflammatory biomarkers (sedimentation velocity 38mm/h, ferritin 777 ng/mL, procalcitonin 2,6 ng/mL and D-dimers 3.825 ug/L), with negative blood cultures. Taking into account he was diagnosed with COVID-19 8 weeks before, MIS-C was considered. He was treated with IV immunoglobulin (1g/kg/day 2 days) with complete resolution of fever after 1 day and improvement of inflammatory parameters and was discharged 2 days later.
Learning Points/Discussion: MIS-C may initially present with localized cervical symptoms. This case highlights the need to maintain MIS-C in our differential diagnosis when managing ill-appearing children with presumed cervical infection and a history of recent COVID-19 exposure or infection, that does not respond to antimicrobial therapy.

PV0942 / #1309

COVID-19 ANTIBODIES IN ADOLESCENTS LIVING WITH PERINATALLY ACQUIRED HIV: AN INTERIM ANALYSIS OF PARTICIPANTS FROM THE CHER TRIAL IN SOUTH AFRICA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: There is limited data on adolescents with HIV and COVID-19 co-infection. In an ongoing study on cardiometabolic risk factor in adolescents living with perinatally acquired HIV we reviewed clinical and antibody data related to COVID-19 in adolescents originally enrolled in the Children with HIV early antiretroviral therapy (CHER) study.
Methods: This study was nested in an ongoing prospective cohort study based at Tygerberg Hospital's paediatric infectious diseases clinic. Evidence of prior COVID-19 infection was based on SARS-COV-2 nucleocapsid and spike II antibodies. The study was funded by NIH 1D43TW010937-01.
Results: 33 participants, median age 16.4 years (IQR: 16.2-16.8), were enrolled. 18 (54.6%) were male and 28 (85%) had a viral load of <50 copies/ml. The median CD4 count was 753 cells/mL (IQR: 622-891). Median time on antiretroviral treatment (ART) was 16.1 years (IQR: 15.9-16.7). Median BMI was 21.6 kg (19.5-25.2) and no participant reported smoking cigarettes although 18 (54.6%) smoked cannabis. All participants had no laboratory documentation of COVID-19 testing prior to study enrolment. One had a history of mild COVID-19. Seven reported having received COVID vaccination. Sixteen (48.5%) had SARS-COV-2 nucleocapsid antibodies. SARS-COV-2 Spike II antibodies were found in all 10 participants tested. Table 1 Characteristics of participants with a history of having had COVID vaccine

	CD4 count	Viral load
Participant 1	863	undetectable
Participant 2	893	undetectable
Participant 3	735	undetectable
Participant 4	374	undetectable
Participant 5	690	undetectable
Participant 6	827	undetectable
Participant 7	736	undetectable

Conclusions/Learning Points: This limited analysis of a small number of ALPHIV on ART suggests that asymptomatic SARS-COV-2 infection is common.

PV0943 / #773

MULTISYSTEM INFLAMMATORY SYNDROME IN NEONATES (MIS-N)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Multisystem inflammatory syndrome in neonates (MIS-N)
Background: MIS-N is emerging as a new disease in the newborn population, similar to MIS-C. It is hypothesized that either the following transplacental transmission of SARS-CoV2 antibodies or antibodies developed in neonate after the infection with SARS-CoV-2 are caused.
Case Presentation Summary: A 12-day-old full-term female infant was referred to our Pediatric Department with the history of one-day fever, rhinitis and SARS-CoV2 RT-PCR positive. Perinatal anamnesis is unremarkable. On admission, he had normal vital signs, low-grade fever and cough. Laboratory evaluation revealed mildly elevated PLT, low WBC and CRP levels. He received supportive care but on the 6th day of hospitalization developed poor feeding, tachypnea and hypoxia, suprasternal-subcostal retractions and dynamic bowel obstruction pattern. Laboratory tests changes are shown in the table and chest X-ray showed bilateral alveolar infiltration.She received oxygen, IV antibiotics and dexamethasone. Due to the increased oxygen requirement, he was transferred to NICU, where he underwent an invasive-mechanical ventilation the following day. Bronchial specimen and blood culture were negative for bacterial pathogens. During one day in NICU respiratory distress worsened, ECHO showed myocardial dysfunction, DIC syndrome was developed and the patient died.

	1^{st} day
WBC	$9.97 * 10^9/L$
HGB	162 g/l
NEU	17%
LYM	55.5%
PLT	$604 * 10^9/L$
CRP	7.85 mg/l
AST/ALT	
LDH	
FERRITIN	

Learning Points/Discussion: In consistent with the current literature, we had all the criteria to diagnose this case as MIS-N. The common presentation of MIS-N included cardiorespiratory compromise with the possibility of high mortality. The identification

of suspected MIS-N cases are necessary to perform specific lab tests and ECHO screening on time to decrease the mortality rate.

PV0944 / #659

PREDICTORS OF OUTCOMES FOR PATIENTS WITH PAEDIATRIC INFLAMMATORY MULTISYSTEM SYNDROME TEMPORALLY ASSOCIATED WITH SARS-COV-2 (PIMS-TS) IN NORTHERN IRELAND

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) was first described in April 2020 and is recognised as a rare, post-infectious complication of SARS-CoV-2 infection in children.
Methods: We conducted a retrospective review of all children (ages <18 years) in Northern Ireland who met the UK Royal College of Paediatrics and Child Health (RCPCH) diagnostic criteria for PIMS-TS for the period March 2020 to February 2022 inclusive. Univariate and multivariable analyses were performed to evaluate the association of demographic, clinical and laboratory characteristics with outcomes including; duration of hospital stay, intensive care unit (ICU) admission, inotropic support requirement and echocardiogram abnormalities.
Results: 47 children (median age 104 months) were identified, 30 (64%) were male and 9 (19%) had comorbidities. Median fever duration prior to presentation was 3 days (range 1-13). Other common presenting symptoms included; rash (72%), vomiting/abdominal pain (67%) and conjunctivitis (63%). Median duration of hospital stay was 7 days (range 2-16), 16 (34%) patients were admitted to ICU and 14 (30%) required inotropic support. Initial echocardiogram showed coronary artery abnormalities in 11 (24%) and abnormal ejection fraction in 17 (38%). There were no deaths. Older age, evidence of renal dysfunction and shock at presentation were significantly associated with ICU admission, inotrope use and abnormal ejection fraction. ICU versus non-ICU patients also had significantly lower blood platelet, lymphocyte and albumin counts, with higher troponin, pro B-type natriuretic peptide, ferritin and D-dimer levels. On multivariable logistic regression analysis, only lower blood albumin level remained significantly associated with ICU admission (OR 0.59, P=0.02).
Conclusions/Learning Points: We present the first description of patients with PIMS-TS in Northern Ireland highlighting factors associated with outcomes, with lower blood albumin predictive of ICU admission.

PV0945 / #2585

CHILDREN'S KNOWLEDGE AND PRACTICES REGARDING COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: The knowledge and practices regarding infectious diseases would greatly affect whether children could follow the control measures or not. The COVID-19 pandemic puts children at higher risk for getting the infection because they usually have less ability to understand and practice healthy measures. Therefore, the aims of this study were to assess children's levels of knowledge and practices regarding COVID-19, and to determine the sources of knowledge obtained about COVID-19.
Methods: A cross-sectional, correlational design was used. After getting the required approvals, data were collected from a convenience sample of children aged between 13-15 yeas from six schools that chosen randomly from Zarqa Governorate, Jordan. The questionnaire consisted of demographics, Knowledge and Practices regarding COVID-19, and source of knowledge regarding COVID-19. Data were collected through an online questionnaire sent to 440 students through WhatsApp groups in the selected schools (classes of 7^{th}, 8^{th}, and 9^{th} grades).
Results: The final sample consisted of 180 students (response rate=41.0%). Children had poor knowledge (48.5%) and low practices (54.2%) toward COVID-19. There were statistically positive relationships between knowledge and age, gender, grade, and family income. Female students have better knowledge and practices regarding COVID-19 than their male counterparts. Similarly, there were statistically positive relationships between practices and age, gender, grade, and family income. Children's receive knowledge about COVID-19 from TV (65.0%), social media (73.0%), and from parents (45.0%).
Conclusions/Learning Points: Conclusions: Teachers and parents could provide health education to improve children's understanding of signs of symptoms and practices for protecting infection with COVID-19. Current results are informative to health care policymakers and mental health authorities in helping identify target populations such as school children for prevention and education about infectious diseases such as COVID-19.

PV0946 / #1877

ACUTE RESPIRATORY CORONAVIRUS DISEASE IN A CHILD WITH TYPE 1 DIABETES: A CLINICAL CASE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Acute respiratory coronavirus disease in a child with type 1 diabetes: a clinical case
Background: It is known that children with type 1 diabetes mellitus are at increased risk for severe respiratory symptoms and COVID-19 related complications, compared to patients without the specified premorbid condition. For unknown reasons, SARS-CoV-2 may trigger new-onset diabetes.
Case Presentation Summary: The 4 years old female patient upon admission confirmed severe neurological symptoms as sopor caused by ketoacidosis, dehydration, as well as respiratory infection. The patient was lethargic, hypodynamic, accessible to verbal contact, but with delayed responses. The patient felt ill suddenly, her condition was rapidly worsening. The blood work of the patient revealed hyperglycemia, hyperstenuria, glycosuria, ketonuria, hypertransferasemia, elevated levels of glycated hemoglobin and decreased levels of C-peptide. The patient has been receiving fluid replacement treatment intravenously, short-acting insulin to correct hyperglycemia followed by symptomatic treatment therapy. The patient responded well to the treatment plan and was discharged from the hospital after 8 days continuing treatment from home.
Learning Points/Discussion: This article describes a clinical case of COVID-19 in adolescent patient with a new onset type 1 diabetes mellitus. Despite subtle respiratory symptoms, the patient presented with severe dehydration and ketoacidosis. This case highlights the need for clinical awareness of acute respiratory presentations of confirmed COVID-19 as they may result in ketoacidosis. It is advised to test glucose levels during acute stage of infection. At the moment, it is not enough data to conclude whether type 1 diabetes mellitus in pediatric population can cause serious complications from COVID-19. However, we do believe that in this particular case, COVID-19 triggered new onset type 1 diabetes mellitus in this young patient who had not had any symptoms of type 1 diabetes mellitus before COVID-19.

PV0947 / #649

ETHNIC GROUP DIFFERENCES IN RATES OF SARS-COV-2 TESTING, PCR-CONFIRMED INFECTIONS AND COVID-19-RELATED HOSPITALISATIONS IN YOUNG CHILDREN BY COVID VARIANT: NATIONAL BIRTH COHORT STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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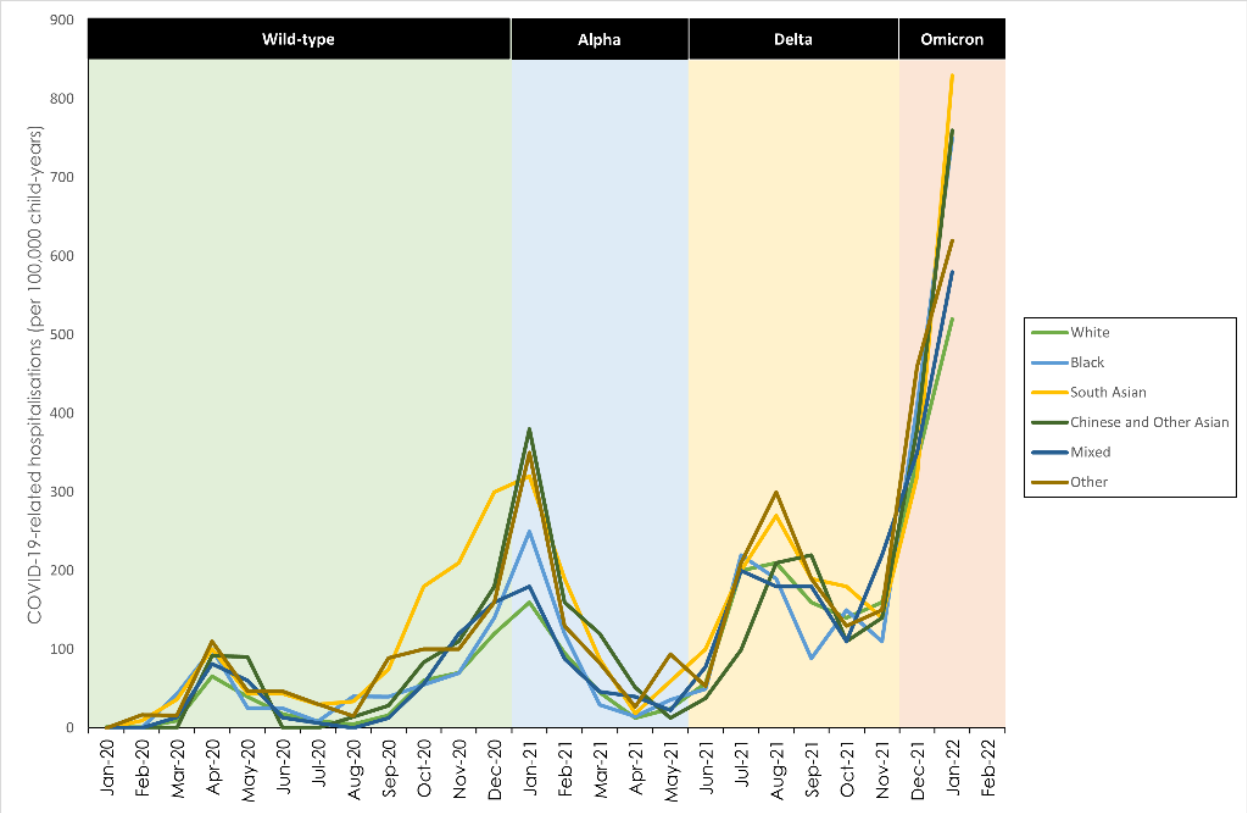
Backgrounds: COVID-19-related-hospitalisation rates in children increased during the Omicron variant wave. Substantial inequalities in SARS-CoV-2 infection outcomes across different ethnic groups are reported in adults.
Methods: We used a national birth cohort of all singleton children under 5 years, born in England between 01/2015-01/2022, linked to national SARS-CoV-2 testing and hospitalisation data, to calculate and compare rates of testing (lateral flow and PCR), primary PCR-confirmed SARS-CoV-2 infections per 1000 child-years (06/2020-01/2022), and COVID-19 related-hospitalisation rates per 100,000 child-years (01/2020-01/2022) by ethnic group and dominant variant wave.
Results: We included data for 4,095,233 children. Black children had the lowest testing rates, ranging from 185.2 per 1000 child-years (95%CI:182.1-188.4) during the wild-type wave to 1261.6 per 1000 child-years (95% CI:1247.9-1275.5) during the Omicron wave. South Asian (Indian, Pakistani, and Bangladeshi) children had the highest rate of PCR-confirmed infections during the wild-type and Alpha variant waves, 42.0 (95%CI:40.4-43.7) and 115.7 (95%CI:112.8-118.7) per 1000 child-years, respectively, despite higher testing rates in White children. COVID-19-related hospitalisation rates were highest during the Omicron wave across all ethnic groups. South Asian children had the highest hospitalisation rate during the wild-type, Alpha, and Delta waves (71.3, 179.1 and 163.9 per 100,000 child-years). Black children had the greatest rate of hospitalisations (589.8 per 100,000 child-years [95%CI:530.2-654.4]) during the Omicron
wave.



Conclusions/Learning Points: Ethnic differences in COVID-19 outcomes in children under 5 years were found. Ethnic minority children were infected at greater rates during the earlier variant waves. The substantial increase in hospitalisation rates in all ethnic groups can be linked to the Omicron variant. Future work will assess factors explaining variations of COVID-19 outcomes by ethnic group and monitor ethnic group differences in outcomes as COVID-19 restrictions ended during 2022.

PV0948 / #1714

EASING OF SARS-COV-2 PREVENTIVE MEASURES LEAD TO A RAPID AND SEQUENTIAL INCREASE OF PEDIATRIC RSV AND SARS-COV-2 ACUTE RESPIRATORY INFECTIONS IN PEDIATRIC PRIMARY CARE PRACTICES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: As a side effect of non-pharmaceutical measures directed against SARS-CoV-2, considerable fluctuations of other respiratory viral infections were observed in pediatric primary care practices in winter 2020/21 (Engels et al. 2022). We investigated the prevalence and clinical manifestations of respiratory infections in the same setting during winter 2021/22, after easing of pandemic measures.
Methods: From October 2021 to May 2022, children aged 0-14 years presenting with acute respiratory infection (ARI) in one of five pediatric practices in Würzburg (Germany) were included. On one day per week and practice, an oropharyngeal swab was taken from up to 8 patients and tested for SARS-CoV-2 (PCR) and 17 other respiratory viruses (multiplex-PCR FTD-21™). Sociodemographic and clinical data of the patients were collected.
Results: 521 children (52% males) were recruited (median age 3.3 years; IQR 1.7-5.5); 11% had an underlying disease, mainly “recurrent obstructive bronchitis“ [8%]. 143 (27%) children presented with lower respiratory tract infection (82%/143 only bronchitis/bronchiolitis, 9%/143 only pneumonia); four (0.8%/521) required hospitalization. In 444/521 (85%) children, at least one virus species was detected: rhinovirus (30%); RSV (22%); SARS-CoV-2 (16%); human metapneumovirus (14%); bocavirus (11%); adenovirus (9%); endemic coronaviruses (7%); parainfluenza viruses (6%); influenza A (1%); parechovirus (1%). RSV was detected mainly in October–December 2021 (112/114) whereas SARS-CoV-2 was found only in January–May 2022 (82/82). Rhinovirus and adenovirus were consistently detected throughout the study period. Co-detections were found in 156 (29,9%) children (children <2 years of age (YOA) 37%, 2-4 YOA 34%, 5-11 YOA 19%, 11-14 YOA 6%).
Conclusions/Learning Points: After easing of non-pharmaceutical preventive measures RSV-associated ARI increased rapidly and unusually early in autumn 2021 and were followed by strong SARS-CoV-2 ARI increase in early 2022.

PV0949 / #654

SIMILARITIES AND DIFFERENCES BETWEEN MULTISYSTEMIC INFLAMMATORY SYNDROME IN CHILDREN (MIS-C) AND SEPSIS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: MIS-C is the most severe presentation of SARS-CoV-2 infection in children. Its differential diagnosis with other causes of systemic inflammatory response such as sepsis is complex.
Methods: Case-control study that compared the demographic, clinical, diagnostic and therapeutic data between paediatric patients with MIS-C (cohort 2020-2022) and sepsis (cohorts 2010-2014 and 2017-2018) admitted to a Paediatric Intensive Care Unit (PICU) of a tertiary care paediatric hospital. A predictor score was developed to help better distinguish between the two entities.
Results: 29 patients with MIS-C were identified, who were matched 1:3 with patients with sepsis (n=87). Patients with MIS-C were older (10 vs. 4 years old), and most of them were men (69%). Clinical characteristics that demonstrated statistically significant differences between the two groups were prolonged fever and signs and symptoms affecting skin-mucosa and gastrointestinal system. Leukocytes, PCT and ferritin were higher in the sepsis group, while thrombocytopenia and elevated adrenomedullin were more frequent in the MIS-C group. Patients with MIS-C presented greater myocardial dysfunction ($p<0.01$). 5 selected variables were introduced in a multivariate logistic regression model, and after scaling the coeficients and the intercept of the regression to integer values the next predictor score was developed: - (4 * Hours of fever) + Platelets - (84 * Abdominal pain) - (43 * Conjunctival erythema) - (2 *Vasoactive Inotropic Score (VIS)) + 120 The interpretation is: when the score is negative the model is predicting a patient with MIS-C, and when is positive a patient with Sepsis.
Conclusions/Learning Points: MIS-C phenotype overlaps with sepsis. The use of predictor scores, such as the one designed in our study, could be useful to distinguish between both entities and direct specific treatment.

PV0950 / #1639

HUMORAL AND CELLULAR RESPONSE TO SARS-COV-2 MRNA VACCINE IN IMMUNOCOMPROMISED PAEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The aim of this study was to compare humoral and cellular response to SARS-CoV-2 mRNAs vaccines in paediatric heart transplant recipients (HTR) compared with healthy controls (HC).
Methods: Prospective cohort study including paediatric HTR (n=12) and HC (n=14) vaccinated against SARS-CoV-2 in a tertiary hospital between December 2021-July 2022. The humoral response was measured by quantifying antibody titers against SARS-CoV-2 protein S (anti-S IgG). T-cell-phenotype and SARS-CoV-2-specific T-cell response was studied by quantifying intracellular cytokine production (IFN-γ/TNF-α/IL-2) after SARS-CoV-2 peptides stimulation by flow cytometry on cryopreserved peripheral blood mononuclear cells.
Results: Patients' characteristics are shown in Table 1. Anti-S IgG levels (UA/mL) were significantly lower in HTR group (3960, IQR 985-11,915) compared to HC (19,170, IQR 13,131-32,852) after vaccination ($p<0.005$). Twelve children had been previously infected by SARS-Cov-2. Overall, there was not a significant difference in the humoral response between these children and those not previously infected. In terms of cellular response, no significant differences were observed in the magnitude of response in HTR compared to HC groups. However, participants previously infected by SARS-CoV-2 showed increased SARS-CoV-2 specific T-cell response and rate of responders (individuals with a SARS-CoV-2 specific response threshold ≥0.05%) despite no significant differences. Direct correlations were shown between anti-S IgG levels and SARS-CoV-2-specific IFN-γ+ and TNF-α+ production in total and memory CD8 T-cells. Notably, anti-S IgG levels inversely correlated with activation markers' expression on CD4 T-cells (HLA-DR+CD38+ and CD25+). The expression of degranulation marker, CD107a+, inversely correlated with the expression of CD25+ on CD4 memory T-cells.

Table 1. Clinical characteristics of the study groups.

	HTR n=12	HC n=14	*p*
Age (years)	13.2	8.7	>0,05
Sex (male), n (%)	6 (50)	7 (50)	>0,05
Immunosuppressive treatment, n (%)			
Tacrolimus	11 (91.7)	0	
Mycophenolate	6 (50)	0	
Sirolimus	1 (8.3)	0	
Corticosteroids	3 (25)	0	
Doses of vaccine, n (%)			***<0,05***
Two doses	3 (25)	14 (100)	
Three doses	9 (75)	0	
Time from last dose of vaccine to follow-up sample collection, in months (IQR)			**<0,05**
	4.3 (1.7-4.9)	0.6 (0.6)	
Previous SARS-CoV-2 infection			>0,05
	5 (41.6)	11 (78.5)	

HTR: heart transplant recipients; HC: healthy controls; IQR: interquartile range.

Conclusions/Learning Points: In our study, paediatric HTR responded adequately to SARS-CoV-2 mRNA vaccination, although they had lower antibody titers than HC. We did not found differences in the cellular response between HTR and HC.

PV0951 / #674

POOR RELATION BETWEEN TYPICAL POSTCOVID SYMPTOMS AND PROOF OF SARS-COV-2 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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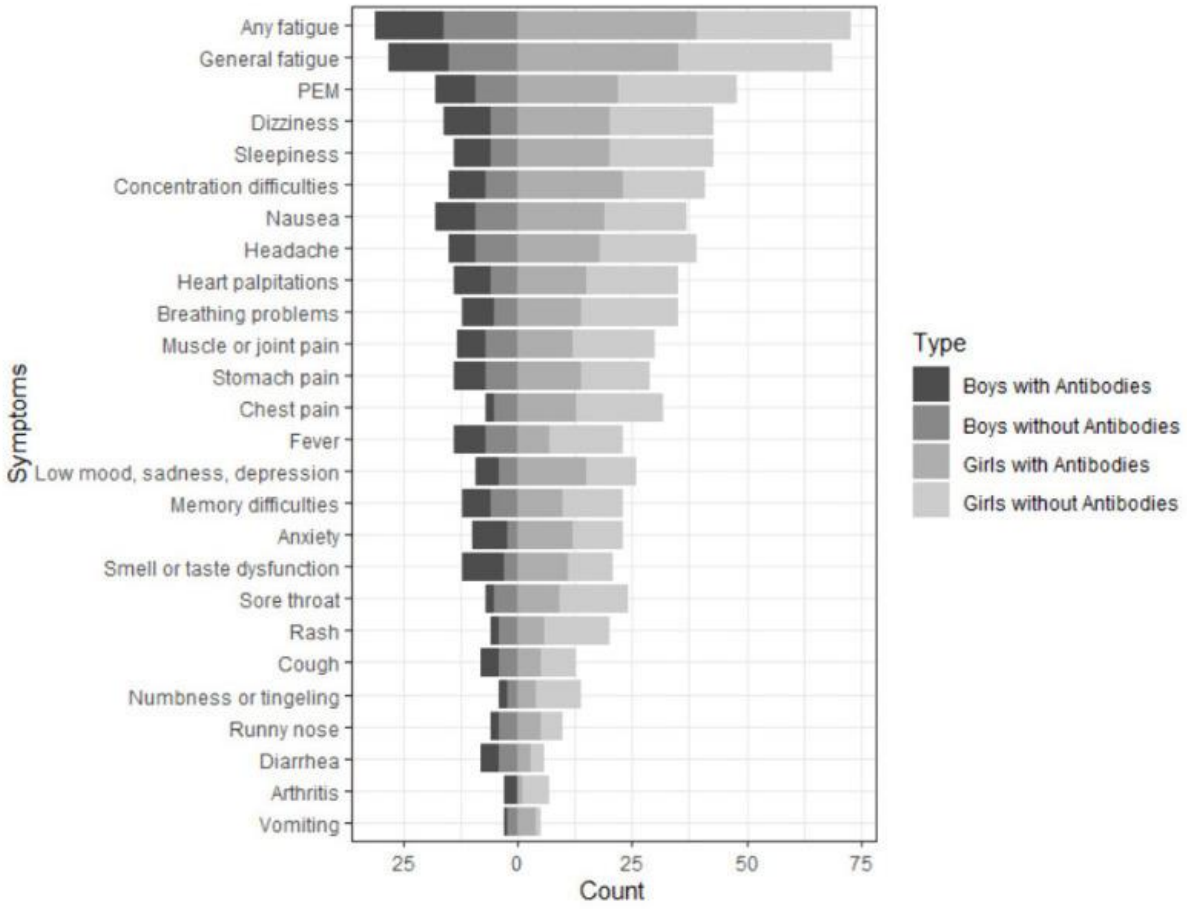
Backgrounds: The COVID-19 pandemic has had a significant impact on children's health despite their typically mild course of infection. Long-term symptoms after COVID-19 in the pediatric population is gaining increased attention. We organized a multi-disciplinary specialist pediatric outpatient post-COVID clinic and standardized the patient management. Here, we aim to describe our group of patients and compare clinical presentation and characteristics in SARS-CoV-2 antibody positive or negative children.
Methods: The cohort of children and adolescents attending our clinic was managed within a standardized multidisciplinary program, involving multiple standardized tests and interviews by a team pediatrician, nurse, physiotherapist, psychologist and medical social worker. SARS-CoV-2 spike antibodies were measured.
Results:



In 114 children aged 6-18 years, a confirmed serological link to SARS-CoV-2 infection was found in 52%. The most common symptoms were fatigue, post-exertional malaise, dizziness, nausea, headache and concentration difficulties (Figure 1). The type of symptoms were unrelated to antibody status. Children lacking SARS-CoV-2 antibodies had a higher number of individual symptoms. Self-reported health was low in both groups (EQ5DY VAS scale 54 in seropositive children vs 48 in seronegative children). 37% of seropositive children and 48% of seronegative children had other family members suffering from post-COVID.

Conclusions/Learning Points: This cohort of children attending a specialist pediatric post-COVID clinic experienced multiple different symptoms, poor self-reported health and often had other family members with similar problems. Children with positive SARS-CoV-2 antibodies did not report symptoms more often than those without. The situation for children during the pandemic may have caused similar symptoms regardless of exposure to SARS-CoV-2. A multidisciplinary assessment was essential in light of the broad spectrum of symptoms displayed and the need of individualized support.

PV0952 / #1400

CASES OF PEDIATRIC MULTISYSTEM INFLAMMATORY SYNDROME (MIS-C) LINKED TO SARS-COV2 TREATED AT A THIRD LEVEL HOSPITAL IN SOUTHERN SPAIN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: CASES OF PEDIATRIC MULTISYSTEM INFLAMMATORY SYNDROME (MIS-C) LINKED TO SARS-COV2 TREATED AT A THIRD LEVEL HOSPITAL IN SOUTHERN SPAIN
Background: MIS-C is a multisystem inflammatory syndrome that began to be diagnosed on May 2020 in pediatric patients after 2-6 weeks of suffering an acute infection with SARS-Cov2. The most frequent symptoms were fever, gastrointestinal, cardiovascular and hematological symptoms. In a high percentage of cases admission to pediatric intensive care was required for monitoring and treatment. Below, we describe the cases treated in our hospital:
Case Presentation Summary: 1. 10-year-old patient with fever, abdominal pain, vomiting and diarrhea. Within 48 hours, he presented biventricular dysfunction that required admission to the ICU. He received treatment with glucocorticoids, immunoglobulins, anakinra and anticoagulants with full recovery after 2 mo 2. 11-year-old patient with fever, abdominal pain, exanthema and diarrhea. Progressive hemodynamic worsening that required vasoactive treatment. He received therapy with glucocorticoids, immunoglobulins, anakinra and anticoagulants, recovery with neurological sequelae. 3. 8-year-old patient with fever, conjunctival hyperemia, and abdominal pain. In 72 hours, he presented systolic dysfunction that required admission to the ICU. He receives treatment with glucocorticoids, immunoglobulins, anakinra and anticoagulants with full recovery after a month. 4. 12-year-old patient with fever and abdominal pain. Within 48 hours, he presented biventricular systolic dysfunction that required going into the ICU. He received treatment with glucocorticoids, immunoglobulins and anticoagulants with full recovery after three months. 5. 6-year-old and 10-year-old patients with fever, abdominal pain, and palmoplantar exanthema. No cardiac involvement. They receive treatment with glucocorticoids and immunoglobulins without requiring ICU admission.
Learning Points/Discussion: All presented positive serology for SARS-COV2, leukopenia and a significant increase in acute phase reactants. None had a personal background of interest, nor had they received vaccination against SARS-COV2.

PV0953 / #1497

ANTIBODY LEVEL OF SARS-COV-2 AMONG PEDIATRIC ONCOLOGY PATIENTS IN DR. SOETOMO HOSPITAL, SURABAYA, INDONESIA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: During the Covid-19 pandemic, among all children, pediatric oncology patients were one of the most severe victims. In Indonesia, the Covid vaccination program for children only covers 6-17 years age group. There is no national data regarding the antibody level among those oncology patients. This study aimed to analyze the SARS-CoV-2 antibody level among children with oncology diseases in Dr. Soetomo Hospital Surabaya
Methods: This cross-sectional study was performed in a tertiary academic teaching hospital, the largest hospital in the eastern part of Indonesia. Recruited subjects had aged at least 6 years old and suffered from pediatric malignancy. IgG level was determined from 3 ml of venous blood. The antibody examination using Chemiluminescent Microparticle Immunoassay (CMIA) was done at a commercial international accredited laboratory in Surabaya.
Results: There were 50 children during the study, with 76% having hematological malignancy. Most of these subjects were on chemotherapy, uninfected with Covid-19, and unimmunized. Boys outnumbered girls, and the majority was Javanese ethnicity. Among those with hematological malignancy and solid tumor, the antibody levels were 968.3 (range 1.7 – 29091.4) and 572.7 (range 16.1 – 1066.1), respectively. Three (hematological malignancy) and one (solid tumor) patients showed nonreactive results.
Conclusions/Learning Points: Children with hematological malignancy showed higher antibody levels of SARS-CoV-2 than the solid tumor patients. Despite the low level of immunization, a high percentage of positive results in children indicated the high number of infections during this pandemic.

PV0954 / #45

SIGNS OF SEVERITY ASSOCIATED TO LIMPHOPENIA IN CHILDREN HOSPITALIZED WITH COVID 19 IN BUCHAREST, ROMANIA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Lymphopenia associated with Covid 19 is considered a prognostic sign of severe evolution in adults - however this association is not clear in children In this study, our aim was to explore the possible associations of lymphopenia with other signs of disease severity in children hospitalized for Covid 19 in our clinic
Methods: All children aged 0-18 years treated for SARS-CoV-2 infection in our hospital in the first semester of 2022 were included in the study. For each patient, relevant clinical and laboratory data were retrived from the electronic register and entered into an EpiInfo 7 database. Statistical comparison have been used to show correlations between lymphopenia and other signs of disease severuty.
Results: The prevalence of children with limphopenia at hospital admission was 44.5% (95% CI: 37.5% - 51.7%), similarely distributed ($p > 0.05$) by age group. No deaths or ICU admission were encountered in patients within study group; however the followimg signs of severuty were associated with limphopenia: mean duration of hospital stay was significantly higer in children with lymphopenia (3.12 days) compared with those of children without limphopenia (1.86 days) Kruskal-Wallis H = 12.7239 df=1 p: 0.0004 prevalence of elevated blood coagulation markers (53.99 %) was significantely higer in patients with limphopenia compared with only 20.72 % in children without limohopenia : RR:2.60; 95%CI (1.72 – 3.92); p : 0000006016.
Conclusions/Learning Points: Our results provide evidences of prognostic value of limphopenia detected at the hospital admission of children with Covid 19.

PV0955 / #1498

URTICARIA MULTIFORME: CUTANEOUS MANIFESTATION OF COVID-19 INFECTION- A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: URTICARIA MULTIFORME: CUTANEOUS MANIFESTATION OF COVID-19 INFECTION - A CASE REPORT
Background: Recent literature has reported a variety of dermatologic manifestations associated with COVID-19 infection among children. Although urticarial lesions are commonly reported, urticaria multiforme, a morphological subtype of acute urticaria, is under-recognized and not commonly described as a dermatologic manifestation of COVID-19 infection. A case of urticaria multiforme associated with COVID-19 infection is detailed in this case report.
Case Presentation Summary: A 9 year 4 month old boy with no significant past medical history presented with a pruritic rash, sore throat, and rhinorrhoea of 5 days duration. The rash initially began as raised erythematous papules and then evolved to form annular, polycyclic, erythematous wheals affecting the limbs, hands, and feet. Clinically, the child remained haemodynamically stable and physical examination revealed annular urticarial rashes with a dusky, ecchymotic center affecting the extremities without any mucosal involvement. The child was eventually confirmed to be COVID-19 PCR positive. Based on the above clinical findings, a diagnosis of urticaria multiforme was made. The patient was treated symptomatically with antihistamines, with complete resolution of symptoms.
Learning Points/Discussion: The cutaneous manifestations of COVID-19 are diverse and may reflect the range of host immunological responses to the virus. Although the majority of them are self-limiting, dermatologic manifestations can also be observed in hyperinflammatory states such as multisystem inflammatory syndrome in children (MIS-C). The authors feel that further characterisation and classification of COVID-19 associated dermatologic manifestations will aid clinicians in risk stratification and early identification of patients with MIS-C.

PV0956 / #1288

DEMOGRAPHIC, CLINICAL AND LABORATORY DIFFERENCES BETWEEN PAEDIATRIC COVID-19 AND PIMS-TS – RESULTS FROM A SINGLE CENTRE STUDY IN THE UK

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Paediatric symptomatic SARS-CoV-2 infections associate with two presentations, acute COVID-19 and paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS). Phenotypic comparisons, and reports on predictive markers for disease courses are sparse.
Methods: A chart review of COVID-19 and PIMS-TS patients (≤19 years) admitted to Alder Hey Children's NHS Foundation Trust, a tertiary centre in the North-West of England, was performed (02/2020-09/2022).
Results: Of 848 children testing positive for SARS-CoV-2, 687 (81%) were not admitted for PIMS-TS or COVID-19. Remaining 161 COVID-19 and 50 PIMS-TS patients were included in this study. PIMS-TS cases presented approximately 4 weeks after COVID-19 (figure 1). The incidence of PIMS-TS reduced over time, and there were no admissions after 02/2022. PIMS-TS were older than COVID-19 patients (median: 10.3 versus 2.03 years; $p<0.001$). There were no differences in gender distribution, but minority ethnicities were over-represented among PIMS-TS patients. Regional ethnic distribution was reflected more amongst COVID-19 patients (66.7% versus 84.4% Caucasian, $p=0.01$). Pre-existing comorbidities were more common among COVID-19 patients (54.7% versus 8%, $p<0.001$). Respiratory symptoms were more common in COVID-19. PIMS-TS associated with abdominal symptoms, headaches, skin rashes, mucositis, lymphadenopathy, and arthritis ($p\leq0.05$). PIMS-TS more frequently required intensive care admission (64% versus 16.8%), oxygen supplementation (48% versus 29.8%), fluid resuscitation (68% versus 19.9%) and inotropic support (64% versus 9.32%) ($p<0.05$). More deaths occurred among COVID-19 patients (0 versus 7 (4.35%)). When compared to COVID-19, PIMS-TS patients exhibited more lymphopenia and thrombopenia, a more pronounced acute phase reaction, and more hyponatraemia ($p<0.05$).

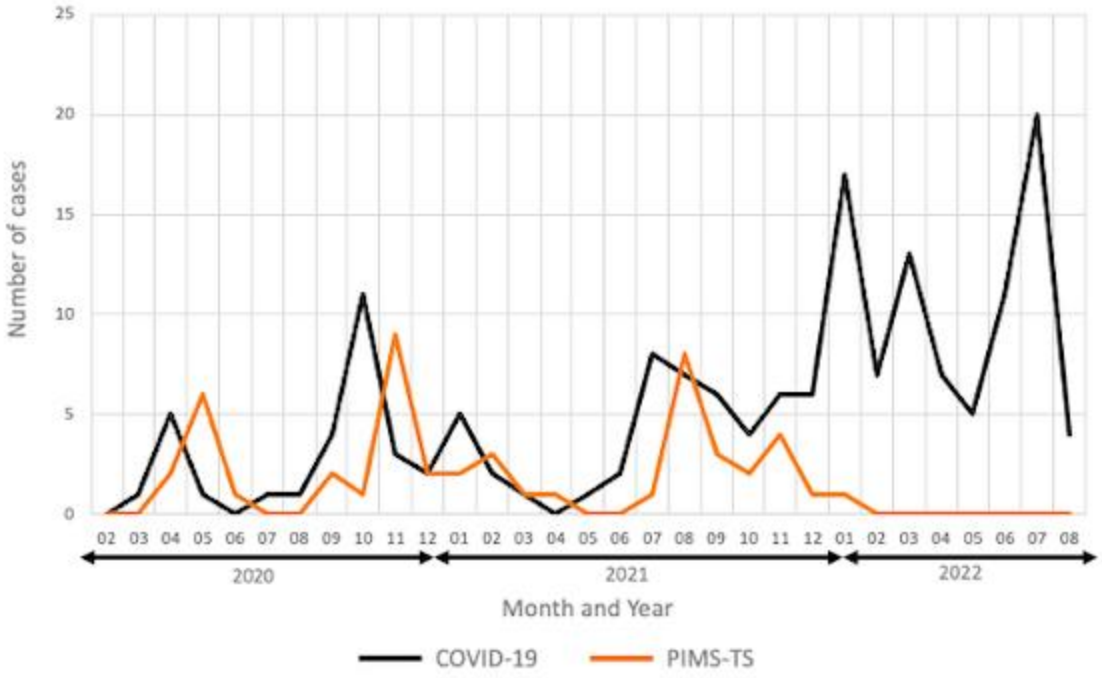

Figure 1: Hospital admissions for PIMS-TS and COVID-19 between 10/02/2020 and 31/08/2022. PIMS-TS: *n=50;* acute COVID-19: *n=161.*

Conclusions/Learning Points: Young age and pre-existing comorbidities predispose to paediatric COVID-19. While PIMS-TS may present more acutely, mortality is higher in COVID-19. Clinical and laboratory signs of cytokine storm syndrome at diagnosis may predict PIMS-TS.

PV0957 / #1116

SEROPREVALENCE OF SARS-COV-2 IN CHILDREN IN PREVACCINE ERA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: At the end of 2021, the seroprevalence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection among adults in Estonia was about 80% (1). Limited prospective seroprevalence data in children regarding SARS-CoV-2 have been reported. Our aim was to determine SARS-CoV-2 seroprevalence in children before paediatric SARS-CoV-2 immunisation and compare it to the registered notification and hospitalisation rates of SARS-CoV-2.
Methods: The leftover sera of 310 children (aged 0-11years) were collected by the laboratories of children hospitals in Estonia between December 21, 2021 and January 12, 2022 (prevaccine era for this age-group). Anti-SARS-CoV-2 S-RBD IgG concentration was measured by CMIA (Abbott). The antibody titres ≥50AU/ml were considered suggestive to SARS-CoV-2 infection. The notification and hospitalisation rates of SARS-CoV-2 were derived from the database of the Health Board of Estonia.
Results: A total of 136 children (median age 5 years; IQR 3-8) were seropositive (43.9%; 95%CI 28.8-49.6), similar in all yearly ages. The seroprevalence was lower among pre-kindergarten children aged 0-2years (36%; 95%CI 24.5-48.5) and kindergarten children aged 3-6years (36%; 95%CI 28.1-45.4) than in schoolchildren aged 7-11years (57%; 95%CI 47.4-66.3) (Figure 1). The SARS-CoV-2 notification rate was highest among schoolchildren 21.6%, followed by kindergarten (11.0%) and pre-kindergarten children 5.2% (Figure 1). In contrast, the hospitalisation rate was highest among pre-kindergarten children (0.4%) and equal in other age-groups (Figure
1).

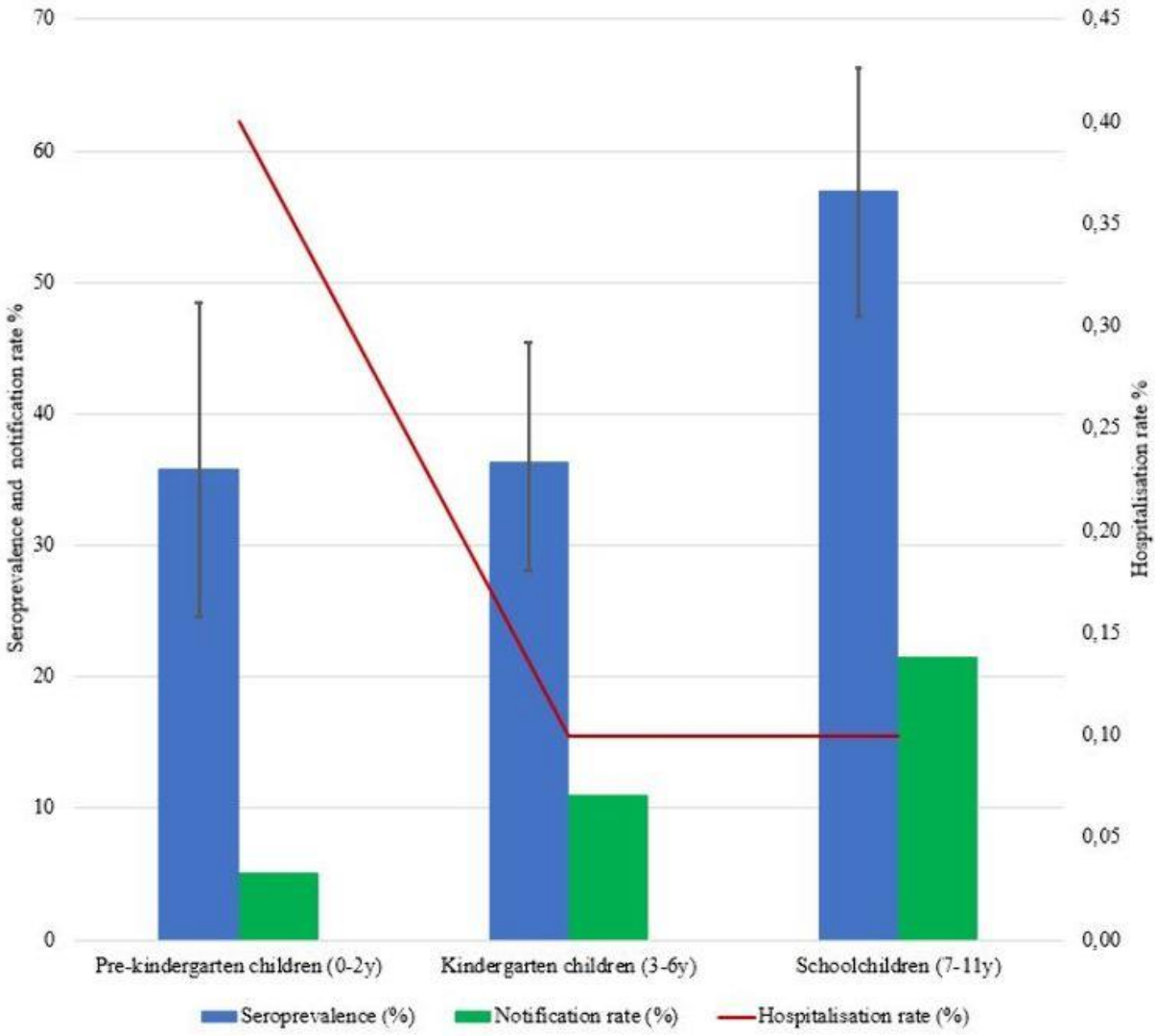

Figure 1: SARS-CoV-2 seroprevalence (%) with CI (blue, primary y-axis), notification rate (%, green, primary y-axis) and hospitalisation rate (%, red, secondary y-axis) in pre-kindergarten, kindergarten and schoolchildren in prevaccine era.

Conclusions/Learning Points: Natural seroprevalence of SARS-CoV-2 among children was half of that in adults. However, among children it was significantly higher than the reported incidence. This together with low hospitalisation rates suggests that COVID-19 in children is mostly mild or asymptomatic.
Reference Kalda R., Jürisson M. Results of antibody survey of the study on the prevalence of the coronavirus in Estonia. Available at https://ut.ee/en/node/112720 (accessed 08.01.2022)

PV0958 / #2048

SARS-COV-2 INFECTION IN PEDIATRIC PATIENTS WITH CYSTIC FIBROSIS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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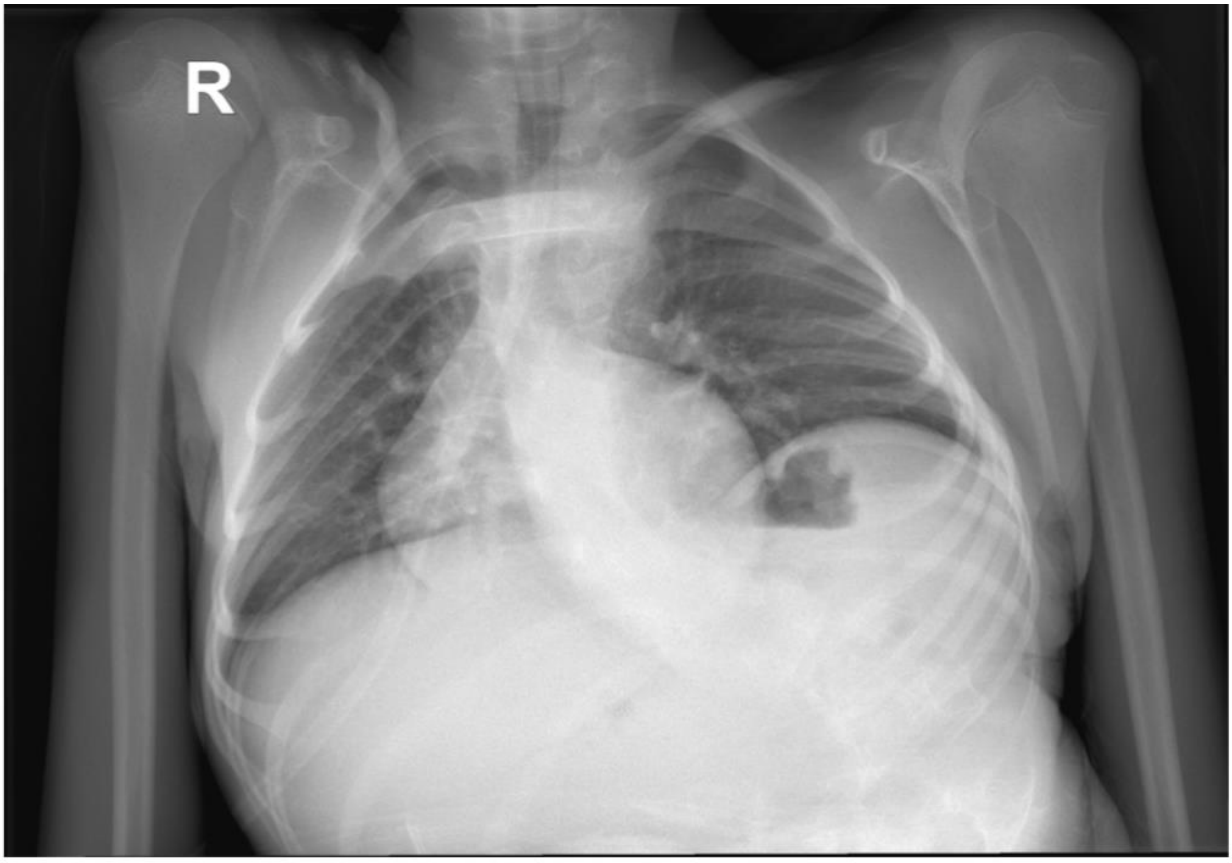
Backgrounds: SARS-CoV-2 infection has the potential of causing severe forms of COVID-19, especially in patients with comorbidities and other associated diseases prior to the infection. Pediatric patients with cystic fibrosis represent a special category at-risk to develop acute respiratory failure as well as the possibility of exacerbation of their underlying chronic pulmonary condition.
Methods: During SARS-CoV-2 pandemic period, from January 2022 to January 2023, in Matei Bals Hospital from Bucharest, Romania, were hospitalized 4 pediatric patients with cystic fibrosis, who were undergoing background treatment with aerosols and pancreatic enzymes.The patients were aged between 7 months and 15 years old, the oldest one presented the most severe form of cystic fibrosis associated with a significant form of scoliosis.
Results: Albeit all these patients were known with a chronic pulmonary disease, one of them of 15 years old, also presenting significant bone deformities, which means an additional risk of developing severe lung infections, they were admitted to our pediatric clinic with medium forms of COVID-19. They developed mild breathing failure without the necessity of high-flow oxygen therapy or monitoring at the intensive care unit. During hospitalization they received antiviral treatment with Remdesivir for 5 days, antibiotherapy, nebulizations with bronchodilatators, supplemental oxygen therapy through non-invasive ventilation and symptomatic treatment. All the patients had a favorable outcome and were dischardged after 5-7 days of hospitalization. There were no deaths
registered.



Chest X-ray, National Institute for Infectious Diseases Matei Bals, Bucharest, Romania.

Conclusions/Learning Points: Despite the fact that cystic fibrosis represents a risk factor for an acute exacerbation of the respiratory function in COVID-19, during the 2022-2023 pandemic period at Matei Bals Hospital, we have not registered severe cases of SARS-CoV-2 infection in pediatric patients with this chronic pulmonary disease.

PV0959 / #2069

SARS COV2 INFECTION COMPLICATED WITH STAPHYLOCOCCUS AUREUSSEPSIS ON A CHILD WITH SELECTIVE IG A DEFICIENCY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: SARS CoV2 infection complicated with Staphylococcus aureus sepsis on a child with selective Ig A deficiency
Background: SARS-CoV-2, the virus responsible for COVID-19, primarily affects the respiratory system, with most cases in children presenting as mild and requiring only supportive care. However, there are exceptions, and further research is needed to fully understand the clinical presentation and management of COVID-19 in pediatric populations.
Case Presentation Summary: A 1 year and a seven-month-old child was admitted to the Pediatric Department at The National Institute of Infectious Diseases "By Prof. Dr. Matei Bals" for presenting fever, vomiting, diarrhea, and oligoanuria. Upon admission, the child tested positive for SARS-CoV-2 antigen, and laboratory investigations revealed discrete lymphocytosis (5500/mm3), minimal hypochromic microcytic anemia, and no biological inflammatory syndrome. The stool analysis was negative. The child was initiated on antiviral therapy with Remdesivir i.v. And symptomatic treatment, with an initially favorable evolution. On the fourth day of hospitalization, the child developed high fever and chills, and chest radiography revealed bilateral hiliolaterobasal alveolointerstitial infiltrates. Laboratory investigations revealed leukocytosis (16,560/mm3) with neutrophilia (9,330/mm3) and significant biological inflammatory syndrome (CRP=46.1 mg/L), procalcitonin = 25.14 ng/mL. Antibiotic therapy was initiated with Ceftriaxone and Linezolid for seven days. Blood culture was positive for Staphylococcus aureus MSSA, and the immunogram revealed that the IgA level was below the standard limit. The patient's clinical and biological evolution was favorable, and after ten days of hospitalization, the patient was discharged from the hospital.
Learning Points/Discussion: The simultaneous occurrence of SARS CoV2 infection and selective IgA deficiency results in a heightened susceptibility to infections due to a compromised immune system. This phenomenon can explain the development of complications, such as staphylococcus aureus sepsis, in a patient with both conditions.

PV0960 / #1565

VIRAL CO-INFECTIONS OF COVID-POSITIVE PATIENTS, IN THE PEDIATRIC POPULATION OF THE OMICRON PANDEMIC WAVE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: SARS-Cov2 infection is an immunosuppressive infection for the pediatric population, which can cause a severe form of the disease when other viruses overlap. Although the clinical picture of the disease was digestive, viral co-infections most often caused acute respiratory failure.
Methods: In the “Matei Bals” hospital, were admitted, a number of 1423 children with SARS-CoV-2 infection, between January 2022 and January 2023.The majority were represented by children with Sars-cov2, but 55 of them presented co-infections with other viruses.
Results: Among the patients, 43 presented Influenza A infection and Covid, 12 of them presented Sars-Cov2 associated with RSV and 4 of them presented triple viral infection represented by Sars-cov2, Influenza and Rotavirus. The age of these patients was between 0-5 years. Those who presented Sars-RSV co-infection were in the age group 0-1 years while the patients who had the flu and Sars were in the age group of preschool children, 4-5 years old.96% of the patients presented signs of acute respiratory failure, high fever, cough, laryngitis, or digestive manifestations, represented by vomiting or diarrhea.Their treatment was complex, including antiviral - Remdesivir with Oseltamivir in patients with flu, for at least 3 up to 7 days depending on the severity and complexity of the cases, oxygen therapy, cortisone, nebulization with bronchodilators.The clinical evolution of all children was favorable. 70% of the forms were moderate, 12% were severe. There were no deaths among children in the “Matei Bals” clinic.
Conclusions/Learning Points: Viral co-infections with the Covid-19 infection can represent an important cause of morbidity in pediatric clinics in Romania, especially with the appearance of the Omicron variant, which particularly interested children, causing prolonged forms of the disease with acute respiratory failure, which required oxygen therapy

PV0961 / #1892

THE IMPACT OF SARS-COV2 INFECTION IN IMMUNOCOMPROMISED PEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: With the reporting of the first case of Sars-cov2 omicron variant B.1.1.529 infection, the pediatric population was increasingly affected. Throughout the year, the circulating variants were BA.2, BA.4 and BA.5, the clinical forms of the disease determined by them being similar. Children with immunosuppression represented a special category that required additional care.
Methods: At the “Matei Bals Institute”, a number of 1433 cases were admitted in the pediatric wards between January 2022 and January 2023. 450 children with Sars-Cov2 infection were hospitalized on ward number 10, an important part of which was represented by immunosuppressed patients, representing 9.77% of the total.
Results: Out of the total number of patients, 44 presented various concurrent pathologies at admission, most of them were represented by severe haemato-oncological diseases, already extremely serious pathology previously caused by Sars-Cov2 virus infection.Among them: 4 children with chronic lung disease - cystic fibrosis, 11 patients with lymphoma in various stages of evolution, 7 patients with acute leukemia undergoing chemotherapy, 3 patients with sarcoma and a 17-year-old patient with adenocarcinoma of the intestinal type and peritoneal metastases, vasculopathies 3 cases, 9 children with thalassemia major.The treatment of these patients was complex, it included Remdesivir antiviral treatment, monoclonal antibodies when the age and weight of the patients allowed this treatment, antibiotics for bacterial co-infections, pathogenic and symptomatic treatment.The evolution was favorable in all cases, no deaths were recorded, in some situations it was necessary to interrupt or postpone the chemotherapy or cortisone therapy.
Conclusions/Learning Points: Although the patient’s comorbidities were multiple and severe, the evolution of the patients was favorable. Although the response to monoclonal antibodies in known to be around 25% to the Omicron version, the evolution of the children that received it, was good.

PV0962 / #1905

TREATMENT WITH MONOCLONAL ANTIBODIES FOR PATIENTS WITH HEMATO-ONCOLOGY DISEASES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The SARS-CoV-2 infection has represented a challenge for the oncology patients under chemotherapy. The pediatric patients with acute leukemia which presented the COVID-19 had a much higher risk of complications, compared to the immunocompetent. One of the revolutionary treatments for SARS-CoV-2 was the monoclonal antibody. Five biological anti-COVID-19 products which were given the emergency use authorization from the FDA were:Bebtelovimab,Tixagevimab/Cilgavimab,Bamlanivimab/Etesevimab, Sotrovimab,Casirivimab/Imdevimab.
Methods: In the timespan between January 2021- January 2023, 1433 children were hospitalized at the „Matei Bals Hospital", 44 of which presented different kinds of immunosuppression, and 7 of them had acute leukemia, which underwent chemotherapy. The age group for hospitalized children was 10-15 years.
Results: The blood test shows an severe pancytopenya to all patiens. For them, the treatment was challenging, consisting of the administration of the antiviral treatment of Remdesivir and biological therapy with– Casirivimab/Indevimab - available in the clinic at that time. Half of the children were over 12 years old, weight >40 kg. The evolution of the patients was favorable, the response to the associated treatment was very good, all children evolving favorably, without registering any deaths.
Conclusions/Learning Points: Although monoclonal antibody treatment with Casirivimab/Imdevimab is about 25% effective. At the clinical level, the evolution of the patients treated in combination with Remdesivir was favorable, and the tolerability was excellent. The administration of biological therapy was possible both prophylactically, also in the initial phases of the infection. Once the Spike protein is permanently mutated, biological therapy requires a new approach, namely the targeting of the nucleocapsid protein, with an eventual association of 2 monoclonal therapies.

PV0963 / #624

CENTRAL NERVOUS SYSTEM COMPLICATIONS ASSOCIATED WITH SARS-COV-2 INFECTION IN HOSPITALIZED PEDIATRIC PATIENTS DURING THE COVID-19 PANDEMIC IN ISRAEL

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The epidemiology and outcomes of central nervous system (CNS) complications associated with Sars-Cov-2 infection in hospitalized pediatric patients in Israel has not yet been described.
Methods: The study population consisted of 755 children and adolescents <18 years of age hospitalized at Sheba Medical Center, Ramat Gan, Israel, with laboratory confirmed Sars-Cov-2 from March 2020 through July 2022. A comparative cohort consisted of 314 pediatric patients diagnosed with influenza during the 2018-19 and 2019-20 influenza seasons.
Results: Overall, 5.8% (n=44) of the pediatric Sars-Cov-2 population exhibited CNS complications; 2.6% (n=20) experienced non-febrile convulsions, 1.1% (n=8) febrile convulsions and 0.7% (n=5) were diagnosed with status epilepticus. 0.4% (n=3) of patients experienced Guillain-Barre syndrome, 0.4% (n=3) meningitis, 0.1% (n=1) facial nerve paresis, 0.1% (n=1) encephalopathy, 0.1% (n=1) acute transverse myelitis and 0.1% (n=1) had hemiplegia. More patients with CNS complications experienced convulsions during the Omicron wave (77.8%) compared with patients in prior waves (41.2%), p=0.03. Fewer patients were admitted to the ICU in the Omicron wave (7.4%) compared with prior waves (41.2%), p=0.02. Fewer patients infected with Sars-Cov-2 experienced CNS complications (5.8%), compared with patients infected with influenza (9.9%), p=0.03. A greater proportion of Sars-Cov-2 patients experienced non-febrile convulsions (2.6% compared with 0.6% in influenza patients, p=0.06), while a greater proportion of influenza patients experienced febrile convulsions (7.3% compared with 1.1% in Sars-Cov-2 patients, p<0.01).
Conclusions/Learning Points: Pediatric Sars-Cov-2 patients experienced fewer CNS complications compared with influenza patients. Sars-Cov-2 patients were more likely to experience non-febrile convulsions, while influenza patients were more likely to experience febrile convulsions. The Omicron wave was characterized by more convulsions and fewer ICU admissions than in previous waves.

PV0964 / #1431

PEDIATRIC CRITICAL DISEASE RELATED TO SARS-COV-2 IN THE BRAZILIAN AMAZON: SURVIVING ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: SARS-CoV-2 infection in children is usually asymptomatic or mild. However, some patients develop critical forms of this disease. Our aim was to evaluate independent risk factors associated with mortality in children with critical diseases related to SARS-CoV-2.
Methods: This multicenter prospective cohort study included all critically ill children (1 month and 18 years) admitted due to confirmed critical disease related to SARS-CoV-2 between April 2020/July 2022, from patients to three tertiary Amazonian pediatric intensive care units (PICU). The main outcome was the in-hospital mortality. Independent risk factors associated with mortality were evaluated using multivariable Cox proportional regression.
Results: After a median follow-up of 277 days (range, 2-759), 208 patients (median age, 33 months) were assessed, with 37 (18%) deaths, most non-survivors were men (20 [54.1%]) and 34 (91.9%) had at least one comorbidity. Higher drive pressure levels (12 cmH 2 O vs 9 cmH 2 O, p<0.001), hypoxemia (oxygen index:7.3 vs. 4.1, p=0.03), and lymphopenia at admission (1,133 vs. 2,125, p<0.001) were more frequent in non-survivors. Independent risk factors associated with mortality were underweight status (HR, 6.64; p=0.01), acute respiratory distress syndrome (HR, 8.63; p=0.02), erythrocyte sedimentation rate in mm/hour >18 (HR, 3.95; p=0.03), and vasoactive inotropic score > 120 (HR, 4.76; p=0.05). Patients with hospital stays of longer than 19 days presented a lower survival time in days (mean 465.6, CI95%, 367.54- 563.72).
Conclusions/Learning Points: The risk of death at any time during follow-up was clearly higher in underweight individuals with ARDS, higher erythrocyte sedimentation rate, and higher vasoactive inotropic score.

PV0965 / #695

CARDIAC INVOLVEMENT IN CHILDREN WITH COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Cardiac involvement in children with COVID-19
Background: Cardiac involvement in children with COVID-19 can manifest as acute myocardial injury with elevated plasma troponin I concentration. We report COVID-19 paediatric cases with elevated HS-Troponin I values, which were hospitalized in our Tertiary Paediatric Department during a two-year period (2020-2022) and presented no signs of clinical myocarditis or electrocardiographic and echocardiographic abnormalities.
Case Presentation Summary: HS-TnI levels were measured in 216 COVID-19 cases (listed in Table 1) without known cardiac disease,which were tested positive with nasal PCR testing. Troponin-I was elevated in 17 patients (7,8%). None of these 17 patients had ECG or ECHO abnormalities. Troponin levels gradually decreased in follow up laboratory testing and patients recovered completely without any complications.Two COVID-19 cases with the maximum measured HS-TnI values are presented in more detail.The first case was an eight-day old male neonate with rhinitis,which was tested positive in follow-up for jaundice evaluation. At the admission, he had an elevated HS-TnI value (216 pg/ml).The maximum value of HS-TnI recorded was 524,3 pg/ml. The neonate has been hospitalized for 43 days,with a HS-TnI value at 109,4 pg/ml on day of discharge.The second case was a 14-year old female adolescent,which was admitted to the Emergency Department with chest pain. Laboratory tests at admission revealed lymphopenia, elevated transaminases (AST: 231 IU/l , ALT: 219 IU/l) and elevated HS-TnI: 839,3 pg/ml. No treatment was given.On day of discharge,she was completely asymptomatic with a HS-TnI value of 67,80
pg/ml.

Age	Total	Boys	Girls	Mean HsTnI (pg/ml)	Max HsTnI (pg/ml)	No over upper limit (>34,2 pg/ml)
Neonates (1-28 days)	20	10	10	53,48	524,3	5
Infants (29 days – 12 months)	99	55	44	18,17	173,3	10
Children (1-10 years)	50	26	24	2,21	20	0
Adolescents (10-16 years)	47	22	25	20,97	839,3	2
TOTAL	**216**	**113**	**103**	**18,35**	**839,3**	**17**

Learning Points/Discussion: These cases highlight that elevated HS-TnI values can indicate some degree of myocardial injury, but not necessarily myocarditis and that further work up with cardiac magnetic resonance may be required in selected cases for an accurate description of myocardial involvement in paediatric COVID-19.

PV0966 / #1391

INFLAMMATORY AND ENDOTHELIAL BIOMARKERS ASSOCIATED WITH POST COVID-19 INFECTION IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Previous studies conducted in adults have suggested the presence of endothelial dysfunction following SARS-CoV-2 infection which might be related to chronic inflammation. This study aims to evaluate differences in lipids, inflammatory and endothelial biomarkers in children who had experienced SARS-CoV-2 infection in comparison to healthy controls.
Methods: We studied 234 children; 155 had a history of COVID-19 (Group 1) [105 had mild disease and recovered at home, 40 with severe/moderate disease required hospitalization and 10 had multisystem inflammatory syndrome (MIS-C)]. The second group (Group 2) was composed of the remaining healthy controls with negative SARS-CoV-2 IgG antibodies. In all children, we obtained full lipid profile and inflammatory markers(IL-6, TNF-a, INF-γ, CRP). The endothelial marker soluble intercellular adhesion molecule-1 (sICAM-1) was assessed in a subgroup of 40 children with history of severe/moderate disease and 40 age-matched controls. Normally distributed variables are expressed as mean (±SD).
Results: Group 1 participants were studied from 2 months to 1 year following SARS-CoV-2 infection (median time:6.8 months post infection). They were older (10.8+/-3.2 vs 8.5+/-2.8 years, $p<0.001$) and had increased body mass index (20.3+/-5.6 vs 18.4+/-3.5 $kg/m^{2,}$ $p=0.01$) compared to children in Group 2. Levels of sICAM-1 were higher in children with history of moderate/severe COVID-19 infection compared to controls (555.8+/-113.2ng/ml vs 428+/-42.6ng/ml, $p<0.001$). Inflammatory markers and cholesterol levels were comparable between groups. Additionally, SARS-CoV-2 IgG levels did not differ by type of SARS-CoV-2 disease severity.
Conclusions/Learning Points: This study demonstrates that children with a history of moderate/severe COVID-19 infection compared to unaffected controls had evidence of endothelial activation in the absence of chronic inflammation as demonstrated by increased sICAM-1 levels. Although this is an isolated finding, it possibly suggests persistent endothelial dysfunction following moderate/severe COVID-19 infection.

PV0967 / #1412

IMPACT OF COVID-19 LOCKDOWN ON LOWER RESPIRATORY TRACT INFECTION ADMISSIONS IN PUBLIC SECTOR FACILITIES IN THE WESTERN CAPE PROVINCE OF SOUTH AFRICA (2019-2021)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: To mitigate COVID-19 virus transmission, the South African government implemented strict lockdown strategies to encourage physical distancing and de-escalate routine services. There were several unintended consequences including reduced access to routine healthcare services for other illnesses such as lower respiratory tract infections (LRTI). We aimed to assess the impact of the COVID-19 lockdown from April 2020 on LRTI hospitalisations among children under five years from January 2019 – November 2021 in the pubic sector in the Western Cape.
Methods: We identified LRTI admissions captured, integrated and linked by the Western Cape Provincial Health Data Centre using a comprehensive list of International Classification of Diseases 10th revision. Using an interrupted time series analysis, we estimated the change in rate and trend of LRTI admissions post-lockdown compared to those pre-lockdown. The model was adjusted for sex, age, patients length of stay, child's residence, childhood immunisation, LRTI seasonality and COVID-19 case burden. We presented incidence rate ratios (IRR) with 95% confidence intervals (CI).
Results: Of the 36,340 total LRTI admissions, 52% (18,671 admissions) occurred from April 2020 – November 2021. The median rate of LRTI admissions decreased by 19% from 1.78 (IQR 1.14-2.46) for January 2019 – March 2020 to 1.44 (IQR 0.99-2.20) for April 2020 – November 2021. The COVID-19 lockdown immediately decreased LRTI admissions by 17% (IRR 0.83, 95% CI 0.79-0.88). Thereafter, LRTI admissions increased on average by 3% per month (IRR 1.03, 95% 1.02-1.03).
Conclusions/Learning Points: The immediate impact of the COVID-19 lockdown may due to social distancing, decreased population mobility and hesitancy to access healthcare services. However, over time, as lockdown levels were altered, there was a gradual increase in LRTI admissions suggesting changes in population mobility and their health seeking behaviour.

PV0968 / #974

MITIGATING FROM COVID-19 DURING INTERCOLLEGIATE SPORTS MATCH

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The recovery of college match has become an important issue that drew attention after the ease of COVID-19 pandemic quarantine measures. We evaluated the infuence of an annual intercollegiate sports match on COVID19 epidemic in college.
Methods: We retrospectively assessed the number of COVID-19 cases before and after the intercollegiate match taking place on October 28 and 29, 2022. We collected the community-onset COVID-19 cases from the government's database, and calculated the 7-day average incidence per 100,000 of COVID-19 cases in the community and in the universities
Results: In total, 59,500 tickets were sold in all sports matches and 40,000 spectators in the main stadium. In the 1st week of Oct 2022, the community-onset COVID-19 cases ranged 48/100,000 (95% CI, 44-51/10^5) and 51/10^5 (95% CI, 48-54/10^5); whereas the university-onset COVID-19 cases was 25/10^5 (95% CI, 22-28/10^5). During one week after the intercollegiate match, the community-onset and university-onset cases were 93/10^5 (95% CI, 90-96/10^5) and 100/10^5 (95% CI, 97-104/10^5), respectively. During the 4th week after match, the community-onset and university-onset cases were 108/10^5 (95% CI, 105-111/10^5) and 34/10^5 (95% CI, 31-37/10^5), respectively. There was no notified critical infections nor deaths attributable to COVID-19 following the match. The intercollegiate sports match was concluded with surge of incidence rate for a very short period, followed by leveling off of the outbreak, which was lower than that of community-level. There was no second wave of outbreak or sustained outbreak in the school provoked by big intercollegiate sports match.
Conclusions/Learning Points: Sustainable and safe intercollegiate sports match that we experienced shows that operating of mass-gathering sports event is feasible during the era of COVID-19 vaccination and in the predominance of Omicron variant.

PV0969 / #1236

TOCILIZUMAB IN THE MANAGEMENT OF CRITICALLY ILL CHILDREN WITH COVID PNEUMONITIS: RESULTS FROM A SINGLE-CENTRE OBSERVATIONAL STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Tocilizumab is currently licensed for use in the UK to treat paediatric rheumatological conditions. Recently it has been used in the management of severe paediatric COVID-19 despite a lack of supporting data. We aimed to characterise the disease course of critically ill children in our unit with COVID pneumonitis and evaluate outcomes following tocilizumab use.
Methods: A retrospective analysis of computerised medical records and laboratory data was conducted for all patients requiring high-dependency care for COVID pneumonitis at St Mary's Hospital, London between January 2019 to March 2022. Data on presenting symptoms, demographics, treatment and outcomes at discharge was recorded.
Results: Fifteen out of 526 COVID positive patients (3%) were hospitalised. All 15 had pre-existing comorbidities including obesity (28%), neurological (22%) or genetic disorders (17%). Eight patients received conventional care as defined by RCPCH guidelines (dexamethasone, antibiotics and remdesivir), with 7 receiving additional tocilizumab. Baseline CRP values were mildly elevated (median 17.9 mmol/L; IQR 8.7-54) with a raised ALT observed in tocilizumab recipients (median 93 U/L; IQR 50.8-124.8). Four patients (50%) were screened for hepatitis before tocilizumab therapy. Tocilizumab patients had lower baseline albumin levels (p=0.02) with no other significant differences between blood results. Seven patients (47%) required intubation with no deaths recorded. There were no significant differences in length of stay, respiratory support or clinical complications.
Conclusions/Learning Points: Our data suggests that severe COVID pneumonitis is rare, affecting children with significant comorbidities. Conventional care led to favourable outcomes with no benefits observed with tocilizumab. Our data is greatly limited by temporary service reconfigurations between January and February 2021 leading to adult COVID admissions within our unit. Although safety and dosing data already exist for tocilizumab, further research is needed to aid clinical decision-making.

PV0970 / #480

QUANTITATIVE BENEFIT AND RISK ANALYSIS OF MONOVALENT BNT162B2 VACCINE FOR CHILDREN AGED 6 MONTHS TO 4 YEARS USING QUALITY-ADJUSTED LIFE YEAR

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The vaccine coverage rate for young children is low in many countries. The quantitative risk and benefit analysis on a single health outcome such as quality-adjusted life year (QALY) for this age group can guide the decision making on the COVID-19 vaccination.
Methods: Using QALY, a model to calculate benefit and risk of primary series (3 doses) for of monovalent BNT162b2 was developed for children aged 6 months to 4 years. Both benefits and risks by receiving the vaccination was calculated as QALY change/100,000 vaccinees for 60 days after completion of the primary vaccine series to calculate benefit/risk ratio. Published and gray literatures as of the end of 2022 were used to identify indicators. For indicators without available data for this age group, the data of older children or adult were referred.
Results: The average QALY loss due to COVID-19 over 2 months were 65.1, 57.6, 62.1 and 54.8/100,000 children aged 6 months to 4 years for males with comorbidity, males without comorbidity, female with comorbidity and female without comorbidity, respectively. The QALY loss due to primary series of BNT162b2 were 0.5/100,000 vaccinees for both males and females. Benefit risk ratios for males with comorbidity, males without comorbidity, female with comorbidity and female without comorbidity were 38.5, 34.0, 38.6 and 34.0 with 30% vaccine effectiveness and 102.6, 90.8, 102.8 and 90.8 with 80%[t1] vaccine effectiveness, respectively.
Conclusions/Learning Points: Although there are some limitations, including the use of data in older age group for some indicators (e.g., health utility and incidence of myocarditis[t1]), this study suggests that the benefits of receiving BNT162b2 for children aged 6 months to 4 years outweigh its risk.

PV0971 / #1596

INFECTIOUS AGENTS AS RISK FACTORS FOR NEW-ONSET TYPE 1 DIABETES IN COVID-19 PANDEMIC: A RETROSPECTIVE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: As multiple centres from different countries have reported increase in incidence of type 1 diabetes (T1D) since the beginning of COVID-19 pandemic, no doubt SARS-CoV-2 has been suspected as potential cause of that. The aim of this research was to analyze exposure to SARS-CoV-2 and most common infectious agents that are already proven as potential inducers of T1D.
Methods: This was a retrospective research including patients up to 18 years old with new-onset T1D who were hospitalized from August 2022 till January 2023. Data about previous infectious diseases were gathered in interviews, serology testing was performed to estimate seroprevalence of infectious agents.
Results: In total, 42 patients (54.8% boys) with mean age 8.64 (±4.52) years were included in this study. By the time of hospitalization, all of them were tested negative for SARS-CoV-2 and 8 (19%) patients had been vaccinated against COVID-19. According to parent questionnaire, 25 (59.5%) patients had laboratory approved SARS-CoV-2 infection, 5 (11.9%) had epidemiological data of possible COVID-19 infection before T1D manifestation, whereas serology testing showed positive SARS-CoV-2 antibodies in 90.5% (n=38) of included patients. From the group of patients with known COVID-19 infection before, 48.3% have been infected within 6 months, but 96.5% - within 12-month period before T1D, with median time 28 (24-40) weeks before T1D. Serology testing revealed, that besides SARS-CoV-2 virus, next most commonly detected were Epstein-Barr virus (54.8%), Parvo-B19 virus (45.2%), Cytomegalovirus and Influenza A (35.7%), but less frequently – enteroviruses (ECHO, Coxsackie, 16.7%).
Conclusions/Learning Points: Although SARS-CoV-2 has been detected as most common virus that patients with new-onset T1D have been exposed, it’s role in possible influence of T1D development is not clear, and further studies, including other risk factor analysis, should be continued.

PV0972 / #738

EPIDEMIOLOGY AND CLINICAL FEATURES OF SARS-COV-2 INFECTION IN CHILDREN UNDER 18 YEARS IN THE PRE-OMICRON ERA: A GLOBAL SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Data on paediatric SARS-CoV-2 infection are limited. We conducted a systematic review to estimate the SARS-CoV-2 infection rate, risk factors, and disease severity in children aged <18 years prior to the Omicron era.
Methods: The review protocol was registered on PROSPERO (CRD42022327680). We searched MEDLINE, Embase, Global Health, CINAHL, three Chinese language databases, and WHO COVID-19 databases for primary studies recruiting children aged <18 years with a confirmed SARS-CoV-2 infection by PCR or antigen tests. The Joanna Briggs Institute critical appraisal tools were used to appraise the study quality. Random effects meta-analyses were conducted for all the outcomes.
Results: A total of 250 studies, each reporting at least one of the study outcomes, were included. Based on data from 12,974,850 children from 105 studies, of all individuals aged <18 years who were tested for SARS-CoV-2, we estimated that the positivity rate was 9 (95% CI = 7 to 12) percent [12 (95% CI = 2 to 27) percent when restricted to good quality studies]. Having a comorbidity was identified as a risk factor for SARS-CoV-2 infection [RR = 1.75 (95% CI = 1.43 to 2.14)]. Most cases in the population included in this review were asymptomatic or presented with mild disease. However, around 26% of paediatric SARS-CoV-2 infections were hospitalized, and 7%, 5%, and 4% required oxygen support, intensive care, and mechanical ventilation, respectively. The case fatality rate was 1 (95% CI = 1 to 1) percent.
Conclusions/Learning Points: Our data showed that children were at-risk for SARS-CoV-2 infection and severe COVID-19 outcomes in the pre-Omicron period. These findings underscore the need for effective vaccination strategies against SARS-CoV-2 in the paediatric population.

PV0973 / #1662

EVALUATION OF POST-COVID SYMPTOMS OF THE SARS-COV-2 DELTA AND OMICRON VARIANT IN CHILDREN: A PROSPECTIVE STUD

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The post-COVID-19 syndrome is a new syndrome defined in patients with a history of probable or confirmed SARS-CoV-2 infection, usually within three months of the onset of COVID-19, with symptoms and effects lasting at least two months. This study aimed to comprehensively compare symptoms of the post-COVID-19 syndrome in children with delta and omicron variants.
Methods: This prospective study included children with COVID-19 followed in hospitalized or outpatient clinics in tertiary hospital. We used a special questionnaire to ask about the presence of persistent symptoms more than 12 weeks after the initial diagnosis. Patients with positive SARS-CoV-2 PCR were selected randomly and grouped according to the dominant variants in our country at that time as follows;Omicron group (after 16 December 2021); Delta (B.1.617.2) group (August 15, 2021, and December 15, 2021).
Results: This study included 200 children, 71 of whom were in the delta group, 129 of whom were in the omicron group. Weakness (8.5% vs.1.6%; p=0.017), the impact of physical efforts (5.6% vs.3.9%; p=0.020), fatigue (22.5% vs. 8.5%; p=0.009), anxiety disorder (12.7% vs. 0.8%; p=0.001), and gastrointestinal changes (12.7% vs.4.7%, p=0.050) were statistically significantly higher in patients with the delta variant compared to patients with the omicron variant. There were no differences between the groups regarding anorexia, anosmia/ageusia, arthralgia, influenza-like symptoms, sleeping disorders, decreased physical activity daily, headache, need for analgesia, concentration and memory disorder, and weight loss (p>0.05).
Conclusions/Learning Points: This study showed that weakness, impact of physical efforts, fatigue, anxiety disorder, gastrointestinal changes were more frequent in the delta group. The incidence of post-COVID-19 syndrome is high in children as well as adults and affects several systems; therefore, it should be kept in mind that children should be followed for post-COVID-19 syndrome.

PV0974 / #1743

THE EVALUATION OF HOSPITALIZATIONS DUE TO COVID-19 VACCINE BREAKTHROUGH INFECTION: A NATIONWIDE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Children infected with SARS-CoV-2 displayed milder symptoms than adults. A nationwide vaccination program has been implemented for children aged ≥12 years of age since August 2021 in Turkey. Therefore, we aimed to evaluate the national vaccination program to hospitalization numbers and compare it with the previous year. The second aim was to compare the characteristics, severity, and outcomes of COVID-19 among vaccinated and unvaccinated adolescents.
Methods: We conducted a retrospective multicentre cohort study of 15 hospitals including hospitalized SARS-CoV-2 ınfected patients aged 12-18 years between September 1, 2021, and September 1, 2022, in Turkey. Two periods (September 1, 2021- September 1, 2022; second period), (September 1, 2020-August 31, 2021; first period) were compared.
Results: During the first period, 3967 children (0-18 years) were hospitalized, and 5143(0-18 years) were hospitalized in the second period. Of them, 35.4% of the patients were aged 12-18 years old, and this rate was 18.6% in the second period; the incidence rate ratio was 1.9. Breakthrough infection was detected in 43 (4.47%) of 961 patients. 25 children have been vaccinated with a single dose and 18 children were fully vaccinated. Eighteen children (41.9 %) had mild, 10 (23.3%) had moderate, and 15 (34.9%) had severe disease. Twenty-one (48.8%) children had at least one underlying comorbidity, and 8/21 were obese (18.6%). The incidence rate ratios were 1.9 and 2.33 for PICU admission and respiratory support among the unvaccinated group.
Conclusions/Learning Points: The hospitalization incidence ratio was 1.9-fold higher in adolescents during period 1 when compared with 2. Nearly, half of the patients with breakthrough infection had an underlying disease; every 1 of 3 was obese. PICU admission and respiratory support need were 1.9 and 2.33 fold higher among unvaccinated adolescents.

PV0975 / #1518

RE-INFECTIONS IN THE PEDIATRIC COHORT- A SINGLE CENTER EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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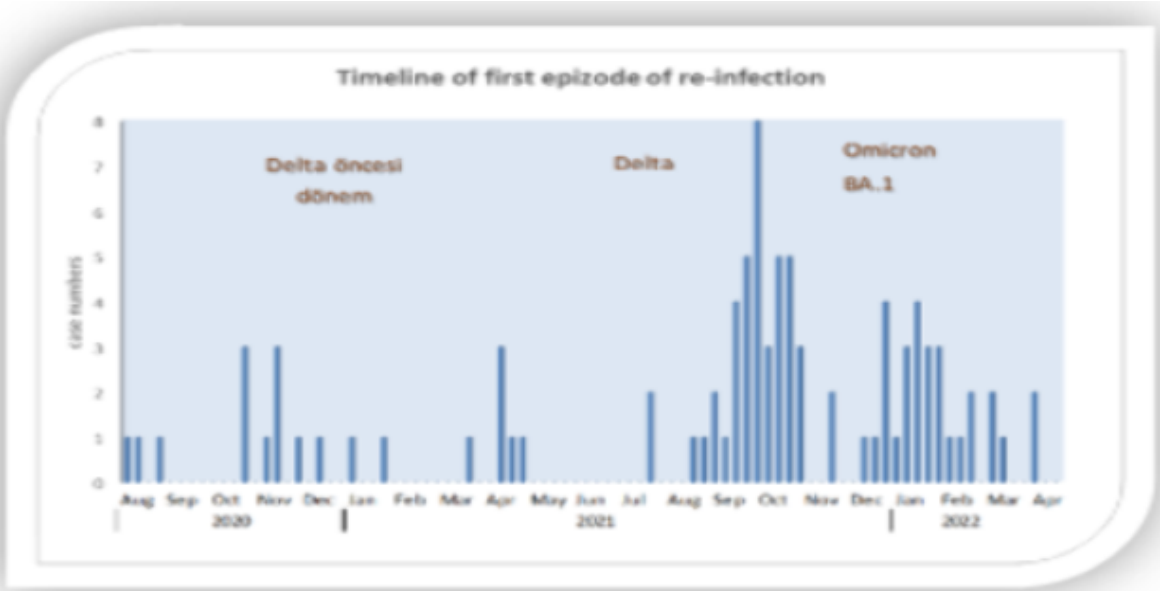
Backgrounds: This study focused on timelines of COVID-19 re-infection episodes and aimed to determine the dominant variants, disease severity and outcome of the pediatric patients with reinfection.
Methods: This study retrospectively evaluated the medical records of the hospitalized and/or outpatients aged 0-18 years old with a positive SARS-CoV-2 Polymerase Chain Reaction (PCR) between March 2020 and September 2022 at Ege University Children's Hospital. Reinfection was defined in patients with at least 90 days between two SARS-CoV-2 PCR positivity.
Results: 91 pediatric patients with reinfection with SARS-CoV-2 were included.There was an underlying condition in 26.4%. The median time between the two episodes was 184 days.18 patients' (19.7%) first infection was in pre-Delta period and second in Omicron BA.1 period. 49 patients (53.8%) were infected initially in Delta period; 35 patient (38.4%) was reinfected in Omicron BA.1 period while 14 patient (15.3%) was reinfected in Omicron BA.4/BA.5 period. 24 patients' (26.3%) first infection episode in Omicron BA.1 period and then reinfected in Omicron BA.4/BA.5 period. There was a significant increase in symptomatic patients in the second episode (84.6% vs. 94.5%, p=0.03). The hospitalization rate significantly declined in the second infection (15.3% vs. 7.6%, p= 0,03). Severe disease, treatment needs, and steroid use were decreased in the second episode, but no significant difference was found. PICU admission was not altered.


Timeline of first epizode of re-infection
Delta öncesi dönem
Delta
Omicron BA.1
case numbers
0
1
2
3
4
5
6
7
8
Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr
2020
2021
2022

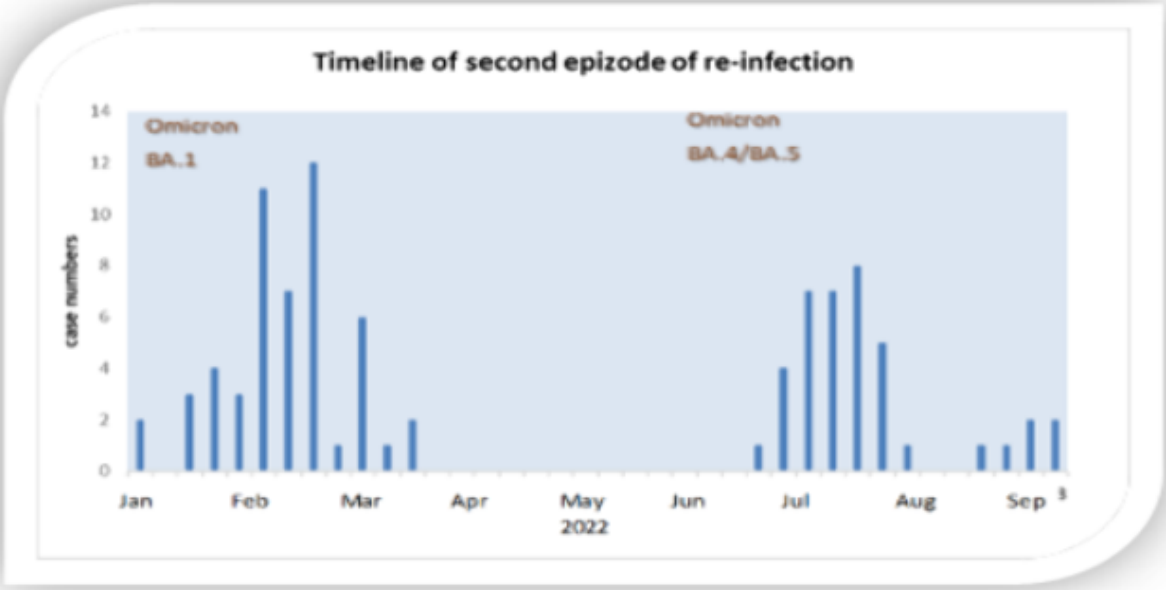

Timeline of second epizode of re-infection
Omicron BA.1
Omicron BA.4/BA.5
case numbers
0
2
4
6
8
10
12
14
Jan Feb Mar Apr May Jun Jul Aug Sep
2022

Table 1. Comparison of First and Second Episodes of Reinfection				
n (%)		*First Episode*	*Second Episode*	*P*
Symptomatic		*77 (84.6)*	*86 (94.5)*	***0,03***
Symptoms	*Fever*	*59 (64.8)*	*54 (59.3)*	*0,87*
	Runny nose	*25 (27.4)*	*31 (34)*	*0,28*
	Sore throat	*29 (31.8)*	*23 (25.2)*	*0,30*
	Cough	*31 (34)*	*32 (35.1)*	*1*
	Headache	*12 (13.1)*	*8 (8.8)*	*0,48*
	Arthralgia-Myalgia	*26 (28.5)*	*20 (21.9)*	*0,28*
	Abdominal pain	*4 (4.3)*	*5 (5.5)*	*1*
	Loss of taste and smell	*12 (13.1)*	*5 (5.5)*	*0,09*
	Diarrhea	*4 (4.3)*	*1 (1.1)*	*0,29*
	Fatigue	*12 (13.1)*	*21 (23)*	***0,02***
Breakthrough infection		*3 (3.2)*	*8 (8.8)*	*0,06*
Household transmission		*70 (76.9)*	*36 (39.5)*	***<0,001***
Breakthrough infection in household members		*38 (41.7)*	*36 (39.5)*	*0,50*

Table 2. Characteristics of Hospitalized Patients			
n (%)	*First Episode*	*Second Episode*	*P*
Hospitalization	*14 (15.3)*	*7 (7.6)*	***0,03***
Underlying disease in hospitalized	*11 (12)*	*7 (7.6)*	*0,12*
Severe disease	*2 (2.2)*	*1 (1.1)*	*0,5*
PICU admission	*1 (1.1)*	*1 (1.1)*	*1*
Treatment	*15 (16.4)*	*8 (8.7)*	*0,06*
Steroid use	*2 (2.2)*	*1 (1.1)*	*0,5*

Conclusions/Learning Points: As the pandemic surveys, the struggle against COVID-19 continues with the changing features of the virus and vaccine response against new variants. This study revealed that reinfections frequently develop in previously healthy children, but reinfections do not cause more severe outcomes. Although the fact about protection after the first infection, the risk of symptomatic reinfections is still high due to the effect of the Omicron variant.

PV0976 / #2615

CHILD MASK MANDATES FOR SARS-COV-2: A MIXED-METHOD AND SYSTEMATIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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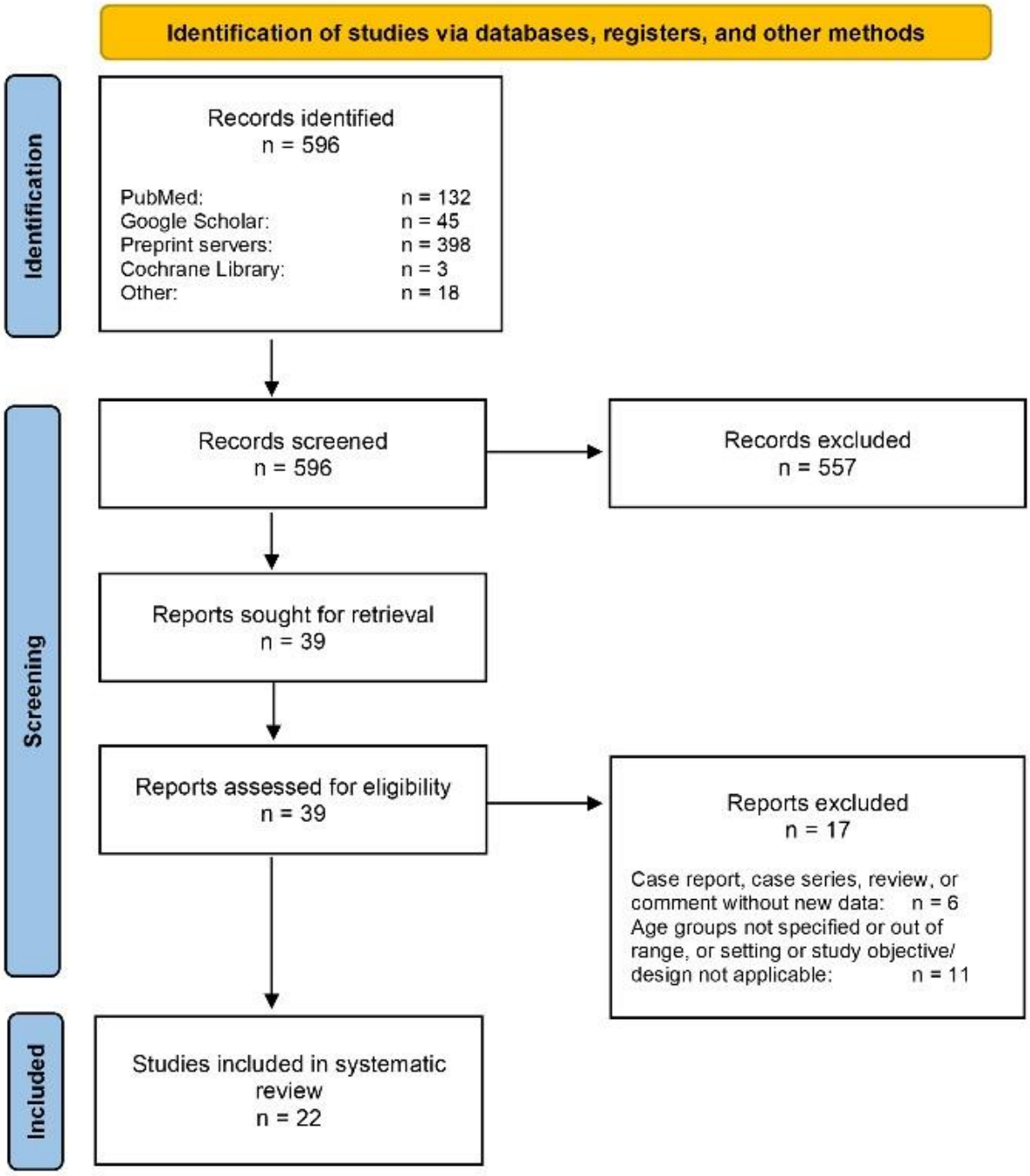
Background: Children have to varying degrees in different locations been subject to mask mandates during the COVID-19 pandemic and a risk-benefit analysis of this intervention has not yet been performed.
Methods: Using mixed methods, we performed a systematic review to assess the effectiveness of face masks against SARS-CoV-2 infection or transmission in children alongside a narrative review of evidence of potential harms of masking in children.
Results: We screened 596 studies and included 22 studies in the systematic review. There were no randomized controlled trials in children assessing the effectiveness of face masks against SARS-CoV-2 infection or transmission. Six observational studies reporting negative association between mask mandates and transmission or SARS-CoV-2 antibody seropositivity were significantly biased and/or were shown to have non-significant effects in follow-up studies, while sixteen observational studies found no effect of masking on SARS-CoV-2 infection and/or transmission rates. The largest studies (n=3) with the lowest risk of bias showed minimal to no benefit from masking policies for children or their households. The one study with the most robust internal control of comparable vaccination and community transmission rates showed no benefit from the school mask mandate. Identified harms of masking include affected speech, language, ability to learn, and emotional and trust development, as well as physical discomfort contributing to reduced time and intensity of exercise.



Conclusions/Learning Points: Real-world effectiveness of child mask mandates has not been demonstrated with high-quality evidence. There is extensive evidence of potential harms of mask mandates in children. The current body of scientific data of mask mandates in children fails to meet basic risk-benefit analysis for protection against SARS-CoV-2.

PV0977 / #1300

CHARACTERISTICS AND OUTCOMES OF NEONATAL SARS-COV-2 INFECTION: A DOUBLE-CENTER EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: CHARACTERISTICS AND OUTCOMES OF NEONATAL SARS-CoV-2 INFECTION: A DOUBLE-CENTER EXPERIENCE
Background: The rate of COVID-19 infection in neonates is lower than in adults and children. Most neonates remain asymptomatic or develop mild disease. Aim of this study was to examine the epidemiology, clinical presentation, laboratory findings and outcomes of neonatal SARS-CoV-2 infection.
Case Presentation Summary: A double-center observational study was conducted from March 2020 to December 2022, involving neonates admitted to NICU with SARS-CoV-2 infection. COVID-19 was diagnosed in 23 neonates (52.17% males, mean gestation age 38+5weeks, mean birth weight 3400gr, mean age at diagnosis 15.3days, mean weight at admission 3670gr). No vertical transmission was found. All neonates were previously healthy with no comorbidities instead of one patient with right aortic arch. Commonest signs of infection were fever (78.26%), rhinitis (21.74%) and poor feeding (21.74%), followed by gastrointestinal symptoms (13%). Most neonates received only supporting therapy. One patient needed supplemental oxygen (4.35%). 9/23 (39.13%) received antibiotics, whereas no anticoagulants, corticosteroids, remdesivir, immunoglobulin were used. 7/23 (30.43%) patients presented with lymphopenia, whereas no leukocytosis nor thrombocytopenia were observed. Liver function tests, coagulation tests and c-reactive protein levels were normal. 3/20 (15%) neonates had increased troponin levels . They were evaluated by a pediatric cardiologist, and electrocardiography and echocardiography were performed, with normal findings. Mean length of stay was 5.9days. All neonates were discharged home.
Learning Points/Discussion: Our results suggest that most neonates present with mild COVID-19 symptoms, maintain spontaneous respiration and have good prognosis. In most cases symptomatic treatment alone is needed. In our cohort, elevated troponin levels were observed in some cases without clinical significance. The role of troponin levels on myocardial function is not well established in neonates with COVID-19 and further studies are needed.

PV0978 / #1171

SEVERE NEUROLOGICAL DISORDERS IN CHILDREN AFTER SARS-COV-2 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Severe neurological disorders in children after SARS-COV-2 infection
Background: SARS-COV-2 infection in adults predisposes to neurologic complications, including strokes. In children such complications are sporadic.
Case Presentation Summary: We present 3 cases of central nervous system vascular involvement that occurred in previously healthy children after SARS-COV-2 infection. First case considers direct COVID-19 complication, while two next cases present atypical course of a different disease that might have been modified by recent SARS-CoV-2 infection (with positive antibodies in both cases). Case 1. A 7.5-month-old girl was hospitalized because of COVID-19 with bilateral otitis media and vomiting. She developed right-sided tremors followed by hemiparesis and pathological sleepiness. A head CT scan revealed ischaemic lesions in the left frontal. MR imaging indicated vasculitis with multiple micro-impacts. Case 2. An 18-month-old girl presented with acute onset of left-sided hemiparesis and status epilepticus. Imaging studies diagnosed massive hemorrhagic lesions in the frontal region (Figure 1) . HSV infection was confirmed. As hemorrhagic form of HSV encephalitis is extremely rare in small children and the outcome is usually worse than observed, we hypothesized that recent SARS-CoV-2 Case 3. A 3-year-old boy with VII,VI and III nerve paresis with confirmed neuroborreliosis and proof of preceding SARS-COV-2 infection. Neuroimaging revealed not only mononeuritis multiplex but also thrombosis of the superior sagittal sinus. Thrombosis in course of neuroborreliosis in children is extremely rare. All the symptoms in all three cases resolved under the treatment.
Learning Points/Discussion: expect unexpected, new clinical situations to occur that are beyond the scope of known algorithms, remember to make a broad differential diagnosis and look for analogies to known disease entities, but maintain an individualized approach to the patient. Passing a Covid infection can modify the disposition of neurological diseases.

PV0979 / #509

IMMUNOGENICITY OF BNT162B2 AND CORONAVAC IN HEALTHY CHILDREN AND ADOLESCENTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: BNT162b2 and CoronaVac are COVID-19 vaccines with the highest number of doses distributed worldwide. Their efficacy and immunogenicity profiles differ. Age-dependent differences in immune response to vaccines may also lead to different efficacy in children. We aim to compare the immunogenicity of the two vaccines, and between children and adults.
Methods: We evaluate immunogenicity of BNT162b2 and CoronaVac in a nonrandomized study. Healthy adolescents and children who received 3 doses of COVID-19 vaccine (11-17 years for BNT162b2 and 3-17 years for CoronaVac) with no prior infection history were included, and compared against adults with non-inferiority margin of 0.60. Binding and neutralizing antibody responses, including S-RBD IgG, S IgG, FcR binding, avidity, and surrogate and authentic live-virus neutralizing antibody, as well as T cell responses against SARS-CoV-2 proteins S (and N and M for CoronaVac) were tracked as primary objectives. Cross-variant reactivity was studied as secondary objective.
Results: Antibody and T cell responses were non-inferior to those of healthy adults. BNT162b2 elicited higher antibody responses while CoronaVac induced multiprotein T cell responses against S, N and M. For BNT162b2, 96% of adolescents could neutralise BA.1 5 months after two doses of BNT162b2. After 3 doses, adolescents had preserved binding IgG against BA.2 and moderate neutralisation levels against BA.1, BA.2, and BA.5. FcR binding was paradoxically blunted after dose 3 BNT162b2. For CoronaVac, T cell frequencies to BA.1 S, N, and M mutation pools were similar, increased, and halved compared to reference pools.
Conclusions/Learning Points: Both BNT162b2 and CoronaVac induced robust immune responses in children. Reactivity against Omicron subvariants was preserved, suggesting maintained efficacy in children. Testing for hybrid immunity and cross-neutralization of emerging Omicron subvariants is underway.

PV0980 / #1161

DIFFERENCES IN SMELL DYSFUNCTIONS, LABORATORY FEATURES, DISEASE SEVERITY AND TREATMENT OF PEDIATRIC COVID-19 BETWEEN SARS-COV-2 VARIANTS.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Since COVID-19 outbreak, we have experienced several waves of infections caused by various variants of the virus. The new variants also differed in the severity and infectivity, but also in frequency of smell dysfunctions. In our study we compared the severity of smell disturbances, but also we aimed at evaluating correlations between cytokine levels in pediatric patients infected with different variants of SARS-CoV-2.
Methods: Eighty-five children (aged 7-17y) were included. The Polish version of the 40-odorant standardized multiple-choice scratch-and-sniff UPSIT test was used. Based on the predominance of SARS-CoV-2 variant in the period when the study was done,10 children had British, 51 Delta, and 24 Omicron variant. We measured concentrations of vitamin D and IL-1beta, IL-6, IL-17, TNF-alpha, IFN-gamma, IL-10, TGF-beta. Based on WHO criteria we assessed the severity of the disease caused by each variant, as well as remdesivir and antibiotic use.
Results: Patients with the Omicron variant had less severe smell dysfunctions, milder COVID-19 course and spent less days in hospital than patients with other variants. They rarely received antibiotics (42% vs. 50% British; 59% Delta) and remdesivir (0% vs. 50% British; 16% Delta). Radiological evidence of pneumonia was present in 21% of patients with Omicron (vs. 70% British; 59% Delta). Severe smell dysfunctions were present in 25% of children with Omicron, 69% with Delta and 80% with the British variant. There were no differences between variants in cytokines and Vitamin D levels.
Conclusions/Learning Points: The emergence of new SARS-CoV-2 variants resulted in change of clinical features and severity of COVID-19 as well as clinicians' attitude towards treatment of the disease. Smell dysfunctions were the hallmark of the SARS-CoV-2 infections during British and Delta waves, but became a rare symptom in the times of the Omicron.

PV0981 / #2712

HOSPITALIZATIONS OF NEWBORNS IN POLAND BEFORE AND DURING COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: The COVID-19 pandemic affected the health situation and health systems functioning in many countries, and it could also be associated with changes in paediatric hospitalizations. The aim of the study was to show up-to-date information on newborns' hospitalizations in Poland.
Methods: A retrospective, population-based study was conducted using data from hospital discharge records of patients hospitalized in 2017-2021 registered in the Nationwide General Hospital Morbidity Study maintained by the National Institute of Public Health in Poland and covered hospitalization records of newborns requiring in-hospital care immediately after birth. A main disease as well as comorbidities significant in the case of those hospitalizations were analyzed in accordance with ICD-10 codes.
Results: The study group consisted of 105,130 newborns, out of which male patients accounted for 51.5%. Annual hospitalization rate for newborns were estimated at 50.3-51.9 per 1000 in 2017-2019, 55 per 1000 in 2020 and rose to 77 per 1000 in 2021. In the pre-COVID-19 period in relation to the pandemic period there were no significant differences in the incidence of infectious diseases among newborns. During COVID-19 pandemic the prevalence of SARS-CoV2 infections was 4.3 per 1000. Among the most often noted causes of hospitalizations during the COVID-19 era, we observed significantly more newborns affected by: maternal renal and urinary tract diseases ($P<0.001$), premature rupture of membranes ($P<0.001$), complications of placenta, cord and membranes ($P<0.001$), neonatal jaundice due to other excessive hemolysis ($P<0.001$) compared to the time before the pandemic.
Conclusions/Learning Points: The COVID-19 pandemic and restrictions implemented throughout health care system could have significantly contributed to qualitative and quantitative changes in hospital care among newborns. The results of this study may be useful for taking effective and focused public health actions.

PV0982 / #1209

COVID-19-ASSOCIATED ACUTE MOTOR-SENSORY AXONAL NEUROPATHY IN AN 11-YEAR-OLD BOY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: COVID-19-ASSOCIATED ACUTE MOTOR-SENSORY AXONAL NEUROPATHY IN AN 11-YEAR-OLD BOY
Background: Guillain-Barre syndrome (GBS), the most common cause of acute flaccid paralysis, is an uncommon COVID-19-associated complication. Acute motor-sensory axonal neuropathy (AMSAN), a rare GBS variant, was found to be more commonly associated with COVID-19 infection in adults with 20 reported cases. We present the first case of paediatric COVID-19-associated AMSAN.
Case Presentation Summary: An 11-year-old previously healthy boy presented with 3-weeks of ascending weakness, inability to walk or raise arms, weak hand grip and swallowing difficulties, beginning 2 weeks after COVID-19 infection. Upon admission, he had hypotonia, areflexia and muscle weakness but no sensory deficit. CSF revealed cytoalbuminologic dissociation (protein 1.86g/L, cell count $1x10^6$/L). [SC1] MRI showed cauda equina contrast enhancement. Nerve conduction study showed axonal motor-sensory polyneuropathy, compatible with AMSAN. He required PICU admission after developing respiratory failure necessitating non-invasive ventilation (NIV) support. He received 2 courses of 2g/kg IVIG and 9 courses of plasmapheresis. He had transient sphincter dysfunction requiring urinary catheterization, and developed depressed moods from concerns of potential permanent immobility, improving with sertraline and psychological counseling. Intensive inpatient rehabilitation including motor and oromotor training was started early and continued during his 6-months inpatient stay. Motor performance significantly improved and swallowing problem resolved. His respiratory condition improved on lung function tests, no longer requiring NIV. He will continue outpatient rehabilitation with regular review.
Learning Points/Discussion: AMSAN, the rare GBS variant, can present in children like our patient, and must be considered when weakness or sensory symptoms occur after COVID-19 infection. Early diagnosis and treatment can improve clinical outcome. Care of AMSAN requires multidisciplinary team, including intensivists, neurologists, respirologists, psychiatrists, rehabilitation physicians and allied health professionals. Longer rehabilitation training is anticipated for full motor recovery.

PV0983 / #1571

SHORT-TERM OUTCOMES OF SOUTH AFRICAN CHILDREN WITH MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN: A PROSPECTIVE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Despite the life-threatening presentation of MISC in children, the overall prognosis is favourable in first world centers. In this study we investigate the short-term outcomes in children with MIS-C in Cape Town, South Africa.
Methods: This prospective observational cohort study included children <13 years who fulfilled the World Health Organization (WHO) case definition of MIS-C and were admitted to Tygerberg Hospital (Cape Town, South Africa) between 1 June 2020 and 31 October 2021. Clinical features were recorded at baseline and at follow-up at the 6-week cardiology and 3-month rheumatology-immunology clinics respectively.
Results: Fifty-three children with MIS-C were included. The median age was 7.4 years (interquartile range (IQR) 4.2-9.9). There was a slight male predominance (30/53; 56,6%) and the majority was of mixed-race (28/53; 52,83%) or black African ancestry (24/53; 45,3%). Fourteen children (14/53; 26,4%) had co-morbid disease. The median length of hospital stay was 8 days (IQR 6-10). All children had an echocardiogram performed at baseline of which 39 were abnormal (39/53; 73,6%). The majority had elevated markers of inflammation, lymphopenia, anaemia, renal impairment, hyponatremia, and elevated cardiac enzymes during the acute phase. All children were discharged alive. Eleven children (11/41; 26,8%) had a persistently abnormal echocardiogram at cardiology follow-up. Systemic inflammation and organ dysfunction resolved in most.
Conclusions/Learning Points: Although the short-term outcomes of MIS-C in our cohort were generally good, the cardiac morbidity needs further characterization and follow-up. This high morbidity highlights access of COVID 19 vaccines in children <12 years in LMICs.

PV0984 / #2100

CLINICAL PRESENTATION AND SEVERITY OF SARS-COV-2 INFECTION COMPARED TO RESPIRATORY SYNCYTIAL VIRUS AND OTHER VIRAL RESPIRATORY INFECTIONS IN CHILDREN LESS THAN TWO YEARS OF AGE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Respiratory syncytial virus (RSV) infection is the most common cause of bronchiolitis. SARS-CoV-2 spreading and the implementation of restrictive measures led to a dramatic reduction of RSV together with rare and mild clinical bronchiolitis induced by SARS-CoV-2. Aims of our study are to describe clinical respiratory picture of SARS-CoV-2 infection and to evaluate the frequency and the severity of SARS-CoV-2 bronchiolitis comparing it with other respiratory viral infections in children less than two years of age.
Methods: Respiratory involvement and severity of bronchiolitis were assessed evaluating the duration of hospitalization and the need of oxygen therapy, intravenous hydration, systemic corticosteroid and antibiotic therapies. A retrospective study was conducted enrolling children below two years of age, hospitalized for respiratory symptoms. Diagnosis of SARS-CoV-2 and others respiratory viral infections were performed by a multiplex PCR on nasal swab.
Results: 138 children were enrolled:60/138 (43,5%) had SARS-Cov2 infection and 78/138 (56,5%) had RSV infections. In the group of SARS-CoV-2 infected children 13/60 (21%) received a diagnosis of co-infection showing at least one other respiratory virus at nasal swab. Among the enrolled children, 87/138 (63%) received a diagnosis of bronchiolitis. We compared children with respiratory symptoms due to SARS-CoV-2, RSV and co-infection. Children with RSV infection or co-infection had higher risk of oxygen therapy (RR 9.14;6.83;1.24), intravenous hydration (RR5.87;4.3;1.26), systemic corticosteroid (RR 5.22;7.33;0.74) and antibiotics (RR 2.17;2.32;0.94). When we compared only children with clinical diagnosis of bronchiolitis no difference were observed between groups in terms of need for oxygen therapy and hospital stay.
Conclusions/Learning Points: These date confirm that SARS-Cov2 infection in pediatric age is generally milder than in adults and SARS-CoV-2 induced bronchiolitis is rare. Despite this, SARS-CoV2 induced bronchiolitis may be associated with a severe clinical course.

PV0985 / #1933

MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN WITH ACUTE INFLUENZA A INFECTION RESULTED NEGATIVE FOR SARS-COV-2 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Multisystem Inflammatory Syndrome in children with acute Influenza A infection resulted negative for SARS-CoV-2 infection
Background: Multisystem Inflammatory Syndrome in Children (MIS-C) is a severe condition characterized by fever, inflammation, and multiorgan dysfunction and described for the first time in children with recent SARS-CoV-2 infection. We hereby report two children with acute influenza A infection who fulfilled the inclusion criteria for MIS-C but resulted negative for SARS-CoV-2 nasopharyngeal swabs, serology and previous history of contact.
Case Presentation Summary: Two toddlers were admitted to our department with a 2-day history of fever and feeding refusal. Patient#1 presented with diarrhea, cough, interstitial pneumonia on chest CT and respiratory failure requiring High-Flow Nasal-Cannula Oxygen Therapy. Patient#2 presented with cough and severe diarrhea with the presence of enlarged lymphnodes and mesenteric inflammation at abdominal ultrasound. Both children had increased markers of inflammation and myocardial injury, liver enzymes and amylases, and signs of coagulopathy (Table). A thorough microbiological examination of blood, stools and urine resulted negative with the exclusion of a positive molecular test for Influenza A virus on nasal swab. Patient#1 did well on steroid therapy, while Patient#2 recovered with no specific therapy.

Characteristics	Patient#1	Patient#2
Age, years	2.5	2.8
WBC, cells/ul	15600	2060
CRP, mg/L(0-5)	42.8	17
PCT, ng/ml(<0.09)	4	56.29
Ferritin, ng/ml(15-160)	815	6550
ALT, U/L(0-55)	2486	1052
Amylases, U/L(25-101)	820	452
INR(0.8-1.2)	1.43	1.43
D-dimer, ng/ml(0-500)	15743	2224
Troponin, pg/ml(<16)	1756	60
CK-MB, ng/ml(0-7.2)	12.4	16.6
BNP, pg/ml(0-73)	1429	na
NT-proBNP, pg/ml(<125)	na	535

Learning Points/Discussion: The observation of two children with Influenza A infection showing systemic inflammation and multiorgan involvement (fulfilling criteria for MIS-C except for SARS-COV-2 infection), raises the hypothesis that MIS-C might be a condition related also to viruses other than SARS-CoV-2.

PV0986 / #948

PREVALENCE AND ASSOCIATING FACTORS OF LONG COVID IN PEDIATRIC PATIENTS DURING THE DELTA AND THE OMICRON VARIANTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The number of pediatric COVID-19 infections is increasing; however, the data on long COVID conditions in children is still limited. Our study aimed to find the prevalence of long COVID in children during the Delta and Omicron waves, as well as associated factors.
Methods: A single-center prospective cohort study was conducted. We included 802 RT-PCR-confirmed COVID-19 pediatric patients in the Delta and Omicron periods. Long COVID was defined as having symptoms for ≥3 months after infection. Parents and/or patients were interviewed by phone. Multivariable logistic regression was performed to find associated factors with long COVID.
Results: The overall prevalence of long COVID was 30.2%. The Delta period had more prevalence than the Omicron (36.3% vs. 23.9%). Common symptoms for patients 0-3 years' old were loss of appetite, rhinorrhea, and nasal congestion. Conversely, patients 3-18 years' old had hair loss, dyspnea on exertion, rhinorrhea, and nasal congestion. Most symptoms improved after a 6-month follow-up. Factors associated with long COVID-19 conditions were infection during the Omicron period (adjusted OR 0.54; 95% CI 0.39-0.74, P < 0.001), fever (adjusted OR 1.51, 95% CI 1.03-2.23, P = 0.04) and rhinorrhea (adjusted OR 1.47, 95% CI 1.06-2.02, P = 0.02).
Conclusions/Learning Points: Infection during the Omicron wave has a lower prevalence of long COVID. The prognosis is generally good, and symptoms are obscure over time. However, pediatricians may schedule appointments to surveil long COVID in children with fever or rhinorrhea as an initial symptom.

PV0987 / #2191

MULTISYSTEM INFLAMMATORY SYNDROME - A 3 YEARS PORTUGUESE MULTICENTRIC STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem inflammatory syndrome (MIS-C) is a rare but potentially severe complication of SARS-CoV-2 infection. This study was conducted to characterize clinical presentation, and outcome, according to the SARS-CoV-2 circulating variant.
Methods: Retrospective, multicenter study at 49 Portuguese hospitals over a three-year period (2020-2022). Children/adolescents with MIS-C diagnosis were included. Data regarding epidemiology, symptoms, management, and outcomes were collected.
Results: A total of 172 patients were included, with an average annual incidence of 3.08/100,000 and a mean of 1.4 admissions per week (peak 11 cases/week 22/02/2020 to 07/03/2020). The mean age was 8.3 years (±4.6), 144 (83.7%) caucasians. Most cases (93;54.1%) occurred during the dominant circulation of the alpha variant ($p<0.01$), followed by the wild (31;18%), delta (42;24.4%) and omicron (6;3.5%). Clinical and laboratory presentations are described in table 1. The phenotype was Kawasaki-like (116;67.4%) and unspecific (56;32.6%). Shock occurred in 48 (27.9%), 40/48 (88.9%) needed inotropes, and 7/116 (6%) had coronary artery abnormalities. Most (116;68%) were treated with immunoglobulin and corticosteroid combination. Thirteen (7,6%) needed mechanical ventilation, and there was no death; At 3-4 weeks follow-up, 15/137 (10,9%) had cardiac involvement, mostly minimal myocardial scars, and 7/90 (10,1%) maintained those changes at 6-8 weeks. We didn't find any association between shock, phenotype or SARS-CoV-2 variant. Those that needed inotropes had a lower mean value of lymphocytes, platelets and albumin and higher neutrophils, D-dimers, ferritin, troponin, NT-proBNP, ALT, CRP and PCT($p< 0.05$).
Conclusions/Learning Points: There was a clear decrease in the incidence of MIS-C with the Omicron variant, which may be due to the lower pathogenicity and immunity induced by previous infection or, in some cases, by vaccination. Despite the severe acute presentation most patients had a good short-term outcome.

PV0988 / #1782

NEONATAL MULTISYSTEMIC INFLAMMATORY SYNDROME (MIS-N) ASSOCIATED WITH CORONAVIRUS DISEASE. EXPERIENCE FROM A FOURTH-LEVEL HOSPITAL IN BOGOTA, COLOMBIA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Neonatal Multisystemic Inflammatory Syndrome (MIS-N) associated with coronavirus disease. Experience from a fourth-level hospital in Bogota, Colombia.
Background: This study describes the diagnostic challenges of multisystemic inflammatory syndrome associated with postnatally acquired coronavirus disease
Case Presentation Summary: Retrospective observational study describing the characteristics of patients reported with MIS-C associated with positive RT-PCR for SARS-CoV-2 between April 2020 and March 2022. An adjustment was made to the criteria proposed by the CDC for MIS-C (Multisystem Inflammatory Syndrome in Children), in the absence of fever described in the neonatal population, excluding other pathologies such as neonatal sepsis and perinatal asphyxia. We documented a total of 32 cases of SARS-CoV-2 infection of which 4 (12.5%) met MIS-N or MIS-C criteria. The cases occurred at the end of the third epidemiological peak between April and July 2021. All cases were preterm infants between 30- and 34 weeks gestational age. 2 cases with a mother with an asymptomatic infection and 2 with documented symptomatic infection after delivery, all with positive RT-PCR for SARS-CoV-2. The onset of symptoms between 8 days and 8 weeks of chronological age. Cardiac involvement (elevated troponins and proBNP (100%), one case with electrocardiographic alteration and pericardial effusion), ventilatory failure (50%), fever (25%), elevated inflammatory markers (100%), deep vein thrombosis (25%). 4 received immunoglobulin, 3 methylprednisolone. 1 case of mortality with a need for ECMO therapy.
Learning Points/Discussion: MIS-C or MIS-N should be considered in the differential diagnosis of patients with unusual signs of multisystem inflammation, having a high index of suspicion, due to the diversity of manifestations in their clinical presentation

PV0989 / #1734

CHALLENGES IN DIFFERENTIATING KAWASAKI DISEASE FROM MIS-C IN THE COVID ERA; THE CASE OF AN INFANT WITH GIANT ANEURYSMS FORMATION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: CHALLENGES IN DIFFERENTIATING KAWASAKI DISEASE FROM MIS-C IN THE COVID ERA; THE CASE OF AN INFANT WITH GIANT ANEURYSMS FORMATION
Background: Kawasaki disease is a vasculitis, typically affecting young children, and importantly associated with coronary artery aneurysms (CAAs) formation.[1] MIS-C has been reported in older children, in association with exposure to SARS-COV2. However, MIS-C has been also described in infants, in which cardiac sequelae are commonly observed.[2]
Case Presentation Summary: A 4 month-old infant presented with a 2-day history of fever and diarrhea, as well as diffuse maculopapular rash and bilateral conjunctival injection. The infant had no confirmed history of COVID-19. Clinically, the patient presented marked irritability, while the laboratory and imaging findings included increased inflammatory markers and NT-proBNP, pericholecystic edema, abnormal coagulation profile, sterile pyuria, as well as positive SARS-COV2 serology. Based on the clinical and laboratory findings, a diagnosis of MIS-C presenting with atypical Kawasaki features was made and treatment with IVIG, intravenous corticosteroids and aspirin was initiated. However, at the 10th day, fever recurred, and periungual desquamation and thrombocytosis were observed, so a 2nd IVIG infusion was administered. Even though repeated echocardiography was normal initially, on the 16th day medium sized aneurysms were depicted in both right and left coronary arteries, which rapidly evolved to giant aneurysms, while on the 26th day a thrombus was formed inside the giant aneurysm of the right coronary artery, despite timely initiation of anticoagulation. Thrombolysis was attempted, a 3rd IVIG infusion was administered and treatment with Anakinra was initiated, resulting to gradual thrombus resolution and aneurysms reduction.
Learning Points/Discussion: This case illustrates the challenge in differentiating Kawasaki disease from MIS-C in young infants, as well as the importance of prompt diagnosis and treatment in this high-risk population.

PV0990 / #2665

LONG-TERM CLINICAL OUTCOMES IN CHILDREN WITH MIS-C

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: Multisystem inflammatory syndrome in children (MIS-C) is a serious health condition that imposes a long-term follow-up. The multi-faceted nature of the disease course and various presentations underlines the need for prompt approach by specialists in several areas. In this study we aim to evaluate the early and long-term outcomes of MIS-C.
Methods: This is a longitudinal 12-months cohort study of children admitted and treated for MIS-C at Bambino Gesù Children Hospital from November 2020 to December 2022. Patients were followed 4-6 weeks, 4-6 months, and 9-12 months postadmission.
Results: We enrolled 40 patients. 28 patients have completed the 12 months follow-up. Acutely 10 patients required intensive care with vasoactive support, 18 had left ventricular (LV) systolic dysfunction, 7 had coronary abnormalities. The gastrointestinal and respiratory involvement was showed respectively in 29 and in 31 subjects. All patients received immunomodulatory treatment. At 4-6 weeks postadmission 1 patient had persistent dilated coronary artery. By 4-6 weeks through 6 months all patients returned to functional baseline. At 4-6 months follow-up the cardio pulmonary exercise testing (CPET) was carried out in 20 patients and showed some changes despite normal electrocardiogram (ECG), echocardiogram and 24-hour Holter-ECG monitoring. In these patients spirometry was normal. The cardiac magnetic resonance (CMR) performed in patients with LV dysfunction and/or with hs-TnT elevated, revealed no myocardial edema or fibrosis. The 28 patents who reached the 9-12 months follow-up continued to show stable clinical condition with normal cardiologic findings.
Conclusions/Learning Points: Treatment with immunomodulators drugs in MIS-C patients provide favorable outcomes with full recovery. The anomalies observed at CPET during the 4-6 months follow-up could be related to the state of complete physical detraining of children. These findings may help guide clinical management and outpatient monitoring.

PV0991 / #1693

CLINICAL CHARACTERISTICS OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C) BY VARIANT: A MONOCENTRIC OBSERVATIONAL STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem inflammatory syndrome in children(MIS-C) is a rare but severe complication of SARS-CoV-2 infection.There is currently limited evidence on whether the severity of MIS-C differs when occurred after different Variant Of Concern(VOC).Here we described the clinical characteristics of MIS-C during the waves pre-Omicron and Omicron.
Methods: Between November 2020 and October 2022 we enrolled patients admitted to Bambino Gesù Children Hospital meeting the MIS-C CDC criteria.We defined the variant period according to the data from the Italian National Institute of Health(pre-Omicron waves November 2020-December 2021,Omicron wave January 2022-October 2022).
Results: During the pre-Omicron waves and the Omicron wave we observed a comparable number of MIS-C cases, respectively 20 and 19.The age and sex were homogeneous.No major clinical differences were observed in MIS-C enrolled in the pre-Omicron compared to the Omicron wave period. However in the Omicron wave the incidence of conjunctivitis, lymphadenopathy and mucocutaneous involvement was higher than in pre-Omicron wave (Table).In pre-Omicron waves 90% of patients received intravenous immunoglobulins (IVIG) and steroids and the 10% only IVIG (2gr/kg).The 15% of subjects were treated with anti-IL1 in combination with other therapies.No differences were observed regarding the treatment (Table) during the omicron wave.No MIS-C cases occurred among patients with reinfections.During the Omicron wave, among patients eligible for vaccination (=11), all cases of MIS-C but one weren’t fully vaccinated.

	NO. (%)	
PHENOTYPE OF PATIENTS WITH MIS-C	pre-Omicron (n=20)	Omicron (n=19)
Sex		
Male	10 (50)	9 (47)
Female	10 (50)	10 (53)
Age, median (range)	8 (2-16)	9 (2-15)
Clinical characteristics		
Cardiac involvement		
- Cardiac dysfunction	8 (40)	9 (47)
- Elevated troponin	8 (40)	10 (53)
- Coronary artery aneurysm/dilatation	5 (25)	2 (11)
Gastrointestinal involvement	16 (80)	14 (74)
Dermatologic involvement	8 (40)	8 (42)
Conjunctivitis	5 (25)	10 (53)
Lymphadenopathy	3 (15)	6 (32)
Any mucocutaneous involvement	2 (10)	6 (32)
Neurologic involvement	5 (25)	5 (26)
Respiratory involvement	15 (75)	16 (84)
Intensive care unit admission	4 (20)	4 (21)
Treatment		
IVIG	2 (10)	2 (11)
IVIG+Steroids	18 (90)	(84)
Anti-IL1+other therapies	3 (15)	3 (16)
Total days in hospital, median (range)	13 (7-33)	15 (10-20)
Vaccination status		
Eligible	1	11
Fully vaccinated	0	1
Partially vaccinated	0	2
Vaccination not received	1	8

Conclusions/Learning Points: We don’t find clear evidence that different variants influenced the presentation of clinical picture or the risk of MIS-C.Continuous evidence will be needed over the next COVID19 waves to monitor changes in clinical presentation and possible complication of this condition.Our data further confirm the pivotal role of COVID19 vaccination in reducing the incidence of MIS-C and highlight the benefits of immunization in children.

PV0992 / #2175

CASE REPORT: POST COVID BLEPHAROPTOSIS IN A CHILD OF 2 YEARS OLD

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Case Report: Post COVID blepharoptosis in a child of 2 years old
Background: Neurological manifestations during or after SARS-Cov-2 infection are largerly common in children under 18years old and vary from febrile seizures, abnormal eye mouvements, encephalopathy, meningeal signs to non specific such as headache, fatigue, anosmia. Data suggest that the pathophysiological mechanisms are complex and can consist into direct CNS invasion and infection, immune system dysregulation, autoimmune mechanisms and/or microvascular damage.
Case Presentation Summary: A previous healthy 2year old boy, with family history of grandfather suffering from myasthenia, was admitted for unilateral blepharoptosis, evolving since ten days. Fifteen days before admission, he was treated with amoxicilline for an unidentified upper respiratory infection. The ophtalmological exam confirmed third nerve palsy. The brain MRI demonstrated some small lessions on the pons whereas the MRA was normal. CSF and blood were positive for oligoclonal bands type IV. A complete blood and CSF work up excluded associated metabolic diseases, autoimmune encephalitis and myasthenia Gravis. The SARS-COv2 blood IgG protein was extremely high, indicating a recent infection whereas all other viral serologies were negative. The patient received a 5day course of immunoglobulines and progressively the symptom resolved.At two month follow up, his neurological examination is normal and a control MRI has been programmed.
Learning Points/Discussion: We report a rare to our knowledge case of a very young boy who presented third nerve palsy- after a SARS-Cov2 infection with great outcome after receiving immmunoglobulines.. Whether the virus revealed or aggravayed an underlying condition or whether the SARS-Cov-2-induced immune system dysregulation is responsable are questions that demand more standardized studies, especially in children where the symptoms and pathophysiological mechanisms differ from those in adults and are not related to the severity of the SAR-Cov2 infection.

PV0993 / #1129

A CASE OF EOSINOPHILIC PLEURAL EFFUSION IN A 9-YEAR-OLD BOY AFTER ASYMPTOMATIC COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: A case of eosinophilic pleural effusion in a 9-year-old boy after asymptomatic COVID-19
Background: Eosinophilic pleural effusion (EPE) is defined as a pleural effusion with eosinophilic count exceeding 10% of white blood cells. It has been attributed to a wide range of causes such as infections, rheumatological diseases, malignancies, drugs or it could be idiopathic. This case illustrates asymptomatic COVID-19 as a potential cause of EPE.
Case Presentation Summary: We present a previously healthy 9-year-old boy from Greece who was admitted with a 3-day history of cough. No other symptoms such as chest pain, dyspnea or fever were reported. Clinical and radiological examination revealed a left-sided pleural effusion with normal lung parenchyma; from the thoracentesis nearly half of the exudate pleural fluid (540ml) was removed. The white blood cells in the fluid were 1980/microL (71% lymphocytes, 26% neutrophils and 15% eosinophils). Laboratory results revealed peripheral blood eosinophilia (3.500/microL) solely. The rest of the workup was negative. Asymptomatic Covid-19 in remission was detected by polymerase chain reaction (PCR) from nasopharyngeal swabs; SARS-Cov-2 was detected at 38 and 40 cycles on day 1 and 2 of admission respectively and a new PCR test on day 5 was negative. Other infectious diseases, TB, malignancies and rheumatological diseases were ruled out. Clarithromycin was administered for 10 days. The remaining pleural fluid showed a gradual decrease with a corresponding gradual improvement of the clinical findings and a progressive reduction of the peripheral eosinophilia.
Learning Points/Discussion: In our case the only finding suggesting a potential cause of eosinophilic pleural effusion was COVID-19, although it is considered a rare manifestation especially in asymptomatic patients.

PV0994 / #2074

PRELIMINARY DATA ON THE B CELL COMPARTMENT IN MULTISYSTEM INFAMMATORY SYNDROME IN CHILDREN ASSOCIATED WITH SARS-COV-2 INFECTION (MIS-C)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem Inflammatory Syndrome in Children associated with COVID-19 (MIS-C) is a late and potentially severe complication of SARS-CoV-2 infection. Emerging data implicate dysregulated B cell responses in the pathogenesis of MIS-C, importantly through autoantibody production. Yet a comprehensive analysis of how B cell activation pathways are impacted in MIS-C is yet to be conducted. We carried out profiling of B cells in a cohort of MIS-C patients and healthy children post COVID-19 to address this knowledge gap.
Methods: Participants that meet the WHO criteria for MIS-C diagnosis are recruited at 3-6 months following the onset of disease. As the control group, we are enrolling children that have fully recovered from acute COVID-19. Peripheral blood is collected, the assessment of B cell activation is carried out by flow cytometry, using antibodies against CD19, CD27, IgD, IgM, CD21 and CD38. This enables the identification of transitional (IgMhiCD38hi), naïve (IgD+CD27-), switched (IgD-CD27+) and unswitched memory (IgD+CD27+), activated (CD21loCD38lo) as well as double negative B cells (IgD-CD27-) and plasmablasts (IgM-CD38++).
Results: The enrolment of participants is ongoing, but our preliminary data of 4 MIS-C patients and 4 controls indicates trends for the increased B cell activation via the extrafollicular pathway. This pathway has been previously extensively characterised in autoimmunity. Specifically, we observe a trend for MIS-C-associated expansion of IgD-CD27- double negative B cells and IgM-CD38++ plasmablsts. Nevertheless, none of the results reached statistical significance.
Conclusions/Learning Points: As more study participants are recruited, we aim to delineate the functional significance of potential alterations in B cell activation pathways. In the light of the extrafollicular B cell activation giving rise to de novo autoreactive antibody production following severe COVID-19, it will be important to address differences in underlying mechanisms of pathogenesis.

PV0995 / #265

FACTORS ASSOCIATED WITH ADVERSE OUTCOMES AMONG SARS-COV-2 POSITIVE CHILDREN IN A TERTIARY GOVERNMENT COVID-19 REFERRAL HOSPITAL IN THE PHILIPPINES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Pediatric COVID-19 epidemiology and factors associated with adverse outcomes – mortality, need for invasive mechanical ventilation, and ICU admission, are largely unstudied. We described the clinico-demographic characteristics of Filipino pediatric COVID-19 patients and determined which were associated with adverse outcomes.
Methods: This is a retrospective cohort study of 180 hospitalized SARS-CoV-2-confirmed cases 0-18 years old from April 2020 to August 2021. Crude associations were determined using chi-squared or Fisher's exact test; medians were compared by Mann-Whitney test. Factors predictive of mortality were determined using Cox proportional hazards regression. Survivor functions were depicted in graphs.
Results: About 41.67% had mild disease, 58.33% were males, 39.4% aged 0-4 years, and 69.44% had at least one comorbidity. About 9.44% died, 17.78% needed invasive mechanical ventilation, and 20% needed ICU admission. Independently, severe-critical COVID-19 (HRc 11.51, 95% CI), retractions (HRc 10.30, 95% CI), alar flaring (HRc 4.39, 95% CI), cyanosis (HRc 4.39, 95% CI), difficulty of breathing (HRc 7.99, 95% CI), poor suck/appetite (HRc 4.46, 95% CI), ferritin (HRc 1.01, 95% CI), IL-6 (HRc 1.01, 95%), aPTT (HRc 1.05, 95%), IVIg (HRc 4.00, 95% CI) and corticosteroid (HRc 6.01, 95% CI) were significant hazards for mortality. In adjusted Cox analysis, only retractions (HRa 34.96, 95% CI), seizure (HRa 9.98, 95% CI), and corticosteroids (HRa 8.21, 95% CI) were significantly associated with mortality while alar flaring appeared to be protective (HRa 0.10, 95% CI).
Conclusions/Learning Points: Majority of hospitalized pediatric COVID-19 patients were very young, males, had mild disease, and had at least one comorbidity. Mortality, invasive mechanical ventilation, and ICU admission were relatively low. Except for alar flaring which appeared to be protective, retractions, seizure, and use of corticosteroids were associated with adverse outcomes.

PV0996 / #557

EARLY TREATMENTS OF FRAGILE CHILDREN WITH COVID-19. RESULTS OF CLEVER (CHILDREN COVID EARLY TREATMENT), A RETROSPECTIVE, OBSERVATIONAL STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: SARS-CoV-2 infection is notably mild in children, though comorbidities may increase the risk of hospitalization and may represent a risk for increased disease severity. There is an urgent need for targeted therapies with an acceptable efficacy and safety profile. To date, most of the medicines for COVID-19-specific treatment are prescribed off-label for children due to a lack of clinical trials and consequent evidence in this population.
Methods: This was a retrospective, observational study investigating the safety of treatments for the prevention of severe COVID-19 in fragile pediatric patients who received monoclonal antibodies and antivirals for mild to moderate symptoms between December 2021 and July 2022.
Results: Thirty-two patients were included. Monoclonal antibodies were prescribed to 62%, intravenous antivirals to 22%, and oral antivirals to 16% of children. Sotrovimab was the most frequently prescribed drug among monoclonal antibodies and overall (59%). The second most prescribed drug was remdesivir (22%). No severe adverse drug reaction was reported. There were no progression to severe disease and no death cases due to COVID-19 or drug administration. At drug type stratification, resolution of symptoms and swab positivity time showed no difference between the two groups at 7 and 28 days. Off-label prescriptions were 84% overall, in similar proportions between the two groups.
Conclusions/Learning Points: In this small sample, antivirals seemed safe and showed no differences in safety as compared to MAbs for the early treatment of COVID-19 in fragile children, thus representing a valuable choice, even administered off-label.

PV0997 / #1505

GUILLAIN-BARRE SYNDROME AS MANIFESTATION OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: GUILLAIN-BARRE SYNDROME AS MANIFESTATION OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C)
Background: Guillain-Barre Syndrome (GBS) is characterised by rapidly-progressing, ascending symmetrical weakness with loss of muscle proprioceptive reflexes. It is typically an autoimmune post-infectious process damaging the myelin sheath. Coronaviruses have been shown to be neurotropic, causing varied neurological symptoms. GBS is not an established manifestation of Covid-19 infection or MIS-C in children. We report a case of GBS associated with multisystem inflammatory syndrome in children (MIS-C).
Case Presentation Summary: A previously well 4-year-old child presented with sudden onset of bilateral lower limb weakness and inability to bear weight. There was no fever, no bowel or urinary incontinence and no other neurological symptoms. He had an upper respiratory tract infection a week earlier. Lower limb neurological examination upon admission revealed absent power with areflexia and hypotonia. A magnetic resonance imaging of the whole spine showed thickening with diffuse enhancement of cauda equina nerve roots. Lumbar puncture showed elevated protein levels with no pleocytosis. He was started on intravenous immunoglobulin. However, after 24 hours, he developed weakness and painful paresthesia of bilateral upper limbs with acute urinary retention, complicated with altered consciousness and myocarditis later that day. Inflammatory markers and N-terminal-prohormone BNP (NT-proBNP) were raised with positive covid antibodies, suggestive of MIS-C. He completed a course of methylprednisolone and intravenous immunoglobulin. He was discharged after two weeks with mild lower limb weakness without cardiac or central nervous system sequelae.
Learning Points/Discussion: Association between Covid-19 and GBS has been shown in adults, however it is limited to case reports in children. The mechanism is still uncertain, but it has been attributed to post-infectious syndrome, nerve damage by T-cell activation, and hyperinflammatory response to COVID-19 virus.

PV0998 / #2718

SARS-COV-2 IN CHILDREN AND ADOLESCENTS WITH CHRONIC KIDNEY DISEASE ON HEMODIALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: With the emergence of the COVID-19 pandemic, it has become urgent to understand its pathophysiology, especially inpopulations that cannot comply with measures of social distancing, such as hemodialysis patients. The objective was to verify the prevalence of SARS-CoV-2 in children and adolescents on hemodialysis and compare the serological andsalivary detection in this population and their companions.
Methods: Prospective cohort conducted with individuals aged 0-18 years on Hemodialysis at the Pediatric Nephrology Service ofHospital São Paulo, Brazil. Saliva and blood samples were collected from the patient and his companion in two moments,T0 (initial) and T1 (30 to 60 days after). Serological and RT-PCR tests were performed for SARS-CoV-2. Grant #2021/04492-1, São Paulo Research Foundation (FAPESP).
Results: We included 10 patients and their companions, in the period prior to vaccination against COVID-19. Among the patients,the mean age was 10.6 years, 70% male. Serology in T0 was reactive in 2 (20%) and remained so in T1. The companionswere women (100%), with a mean age of 37.5 years. Serology in T0 was reactive in 3 (30%) and 4 (40%) in T1. The RT-PCR for SARS-CoV-2 was negative for all participants, in both moments.
Conclusions/Learning Points: The importance of knowing serological status is demonstrated to provide greater health safety for all involved intreatment, especially when there are only non-pharmacological prevention measures. The fact that he found both positiveand asymptomatic patients and companions, the need for change of care protocols for prevention and infection control is evidenced, with the inclusion of companions in the screening.

PV0999 / #2721

SARS-COV-2 IN CHILDREN AND ADOLESCENTS SUBMITTED TO KIDNEY TRANSPLANTATION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: With the emergence of the COVID-19 pandemic, it has become urgent to understand its pathophysiology in different clinical situations, especially in populations of higher risk and vulnerability, such as immunosuppressed. The objective was to verify the prevalence of SARS-CoV-2 in renal transplant children and adolescents and to compare the serological and salivary detection of SARS-CoV-2 in this population and its companions.
Methods: Cross-sectional, analytical, descriptive study with individuals from 0 to 18 years of age submitted to kidney transplantation at the Kidney and Hypertension Hospital, Sao Paulo, Brazil. Blood and saliva samples were collected from the patient and his companion for serological and RT-PCR testing for SARS-CoV-2. Grant #2021/04492-1, São Paulo Research Foundation (FAPESP).
Results: Thirty patients and their companions were included. Among the patients, the mean age was 14 years, 50% male. Serology was reactive in 23 (79.3%), while RT-PCR was positive in 12 (40.0%). 83.3% of the companions were women, with a mean age of 38 years. Serology was reactive in 29 (100%), while RT-PCR was positive in 8 (26.6%). 1 patient and 1 companion did not collect blood sample for serology. At the time of collection, only 1 patient reported flu-like symptoms.
Conclusions/Learning Points: A high prevalence of COVID-19 is demonstrated in the sample studied. The importance of using protective measures such as masks, social distancing and hand hygiene is emphasized, since 95% of cases of active infection were asymptomatic. This finding highlights the need to maintain surveillance and prevention protocols for COVID-19, especially in populations with greater vulnerability.

PV1000 / #671

ADVERSE EFFECTS OF SARS-COV-2 VACCINE IN CHILDREN, IS IMMUNOSUPPRESSION OR COVID-19 INFECTION A FACTOR?

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Our objectives are to describe the adverse effects of SARS-CoV-2 vaccines in children, and to compare children with and without COVID-19 infection, and healthy and immunosuppressed children.
Methods: Healthy and immunocompromised children aged 5-11 years (vaccination group 7) who had received at least 1 dose of Pfizer-BioNTech SARS-CoV-2 vaccine between December 2021-May 2022 were included. A 6-month telephone follow-up was conducted with a standardized questionnaire on adverse effects after each dose, and COVID-19 infections prior to and during vaccination.
Results: Forty-eight children were included, 28 (58.3%) healthy and 20 (41.6%) immunosuppressed. The mean age was 9.1 (7.5-10.6) years. 28 (58.3%) had adverse effects after the first dose, mostly local adverse effects (26/28; 92.8%), with a mean duration of 1 day. 40 (83.3%) received a second dose 2 (1.9-2.4) months later. 19 (47.5%) had adverse effects, mostly (15/19; 78.9%) local. 7 (14.8%) received a third dose 1.5 months later. None had adverse effects. 15/48 (31.2%) children had had a COVID-19 infection prior to vaccination, being more frequent in healthy than immunosuppressed children (p=0.046); 7/48 (14.6%) children had COVID-19 infection between the first and second dose. There were no significant differences in adverse effects between healthy and immunosuppressed children at the first (p=0.704) and second (p=0.162) doses. There were no significant differences in adverse effects in children who had COVID-19 prior to immunization (OR=0.34 [0.09;1.22]) or between the first two doses of vaccination (OR=0.81 [0.13;4.47]).
Conclusions/Learning Points: Adverse effects of the SARS-CoV-2 vaccine in children were frequent, local and of short duration. COVID-19 infection or immunosuppression did not influence the frequency or intensity of adverse effects.

PV1001 / #456

PERSISTENCE OF SYMPTOMS ONE YEAR AFTER MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Long term evolution of Multisystem Inflammatory Syndrome (MIS-C) is poorly understood. We described the frequency of persistent symptoms after one-year in a cohort of MIS-C patients.
Methods: Prospective observational study in under-18-aged patients diagnosed with MIS-C in October 2020-April 2021 in a tertiary hospital. Data from initial episode was obtained from the national database. A standardized phone questionnaire was done one year after the acute episode. As controls, patients with history of acute COVID-19 and with peritonitis, pared by age and sex, were included. Data was collected using REDCap and analysed with R. Ethics committee approval was obtained.
Results: 48 patients were included, 16 in each group. Characteristics at admission are shown in Table 1. MIS-C patients presented high frequently 94% (15/16) cardiological complications during hospitalization, in contrast with 19% (3/16) of acute COVID-19 patients and 25% (4/16) of peritonitis group ($p<0.01$). All of them resolved after a year except the ones associated to hypoxic ischemic encephalopathy in a patient with MIS-C. After one-year follow-up, 88% MIS-C patients suffered ≥1 symptoms, more frequently: headache (44%), fatigue (38%), insomnia (38%) and concentration problems (38%). A total of 56% of COVID-19 patients presented persisted symptoms, mainly fatigue and concentration problems (19%), and 31% in peritonitis group (19% loss of appetite and abdominal pain), ($p<0.001$). MIS-C patients visited more frequently medical professionals due to emotional change after the disease [4/16 (25%) in MIS-C vs. 0/16 (0%) in both control groups, p=
0.028].

Features		All N=48	MIS-C N=16	COVID-19 N=16	Peritonitis N=16	*p*
Days of Admission, (median, RIQ)		6,00 [4,00-11,0]	10,5 [8,00-12,0]	4,00 [3,00-6,00]	5,50 [4,75-10,2]	**0,001**
Inflammatory markers at entry	PCR [N=47]	12,4 [1,98-21,7]	18,8 [14,5-26,9]	0,85 [0,34-5,00]	11,6 [5,57-22,8]	**0,001**
Age	3 – 5 years-old	10/48 (20,8%)	3/13 (18,8%)	4/16 (25,0%)	3/16 (18,8%)	1,000
	6 – 12 years-old	17/48 (35,4%)	6/16 (37,5%)	5/16 (31,2%)	6/16 (37,5%)	
	12 – 18 years-old	23/48 (47,9%)	7/16 (43,8%)	7/16 (43,8%)	7/16 (43,8%)	
Sex Women (n, %)		23/48 (47,9%)	6/16 (37,5%)	10/16 (62,5%)	7/16 (42,8%)	0,338
Oxygen therapy	Yes, (n, %)	14/48 (29,2%)	9/16 (56,2%)	3/16 (18,8%)	2/16 (12,5%)	**0,018**
	Days of oxygen therapy, [N=14] (median, RIQ)	4,00 [2,00-6,75]	5,00 [2,00-10,0]	2,00 [1,50-4,00]	4,00 [3,50-4,50]	0,629
PICU admission	Yes, (n, %)	17/48 (35,4%)	12/16 (75,0%)	1/16 (6,25%)	4/16 (25,0%)	**<0,001**
	Days of admission to PICU, [N=17] (median, RIQ)	5,00 [3,00-7,00]	4,50 [3,00-7,50]	2,00 [2,00-2,00]	6,00 [5,50-7,75]	0,185
Complications during admission	Yes, (n, %)	22/48 (45,8%)	15/16 (93,8%)	3/16 (18,8%)	4/16 (25,0%)	**<0,001**
	Pleural effusion (n, %)	7/48 (14,6%)	6/16 (37,5%)	0/16 (0,00%)	1/16 (6,25%)	**0,011**
	Cardiological (n, %)	14/48 (29,2%)	13/16 (81,2%)	1/16 (6,25%)	0/16 (0,00%)	**<0,001**
	Renal failure (n, %)	6/48 (12,5%)	5/16 (31,2%)	1/16 (6,25%)	0/16 (0,00%)	0,036
	Other complications (n, %)	6/48 (12,5%)	2/16 (12,5%)	1/16 (6,25%)	3/16 (18,8%)	0,859

Conclusions/Learning Points: Majority of MIS-C patients have persistent symptoms one year after acute episode, even with the resolution of cardiological complications. Frequency in MIS-C patients is significantly higher than in COVID-19 hospitalized and than in the peritonitis control group.

PV1002 / #1108

THE IMPACT OF THE COVID-19 PANDEMIC ON SELF-HARM REFERRALS IN CHILDREN AND ADOLESCENTS PRESENTING TO CAMHS EMERGENCY SERVICES IN SOUTH WEST LONDON

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The COVID-19 pandemic has had a significant negative impact on child and adolescent mental health with direct consequences on child and adolescent mental health emergency care services (CECS). This study aimed to explore the impact of the COVID-19 pandemic on number and reasons for referral to the South West London CECS team. As the COVID-19 pandemic has placed additional strain on CAMHS emergency services, it is imperative that relevant data is analysed to inform ongoing CECS service development.
Methods: Data was extracted from electronic medical records of all young people who had been referred to the South West London CECS team over a 4 year period between 1.3.2018-1.3.2022. Data was analysed quantitatively using Strata 16 and SPSS programs.
Results: 4155 referrals were received by CECS between 1.3.2018-1.3.2022. 1901/4155 were referred because of self harm. There was an increase in self-harm referrals from 534 pre-pandemic to 1367 post-pandemic and self harm constituted a larger proportion of total referrals (29.3% pre-pandemic and 58.7% post-pandemic). All values were statistically significant, $p<0.05$. Both total and self-harm referrals were increasing monthly pre-pandemic (+1.05 and +2.50 respectively). CECS self harm referrals increased from +0.50 pre-pandemic to +0.84 post-pandemic. Immediately following the first lockdown (March 2020), there was a rise of +13.26 referrals for self harm which stabilized over 2 years.
Conclusions/Learning Points: The COVID-19 pandemic has had a negative impact on child and adolescent mental health with increased self harm presentations to CECS. This study provides data on the impact of the COVID-19 pandemic on referral patterns to CECS.

PV1003 / #753

NIRMATRELVIR/RITONAVIR USE IN PEDIATRIC PATIENTS WITH RISK OF PROGRESSION TO SEVERE DISEASE DUE TO SARS-COV-2

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: NIRMATRELVIR/RITONAVIR USE IN PEDIATRIC PATIENTS WITH RISK OF PROGRESSION TO SEVERE DISEASE DUE TO SARS-COV-2
Background: The use of nirmatrelvir-ritonavir in adults with mild-moderate COVID-19 and risk factors of progression to severe disease (RF-SD), has demonstrated to reduce the risk of hospitalization and mortality. Data in children are limited. We present three children with leukemia / GATA2 deficiency and SARS-CoV-2 infection who received compassionate use of nirmatrelvir-ritonavir.
Case Presentation Summary: 6-year-old girl with acute lymphoblastic leukemia (ALL) developed mild COVID-19 (cough) on day +12 of chimeric antigen receptor T cell therapy. SARS-CoV-2 blood viral load (BVL): 2470 copies/ml She received nirmatrelvir-ritonavir (300mg/100mg/12h) for five days, with no adverse events and clerarance of viremia. 11-year-old girl with ALL and an allogeneic hematopoietic cell transplantation. On day +90 (receiving corticosteroids and JAK-kinase inhibitors for acute graft-versus-host disease), presented with mild SARS-CoV-2 infection (cough). BVL: 3730 copies/ml. A five-day course of nirmatrelvir-ritonavir was given with no side effects, symptom resolution and clearance of viremia. 10-year-old girl with acute myeloid leukemia in remission and GATA2 deficiency, with severe COVID-19 infection (bilateral pneumonia, hypoxia). She received corticosteroids, IL-1 inhibitors and remdesivir with poor evolution and persistence of high BVL (2790 copies/ml). Five-day course of nirmatrelvir-ritonavir resulted in viral clearance, however viremia rebound was observed after two weeks, requiring a second cycle with equal results. A second viremia rebound prompted compassionate maintenance use of nimatrelvir-ritonavir attempting viral suppression without success. Subsequently she sadly died due to pulmonary Nocardia and Aspergillus infections and multiple organ failure.
Learning Points/Discussion: Early use of nirmatrelvir-ritonavir was safe and effective achieving viral clearance and symptom resolution in our patients with COVID-19 and RF-SD. Rebound viremia was observed in one patient, who suffered from GATA2 deficiency plus immunosuppression.

PV1004 / #1759

LONG-TERM OLFACTORY DYSFUNCTION IN CHILDREN WITH POST-COVID SYNDROME: TOWARDS A STANDARDIZED APPROACH

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Introduction. The SARS-CoV-2 virus is known to cause olfactory dysfunction in the acute phase and long-term [Rao et al. JAMA Pediatr. 2022], but quantification of loss of smell in children is lacking. Therefore, our aim was to assess long-term olfactory dysfunction in children with post-COVID syndrome as defined by the WHO guidelines. Hypothesis. A validated, objective tool has added value in screening and quantification of olfactory dysfunction in children with post-COVID syndrome.
Methods: . Participants were children (6-18 years) with diagnosed post-COVID condition, seen at the Amsterdam UMC hospital >3 months after infection. Long-term olfactory dysfunction was assessed in two ways: 1) by the U-Sniff test, and 2) by self-reported loss of smell. The U-Sniff test is validated and standardized, with high sensitivity and specificity, measuring the odor identification ability in children [Schriever et al. J Pediatr. 2018]. Outcome scores range from 0 to 12, cut-off values are age-dependent.
Results: Results. From 94 children included, 21% had abnormal U-Sniff scores at 15.7 (±7.0) months after infection. Children with abnormal scores were older and more frequently had self-reported loss of smell (table 1). However, the test also suggests olfactory dysfunction in 10 (17%) children with no self-reported loss of smell.
Conclusions/Learning Points: Conclusion. Long-term olfactory dysfunction is a frequent condition in children with post-COVID syndrome. Screening through a validated test suggests a higher impairment than through patient self-reported complaints, which can play a role in further clinical evaluation.

PV1005 / #1340

RESPIRATORY SYNCYTIAL VIRUS AND SARS-COV-2 COINFECTION IN HOSPITALIZED PEDIATRIC PATIENTS: CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: RESPIRATORY SYNCYTIAL VIRUS AND SARS-COV-2 COINFECTION IN HOSPITALIZED PEDIATRIC PATIENTS: CASE SERIES
Background: While SARS-CoV-2 continue to circulate in Greek population, the 2022–23 RSV season shows an early rise in pediatric RSV-associated hospitalization. Although both RSV and SARS-CoV-2 can contribute to substantial pediatric morbidity, whether coinfection increases disease severity compared with that associated with infection with one virus alone is unknown.
Case Presentation Summary: We report a case series of 12 pediatric hospitalized patients with RSV/SARS-CoV-2 coinfection from March 2020 to December 2022. RSV/SARS-CoV-2 coinfection was detected through FilmArray Respiratory Panel, PCR assays or rapid antigen testing. Half of the patients had high viral load for SARS-CoV-2 (Ct <20). Patients' age ranged from 1.5 months to 13.5 years old and 7 (58%) were males. Patients presented with silent hypoxia (n=2), tachypnea (n=6), cough (n=11), rhinorrhea (n=5), feeding difficulties (n=6) and fever (n=8). Pulmonary disease was reported as underlying medical condition in 2 patients. Ten (83%) patients received oxygen supplementation from 3 to 9 days. Management included nebulized treatment with budesonide (n=6), salbutamol (n=10) and intravenous corticosteroids (n=6). Two patients received antiviral treatment with remdesivir. A 3- month-old infant required intensive care unit (ICU) admission. Chest x-ray revealed diffuse interstitial infiltration in all of them. Hospitalization lasted from 4 to 10 days.
Learning Points/Discussion: According to our recent experience, patients with RSV/SARS-CoV-2 coinfection had high oxygen requirements indicating potentially more severe disease. Further studies are needed to better understand the interplay between SARS-CoV-2 and RSV and the mechanisms associated with disease severity.

PV1006 / #2036

COVID-19 IN HOSPITALIZED INFANTS LESS THAN 90 DAYS OLD; THREE YEARS' EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Although children are generally mildly affected from SARS-CoV-2, a higher risk for progression to severe COVID-19 has been reported in infants and children with underlying medical conditions. Data on age-related poor prognosis and especially on very young age are still debated. The aim of our study was to present our experience on COVID-19 in infants less than 90 days old.
Methods: A retrospective study was performed on infants less than 90 days old hospitalized with COVID-19 in the largest tertiary Children's Hospital in Greece during March 2020-December 2022. Confirmed cases were defined through nasopharyngeal swabs tested positive for SARS-CoV-2 RT-PCR. Demographic, clinical, laboratory and radiological data were also collected.
Results: Three hundred twenty-nine infants were enrolled in our study. Mean age was 49 days (range 3-89) and 56.8% were males. Only 29.7 % of the mothers were vaccinated against SARS-CoV-2. Most frequent symptoms were fever (84.8%), cough (20.9%), gastrointestinal complications (8.8%) and feeding difficulties (33.4%). Fifty-one (15.5%) infants presented with neutropenia and 239 (72.6%) with monocytosis. Chest x-ray was performed in 67.5% infants and only 18.8% of them had normal findings. Sixty-six infants (20%) received antibiotic treatment. However, only 28.7% of them had a confirmed coinfection including bacteremia, urinary tract infection, acute otitis media, cutaneous infection and perianal abscess. Three infants had a SARS-CoV-2/RSV coinfection and 1 experienced aSARS-CoV-2/rhinovirus/enterovirus coinfection. Two premature infants experienced severe respiratory disease and treatment with remdesivir was initiated. One infant was administered to ICU and died after prolonged hospitalization. The vast majority (267 infants; 81.2%) was hospitalized for less than 4 days.
Conclusions/Learning Points: Infants aged less than 90 days old with COVID-19 usually present with mild symptoms. However, a possible coinfection needs to be evaluated and excluded, accordingly.

PV1007 / #2581

ASSESSMENT OF PEDIATRIC CANCER PATIENTS WITH COVID 19 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: Coronavirus Disease 2019 (COVID-19) still remains a health problem by the SARS-CoV-2 virus, which causes significant mortality and morbidity in risk groups. While the symptoms are severe in the elderly with co-morbidities, children usually survive milder. Malignant patients are voicing their concerns about COVID-19 as they are immunosuppressed by both the underlying disease and the treatments they receive(1).
Methods: During the follow-up of the Pediatric Hematology Oncology Unit, patients with positive SARS CoV-2 PCR test until January 2023 were screened prospectively
Results: Twenty-eight patients with SARS-CoV-2 PCR positive were included in the study. 3 patients had recurrent COVID-19; 1 patient was re-infected twice and 2 patients became infected three times. A total of 33 incidents were detected. The patients did not require mechanical ventilation and intensive care follow-up.
Conclusions/Learning Points: While the COVID 19 pandemic has spread rapidly all over the world, publications and information for pediatric patients have been relatively limited. It has been reported that the prevalence of COVID-19 infection in adult cancer patients (1%) is higher than that of the general population (0.29%). While the prevalence is 0.8% in general pediatric patients, it is estimated to be 1.3% in pediatric cancer patients (2). When the clinical features of pediatric cancer patients followed up in our center for COVID-19 were examined, the disease was found to be less common in boys (39.4), since the reinfected patients were mostly girls. Similarly, the most common accompanying cancer was found to be leukemia (42.3%). No patient required respiratory support. There was no death due to COVID 19 but three patients died due to complications related to their primary diseases.

PV1008 / #1195

HEALTH SURVEILLANCE: THE SARS-COV-2 INFECTION AND VACCINATION COVERAGE IN THE SCHOOLS OF MODENA PROVINCE, ITALY.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: In Italy, the COVID-19 pandemic has caused over 4.8 million cases in individuals aged 0-19 years. The role of the school reopening on the spread of SARS-CoV-2 infection is still under investigation. The aim of our study was to assess the influence of vaccination coverage against SARS-CoV-2 on the reduction the virus spread in the schools of Modena province.
Methods: We performed a retrospective cohort study in the period 1 September-15 December 2021, involving students aged 0-19 years and teachers, screened for SARS-CoV-2 infection by nasopharyngeal swab following the detection of an index case within their classroom.
Results: A total of 12534 students and 1400 teachers were tested. We identified 1373 cases (594 index cases and 779 secondary cases) from 594 different classes: 9.8% (1225 cases) of students tested and 10.6% (148 cases) of teachers. Regarding vaccination coverage, 32.7% (4562) of entire population was vaccinated with at least one dose of the anti-SARS-CoV-2 vaccine at the test time. In detail, 64.9% of teachers and 29.2% of students were vaccinated. Among secondary cases only 7.7% (60 out of 779) was vaccinated compared to 35.1% (4408) among negative tested subjects. The highest ratio of secondary cases on index cases rate (2.19) was found among students attended primary school, while the lowest values were among subjects attended high school (0.40) and nursery school (0.37).
Conclusions/Learning Points: Our results highlight the differential spread of SARS-CoV-2 among different age groups and show that the vaccination may have mitigated virus diffusion in high and middle schools, as it was available only for the population aged≥12 in the study period. Of note, in infant and nursery schools the low virus spread could have been mitigated by small classes.

PV1009 / #2642

IMPACT OF THE COVID19 PANDEMIC IN PAEDIATRIC EMERGENCY VISITS OF A SMALL PRIVATE HOSPITAL: WHERE ARE THE CHILDREN AND THE RESPIRATORY INFECTIONS?

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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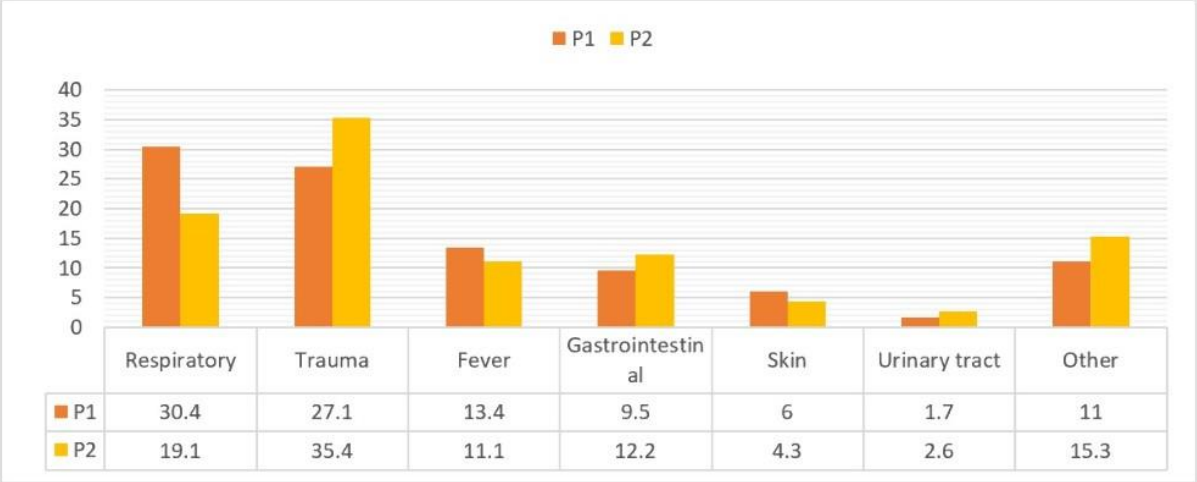
Background: Respiratory tract infections (RTI) are a major cause of morbidity and mortality in children. Most of the episodes occur during the winter, where influenza and respiratory syncytial virus (RSV) cause a rise in paediatric emergency department (ED) visits. However, since the beginning of the COVID19 pandemic, several countries have reported a decrease in ED visits, specially RTIs.
Methods: This is a retrospective study including all the ED visits in children 0 to 14 years old, during the months of October 2019-March 2021 (P1) and October 2020 and March 2021 (P2). The data was classified into 7 groups according to the main complaint at admission. The respiratory symptoms group was further analysed for age, sex, and diagnosis. Results were analysed via Chi-square and Fisher exact test using Sigma Plot v.11 for windows.
Results: An overall reduction of 38% was seen in the total number of ED visits of both study periods (7103 vs 4837). A statistically significant decrease from 30.33% to 19.14% (P <0.001) in the respiratory symptom group was described, whereas the trauma group showed an increase of 8.4% (P <0.001) and urinary tract complaints remained unchanged. Subgroup analysis showed a rise in URTI (47.3% vs 49.6%). In contrast, bronchiolitis, pneumonia, AOM and flu/flu-like episodes dropped.



	Respiratory	Trauma	Fever	Gastrointestinal	Skin	Urinary tract	Other
P1	30.4	27.1	13.4	9.5	6	1.7	11
P2	19.1	35.4	11.1	12.2	4.3	2.6	15.3

Fig 1. Percentage of ED visits according to main complaint in both periods, showing a reduction in respiratory complaints, increase in trauma and almost no change in urinary tract symptoms (P <0.001).

Conclusions/Learning Points: An overall reduction of 38% in ED visits was described with a major impact on episodes of RTIs, but not in other infections such as urinary tract infections or trauma. This may imply that the measures set in place due to the COVID19 pandemic, may not be the only cause for the change in the seasonality of winter viruses and supports the possibility that other causes may play a role.

PV1010 / #1247

PREDICTORS OF SARS-COV-2 SEROPOSITIVITY PRIOR TO VACCINE ELIGIBILITY AMONG CANADIAN CHILDREN AGED 1–11 YEARS AT A PEDIATRIC TERTIARY REFERRAL HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Pre-vaccine seroprevalence studies of SARS-CoV-2 may help identify groups at particular risk of infection. In this study, we sought to estimate SARS-CoV-2 seroprevalence among children prior to vaccination eligibility, and to analyze demographic and clinical predictors of seropositivity.
Methods: We used a convenience sample of residual sera at The Hospital for Sick Children from October–November 2021. Patient characteristics were reviewed retrospectively from electronic medical records. Infants and patients who received plasma or intravenous immunoglobulin were excluded. Anti-spike IgG were detected using EUROIMMUN Anti-SARS-CoV-2 ELISA. Exact 95% confidence intervals were calculated around seroprevalence estimates, and seropositivity predictors modelled using logistic regression.
Results: Of 324 patients, 301 were eligible, including 118 (39.2%) inpatients, 58 (19.3%) outpatients, 76 (25.2%) emergency room patients, and 49 (16.3%) referred by community providers for laboratory testing. Median age was 4 (IQR, 2–7) years; 163 (54.2%) were male. 188 (62.5%) had a chronic medical condition, and 42 (14.0%) were immunocompromised. Overall seroprevalence was 22.3% (95% CI, 17.7–27.4%); only 6 (9%) had documented prior SARS-CoV-2 infection. In univariable analyses, seroprevalence was higher among males (27.0%; 95% CI, 20.3–34.5%), inpatients (29.7%; 95% CI, 21.6–38.8%), immunocompromised patients (40.5%; 95% CI, 25.6–56.7%), and patients with documented prior SARS-CoV-2 infection (83.3%; 95% CI, 35.9–99.6%); all predictors remained statistically significant in multivariable logistic regression.
Conclusions/Learning Points: In this hospital-based sample prior to vaccine eligibility and the Omicron wave, almost one in four children aged 1–11 years had evidence of prior SARS-CoV-2 infection. This higher-than-expected seropositivity may reflect children's susceptibility to subclinical infections. Higher risk, in particular among immunocompromised inpatients, may hold relevance for clinical and public health measures for the current and future pandemics.

PV1011 / #1435

COVID-19 VACCINES ACCEPTANCE IN CAREGIVERS OF 5-11-YEAR-OLD CHILDREN: A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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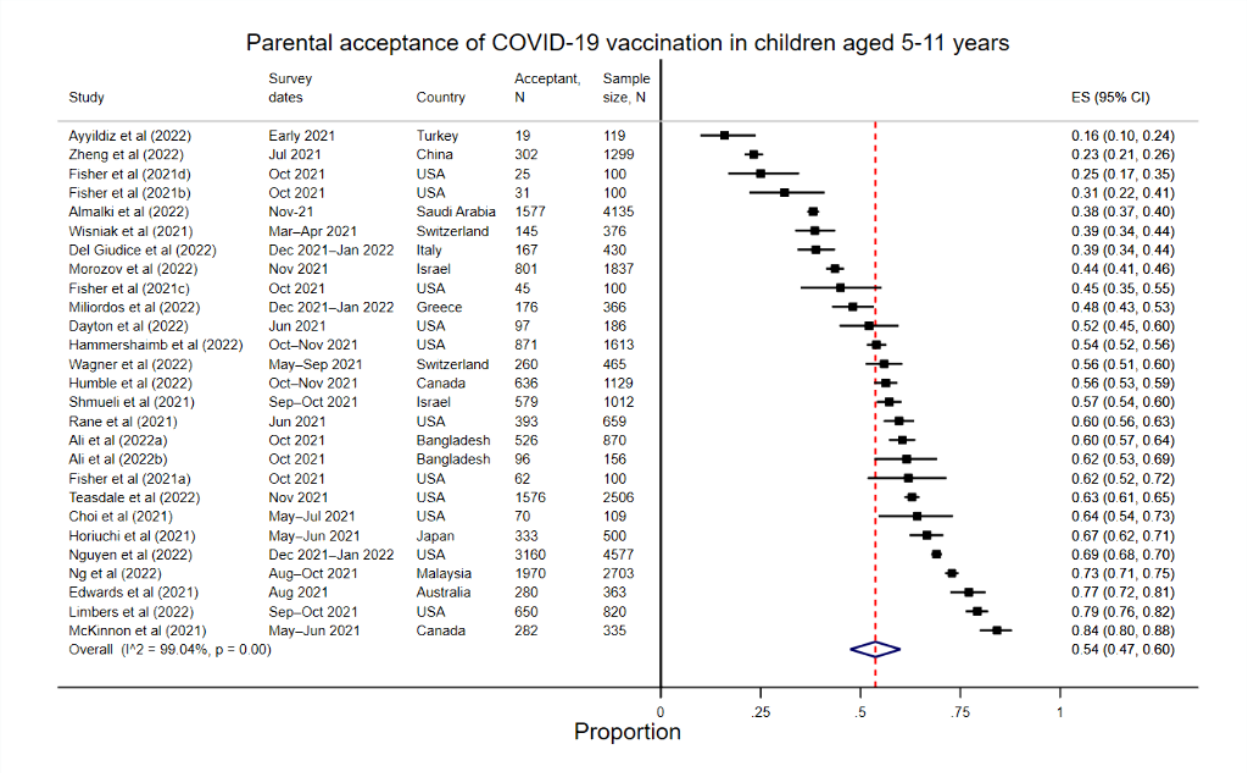
Backgrounds: COVID-19, COVID-19 vaccine hesitancy (VH) among caregivers of children aged 5 to 11 has contributed to low uptake in this group. This study aimed to assess the acceptance of COVID-19 vaccines and identify determinants of vaccine willingness and hesitancy among caregivers of children aged 5-11 years.
Methods: A systematic review of Medline, Embase, Cochrane, and CINAHL was performed to identify relevant studies published between October 29, 2021, and September 12, 2022. A random-effects meta-analysis and a qualitative analysis of the primary and secondary outcomes were conducted respectively.
Results: A total of 1571 records were identified for full-text screening, of which 30 were included. Twenty-four studies were conducted in high-income countries, three in upper-middle-income countries, and three in low- to middle-income countries. The pooled effects size for caregivers' vaccine acceptance was s 54% (95% CI 47–60%), with considerable between-study heterogeneity (I^2 of 99.04%). The most frequent reasons for vaccination willingness identified in the studies included caregivers' SARS-CoV-2 vaccination coverage (27%), collective responsibility (27%), perceived risk of COVID-19 in children (23%), having older children already vaccinated (17%), return to normal life (17%), higher parental education (17%), and having received flu vaccine (17%). Common reasons for VH consisted of vaccine safety/efficacy concerns (77%), misconceptions about childhood COVID-19 severity (43.3%), and low knowledge about vaccine approval processes
(33%).



Conclusions/Learning Points: Our findings showed a low proportion of caregivers being acceptant of the SARS-CoV-2 vaccine for their children aged 5-11 years. Since vaccine safety/efficacy concerns and misperception about children's susceptibility to severe disease were the common drivers of VH, studies documenting the safety and benefits of vaccination in children will potentially strengthen vaccine confidence and uptake in this age group.

PV1012 / #1482

CARDIAC ADVERSE EVENTS FOLLOWING COVID-19 IMMUNIZATION: A REPORT FROM THE SPECIAL IMMUNIZATION CLINICS NETWORK

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: While serious adverse events following immunization (AEFI) following COVID-19 vaccines remain rare, cases of post-vaccination myocarditis and pericarditis have now been well described. This study reports on cases of cardiac AEFI assessed in the Special Immunization Clinic (SIC) Network in Canada. The study objective was to describe clinical characteristics of patients with cardiac AEFI and their outcomes following revaccination.
Methods: Ten SIC sites accepted referrals for children and adults with suspected cardiac AEFI following COVID-19 vaccination. Cases were classified as per the Brighton Collaboration Case Definition for mutually exclusive diagnoses of myocarditis, myopericarditis or pericarditis. Patients who experienced chest pain but had a normal cardiac workup (troponins, ECG and/or echocardiogram) and no alternate diagnosis were categorized as having nonspecific chest pain. Recommendations for revaccination were based on SIC physician judgment, informed by national guidelines. After patient or parental consent, de-identified data were transferred to a central database for analysis.
Results: Between April 1, 2021 and July 11, 2022, 94 participants with cardiac AEFI were enrolled and included in the analysis (see Table). Seventy-six (80.9%) had myocarditis/myopericarditis, 10 (10.6%) pericarditis and 8 (8.5%) nonspecific chest pain. Most cases occurred after mRNA vaccination (n=92, 97.9%). Thirty-nine (41.5%) required hospitalization and two (2.1%) required intensive care unit admission. Following SIC assessment, 16 patients (17.0%) were revaccinated and had at least one follow-up appointment. There were two recurrences (12.5%) of cardiac AEFI after revaccination; one pericarditis (milder severity, no hospitalization required) and one myocarditis (same severity,

Subject characteristics	Total
Total	94
Age in years (Median, IQR)	17.0 (15.0 – 24.0)
Male sex (n,%)	74 (78.7)
Any comorbidity (n,%)	37 (39.4)
Cardiovascular comorbidity (n,%)	6 (6.4)
Asthma (n,%)	8 (8.6)
Diabetes (n,%)	5 (5.3)
Other comorbidities (n,%)	17 (18.1)
COVID-19 history prior to vaccination (n,%)	7 (7.4)
Vaccine product received (n,%)[1]	
Comirnaty (Pfizer-BioNTech)	69 (73.1)
Spikevax (Moderna)	24 (25.8)
Covishield (AstraZeneca)	1 (1.1)
Vaccine dose (n,%)	
1	39 (41.9)
2	50 (53.8)
3	4 (4.3)
Diagnosis (n,%)	
Myocarditis or myopericarditis	75 (80.9)
Pericarditis without myocarditis	10 (10.6)
Chest pain (nonspecific)	8 (8.5)
Onset of symptoms after vaccination in days (median, IQR)	2 (1 – 4)
Required hospitalization (n,%)	39 (41.5)
Required ICU admission (n,%)	2 (2.1)
Duration of hospitalization in days (median, IQR)	3 (2 – 4)
Duration of symptoms in days (median, IQR)	7 (3 – 21)
Impact of the AEFI (n,%)	
Moderate	55 (58.5)
High	28 (29.8)
Serious	11 (11.7)
ECG result (n,%)	
Normal	33 (37.1)
Abnormal	51 (57.3)
Not performed	5 (5.6)
Echocardiogram result (n,%)	
Normal	80 (87.4)
Abnormal	12 (13.5)
Not performed	17 (19.1)
Troponin value in ng/L (median, IQR)	396 (144 – 1,280)
Revaccinated after cardiac AEFI (n,%)	
Yes	16 (17.0)
No	78 (83.0)
Prior diagnosis of revaccinated individuals (n,%)	
Myocarditis or myopericarditis	7 (43.8)
Pericarditis without myocarditis	4 (25.0)
Chest pain (nonspecific)	5 (31.2)
Same product received for revaccination	14 (87.5)
Product received for revaccination (n,%)	
Comirnaty (Pfizer-BioNTech)	13 (81.3)
Spikevax (Moderna)	2 (12.5)
Nuvaxovid (Novavax)	1 (6.2)
Recurrence of cardiac event after revaccination (n,%)	
Yes	2 (12.5)[2]
No	14 (87.5)
Cardiac AEFI following revaccination (n,%)	
Myocarditis or myopericarditis	1 (50.0)
Pericarditis without myocarditis	1 (50.0)
Chest pain (nonspecific)	0
Impact of the AEFI post revaccination (n,%)	
Moderate	1 (50.0)
High	1 (50.0)
Serious	0

hospitalization required).

Conclusions/Learning Points: The findings from this large national cohort of individuals who experienced cardiac AEFI after COVID-19 vaccination provides further insights on the clinical characteristics of this condition and the risk of recurrence after revaccination.

PV1013 / #645

MIS-C AND LEAKY GUT: INVESTIGATION OF MARKERS OF INTESTINAL PERMEABILITY AND PERSISTENT ANTIGENAEMIA IN A UK MIS-C COHORT.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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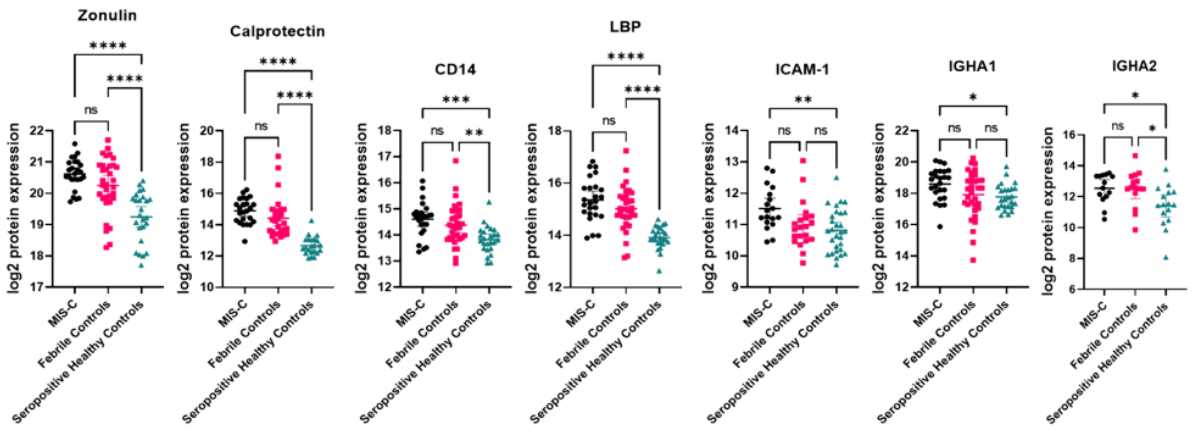
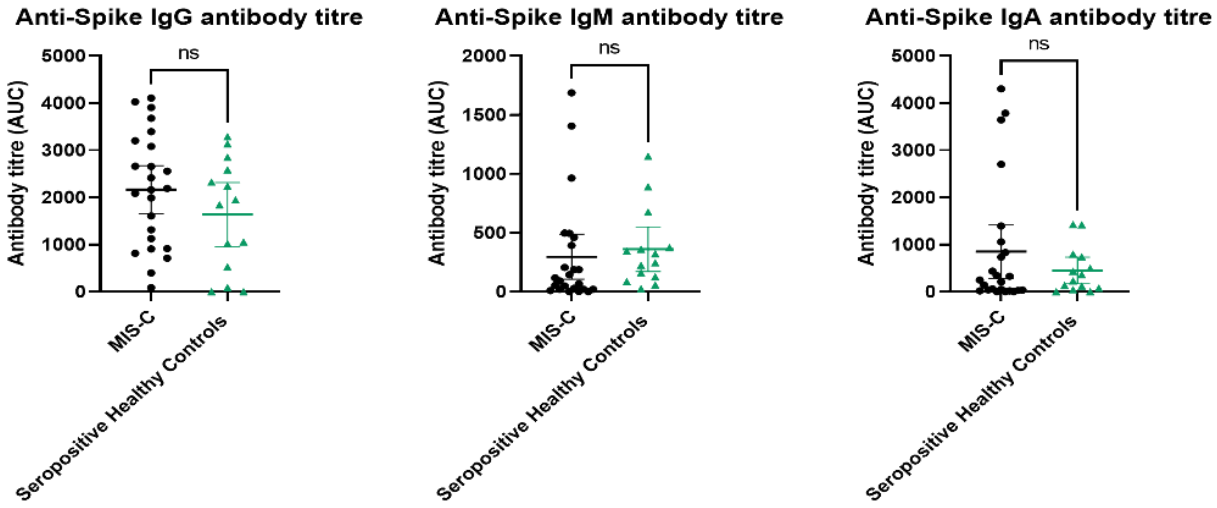
Backgrounds: It has been suggested that MIS-C development is driven by increased permeability of the intestinal epithelium leading to SARS-CoV-2 viral proteins leaking into the bloodstream. We investigated evidence for this hypothesis in a cohort of UK MIS-C patients.
Methods: We utilised LC-MS to measure the levels of proteins associated with intestinal permeability in the plasma of 25 children with MIS-C and age and gender matched controls, both febrile (34) and healthy SARS-CoV-2 seropositive (25). We further quantified the spike protein antibody titres in MIS-C and healthy controls who were previously infected with SARS-CoV-2 within a similar timeframe.
Results:





Levels of Zonulin, lipopolysaccharide binding protein(LBP) and other proteins associated with increased gut permeability were all significantly increased in MIS-C compared to seropositive healthy controls ($p<0.0001$). However, there was no significant difference between levels of any of these proteins between MIS-C and febrile controls($p>0.05$). We found no significant difference in the titres of either IgG, IgM or IgA to the RBD portion of spike protein between the MIS-C cohort and seropositive healthy controls. Further, there was no correlation between levels of any of the proteins associated with increased intestinal permeability and any of the antibody subclass titres in MIS-C.

Conclusions/Learning Points: There is evidence of increased circulating markers of intestinal permeability in MIS-C relative to healthy controls , however we found no difference in markers of intestinal permeability between our MIS-C and febrile cohorts. This suggests that an increase in gut permeability in MIS-C is not unique to this condition and occurs in other unwell children. We found no evidence of a humoral response to persistent viral antigenaemia in our MIS-C cohort, with antibody titres similar to that of seropositive healthy controls.

PV1014 / #402

PROTEOMIC CHANGES IN PAEDIATRIC SARS-COV-2 INFECTION AND IN MIS-C

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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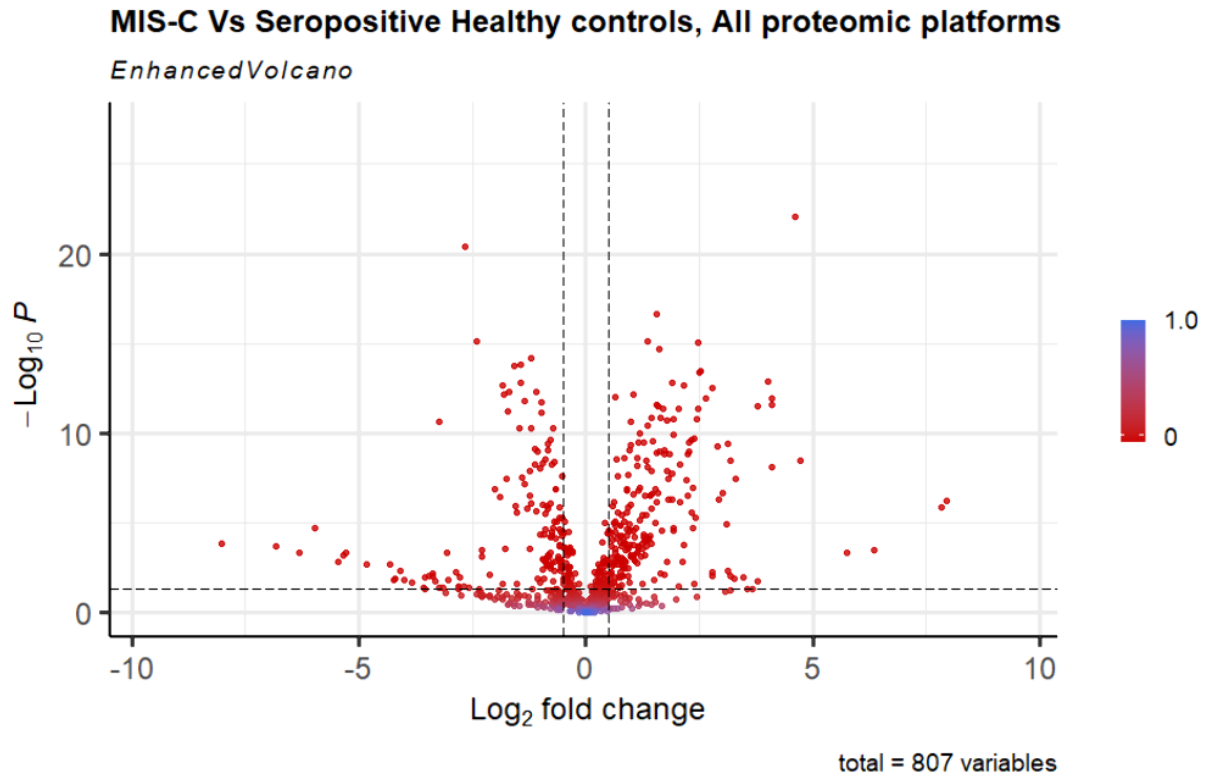
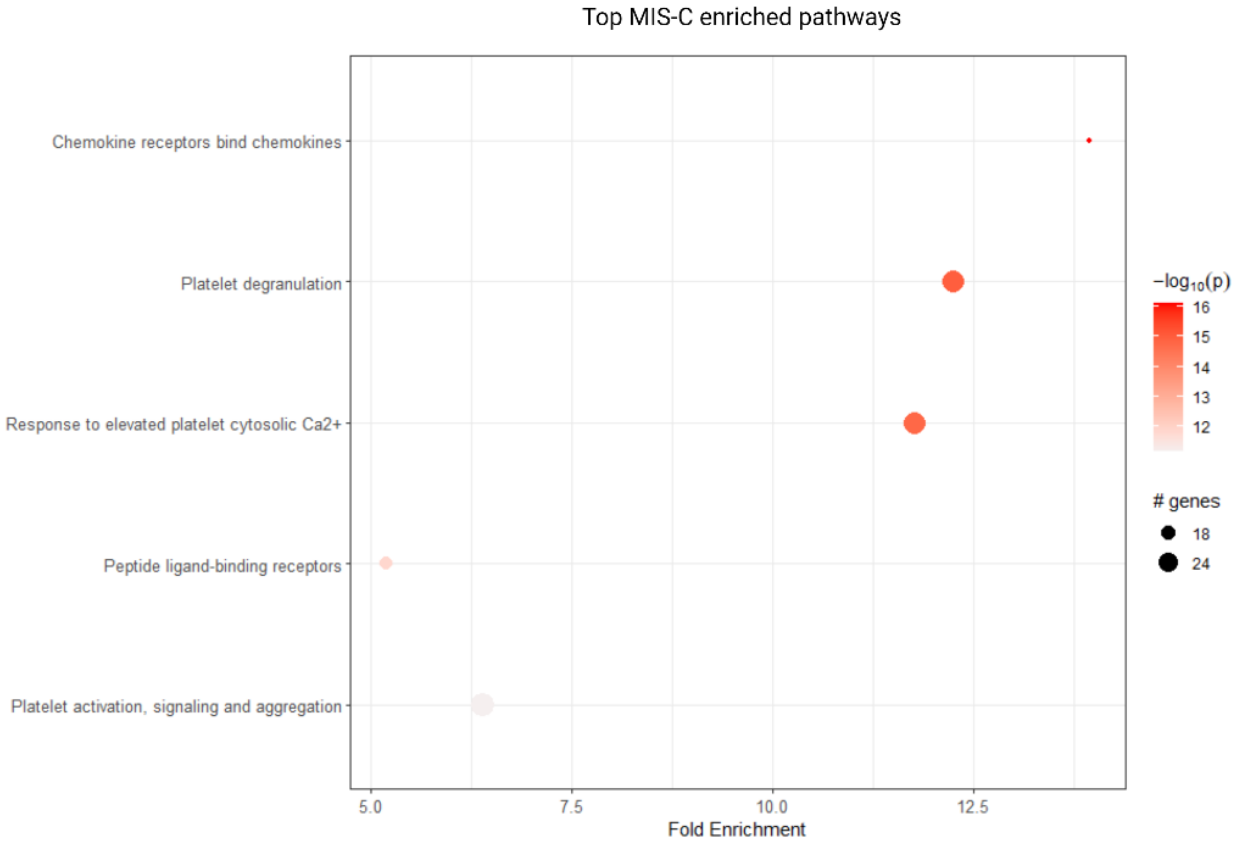
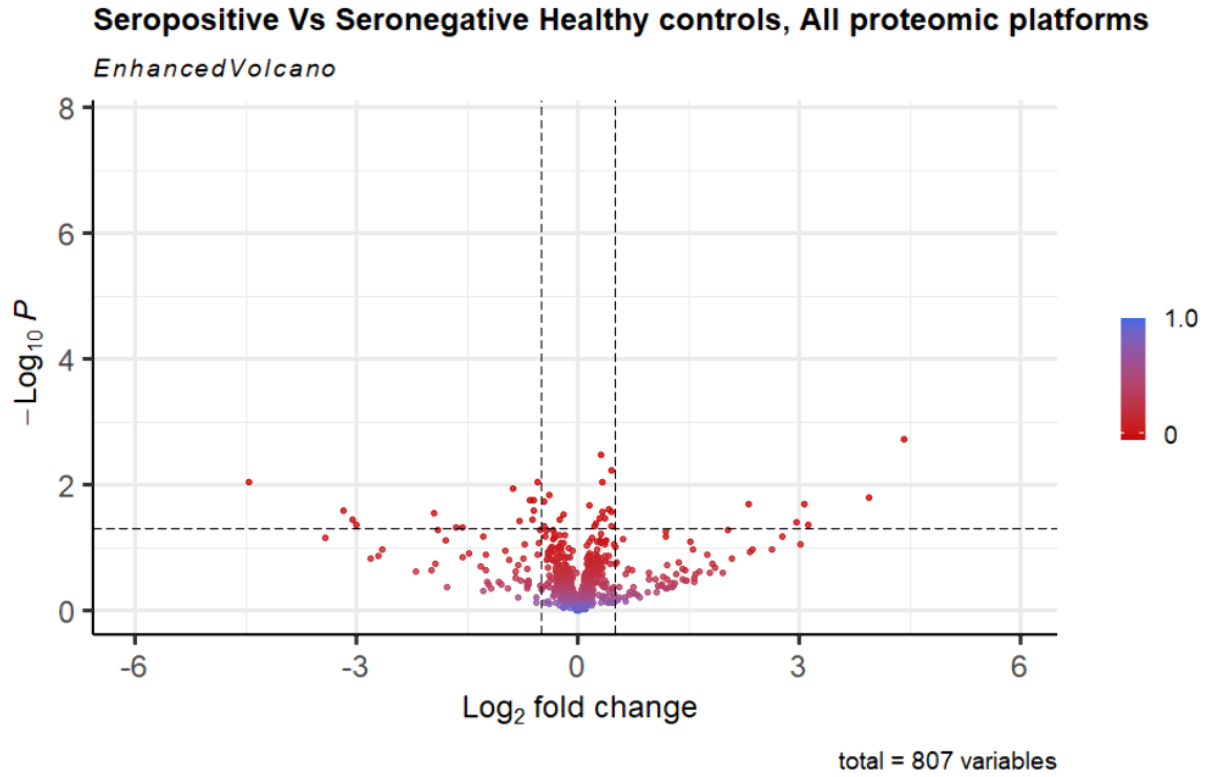
Queen's University Belfast, Wwiem, Belfast, United Kingdom

Backgrounds: Most children infected with SARS-CoV-2 experience mild symptoms , however a small proportion develop Multisystem Inflammatory Syndrome in Children (MIS-C) several weeks after SARS-CoV-2 infection. It's unkown if there are major changes in the proteome of healthy children who have recovered from mild or asymptomatic SARS-CoV-2 infection, and whether there are similarities between the proteome of MIS-C and this group.
Methods: We prospectively recruited a cohort of children hospitalised due to COVID-19 related illness, including MIS-C(n=25). Age and sex matched children (n=25) with both a seronegative and later seropositive result for SARS-CoV-2 antibodies were used as healthy controls. LC-MS was used to analyse the proteome of these groups and identify differences.The results from LC-MS were used to perform pathway enrichment analysis to identify biological pathways potentially driving disease.
Results:







There was a clear difference in the circulating proteome of MIS-C and that of seropositive children with

441 differentially expressed proteins (fdr <0.05). Likewise, there was a number of differentially expressed proteins between seropositive and seronegative children. There was 140 enriched pathways in MIS-C, with the top 5 enriched pathways differing from those enriched in the seropositive group.
Conclusions/Learning Points: The circulating proteome of children with MIS-C differs from that of children who have previously been infected with SARS-CoV-2, and this reflects an underlying difference in pathways activated. We have identified pathways enriched in MIS-C which correspond with the hyperinflammatory clinical presentation of the syndrome. Further investigation of the pathways unique to MIS-C may lead to greater insights into the disease pathogenesis.

PV1015 / #2582

SHORT AND MID-TERM OUTCOMES OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C): LONGITUDINAL PROSPECTIVE SINGLE-CENTRE COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: Multisystem inflammatory syndrome in children (MIS-c) is a potentially life-threatening condition, which emerged during the COVID-19 pandemic and is temporally associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). While data about the acute conditions' epidemiology, clinical manifestations, and treatment pathways have been studied, the short and long-term impact of MIS-c on children's health is unknown.
Methods: Prospective longitudinal cohort study. Children under age of 18 years, fulfilling the Centers for Disease Prevention and Control (CDC) diagnostic criteria for MIS-c, and admitted to Children's Clinical University Hospital of Latvia (CCUH), between July 1, 2020, and April 15, 2022, were enrolled. All patients were evaluated at various time points: 2 weeks, 2 months (1-3 months), and 6 months (5-7 months) after MIS-c diagnosis.
Results: 21 patients with confirmed MIS-c were included. In acute phase all children had multi-organ involvement, including muco-cutaneious, gastrointestinal, cardiovascular, and neurological symptoms. At two-week follow-up half of children (N=10, 47.6%) reported exercise intolerance with provoked tiredness after exercise. In laboratory tests increase in blood cell count was observed, with a near doubling of leukocyte and neutrophil counts, and tripling of thrombocytes. Considerable decline in inflammatory and organ-specific markers was seen. The cardiological examination showed significant improvement with gradual resolution of acute phase pathological findings. Within two-month time improvement in exercise capacity was observed with five-fold reduction in physical intolerance (N=2, 9.5%) and two-fold reduction in physical activity induced fatigue (N=5, 23.8%). Normalisation of all blood cell lines was seen, and cardiological examination showed no persistent changes. At 6 months visit further improvement in children's exercise capacity was seen, laboratory and cardiological testing showed no pathological changes.
Conclusions/Learning Points: Abnormal clinical and laboratory findings were seen in patients 2 weeks after MIS-C with significant improvement in following weeks.

PV1016 / #1560

LONG COVID IN CHILDREN, STILL A LONG WAY TO GO

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: COVID-19 in children is often asymptomatic or paucisymtomatic compared to the adults, however long term consequences such as Long Covid (LC) may occur. Reports about LC in children are conflicting regarding its prevalence, duration. We describe a cohort of children affected by LC evaluated in a hospital setting focusing on clinical presentation, cardiopulmonary function and immunology screening.
Methods: From October 2021 and November 2022 children with confirmed previous COVID-19 were evaluated in a dedicated LC Day Hospital. Inflammatory markers, immunological tests and SARS-CoV-2 serology were assessed. The cardiopulmonary evaluation for each patient was based on electrocardiogram (ECG), spirometry, and lung ultrasound.
Results: Of 273 children, almost 30% did not meet the criteria for LC. The clinical evaluation was performed after a median of 93 days after COVID-19 (IQR 68, range 7 – 324). The 50.3% with criteria for LC had comorbidities: allergy and/or asthma (24.1%), NPI disorder (11.3%), obesity (4.6%), headache (4.6%). The most frequent symptoms were: fatigue (48.2%), cough (25.1%), headache (20.0%), dyspnea (9.2%) mainly after excercise (66.7%), myalgia (7.2%), sleep disturbances (6.2%). Comparing LC with the non-LC, the significant differences were that former were older, more symptomatic during COVID-19 but less admitted to hospital (Table 1). A greater number of non-LC patients were competitive sports children. No difference for SARS-CoV-2 Ab were found. Cardiopulmonary evaluation was not significantly different between the two
subgroups.

Table 1. Characteristics of the study sample	
Total	273
Long Covid	195 (71.4)
Age (years) – mean (SD, range)	8.8 (4.6, 0.3 – 17.7)
Sex (male) – no. (%)	142 (52.4)
Caucasian ethnicity – no. (%)	262 (96.0)
Comorbidities – no. (%)	132 (48.4)
- Allergy and/or asthma	61 (22.3)
- NPI disorder	28 (10.3)
- Obesity	10 (3.7)
- Headache	9 (3.3)
Sport – no. (%)	143 (52.4)
- Competitive sport	16 (5.9)
Symptoms – no. (%)	
- Fatigue	94 (34.4)
after exercise	8 (8.5)
- Cough	51 (18.7)
- Headache	40 (14.7)
- Dyspnea	19 (7.0)
after exercise	13 (68.4)
- Myalgia	14 (5.1)
- Sleep disturbances	12 (4.4)
- Chest pain	11 (4.0)
- Fever	11 (4.0)
- Impaired concentration	11 (4.0)
- Arthralgia	10 (3.7)
New symptoms after negative test – no. (%)	125 (45.8)
Persistence of symptoms after negative test – no. (%)	95 (34.8)
SARS-CoV-2 vaccination – no. (%)	58 (21.2)
White blood cells (cells/mcl) – mean (SD, range)	6798 (2157, 2760 – 17149)
Neutrophils (cells/mcl) – mean (SD, range)	3150 (1353, 350 – 9020)
Lymphocytes (cells/mcl) – mean (SD, range)	2792 (1283, 340 – 9370)
Hemoglobin (g/dl) – mean (SD, range)	13.3 (1.0, 10.5 – 17.9)
Platelets (10*3 cells/mcl) – mean (SD, range)	298 (849, 138 – 671)
LDH (U/L) – mean (SD, range)	225 (50, 13 – 433)
ALT (U/L) – median (IQR, range)	14 (6, 3 – 163)
AST (U/L) – median (IQR, range)	24 (9, 6 – 81)
Creatinine (mg/dl) – mean (SD, range)	0.5 (0.2, 0.2 – 1.0)
Azotemia (mg/dl) – mean (SD, range)	13 (3, 4 – 23)
CPK (U/L) – median (IQR, range)	108 (57, 32 – 67)
CRP (mg/dl) – median (IQR, range)	0.03 (0.1, 0.03 – 6.4)
hsTnT (pg/ml) – median (IQR, range)	3 (1, 3 – 40)
NT-proBNP (pg/ml) – median (IQR, range)	49 (62, 5 – 273)
Ferritin (ng/ml) – median (IQR, range)	30 (21, 6 – 283)
Positive anti-N antibodies – no. (%)	264 (96.7)
Anti-S antibodies (BAU/mL) – median (IQR, range)	196 (980, 0.8 – 5000)
Pathological findings	12 (4.4)
Electrocardiogram – no. (%)	6 (2.2)
Spirometry – no. (%)	112 (41.0)
Lung ultrasound – no. (%)	

Table 2. Comparison of LC and not LC patients			
	LC	non-LC	p-value
Total	195	78	
Age (years) – mean (SD, range)	9.2 (4.4, 0.5 – 17.7)	7.6 (4.8, 0.3 – 17.5)	0.008
Sex (male) – no. (%)	104 (53.3)	39 (50.0)	0.618
Caucasian ethnicity – no. (%)	188 (96.4)	74 (94.9)	0.559
Comorbidities – no. (%)	98 (50.3)	34 (43.6)	0.319
- Allergy and/or asthma	47 (24.1)	14 (17.9)	0.270
- NPI disorder	22 (11.3)	6 (7.7)	0.377
- Obesity	9 (4.6)	1 (1.3)	0.185
- Headache	8 (4.6)	1 (1.3)	0.238
Sport – no. (%)	106 (54.4)	37 (47.4)	0.771
- Competitive sport	10 (9.4)	6 (16.2)	0.001
Symptomatic at 1° swab – no. (%)	188 (96.4)	67 (85.9)	<0.001
Admission – no. (%)	4 (2.1)	8 (10.3)	0.003
SARS-CoV-2 vaccination – no. (%)	51 (26.2)	7 (9.0)	0.020
White blood cells (cells/mcl) – mean (SD, range)	6774 (2113, 2760 – 15190)	6859 (2279, 2900 – 17140)	0.773
Neutrophils (cells/mcl) – mean (SD, range)	3212 (1369, 1240 – 9020)	2993 (1325, 350 – 7800)	0.232
Lymphocytes (cells/mcl) – mean (SD, range)	2697 (1170, 840 – 9370)	3034 (1512, 1120 – 8800)	0.051
Hemoglobin (g/dl) – mean (SD, range)	13.3 (0.9, 10.5 – 16.1)	13.3 (1.3, 10.6 – 17.9)	0.707
Platelets (10*3 cells/mcl) – mean (SD, range)	295 (281, 142 – 671)	305 (91.7, 138 – 594)	0.396
LDH (U/L) – mean (SD, range)	220 (49, 13 – 433)	239 (51, 107 – 429)	0.002
ALT (U/L) – median (IQR, range)	14 (7, 3 – 168)	15 (6, 9 – 42)	0.067
AST (U/L) – median (IQR, range)	23 (9, 11 – 81)	27 (10, 6 – 48)	<0.001
Creatinine (mg/dl) – mean (SD, range)	0.5 (0.2, 0.2 – 1.0)	0.4 (0.2, 0.2 – 1.0)	0.045
Azotemia (mg/dl) – mean (SD, range)	13 (3, 5 – 23)	13 (3, 4 – 21)	0.854
CPK (U/L) – median (IQR, range)	103 (55, 32 – 673)	121 (64, 41 – 411)	0.006
CRP (mg/dl) – median (IQR, range)	0.03 (0.1, 0.03 – 6.4)	0.03 (0.1 (0.03 – 1.6)	0.030
hsTnT (pg/ml) – median (IQR, range)	3 (1, 3 – 29)	3 (3, 3 – 40)	0.060
NT-proBNP (pg/ml) – median (IQR, range)	42 (55, 5 – 262)	64 (53, 7 – 278)	0.038
Ferritin (ng/ml) – median (IQR, range)	42 (29, 6 – 256)	37 (33, 6 – 283)	0.347
Pathological findings			0.679
Electrocardiogram – no. (%)	8 (4.1)	4 (5.1)	0.155
Spirometry – no. (%)	6 (3.1)	0 (0)	0.993
Lung ultrasound – no. (%)	81 (41.5)	31 (39.7)	

Conclusions/Learning Points: Our data suggest that patients with LC, despite the persistent or appearance of symptoms after the negativization, did not showed either cardiopulmonary anomalies or immunology alteration. This discrepancy might support the need of high quality studies to better understand the pathogenesis of LC in order to avoid the over diagnosis and mislabel of some pediatric patients.

PV1017 / #1591

USE OF REMDESIVIR IN CHILDREN WITH COVID-19: REPORT OF AN ITALIAN MULTICENTER STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Use of Remdesivir in children with COVID-19: report of an Italian multicenter study
Background: COVID-19 is generally milder in children than in adults, however severe infection has been described. Data on use of Remdesivir (RDV) in children are still limited. We report a multicenter study to investigate the safety of RDV in children affected by COVID-19.
Case Presentation Summary: Fifty children were included, with a median age of 12.8 years. Many patients had at least one comorbidity (78%), mostly obesity. Symptoms were fever (88%), cough (74%) and dyspnea (68%). Most patients were diagnosed with pneumonia of either viral and/or bacterial etiology. Blood test showed leukopenia in 66% and increased C-reactive protein (CRP) levels in 63% of cases. Thirty-six patients received RDV for 5 days, nine patients up to 10 days. Most children who received RDV longer were admitted to the PICU (67%). Treatment with RDV was well tolerated with rare side effects (Table 1): bradycardia was recorded in 6% of cases. A mild elevation of transaminases was observed in 26% of cases, however for the 8%, it was still detected before the RDV administration. Patients who received RDV for more than 5 days waited longer for its administration after pneumonia diagnosis. The presence of comorbidities and the duration of O2 administration significantly correlated with the duration of RDV
therapy.

Table_ RDV administration, safety measures

RDV administration	
Dose of RDV	
Duration of therapy (days) - median ± IQR (range)	4 ± 1 (1 - 10)
≤ 5 days - no. (%)	32 (78)
> 5 days - no. (%)	9 (22)
Time from symptoms onset to administration (days) - median ± IQR	6 ± 3 (0 - 15)
(range)	2 ± 2 (0 - 8)
Time from pneumonia to administration (days) - median ± IQR (range)	
Safety evaluation of RDV administration	
AST (U/L, max value) - median ± IQR (range)	43 ± 47.3 (19 - 164)
ALT (U/L, max value) - median ± IQR (range)	54 ± 108 (6 - 350)
Creatinine (mg/dl, max value) - median ± IQR (range)	0.6 ± 0.4 (0.1 - 0.9)
eGFR (ml/min, max value)* - median ± IQR (range)	120 ± 91 (79 - 236)
Ipertransaminasemia - no. (%)	14 (44)
Bradicardia - no. (%)	2 (4)
Rash - no. (%)	3 (6)
Renal insufficiency (according to eGFR) - no. (%)	0 (0)

Learning Points/Discussion: Our experience indicates that RDV against SARS-CoV-2 is safe and well-tolerated in pediatric populations at high risk of developing severe COVID-19. Our data suggest that delaying RDV therapy after diagnosis of pneumonia may be associated with a longer duration of antiviral therapy, especially in patients with comorbidities.

PV1018 / #259

EFFECTIVENESS OF BNT162B2 AND CORONAVAC IN CHILDREN AND ADOLESCENTS AGAINST SARS-COV-2 INFECTION DURING OMICRON BA.2 WAVE IN HONG KONG

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The SARS-CoV-2 Omicron BA.2 subvariant replaced BA.1 globally in early 2022, and caused an unprecedented tsunami of cases in Hong Kong, resulting in the collapse of elimination strategy. Vaccine effectiveness (VE) of BNT162b2 and CoronaVac against BA.2 is unclear.
Methods: We utilize an ecological design incorporating population-level vaccine coverage statistics and territory-wide case-level SARS-CoV-2 infection surveillance data, and investigate the VE against infection during the Omicron BA.2 wave between January 1 to April 19, 2022, in Hong Kong for children and adolescents.
Results: We estimate VE to be 33.0% for 1 dose of BNT162b2 in children aged 5-11 and 40.8% for 2 doses of CoronaVac in children aged 3-11. We also estimate 54.9% VE for 2 doses of BNT162b2, and 55.0% VE for 2 doses of CoronaVac in adolescents aged 12-18.
Conclusions/Learning Points: Our findings support preserved VE against infection by variants of concerns for children and adolescents in settings with extremely low levels of prior SARS-CoV-2 circulation.

PV1019 / #909

MIS-C IN A RECENT ONSET OF DIABETES MELLITUS TYPE 1

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: MIS-C in a recent onset of diabetes mellitus type 1
Background: Multisystem inflammatory syndrome in children (MIS-C) is a rare but severe clinical entity characterized by a dysregulated response of the immune system, that can occur 2-6 weeks after SARS-CoV-2 infection.
Case Presentation Summary: C.C., a 7-year-old male, presented with onset of type 1 diabetes (T1D) without ketoacidosis and with low insulin requirement in September 2022 during paucisymptomatic SARS-CoV-2 infection. Approximately three weeks after, C.C. came to our emergency department because of 4-day fever and conjunctivitis. Blood tests showed neutrophilia (8164/mmc), lymphocytopenia (860/mmc), increased inflammatory markers (C-reactive protein 197 mg/l, nv <10 mg/l; erythrocyte sedimentation rate 28 mm/h), fibrinogen 700 g/l, D-dimer 2351 mcg/l, TroponinT 62 ng/l, proBNP 3511 ng/l, IL-6 1098 pg/ml. MIS-C was suspected. Echocardiography showed globular left ventricle, lower wall hypokinesis and septum with dyskinetic appearance, reduced ejection fraction (42%), mitral and tricuspid insufficiency, dilated inferior vena cava and right atrium. Immediately we started intravenous immunoglobulin and steroid therapy, furosemide and intravenous adrenaline. Contextually, glycemic profile showed severe persistent hyperglycemia, with progressive increase in insulin requirements (from 0.2 up to 1 U/kg/day). Serial cardiological evaluations were performed, showing biventricular function normalization and good cardiovascular balance; blood tests showed negativization of inflammatory markers, with normalization of cardiac function values in 10 days. Besides, glycemic profile required a longer time to correct, likely due to steroid therapy. Eventually, 20 days after hospital admission, C.C. reached euglycemic values. Three months after, insulin requirement is 0.5 U/kg/day.
Learning Points/Discussion: We describe a case confirming how MIS-C prompt treatment with high dose anti-inflammatory therapy is essential for achieving better outcomes. However, in some cases this may provoke severe metabolic derangement in patients with comorbidities such as T1D.

PV1020 / #1427

PREVALENCE OF SARS-COV-2 ANTIBODIES AMONG HEALTHCARE PROFESSIONALS AT A HOSPITAL IN SÃO PAULO

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: This study aimed to compare seroprevalence and antibody titers to SARS-CoV-2 between professionals who had a previous Covid-19 history and those who did not, and the different vaccines applied.
Methods: A cross-sectional descriptive study was carried out through anonymous questionnaires and collection of Neutralizing Antibodies (VNT) to the Wuhan variant of SARS-CoV-2.
Results: A total of 117 professionals participated in the study. Before vaccination, 56 had a confirmed diagnosis of Covid-19. All participants were vaccinated: 27 with two doses of Oxford/AstraZeneca, 88 with two doses of CoronaVac, 1 with a dose of Janssen and 1 with two doses of Pfizer. After vaccination, 10 participants had a confirmed diagnosis of Covid-19 by PCR.
Conclusions/Learning Points: Our study showed that previous Covid-19 infection is related to greater positivity of VNT (p=0.0028). This was ratified when analyzing the participants who received the two doses of CoronaVac (p=0.013). However, this was not ratified in participants who received the two dose AstraZeneca (p=0.7). Professionals who received AstraZeneca had higher positivity (88.9%) compared to CoronaVac (68.2%), confirming the greater immunogenicity of the vaccine. The mean antibody titers of patients who had a history of previous SARS-Cov-2 infection and were vaccinated with the AstraZeneca vaccine was 3.79 times higher than the same group with a history of infection and vaccinated with the CoronaVac vaccine. When comparing the groups that had no history of previous infection, participants who received the vaccine CoronaVac had mean antibody titers 1.38 times higher than the group that received the AstraZeneca vaccine. All 70 participants who received the complete vaccination schedule and the booster dose with Pfizer showed VNT for SARS-CoV-2.

PV1021 / #1428

THE PREVALENCE OF REINFECTION BY SARS-COV2 VIRUS AMONGST HEALTHCARE WORKERS FROM SANTA CASA DE SÃO PAULO

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The COVID 19 most commonly affects young adults leading to a mild illness marked by anosmia. In light of the failure to produce a fool proof therapy to alleviate the symptoms that COVID can cause, the natural history of the virus was only hindered by the development of the vaccines. After several countries reported numerous COVID waves following the initial one, it's been put into question whether the other waves happen due to a "viral resurgence" after an inappropriate viral clearance or due to reinfections
Methods: Through Google forms, 65 healthcare workers that had already had at least one previous SARS-CoV2 infection anonmiously informed how many times they've had COVID, when they had COVID so that the team could infere what was the COVID variant more common when the infection took place and what and how many vaccines they got.
Results: Out of the 65 patients invited to join the study, only 62 replied to all the questions, so this study considers a total of 62 patients.
Out of the 62 patients, 8 (12,9%) of them reported reinfection. When the number of patients that reported reinfections was analysed as to what vaccines they got, 5 (62,5%) got two initial doses of Sinovac-Coronavac whilst 3 got the AstraZeneca-Oxford.
Conclusions/Learning Points: Even though the patients that got COVID 19 still got reinfected the most, Sinovac-Coronavac continues being pivotal in the pandemic, because although it doesn't stop the actual infection, it has led to a better clinical outcome, lowering the death rates due to SARS-CoV2 infection.

PV1022 / #2669

CASE REPORT OF A SELF-LIMITED PEDIATRIC INFLAMMATORY MULTISYSTEM SYNDROME TEMPORALLY ASSOCIATED WITH A SARS-COV-2 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Case report of a self-limited Pediatric Inflammatory Multisystem Syndrome Temporally associated with a SARS-CoV-2 Infection
Background: Pediatric Inflammatory Multisystem Syndrome temporally associated with COVID-19 (PIMS-Ts) is a rare condition that occurs weeks after the infection and causes multiorgan dysfunction. The authors report a case of PIMS-Ts that was successfully managed only with supportive therapy.
Case Presentation Summary: A three-year-old boy, previously healthy, with a COVID-19 infection five months before, came to the Emergency Department with a two-day-fever, prostration, abundant diarrhea, vomiting, and total food refusal. On physical examination, he was prostrated, with dehydration signs, and an unspecific rash. He became hypotensive, tachycardic, and oliguric, responsive to fluid boluses. Blood samples showed lymphopenia, hyponatremia, hypoalbuminemia, and increased urea, creatinine, transaminases, lactate dehydrogenase, C-reactive protein, procalcitonin, ferritin, prothrombin time, fibrinogen, d-dimer, and BNP. Blood, urine, stool, and cerebrospinal fluid cultures and a nasal viral panel were negative. He was hospitalized with intravenous fluids and antibiotics. Afterwards, a positive SARS-CoV-2 IgG (2628AU/mL), established the diagnosis of PIMs-Ts with an undefined inflammatory presentation. During hospitalization, he had transient conjunctival hyperemia and a progressive clinical improvement, with normalization of hepatic, renal, and cardiac function. He was discharged after six days, asymptomatic. Since then, it was maintained an uneventful follow-up.
Learning Points/Discussion: This patient met all PIMS-Ts diagnostic criteria, such as age, clinical presentation, laboratory findings, and evidence of a prior SARS-CoV-2 infection, without other identified causes. Usually, the treatment relies on immunomodulators (immunoglobulin, methylprednisolone, biological drugs), and antiplatelet agents. Despite this, in this patient, no immunomodulators were used and there was a full recovery only with support measures. We highlight the possibility of diagnosing PIMS-TS with an undefined inflammatory presentation, characterized by self-limited course and improvement without an immunomodulatory approach, overlapping with recent literature.

PV1023 / #2045

PSYCHOSOCIAL IMPACT AND COPING STRATEGIES OF THE COVID-19 PANDEMIC AMONG SCHOOL AGE CHILDREN IN JORDAN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Millions of people's health and lives worldwide have been jeopardized by the coronavirus disease 2019 (COVID-19) pandemic. Although children's physical health is less harmed by the disease, their psychosocial health is not. Children are dealing with many stressors resulted from COVID-19 and quarantine and their perception of risk and stress may differ than adult that expose them to many psychosocial problems.
This study aims to examine the psychosocial impact of the COVID-19 pandemic on Jordanian primary school age children and explore their coping strategies to alleviate this impact.
Methods: A descriptive cross sectional was followed to assess the psychosocial impacts of COVID-19 among Jordanian school age children (6-12 years) and their coping strategies. The data were collected electronically from a convenient sample of 200 children through google form (permission was required from their parents, and some help in filling the questionnaire). The online questionnaire composed from two main parts: the first one was the demographic sheet. The second was the instrument that measured the psychosocial impacts of COVID-19 and coping strategies.
Results: The results revealed that staying at home by force leads to negative physical, social and psychological effects among school age children such as anxiety, stress, and depression. These problems mainly related to losing opportunities for play, physical contact and physical education. Therefore children felt confused and at loss with the current situation, leading to frustration and anxiety, which will only increase with the over exposure to mass and social media.
Conclusions/Learning Points: The results of this study will aid in the development of effective educational training program and targeted interventions to alleviate the impacts of COVID-19 pandemic among school age children, and to reduce the risk of future psychosocial problems during similar crisis.

PV1024 / #1293

THE RELATIONSHIP BETWEEN ELEVATED LIVER ENZYMES AND THE SEVERITY OF LUNG INVOLVEMENT IN CHILDREN WITH COVID-19 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The aim of this study is identifying the frequency of elevated liver enzymes in children with covid-19 and investigating the type and severity of lung involvement in chest CT scan in order to identify any relationship between abnormal liver enzymes and the severity of lung involvement based on imaging findings.
Methods: All patients one month to 18 years of age referred to Hazrat Ali Asghar Children's Hospital from March 2020 to the end of September 2022, who were infected with Covid-19 were enrolled in a descriptive-cross-sectional study. Normal laboratory values for AST and ALT was 8-33 U/L and 10-40 U/L respectively. Mild, moderate and severe levels for ALT were 40-200 U/L, 200-800 U/L, and more than 800 U/L respectively.
Results: The present study was conducted on 319 patients. Out of 319 patients, 185(58%) cases were male and 134(42%)patients were female. There was no case of clinical hepatitis during this study. Based on ALT, 263(82.5%) cases had normal ALT while 56 (17.5%)patients had subclinical hepatitis [51(16%) mild, 4(1.2%) moderate. and 1(0.3%) severe]. All patients had improvement in AST and ALT during treatment. Chest CT scan was performed in 192 (60.18 %) cases. A normal CT scan was reported in 110 patients (57.3%) while 47(24.5%),22(11.5%)and 9(4.7%)cases had mild, moderate and severe pulmonary involvement. Totally, 4 (2%) cases had pleural effusion. Based on type of involvement, 27(14%), 37(19.3%) and 18(9.4%) cases had typical, indeterminate and atypical presentation in the chest CT. There was no significant relationship between changes in liver enzymes and severity of lung involvement based on imaging findings.
Conclusions/Learning Points: It seems that liver enzyme value cannot predict the severity of lung involvement in pediatric covid 19 cases.

PV1025 / #1863

SAFETY AND IMMUNOGENICITY OF A SARS-COV-2 BOOSTER (MRNA-1273) IN CHILDREN AGED 6 MONTHS TO 11 YEARS FROM THE PHASE 2/3 KIDCOVE STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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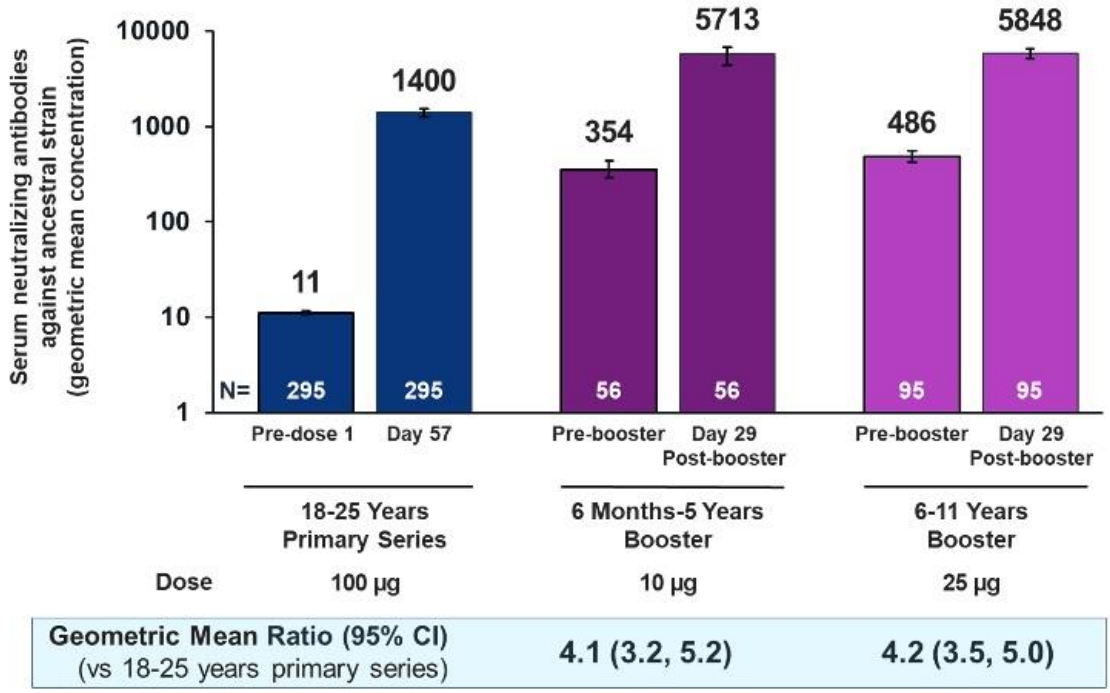
Backgrounds: Among children aged 6 months-11 years, a 2-dose primary series of an mRNA-based SARS-CoV-2 vaccine (mRNA-1273) was well-tolerated and immunogenic in the phase 2/3 KidCOVE study (NCT04796896). We present data from KidCOVE participants who received an mRNA-1273 booster dose.
Methods: Safety and immunogenicity against SARS-CoV-2 were assessed in participants who received a booster dose of mRNA-1273 (10 µg for 6 months-5 years of age; 25 µg for 6-11 years of age) administered ≥6 months after dose 2 of the primary series. Non-inferiority of booster immune responses against ancestral SARS-CoV-2 in children (Day 29) to those after primary series dose 2 (Day 57) in young adults aged 18-25 years was evaluated in participants without prior SARS-CoV-2 infection.
Results: 145 children younger than 6 years and 1294 children aged 6-11 years received a booster dose. No new safety concerns were identified. Pain was the most common solicited local adverse reaction (AR); irritability/crying and fatigue were the most frequent systemic ARs among those aged <36 months and 37 months-11 years, respectively. A booster dose elicited high serum neutralizing antibodies against ancestral SARS-CoV-2 at Day 29 (Figure); a similar effect was observed in participants with prior SARS-CoV-2 infection. Booster immune responses in pediatric age groups were non-inferior to those observed in young adults aged 18-25 years after completing an mRNA-1273 primary series.

Figure. Serum neutralizing antibodies against SARS-CoV-2



Per-protocol immunogenicity population included participants with pre-dose 1 negative status for SARS-CoV-2 (young adults aged 18-25 years; COVE trial) or participants with pre-booster negative status for SARS-CoV-2 (children aged 6 months to 11 years; KidCOVE trial). Non-inferiority was declared when (1) the lower bound of the 95% CI of the geometric mean ratio (geometric mean concentration [GMC] post-booster Day 29 [children] over GMC post-dose 2 Day 57 [young adults]) was >0.667 (or >1/1.5) and (2) the lower bound of the 95% CI of the seroresponse rate difference between age groups was >-10%.

Conclusions/Learning Points: An mRNA-1273 booster dose raised no new safety concerns and effectively boosted serum neutralizing antibodies against ancestral SARS-CoV-2 in children aged 6 months-11 years. Neutralizing titers were non-inferior to those in young adults after the primary series. These data support the administration of a SARS-CoV-2 booster vaccine to children aged 6 months-11 years regardless of prior SARS-CoV-2 infection.

PV1026 / #1513

SWISSPED RECOVERY TRIAL – DESCRIPTION AND INTERPRETATION OF INTERCURRENT EVENTS IN AN OPEN-LABEL RANDOMISED TRIAL

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Swissped RECOVERY is an open-label randomised trial comparing iv methylprednisolone 10 mg/kg 3 days and IVIG 2 g/kg single dose for PIMS-TS. Given the pragmatic nature, the expected occurrence of post-randomisation treatment modifications, i.e., intercurrent events (ICEs), was high.
Methods: Patients from the cohort with one or more ICE were considered and characteristics reviewed in relation to the whole cohort. The blinded endpoint review committee (BERC) consisted of four international PIMS-TS experts. The primary objective of the BERC was to adjudicate the chronologically first ICEs based on blinded case vignettes with two key questions a) disease classification and b) likelyhood of clinical indication: i) definitely (>80%), ii) probably (51-80%, iii) unlikely (21-50%), iv) no (< 21%).
Results: Between May 2021 and April 2022 75 patients were recruited. In 41 patients ICEs were observed; 24/37 (64.9%) in the iv methylprednisolone compared to 17/38 (44.7%) in the IVIG arm (most commonly oral corticosteroids). Baseline characteristics associated with ICEs were inotropic support 19/41 vs 6/34, p=0.017; more severe lymphocytopaenia (*10^9/L) 0.66 [0.47, 1.03] vs 1.00 [0.64, 1.42], p=0.041; and thrombocytopaenia (*10^9/L) 127 [100, 166] vs 180 [142, 261], p=0.004. According to the BERC, in 14/41 (34.1%) patients, rescue treatment was clinically not indicated (unlikely, no), corresponding to 11/24 of patients in the iv methylprednisolone and 3/17 in the IVIG arm.
Conclusions/Learning Points: In patients at the severe end of the clinical spectrum clinicians are more likely to add immunomodulatory treatment. Working in adherence to local guidelines (e.g. tapering corticosteroids) might lead clinicians to abandon trial protocol. An RCT for an emerging disease requires a pragmatic approach, e.g. an open-label setting. To improve understanding of the data and to identify factors that potentially lead to ICEs a BERC can be considered.

PV1027 / #2201

TIXAGEVIMAB–CILGAVIMAB PROPHYLAXIS IN A 3-YEARS OLD CHILD WITH SEVERE APLASTIC ANEMIA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: TIXAGEVIMAB–CILGAVIMAB PROPHYLAXIS IN A 3-YEARS OLD CHILD WITH SEVERE APLASTIC ANEMIA
Background: SARS-CoV-2 infection represents an extremely harmful complication of children affected by severe hematologic diseases or malignancies. Neutralizing antibodies may offer a chance for both treatment and prevention of infection and disease manifestations. Among these, the combination of the two two Fc-modified human monoclonal antibodies Tixagevimab–Cilgavimab has been proposed for prophylaxis in patients with Immunocompromising Conditions or not eligible for COVID-19 vaccinations. Unfortunately, the combination is only licensed for patients ≥ 12 years old.
Case Presentation Summary: Here we report on a 3-years old child affected with severe aplastic anemia that was successfully treated with Tixagevimab–cilgavimab after exposure to SARS-Cov-2. The index patient is a 3-years old female child of African ethnicity diagnosed with severe aplastic anemia. The patient had not been vaccinated against SARS-CoV-2. According to the severity of the disease the patient was candidate for bone marrow transplantation (BMT) and was admitted to our Unit and in order to perform pre-BMT examinations. At the time of the admission a nasal swab performed both on the patient and on her mother (caregiver of the child) revealed a positivity of the latter, while the test performed on the patient ended up negative.After multidisciplinary discussion we decided to treat the child with a single dose of the combination Tixagevimab–cilgavimab as a post-exposure prophylaxis. We identified a dose of 100 mg as appropriate for the patient. The infusion was well tolerated with no acute or late adverse event reported. The patient did not showed a positivity for SARS-CoV-2 and remained always asymptomatic.
Learning Points/Discussion: Tixagevimab–cilgavimab is well tolerated in children and can ben a useful tool in the prophylaxis of SARS-Cov-2 infection.

PV1028 / #2269

PEDIATRIC LONG COVID ACROSS AGE GROUPS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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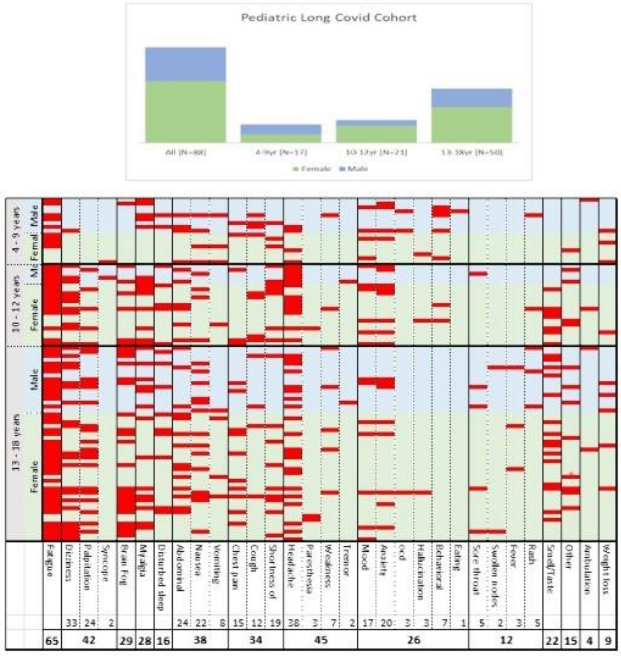
Title of Case: Pediatric Long Covid
Background: Pediatric infection with SARS-CoV-2 may cause long term sequalae and there is a need to describe this disease, allowing for standardized guidelines for diagnosis and management. The aim of this case series is to to describe the pathology observed in children with Long Covid.
Case Presentation Summary: We present the clinical disease observed in 88 children who were diagnosed with Long Covid at the University of minnesota pediatric Covid clinic. The series is composed of 57 females (assigned at birth) and 31 male, age 4 to 18 years. The majority of patients were teenagers (50 children older than 13yr). The most common symptoms identified were fatigue (65, 74%), followed by autonomic dysfunction (42, 48%), headache (38, 43%), gastrointestinal (38, 43%), respiratory (34, 38%), cognitive (29, 33%), pain (28, 32%), and psychiatric (26, 30%) symptoms. Persistent abnormalities in smell and taste were also common (22, 18%). Some of the symptoms had very different distribution based on age, particularly autonomic dysfunction (12% in ages 4-9yr / 56% in ages 10-18yr), cognitive dysfunction/brain fog (6% in 4-9yr / 40% in 10-18yr), Abnormal smell/taste (0% in 4-9yr / 25% in 10-18yr), and psychiatric symptoms (45% in 4-12yr / 18% in 13-18yr). Figure 1 summarized the demographic and symptoms of the cohort and the different age
groups.



Learning Points/Discussion: Children may develop persistent illness following SARS-CoV-2 infection that is reminiscent of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME.CFS). Fatigue, headache, gastrointestinal, and pulmonary symptoms as well as generalized pain, and sleep disturbances are common across age groups. Younger children are at risk for acute neuropsychiatric

syndrome, while teenagers are more commonly experiencing autonomic dysfunction and cognitive impairment. Prompt recognition is crucial and management should follow ME/CFS guidelines.

PV1029 / #469

ANTIBODY RESPONSE IN PREVIOUSLY NAÏVE CHILDREN AFTER PRIMARY SARS-COV-2 OMICRON VARIANT INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Antibody production after SARS-CoV-2 infection is essential for the prevention of re-infection. However, information regarding the antibody response in infection naïve and unvaccinated children after primary infection remains scarce.
Methods: Children under 18 years visiting National Cheng Kung University Hospital, Tainan, Taiwan due to COVID-19 and associated complications during the first wave of domestic outbreak (April – August 2022, mainly caused by Omicron BA.2 variant) were invited into this study. Anti-SARS-CoV-2 S (spike) IgM/IgG total antibody (Roche Elecsys), anti-SARS-CoV2 neutralization antibody titers (cPass, GeneScript) toward wildtype and variants were measured using serum collected one month after infection.
Results: One hundred thirty patients with a mean age of 3.4 years (from 0.3 ~13.6 years) were recruited. Most of the clinical diagnoses are upper respiratory tract infections. The anti-SARS-CoV-2 S antibody ranges from 0.4 IU/ml to 604.6 U/ml, and there is no significant difference between age groups. But the neutralizing antibody against Omicron BA.2 variant is higher in children aged 3 months- 2 years than those aged 5-12 years (inhibition: 51.9 ± 13.2% in 3 months-2 years, 32.2 ± 17.2% in 5-12 years, $p < 0.05$). These primary Omicron BA.2 infected children generated sub-optimal cross-reactive neutralizing antibodies against wildype (inhibition: 32.9±18.4%), Delta variant (16.1±20.6%), and Omicron BA.1 variant (37.4±19.6%). There are 87.5% of children failed to generate adequate neutralizing activity against Delta variant (inhibition < 30%), followed by 43.8% against wildtype and 40.6% against Omicron BA.1 variant.
Conclusions/Learning Points: Younger children generate higher neutralizing activity toward the infected SARS-CoV-2 variant than older children during the early phase post-infection. Primary infection-induced antibody in naïve children is not robust and does not provide sufficient cross-reactivity against other variants. Further vaccination is still warranted.

PV1030 / #1567

ADOLOSCENT WITH FEVER – THINK OUT OF THE BOX

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: ADOLOSCENT WITH FEVER – THINK OUT OF THE BOX
Background: Fever in an adolescent can be challenging situation .An adolescent with fever should be investigated for common tropical binfections . In situations where we dont get any diagnostic clue ,look beyond infections .
Case Presentation Summary: 11 years old girl came with rashes noticed over lower limbs, progressed to upper limbs. History of fever since 3 days with headache and myalgia. History of travel to Maldives,, treated empirically with hydrocortisone for 3 days. , child had continuous fever spikes with neck pain and conjunctival congestion for first 3 days child was worked up for infectious cause of fever and treated with IV Ceftriaxone . Iinvestigation showed a high CRP 154 mg /dl Blood culture showed no growth .work up for infectious cause of fever -dengue, Leptospira, scrub typhus was negative. Day 8, Echo - small aneurysm in LAD with dilatation of coronary artery (LMCA) Z score 3.9mm, LAD 3.9mm, RCA 3.3mm) repeat inflammatory markers, CRP - 174.98, procalcitonin - 0.098 ng/ml, Serum Ferritin- 454.2, NT pro BNP 664 pg./ml, Fibrinogen 696 2 LDH of 236. Provisionally diagnosed to have ATYPICAL KAWASAKI DISEASE vs MISC Child was started on IVIG at 2 g/kg over - 48hours with IV methyl prednisolone for 3 days . Child was afebrile for next 72 HOURS Investigation showed decreasing trend of inflammatory markers with - CRP 38 mg/ dl REPEAT ECHO no further worsening of aneurysm with same changes Discharged with aspirin 3 mg /Kg and regular plan to follow up.
Learning Points/Discussion: Think beyond infections in a child with persistent fever Empiric use of steroids in early in the course of fever without establishing the cause does more harm than good by masking the clinical picture.

PV1031 / #2187

CHARACTERISTICS AND RISK FACTORS OF POST-COVID CONDITIONS IN CHILDREN.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Post-COVID conditions (PCC) are an important recent public health concern. However, they are still a widely debated entity in adults and even more in the pediatric population.
Methods: This retrospective, observational study included all the children admitted to Regina Margherita Children's Hospital (Turin, Italy) with SARS-CoV-2 infection, from the beginning of the COVID-19 pandemic up to September 2022. Patients with recently diagnosed oncologic diseases and preexisting severe neurologic impairment were excluded. A subset of children underwent a close clinical follow-up; the remaining were followed up through questionnaires by phone calls. The primary aim was to investigate PCC epidemiology, and the second was to evaluate characteristics and risk factors.
Results: Overall 510 children were enrolled. Among these, 122 (23.9%) patients underwent periodic clinical assessments with a mean duration of follow-up of 8.28 months. 36.9% (45/122) had concomitant chronic diseases. At 3 months from COVID-19, 24 children (24/510, 4.7%) presented at least one symptom consistent with PCC: asthenia and easy fatigue (13), arthromyalgias (5), headache (3), residual respiratory distress (3), heart-pounding and chest pain (2). At 6 months 13 patients (2.5%) still complained of symptoms. No patient required a second hospital admission due to SARS-CoV-2 infection, including PCC. Children with PCC were significantly older than those without mean age of 10.04 years vs 6.97, respectively ($p < 0.01$). Sex, chronic diseases, moderate or complicated course of COVID-19, and ICU admission were not significantly associated with a higher risk of PCC.
Conclusions/Learning Points: In our cohort of hospitalized children, PCC was rare compared to the literature (Lopez-Leon et al. estimated a prevalence of 25.24%) and independent of infection severity. To recognize and improve PCC management early, finding a standardized definition is mandatory.

PV1032 / #1977

REMDESIVIR IN SARS-COV-2 PNEUMONIA IN CHILDREN: SINGLE-CENTER EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The role of Remdesivir in pediatric COVID-19 hospitalizations is still discussed. Recent evidence has shown it to be safe in children, allowing the expansion of indications to >4 weeks-old and >3 kilograms. We describe our experience using remdesivir in pediatric hospitalized patients.
Methods: Single-center, retrospective, descriptive study of pediatric patients (< 18 years-old) with COVID-19 admitted to a third level Pediatric Center in Portugal, treated with remdesivir, from May/2020 to December/2022. Demographic and clinical data were collected.
Results: 32 patients were included, 24 (75%) males, median age of 36 months [10-108]. Sixteen (50%) presented comorbidities, most frequently cardiac insufficiency/cardiomyopathy (n=4), asthma/recurrent wheezing (n=4), medullary aplasia (n=3), cerebral palsy (n=2) and obesity (n=2). Twenty-two (68,7%) were from late 2021/2022 and 10 (31,3%) from 2020/early 2021. Remdesivir treatment was initiated at a median 4 day [3,00-5,75] of disease onset. The most common indication was hypoxic pneumonia (n=26). Treatment duration was 5 days (n=27) or 10 days (n=5) and 19 (59,4%) were concomitantly treated with corticosteroids. The duration of admission had a median of 7,5 days [5,25-12,75]. Eight (25%) were admitted to pediatric ICU, 4 (12.5%) needed mechanical ventilation and 1 (3,1%) ECMO. Two patients died during acute illness (1 previously healthy, 1 cardiac insufficiency). Complications attributed to remdesivir occurred in 3 (9,4%) previously healthy patients (bradycardia (n=2), hepatitis (n=1)) and were self-limited.
Conclusions/Learning Points: Remdesivir is the only approved pediatric antiviral for SARS-CoV-2 infection, both in established severe disease and prophylaxis, appearing to be safe. In adults, if used early, it shows reduction in hospitalization risk and complications in high-risk groups. Large scale randomized controlled trials enrolling pediatric patients are still needed to measure the impact on disease progression/prevention.

PV1033 / #584

LONG TERM CARDIAC OUTCOMES IN A COHORT OF CHILDREN WITH MULTISYSTEM INFLAMMATORY SYNDROME IN MUMBAI, INDIA

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Long term cardiac outcomes in a cohort of children with Multisystem inflammatory syndrome in Mumbai, India
Background: MIS-C has emerged as one of the most dramatic consequences of COVID-19 in children. Data on long term cardiac outcomes of MIS-C is emerging.
Case Presentation Summary: All children diagnosed with MIS-C at our centre in 2020 and 2021 were included. The diagnosis and treatment was as per standard guidelines. All patients underwent ECHO at baseline and 48 hours, 2 weeks, 4-6 weeks and then every 3-6 months till normal. The patients were followed up till December 2022. A total of 27 patients were diagnosed with MIS-C (10 &17 in 2020 and 2021 respectively) with ages between 1-17 years (mean 7 years). Fifteen had a Kawasaki disease phenotype while 12 had a toxic shock phenotype. Twenty one patients were treated with IVIG and steroids while eight with only steroids. The baseline ECHO was abnormal in 15 (55%) patients. While 30% patients in 2020 had abnormal ECHO, it was 70% in 2021. The ECHO abnormalities included reduced ejection fraction in 10, coronary artery dilatation (Z score > 2) in 7 while 3 had both reduced ejection fraction (REF) and coronary artery dilatation. The lowest EF was 35% and the z score ranged from 2-2.5. The EF normalized at 2 weeks in 5 patients and at 3, 6, 12 and 18 months in 1 each. Only 1 patient had abnormal myocardial function as low voltage QRS complex at 18 months. The coronary artery dilatation resolved by 2 weeks in 4 patients and by 6 weeks, 3 and 12 months in 1 each.
Learning Points/Discussion: MIS-C appeared to be more severe following the delta wave in India. The long term cardiac outcomes of MIS-C are excellent.

PV1034 / #1012

THE SAFETY AND TOLERABILITY OF REMDESIVIR IN INFANTS AND CHILDREN WITH COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: The safety and tolerability of remdesivir in neonates, infants and children with COVID-19
Background: COVID-19 is generally associated with mild illness in children and symptomatic therapy is all that is required. Antiviral therapy is indicated in children with COVID-19 pneumonia or those with risk factors for disease progression. Remdesivir and monoclonal antibodies are the only approved anti virals for children. There is limited data on the safety, tolerability of remdesivir in neonates, infants and children
Case Presentation Summary: This retrospective study included all children below 18 years who received remdesivir for treatment of COVID-19 infection at our centre from 2020-2022. Information regarding demographics, indications, adverse effects and outcomes was abstracted and analysed. A total of 21 children with age ranging from 1 month to 18 years (mean age 8 years) were included in the study. The indications were moderate COVID-19 pneumonia in 4 previously healthy children, neonates with COVID-19 pneumonia post cardiac surgery (2), mild COVID-19 infection in a) hematologic stem cell transplant recipients (5 patients), b) hematologic malignancy on chemotherapy (5 patients), c) neonate with complex congenital heart disease (1) and finally 4 patients with CT evidence of pneumonia. The treatment was well tolerated in all except 1 patient where therapy was interrupted due to elevation of liver enzymes. The patients with moderate pneumonia improved completely. None of the cancer chemotherapy/ stem cell transplant recipients had progression of COVID-19 disease. Two neonates who were diagnosed with COVID-19 infection following congenital heart surgery died due to progressive cardiorespiratory failure but causal relationship with COVID-19 could not be established.
Learning Points/Discussion: Remdesivir is safe and well tolerated in children. The absence of a control group precludes interpretation of its efficacy in our cohort.

PV1035 / #1100

PARENTAL ATTITUDES TOWARDS COVID-19 VACCINATION FOR CHILDREN: RESULTS FROM A NATIONWIDE SAMPLE IN GREECE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: To estimate the association between parents' intention to vaccinate against COVID-19 and child and parental characteristics and parental attitudes associated towards COVID-19 vaccination.
Methods: We conducted a random, nationwide questionnaire-based cross-sectional survey from October to December 2022 in Greece and included parents with at least one child under 17 years old.
Results: Overall, 497 parents completed the survey (97.1% - 497/512). Of those, 243 (48.9%) had not or did not intent to vaccinate their children against COVID-19, 188 (37.8%) had or intended to vaccinated them, and 66 (13.3%) were uncertain. Among parents with definitive views on children's COVID-19 vaccination (n=431), the majority of parents were females, aged 40 to 54 years, with college education, employed and married, and had one or two children under the age of 18. About 65% of these parents were vaccinated against COVID-19 but had not received a booster, and more than half (56.8%) supported vaccination mandates for adults. Among parents with children < 5years, around 20% intended to vaccinate their children against COVID-19, while among those with children > 5 years about half (47.3%) had already or intended to vaccinate them against COVID-19. The most common reasons against vaccination were fear of side effects (32.9%), short length of clinical trials (29.2%), and the child already having had COVID-19 in the past (12.0%). Stratified analyses by the two children age groups (<5 and 5-17) yielded similar estimates. Among parents who had not or did not intend to vaccinate their children, about 10% would do so if recommended by a pediatrician.
Conclusions/Learning Points: Our findings highlight the need to incentivize healthcare professionals and pediatricians in particular to inform parents about vaccines, clarify misconceptions and address concerns.

PV1036 / #1318

RELATIONSHIP OF AGE OF MISC PEDIATRIC PATIENTS' WITH PICU ADMISSION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem Inflammatory Syndrome in Children (MIS-C) is characterized by overwhelming systemic inflammation, fever, hypotension, and cardiac dysfunction. SARS-CoV-2-associated disorder starts at 2-6 weeks after SARS-CoV-2 infection. Our aim was to investigate MIS-C cases and compare children admitted to ward versus pediatric intensive care unit (PICU).
Methods: We conducted a retrospective data analysis. All pediatric patients diagnosed with MIS-C were included into the study. We recorded patient's demographic, COVID data,complaints, symptoms, lab records, and length of stay (LOS). Data were analyzed with SPSS 28.0; p-value <0.05 was considered significant.
Results: In total, 43 patients' data were included. The mean age-8 years. Only seven children were identified as positive for COVID infection (majority-lack of data). 46.5% had contact with COVID-19. 21 patients were admitted to PICU. The majority PICU patients complained of gastrointestinal symptoms (abdominal pain, diarrhea, vomiting); 15 children had rash, and 12 presented with conjunctivitis. As expected, the total LOS admitted to PICU was longer compared to those treated in the ward and (13.1+/-5.5 vs 9.1+/-5.4 (p=0.009). None of the complaints or symptoms, except for signs of shock, were associated with PICU admission. MIS-C severity score did not differ between admitted to PICU or ward. However, age was linked to PICU admission (mean age for admitted children 9.6+/-4.3 vs 6.8+/-3.5y; p=0.012). All pediatric patients received same MIS-C-specific diagnostic tests and none of them were associated with admission to the PICU.
Conclusions/Learning Points: In total, 43 children were diagnosed and treated for COVID-19-associated MIS-C, with half of them admitted to PICU with a longer total LOS. Older children were more likely to be admitted to PICU.

PV1037 / #1356

LONG COVID SYNDROME IN CHILDREN: A CONTINUOUS FOLLOW-UP PROGRAM

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Children who have contracted COVID are at risk of experiencing a variety of long-lasting symptoms collectively known as prolonged COVID syndrome. According to world data, about 30% of children infected with SARS-CoV-2 will experience certain symptoms. In this study, we aimed to create a continuous follow-up program for children after COVID infection. Moreover, our aim was to improve long-term periodic communication with the patient's parents to discuss her/his condition and timely recognize the signs of prolonged COVID. In addition, provide individualized assistance, monitoring of the patient and symptoms, assessment of the persistence of symptoms, and provide specific treatment.
Methods: Continuous follow-up program in the frame of a prospective observational study was created and is conducted in our hospital. The program started in March 2022. Criteria for the inclusion: 1 month up to 18 years of age, diagnosed with COVID-19, or have been diagnosed with MIS-C syndrome according to the clinical criteria. After the inclusion, in a period of one year, 5 medical assessments of the state of health are planned to be carried out. In case of specific symptoms, a patient is referred to a specialist.
Results: Currently, ~40 children with their caregivers are included into the program. The median age for inclusion – 9y, 42%-female. Nine children required additional consultation with a pediatric neurologist with the most frequent complaint of headaches. 4 children have ongoing consultations with a psychiatrist and continuous visits are planned. Six children were referred to a pediatric rheumatologist complaining of prolonged joint aches and the assessment regarding autoimmune diseases is ongoing.
Conclusions/Learning Points: Our further plans are to collect more data and analyze the symptoms and signs according to age and gender.

PV1038 / #1156

SARS-COV-2 MRNA VACCINE ANTIBODY RESPONSE IN CHILDREN WITH DOWN SYNDROME

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Down syndrome (DS) leads to alterations in the immune system. Previously, we found that adults with DS have a lower antibody response to routine SARS-CoV-2 mRNA vaccination compared to healthy controls (HC). In this study, we attempted to translate this finding prospectively to children in the PRIDE study.
Methods: Antibody concentrations were measured at baseline (T=1), 21-28 days after first vaccination (T=2) and 28 days (21-42 range) after second vaccination (T=3) by multiplex immunoassay in 5-17 year old children with DS and HC. Previous SARS-CoV-2 exposure was defined by the presence of antibodies against the N protein.
Results: All participants (DS N= 52, HC N= 9) showed a normal increase in antibody concentration after primary SARS-CoV-2 vaccination with age-specific recommended doses. At T=3 there were similar geometric mean antibody concentrations (GMC) in DS (4.6 kBAU/ml) and HC (4.5 kBAU/ml, NS). The GMC in SARS-CoV-2 naïve participants at T=3 was also similar between DS (N=33, 3.4 kBAU/ml) and HC (N=5, 3.9 kBAU/ml, NS). SARS-CoV-2 naïve participants at T=3, showed a higher antibody concentration with increasing age (DS=Pearson r=0.409, p=0.018, HC=Pearson r=0.317, p=0.028).
Conclusions/Learning Points: This is the first report on antibody responses after primary SARS-CoV-2 vaccination (BNT162b2) in children with DS. In contrast to adults with DS, our results show that children with DS are able to produce normal antibody concentrations in response to mRNA vaccination.

PV1039 / #791

DIFFERENCES IN SERUM LEVELS OF MATRIX METALLOPROTEINASES IN CHILDREN WITH COVID-19 AND MULTISYSTEM INFLAMMATORY SYNDROME (MIS-C)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: SARS-CoV2 infection in children may rarely manifest with an inflammatory condition classified as multisystem inflammatory syndrome in children (MIS-C). Symptoms of MIS-C are largely similar to Kawasaki disease. MIS-C is characterized by activation of the immune system and extensive damage to the endothelial system. Matrix metalloproteinases (MMPs) and their inhibitors, known as tissue inhibitors of MMP (TIMPs), play central roles in the process of the extracellular matrix synthesis and breakdown. Little is known about the role of MMPs and TIMP in the pathophysiology of MIS-C.
Methods: 16 children with MIS-C and 9 children with acute COVID-19 hospitalized between October 2020 and December 2021 were included in the study. Serum samples were collected on admission. Concentrations of 9 different matrix metalloproteinases, their inducers (TNF-α and EMMPRIN), and 4 tissue inhibitors (TIMP 1-4) were assessed using the microbead-based Luminex assay.
Results: Children with MIS-C had higher concentrations of TIMP-1 (459.2±246.1 vs. 268.0±45.4 ng/mL; p=0.032), TIMP-4 (2.6±0.9 vs. 1.3±0.4 ng/mL; p<0.001), TNF-α (60.5±30.3 vs. 26.7±16.3 pg/mL; p=0.008), MMP-3 (15.7±16.4 vs. 3.4±2.2 ng/mL; p=0.038), and MMP-8 (60.4±42.6 vs. 8.3±5.9 ng/mL; p=0.001), and lower MMP-2 (385.4±103.2 vs. 472.1±95.6 ng/mL; p=0.05), compared to acute COVID-19. The total concentration of TIMP did not differ between the groups. Concentrations of MMP-3 and MMP-8 correlated with TNF-α (respectively: R=0.64, p=0.001; R=0.63, p=0.001).
Conclusions/Learning Points: Inflammatory cytokines stimulate the production of MMP-3 and MMP-8 in MIS-C. MMP-8 was previously shown to promote extravasation of polymorphonuclears from blood vessels during inflammation, whereas MMP-3 causes endothelial injury and accumulation of inflammatory cells in the cardiovascular system. Our findings suggest that MMPs play an important role in the pathogenesis of MIS-C.

PV1040 / #1867

CLINICAL FEATURES OF CHILDREN ADMITTED WITH COVID-19 DISEASE TO A TERTIARY HOSPITAL IN CENTRAL GREECE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: SARS-CoV-2 spread quickly around the world causing a global pandemic. As pediatric patients have been mostly asymptomatic or with mild symptoms, the true prevalence of clinical features of Covid-19 disease in children is underestimated.
Methods: This is a retrospective study of the clinical manifestations and outcome of pediatric patients with SARS-CoV-2 infection admitted to the University General Hospital of Larissa in Central Greece between June 1st 2020 and December 31st 2022.
Results: During the 31-month study period, 581 patients (52.2% male), with a positive SARS-CoV-2 PCR, aged 2 days-17 years (median: 8 months; IQR:2-72 months) were hospitalized and close contact of 405 (69,7%) with ≥1 infected persons within the family or the school, was identified. 51 children (8,8%) had an underlying condition, mainly a chronic neurologic/metabolic disease (15/51). Very young age (neonates, infants), fever, fatigue, or dehydration, and/or the underlying disease were the main reasons for hospitalization. At the time of admission, most patients (559 of the 581 patients) were symptomatic, mainly with mild symptoms of upper respiratory tract system. Four children of those initially asymptomatic exhibited mild symptoms soon after admission. In 261 (44.9%) of those admitted chest x-ray was performed; peribronchial or alveolar infiltrates were revealed only in 15 (5.7%). The median duration of hospitalization was 3 days (IQR: 3-5 days). Favorable outcome of Covid-19 disease was noted in 100% of patients
(Table).

	n/N (%)
Clinical manifestations	
Fever ≥38°C	430/581 (74.0)
Upper respiratory system's symptoms (rhinorrhea or/and nasal congestion)	284/581 (48.9)
Lower respiratory system's symptoms	37/581 (6.4)
Gastrointestinal symptoms (abdominal pain or/and vomiting or/and diarrhea)	139/581(23.9)
Headache reported by children >5 years old	23/167 (13.8)
Severity of the disease	
O_2 supplementation by nasal cannula or mask	14/581 (2.4)
n-CPAP[¶] or high-flow oxygen therapy	2/581 (0.3)
Mechanical ventilation	0
Transfer to I.C.U.[¥]	0
Death	0

[¶]n-CPAP: nasal continuous positive airway pressure; [¥]I.C.U.: intensive care unit

Conclusions/Learning Points: A low severity of Covid-19 disease was observed in hospitalized children. The low frequency of co-morbidities and/or the fact that the immune response to SARS-CoV-2 appears to differ from that of adults, have probably contributed to this observation.

PV1041 / #1989

EPIDEMIC WAVES OF COVID-19 DISEASE AMONG PEDIATRIC PATIENTS IN CENTRAL GREECE FROM JUNE 2020 THROUGH DECEMBER 2022

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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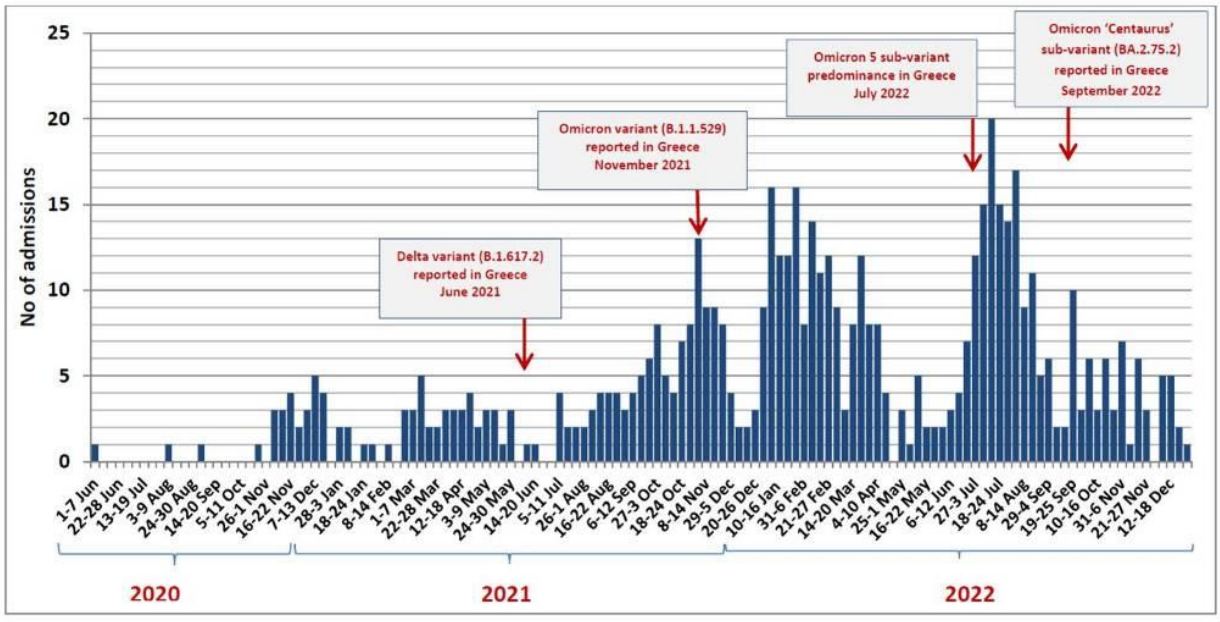
Backgrounds: Although SARS-CoV-2 infection has predominated in adults, many cases have also been noted in children during the pandemic. The aim was to identify the epidemiological characteristics of pediatric patients admitted with COVID-19 disease between June 1st 2020 and December 31st 2022.
Methods: This is a retrospective study, among children <17 years old, admitted to the University General Hospital of Larissa, in Central Greece, during the first 31 months of SARS-CoV-2 pandemic.
Results: Among 581 patients aged 2 days-17 years old (median=8 months), 303 (52.2%) were male. Age group distribution was: neonates (n=65), 29 days to 5 months (n=194), 6 to 11 months (n=66), 1 to 4 years (n=89), 5 to 11 years (n=90) and ≥12 years old (n=77). The weekly rates of admissions were highest in November 2021, January – February 2022 and July – August 2022 (Figure). In the three consecutive waves, the decision for hospitalization was most frequent among infants 29 days to 5 months old (35.9%, 27.9% and 40.9%
respectively).



Conclusions/Learning Points: During the study period, June 1st 2020 - December 31st 2022, due to SARS-CoV-2 variants and sub-variants spread and extend of the non-pharmacological interventions applied, variability in the incidence of the Covid-19 pediatric admissions incidence was noted. The highest admission rates occurred during Delta and Omicron variants/sub-variants predominance periods.

PV1042 / #729

RISK FACTORS FOR SEVERE ACUTE SARS-COV-2 DISEASE IN PEDIATRIC POPULATION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Little is understood about which comorbidities are associated with severe outcomes in children hospitalized with acute COVID-19.
Methods: Data from 2 multicenter (116 hospitals) prospective cohort studies of hospitalized children (aged 0-18 years) with confirmed SARS-CoV-2 in Spain and Colombia were combined for this analysis. Outcome was classified as (in decreasing order of severity): death, mechanical ventilation (MV), pediatric intensive care unit (PICU) admission, high flow/CPAP, oxygen therapy with nasal prong (NP) and hospitalization without respiratory support. Risk factors for severity, adjusting for age and gender, were identified using multinominal logistic regression and a backwards selection process.
Results: A total of 1,753 patients were included, 734 (41.8%) in Spain and 1,019 (58.1%) in Colombia. The most frequent comorbidities were asthma (9.0%), chronic neurological disorder (NRL) (7.4%), immunosuppressive medication (7.2%), malignant neoplasms (5.4%) and chronic lung disease (not asthma) (CLD) (4.5%). Asthma was associated with a significantly increased risk of death (OR: 4.17; 95%CI 1.34-12.97), MV (OR: 7.94 (3.59-17.56)), PICU admission (OR: 3.37 (1.91-5.96)), high flow/CPAP (OR: 6.65 (2.69-16.46)), and NP (OR: 3.85 (2.57-5.77)) compared to hospitalization without respiratory support. NRL was associated with increased risk of death (OR: 7.34 (3.01-17.90)), MV (OR: 3.07 (1.20-7.82)) and high flow/CPAP (OR: 4.36 (1.68-11.29)). CLD was associated with increased risk of death (OR: 6.22 [2.28-16.94]) and NP (OR: 3.1 (1.74-5.58)) and in addition, chronic cardiac disease was associated with increased risk of MV (OR: 5.21 (1.76-15.41)) and PICU (OR: 2.78 (1.27-6.08)). Risks of death (OR: 4.49 (2.03-9.05)), MV (OR: 2.97 (1.52-5.81)), PICU (OR: 4.27 (2.89-6.33)), and NP (OR: 4.67 (3.64-5.99)) were higher in the Colombia
Cohort.

Comorbidity	Death	MV	PICU	CPAP/High flow therapy	O2
Chronic cardiac disease	1.36 [0.29;6.49]	5.21 [1.76;15.41]	2.78 [1.27;6.08]	3.28 [0.87;12.32]	1.73 [0.92;3.26]
Chronic pulmonary disease	6.22 [2.28;16.94]	2.60 [0.73;9.22]	1.14 [0.41;3.17]	2.97 [0.83;10.59]	3.12 [1.74;5.58]
Asthma or recurrent wheezing	4.17 [1.34;12.97]	7.94 [3.59;17.56]	3.37 [1.91;5.96]	6.65 [2.69;16.46]	3.85 [2.57;5.77]
Chronic neurological disorder	7.34 [3.01;17.90]	3.07 [1.20;7.82]	1.52 [0.79;2.96]	4.36 [1.68;11.29]	1.10 [0.68;1.76]
Malignant Neoplasm	5.03 [2.09;12.12]	0.00 [-;-]	1.15 [0.59;2.21]	1.00 [0.22;4.41]	0.15 [0.06;0.37]
Chronic hematologic disease	2.67 [0.85;8.37]	1.44 [0.32;6.40]	0.68 [0.27;1.69]	0.75 [0.10;5.86]	0.35 [0.15;0.80]
Diabetes	2.99 [0.29;30.70]	0.00 [0.00;0.00]	5.67 [1.84;17.47]	0.00 [-;-]	1.19 [0.33;4.24]

Conclusions/Learning Points: Asthma, chronic neurological disease and belonging to the Colombia cohort were associated with multiple severe outcomes of COVID-19.

PV1043 / #1463

A GOOD PROGNOSIS ASSOCIATED WITH ACUTE MYOCARDITIS DUE TO MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C) FOLLOWING SARS-COV-2 INFECTION IN CRITICALLY ILL PRESENTING CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Acute myocarditis with intense systemic infammation is an emerging severe pediatric disease following SARS-CoV-2 infection as a common component of multisystem inflammatory syndrome in children (MIS-C). Early and prompt recognition of this disease is needed and referral to an expert center is recommended.
Methods: This prospective cohort study was conducted from September 2020 to August 2021. The MIS-C myocarditis was defined as per the Centers for Disease Control and Prevention case definition of MIS-C. The ethical committee approval for the study and informed consent from the parents and attendants had been obtained as per regulations.
Results: We encountered 9 children admitted to PICU with shock. The chief complaints were high grade fever (n=9), breathlessness (n=9), intense abdominal pain (n=8), skin rash (n=4), conjunctivitis (n=4); oral mucosal congestion (n=3); adenitis (n=2). All children had highly elevated C-reactive protein (97.8 ± 32.4 mg/dl), ESR (46.2 ± 22.2 mm) and procalcitonin (6.8 ± 2.4 ng/mL). The most prominent hematologic derangements were lymphopenia with leukocytosis, thrombocytopenia, and anemia. 2D echocardiography showed acute myocarditis (mean left ventricular ejection fraction, 38.2 ±10.4%; troponin I, 369.8 ± 204.6 ng/ml; and NT –pro BNP, 1932.4 ± 986.6 pg/mL) and pericardial effusion (n=6/9; 66.6%). SARS-CoV-2 PCR was positive in 4 children while 5 had positive serology. All children needed vasoactive drug support. All children received intravenous immunoglobulin with adjuvant corticosteroids. All children survived and were afebrile with a full left ventricular function recovery at PICU discharge on 14.8±4.4 days.
Conclusions/Learning Points: Compared with classic myocarditis, children with MIS-C had a greater likelihood of full recovery of cardiac function with a faster time, even when they presented with more fulminant course.

PV1044 / #168

ANTIBODY RESPONSE IN CHILDREN WITH MULTISYSTEM INFLAMMATORY SYNDROME RELATED TO COVID-19 (MIS-C) COMPARED TO CHILDREN WITH UNCOMPLICATED COVID-19

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The exact cause leading to MIS-C remains unclear. In this study, we analyzed the quality of the antibody response between children with MIS-C and age-matched controls one month after SARS-CoV-2 exposure.
Methods: Serum from 20 MIS-C children at admission, and 14 control children were analyzed. Antigen specific antibody isotypes and subclasses directed against various antigens of SARS-CoV-2 as well as against human common coronavirus (HCoVs) and commensal pathogens were assessed by a bead-based multiplexed serological assay and by ELISA. The functionality of these antibodies was also assessed using a plaque reduction neutralization test, an RBD-specific avidity assay, a complement deposition assay and an antibody-dependent neutrophil phagocytosis (ADNP) assay.
Results: Children with MIS-C developed a stronger IgA antibody response in comparison to children with uncomplicated COVID-19, while IgG and IgM responses are largely similar in both groups. We found a typical class-switched antibody profile with high level of IgG and IgA titers and a measurable low IgM due to relatively recent SARS-CoV-2 infection (one month). SARS-CoV-2-specific IgG antibodies of MIS-C children had higher functional properties (higher neutralization activity, avidity and complement binding) as compared to children with uncomplicated COVID-19. There was no difference in the response to common endemic coronavirus between both groups. However, MIS-C children had a moderate increase against mucosal commensal and pathogenic strains, reflecting a potential association between a disruption of the mucosal barrier with the disease.
Conclusions/Learning Points: Even if it is still unclear why some children develop a MIS-C, we show here that MIS-C children produce higher titers of IgA antibodies, and IgG antibodies with higher functionality, which could reflect the local gastro-intestinal mucosal inflammation potentially induced by a sustained SARS-CoV-2 gut infection leading to continuous release of SARS-CoV-2 antigens.

PV1045 / #1041

LONG COVID IN ICELANDIC CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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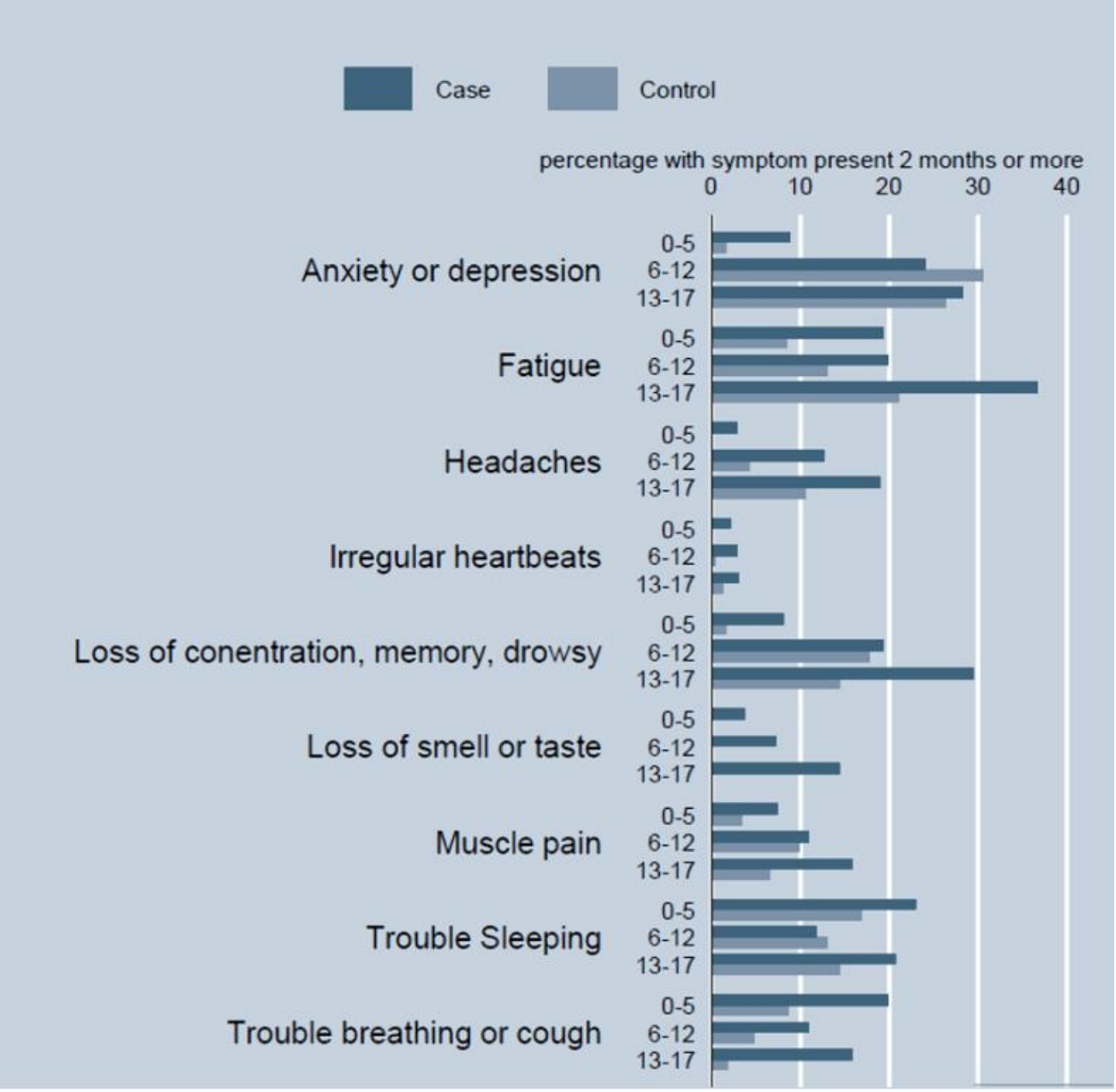
Backgrounds: Paediatric SARS-CoV-2 infections are usually mild but long term complications have been recognised and may include neurological sequalae but also “Long-COVID syndrome” has been described. These symptoms may be severe and significantly impact the quality of life of children of all ages.
Methods: We obtained identifiers of all 837 Icelandic children who were diagnosed with SARS-CoV-2 by PCR between March 2020, and June 2021. We asked about the presence of at least twice weekly of ten physical and mental symptoms and if any symptoms had been present we asked about the duration and severity of symptoms (a little, somewhat, much). For all subjects who completed the questionnaire, an age and sex matched control without SARS-CoV-2 infection, was found through the National citizen registry - Iceland.
Results:



Responses from 601 cases and controls were analysed. Overall, children who had been infected with SARS-CoV-2 were more likely to report any symptoms apart from anxiety/depression where there was no difference. Fatigue and loss of concentration was evidently more common in cases than controls among teenagers (37 vs 21% and 29 vs 15%, both $p<0.05$). In all comparisons more participants in the COVID group reported more severe symptoms and this difference was significant for fatigue, headaches, muscle pain and breathing difficulties. Also of the children reporting long lasting symptoms >70% report them as severe or somewhat severe. No associations between Ct-values at diagnosis and Long-COVID symptoms were found.

Conclusions/Learning Points: To conclude, symptoms of Long COVID in children are evident and are likely to impact the quality of life of millions of children. The importance of further unravelling the pathophysiology of acute and long term symptoms of the disease in children is very important as well as potential preventive measures.

PV1046 / #1770

ASSESSING THE RESPONSE OF BIOMARKERS TO ANTI-INFLAMMATORY MEDICATIONS IN PIMS-TS BY LONGITUDINAL MULTILEVEL MODELLING - REAL WORLD DATA FROM A UK TERTIARY CENTRE

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The relationship between inflammatory markers and anti-inflammatory medication in Paediatric inflammatory multisystem syndrome temporarily associated with SARS-CoV-2 infection (PIMS-TS) is unknown. We sought to investigate the relationship between demographics, biomarkers, treatment, and length of stay (LOS) in this novel disease.
Methods: We reviewed the case notes and investigations of all patients that met the Royal College of Paediatrics diagnostic criteria for PIMS-TS at a large tertiary centre in the United Kingdom. Biomarker trajectories were modelled using log linear mixed effects, and factors affecting LOS were evaluated using multiple regression.
Results: Between March 2020 and May 2022, 56 patients attended Sheffield Children's Hospital with PIMS-TS, 70% male. Mean age was 7.4 ± 3.7 years and mean LOS 8.7 ± 4.5 days with 50% requiring intensive care and 20% requiring inotropes. Older males had shorter LOS than younger males (p=0.04), not seen in females. Treatment included intravenous glucocorticoids in 93%, intravenous Immunoglobulins in 77%, Anakinra in 11% and infliximab in 1.8%. Biomarkers correlated poorly with trajectories that peaked at different times. C-reactive protein peaked first after median 1.3 days post-admission: amylase last after 5.1 days. Age had a large effect on some biomarkers, with older children having larger troponin and ferritin, and lower lymphocytes and platelets. Cumulative dose of glucocorticoids and IVIG had a statistically significant effect on some biomarkers, but effect size was small.
Conclusions/Learning Points: The heterogenous nature of PIMS-TS highlights the importance of a multidisciplinary approach. Worse inflammatory markers in older children may be an indication of a different disease process occurring at different ages. Future work to investigate the association between age and troponin and ferritin in hyperinflammatory states is warranted.

PV1047 / #1354

EXTENSIVE CEREBRAL VENOUS SINUS THROMBOSIS IN A CHILD AFTER PRESUMED SARS-COV-2 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Extensive cerebral venous sinus thrombosis in a child after presumed SARS-CoV-2 infection
Background: Several guidelines concerning SARS-CoV-2 thromboembolic complications in adult patients have been published whereas data in children are limited. Molecular pathways and coagulation dysregulations have been proposed which differ among adult and paediatric patients.
Case Presentation Summary: A previously healthy 4-year old boy, with no family medical history, was admitted to the ER due to a five day frontal headache associated with emesis. A febrile upper respiratory infection preceeded ten days prior to his admission. At the ER, the patient was dehydrated and was suffering from intense headache. The urgent fundoscopy revealed bilateral papilledema with normal visual acuity. Opening CSF pressure was elevated. MRI venography revealed extensive thrombosis of the left sigmoid and transverse sinus, the upper part of the left jugular vein, the superior and inferior parts of sagittal sinus and the straight sinus. Regarding admission labs, D-dimer and fibrinogen were elevated with otherwise normal coagulation parameters and negative inflammatory markers. A subsequent work up of thrombophilia identified an homozygous state of MTHFR (C677T) mutation. SARS-CoV-2 PCR on admission was negative but IgG SARS-CoV-2 S protein value was particularly high,indicative of recent infection. He received acetazolamide for 3 months and tinzaparine for 7 months, with complete resolution of his symptoms. Control brain MRI showed partial venous recanalization and patient remains asymptomatic at the one-year follow up.
Learning Points/Discussion: Except in the MIS-C, unlike adults, thrombotic complications seem uncommon in children with SARS-CoV-2. To our knowledge, this is the first case of severe extended brain venous thrombosis presented in a child with MTHFR mutation after SARS-COV-2 infection Further studies are needed to define thrombotic risk factors among children with COVID-19 in order to develop specific guidelines.

PV1048 / #2497

EVALUATION OF THE IMMUNE RESPONSE TO MRNA VACCINES AGAINST COVID-19 IN HIGH-RISK PEDIATRIC POPULATIONS: A NARRATIVE REVIEW OF THE CURRENT LITERATURE AND FUTURE PROSPECTS

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: Immunocompromised children/adolescents may be in higher risk for severe COVID-19 and related complications because of immune system's suppression attributable to the primary disease or concurrent treatment. Novel mRNA-vaccines against SARS-CoV-2 have played a key-role in protection. However, data on the immune-response to COVID-19-vaccines in this population remain scarce.
Methods: A PubMed search was performed to identify studies that include evaluation of humoral/cellular immunity to mRNA-vaccines against SARS-CoV-2 in immunocompromised children-adolescents. Key-words such as "Covid-19", "vaccination", "immunogenicity", "cellular", "immunity", "immunocompromised" were used.
Results: A total of 27 studies were identified:8/27 on patients with inflammatory-bowel-diseases(IBDs), 7/27 with rheumatic-diseases(RDs), 6/27 on solid-organ-transplant-recipients, 3/27 with solid/hematological malignancy, 2/27 on ART-treated-HIV patients and 1/27 with IEIs. Regarding humoral immunity, 20/27 studies measured anti-spike-IgGs and 8/27 neutralizing-antibodies. Two doses were immunogenic in most groups. Solid-organ-transplant-recipients displayed the highest proportion of non-responders, but seroconversion was established after a 3rd dose. High antibody-titers elicited in patients with IBDs and RDs on immunosuppressive-therapy, approximately 1month post 2nd dose. However, 5/15 studies have highlighted the combined therapy of an anti-TNFα+MMF/methotrexate as a risk-factor for a significantly reduced immune response compared to monotherapy. Five studies evaluated the durability of humoral-immunity and demonstrated a significant waning at 3-6months-post 2nd dose. Cellular immunity was examined in 4/27 studies by ELISPOT(n=3/4) and flow-cytometry(n=1/4). Cellular response had not significant differences in patients with RDs on anti-TNF±MTX compared to healthy-controls. Solid-organ-transplant-recipients, malignancy-patients on intensive chemotherapy and ART-treated-HIV-patients showed a suboptimal cellular-response indicating the need for additional doses.
Conclusions/Learning Points: mRNA COVID-19 vaccines induce high antibody responses in most high-risk children/adolescents at 1month post a 2-dose-schedule. However, antibodies may wane rapidly and cellular immunity is attenuated in severe immunosuppression. A booster dose may offer additional protection in these patients at risk.

PV1049 / #2502

COVID-19 VACCINE ACCEPTANCE DURING PREGNANCY AND THE RELATION WITH INFLUENZA AND PERTUSSIS VACCINATION IN PREGNANCY.

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: BACKGROUND: The aim of the study was to study the relation of Vaccination coverage rate of COVID-19 vaccine in pregnancy with the Flu vaccination and Pertussis coverage rate in Pregnancy during the last season of Influenza (1 October 2022 -28 February 2023)
Methods: METHOD : The present study is a prospective cross-sectional study conducted in the last Flu season from October 1, 2022, until March 2023 to 200 pregnant women receiving prenatal care at a tertiary University Hospital. Data was gathered through a face-to-face questionnaire.
Results: The vaccination coverage rate against COVID -19 was 54 %. The Influenza vaccination coverage rate was 65% and the pertussis vaccination coverage rate was 8%. We investigated the relation of Covid-19 Vaccination with the acceptance of Influenza and pertussis vaccination in pregnancy. Vaccination against influenza during past pregnancy was statistical significantly positively associated with vaccination against Covid -19 ($p < 0.001$) and vaccination in present pregnancy was also significant at level $p < 0.001$.Vaccination against pertussis during present pregnancy was statistical significantly positively associated with vaccination against Covid -19($p < 0.001$)
Conclusions/Learning Points: Conclusion: In conclusion we need to improve the face-to-face communication with pregnant women, focusing more on safety and effectiveness data, sharing information about surveillance programs, using clinical experience from other maternal vaccination, and presenting the benefits from vaccination to the mother and the offspring.

PV1050 / #824

CARDIAC INVOLVEMENT IN CHILDREN WITH PAEDIATRIC MULTISYSTEM INFLAMMATORY SYNDROME-TEMPORALLY ASSOCIATED WITH SARS-COV-2 (PIMS-TS): A SWISS PAEDIATRIC SURVEILLANCE UNIT OBSERVATIONAL COHORT STUDY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: The acute presentation of PIMS-TS is now well known, but data on longer term outcome, particularly cardiac, are scarce.
Methods: This national prospective observational cohort study includes children less than 18 years of age who were hospitalised with PIMS-TS in Switzerland between 03.2020 and 03.2022. Data was recorded from 29 paediatric hospitals through the Swiss Paediatric Surveillance Unit (SPSU) during hospitalisation and six weeks after discharge. Data was analysed stratified into three groups according to admission to intensive care unit (ICU) (non-ICU, ICU-moderate) and requirement of invasive ventilation and/or inotropic support (ICU-severe).
Results: 204 children were included of whom 194 (95.1%) had follow-up data available. Median age was 9.0 (IQR 6.0 to 11.5) years and 142 (69.6%) were male. 105 (51.5%) required ICU admission, of whom 55 (52.4%) were in the ICU-severe group. Echocardiography was performed in 201 (98.5%) children; 132 (64.7%) had a cardiac abnormality including pericardial effusion (50 [24.9%]) and mitral valve regurgitation (60 [29.9%]). Left ventricular systolic dysfunction was present at admission in 62 (30.8%) children and appeared during hospitalisation in 11 (5.5%) children. Coronary artery abnormality was detected at admission in 29 (14.2%) children and developed during hospitalisation or at follow-up in 13 (6.5%) and three (1.5%), respectively. None of the children had left ventricular systolic dysfunction at follow-up, but coronary abnormality and pericardial effusion were found in 12 (6.6%) and 3 (1.7%) children, respectively. School absenteeism at follow-up was more frequent in ICU-moderate (10.4%) and ICU-severe group (17.6%) compared to non-ICU group (2.5%) (p-value 0.011).
Conclusions/Learning Points: Irrespective of initial severity, rapid resolution of left ventricular systolic dysfunction is observed. Most coronary artery aneurysms regress, however, some are still present at follow-up, emphasising the need for prolonged cardiac evaluation.

PV1051 / #2151

REKAMLATINA NETWORK AND MIS-C IN LATIN AMERICA: THE ROLE OF A PEDIATRIC INFECTIOUS DISEASE NETWORK FROM THE SOCIEDAD LATINOAMERICANA DE INFECTOLOGIA PEDIATRICA (SLIPE) DURING COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: A decade ago, REKAMLATINA (Red de Enfermedad de Kawasaki en América Latina) was launched to study the epidemiology of Kawasaki disease (KD) in Latin America (LA). The main core of this research group has been pediatric infectious disease specialists from SLIPE. The objective of this work is to describe the role of a multinational multispecialties network during COVID-19 pandemic in the surveillance of pediatric Multisystem Inflammatory Syndrome (MIS-C).
Methods: A retrospective and prospective descriptive study of hospitalized children and adolescents with MIS-C was undertaken and continues at the main referral pediatric and general hospitals in Latin America. Researchers were invited to participate through personal communications, research groups databases, e-mails from SLIPE and other participant societies, webinars, lectures, Twitter and other social platforms. Approval by an ethics research committee was required from each site.
Results: From Jan-1-2020 to Dec-31-2022 a total of 1,425 children have been enrolled at 86 main pediatric referral and general hospitals of 18 LA countries. Major enrollment by country has been the following: Mexico (34.1%), Colombia (16.1%), Argentina (8.6%), Peru (8.4%), Panama (7.1%), Brasil (4.7%), Honduras (4%), and Costa Rica (3.4%)pts, among others. Among 269 participant researchers, the following background was identified: pediatric infectious disease specialists and fellows, 90(33.4)% and 4(1.5)% respectively; pediatric cardiology 53(19.7%); pediatricians 32(11.9%); pediatric rheumatology 26(9.7%); pediatric critical care 22(8.2%); pediatric emergency 6(2.2%); and pediatric immunology 7(2.6%); among others.
Conclusions/Learning Points: REKAMLATINA is one of the largest multinational multicenter multispecialty networks studying KD and MIS-C in children and adolescents. Having a multidisciplinary solid research network of this kind before the pandemic, allowed us to integrate promptly and study better the behavior of a life-threating, newly discovered, and uncommon condition such as MIS-C.

PV1052 / #1617

OPINIONS AND ATTITUDES TOWARDS SARS-COV-2 VACCINATION IN EIGHT SOUTH AMERICAN COUNTRIES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: During 2022, 2 years after the Covid-19 Pandemic was declared, SARS-CoV-2 continued mutating and representing a public health concern in South America and globally. Although vaccination was available and demonstrated to be the most effective tool to prevent severe forms and deaths, adherence was still incomplete, and misinformation and doubts persisted. This research aimed to analyze opinions and attitudes towards SARS-CoV-2 vaccination and the factors that influence its acceptance or rejection in eight South American countries.
Methods: A cross-sectional study was performed through an online self-administered questionnaire to 6555 participants >15 years old from Argentina, Brazil, Chile, Colombia, Ecuador, Paraguay, Uruguay, and Venezuela during February-April 2022. Sample was stratified by regions and age groups (15-19;20-29;30-39;40-49;50-59;>60) and weighted to express the real population proportionality of each segment and country in the global context of the study.
Results: Overall, respondents agreed that Covid-19 vaccines were necessary (86.4%), effective (79.8 %), and safe (79.1 %). Additionally, 64 % agreed vaccination should be mandatory. The agreement was lowest and highest among Chilean and Brazilian respondents, respectively (53.3%, 50.9%, 49.4%, 40.3% and 92.2%, 83.2%, 82.7%, 72.5% regarding necessity, safety, effectiveness and mandatory, respectively). Of the total, 83.4% accepted vaccination and received at least one dose, 12.3% refused it completely, and 3.2% preferred not to complete vaccination. Main rejection reasons were safety (65.8%), efficacy (54.9%), and rushed development and approvals (49.1%). Three most used sources of information regarding Covid-19 pandemic were social networks (52.8%), TV/radio (51.7%) and portal news (47.8%).
Conclusions/Learning Points: Although vaccine confidence remains high in this South American sample, a significant proportion remains reluctant. Communication campaigns in social networks stressing safety issues are key since they are the main source of information and concern among hesitant people.

PV1053 / #2126

SARS-COV-2 INFECTION IN CHILDREN AND ADOLESCENTS WITH COMORBIDITIES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: New drugs already approved for risk groups for severe COVID-19 lack evidence of clinical benefit in paediatrics. It's important to increase the knowledge about the clinical course of SARS-CoV-2 infection in those groups. Objectives: To characterize SARS-CoV-2 infections in paediatric at-risk groups for severe COVID-19, according to vaccination and previous infection history.
Methods: Retrospective longitudinal observational study of patients <18 years-old with SARS-CoV-2 infection and comorbidities considered at risk for severe illness. Data was collected through a paper-questionnaire.
Results: Seventy-two patients were included: 51.4% female; average age 12 years; 55.6% under immunosuppressive therapy, 31.9% with solid organ transplant, 23.6% neoplasia, 20.8% under renal replacement technique, 12,5% obesity, 12.5% Down syndrome, 11.1% HIV-positive, and 9.7% with hemodynamically significant heart disease. No patient received pre-exposure prophylaxis and 65% had been vaccinated. Diagnosis was done from January 2022 onwards in 78%, when the most predominant strains in circulation were OMICRON_BA.1, BA.2 and BA.5_non_BQ.1. Average symptom duration was 3 days [0-17 days]; 81.9% had mild to moderate disease; one patient had severe infection (16y, acute myeloid leukaemia, pneumonia with hypoxemia, previously vaccinated) and the remaining cases were asymptomatic (33,3% previously vaccinated). Change in regular medication was performed in 8.3%; 6.9% had decompensation of their chronic disease; 4.2% were hospitalized. There were no reported admissions to ICU, deaths or sequelae. There were 11 cases of reinfection (mild symptoms, no change in regular medication or hospitalization).
Conclusions/Learning Points: SARS-CoV-2 infection was not severe in 98.6% of our 72-case series of children and adolescents that are considered at risk for severe disease, irrespective of vaccine status, and reinfection was mildly symptomatic. More comprehensive knowledge of the disease in children should be obtained before recommending monoclonal antibodies and antivirals in this age group.

PV1054 / #1689

CLINICAL PRESENTATION AND OUTCOME OF ACUTE RESPIRATORY ILLNESSES IN SOUTH AFRICAN CHILDREN DURING THE COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Data from low- and middle-income countries (LMICs) show higher morbidity and mortality in children with acute respiratory illness (ARI) from Severe Acute Respiratory Syndrome Coronavirus – 2 (SARS-CoV-2). However, whether SARS-CoV-2 infection is distinct from other causes of ARI in this regard is unclear. We describe clinical characteristics and outcomes of South African children with SARS-CoV-2 and non SARS-CoV-2 ARIs.
Methods: We performed a cross-sectional study including children aged 0-13 years admitted to Tygerberg Hospital in Cape Town, South Africa, between May and December 2020 with an ARI. All children underwent SARS-CoV-2 polymerase chain reaction (PCR) testing. Multivariable logistic regression models were built to determine factors associated with SARS-CoV-2 infection and severity.
Results: Data for 176 children were available, 38 (22%) children were SARS-CoV-2 PCR positive and 138 (78%) were negative. SARS-CoV-2 positive children were more likely to be female (OR 2.68, 95% CI 1.18-6.07), had lower weight for age Z scores (OR 0.76, 95% CI 0.63-0.93), presented more frequently with fever (OR 3.56 95% CI 1.54-8.24), and less often with cough (OR 0.27 95% CI 0.11-0.66). SARS-CoV-2 infection was associated with significantly longer duration of oxygen treatment (median 8 vs 3 days, OR 1.1, 95% CI 1.01-1.20). Overall, 66% of children had viral co-infection, with no significant difference between groups. In total, 18% of SARS-CoV-2 positive children were readmitted within 3 months for a respiratory reason, compared to 15% SARS-CoV-2 negative (p 0.64).
Conclusions/Learning Points: ARIs from SARS-CoV-2 were associated with a higher morbidity compared to ARIs from other causes in South African children. The long-term implications of severe SARS-CoV-2 pneumonia in young children in LMICs requires further study.

PV1055 / #865

SAFETY OF COVID-19 VACCINATION IN CHILDREN PREVIOUSLY HOSPITALIZED BY MULTISYSTEM INFLAMMATORY SYNDROME

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: Multisystem inflammatory syndrome associated to Covid-19 (MIS-C) is one of the most severe manifestations of SARS-Cov-2 in children. Covid-19 vaccines safety after MIS-C have not been fully evaluated. Chile implemented a vaccination strategy in children using inactivated and/or mRNA platforms. The aim of this study was to describe the safety of Covid-19 vaccination in children with a history of MIS-C
Methods: Descriptive study of unvaccinated subjects at the time of MIS-C diagnosis, admitted in the 2020-2022 period at a tertiary children's hospital. Clinical, vaccination and safety data were obtained from medical and national immunization records; and a standardized interview with parents.
Results: 50 patients were enrolled, median age 5.2 years, 58% males, 38% had comorbidities, 68% required PICU admission, 82% received at least 1 dose of a Covid-19 vaccine, 70% 2, 46% 3, and 8% 4 doses. For priming and booster doses, vaccine platforms were 92% inactivated and 87% mRNA, respectively. Median time between MIS-C onset and first dose was 15 months (0-24); 1 month between 1^{st}-2^{nd} doses; 6.2 months between 2^{nd}-3^{rd}; and 5 months between 3^{rd}-4^{th} doses. No serious adverse events were reported in no doses for priming nor for boosters. Any adverse events were reported in 27% of subjects, all of them were mild and self-limited (fever, headache, myalgias, gastrointestinal, itching and rash) mainly with 1st dose. MIS-C symptoms like fever for >3 days, gastrointestinal or rash were reported in 14.6%, 24.3% and 4.8% respectively, without recurrence of MIS-C
Conclusions/Learning Points: Covid-19 vaccination was safe in patients with history of MIS-C, regardless of age, clinical manifestation or evolution, type of vaccine and interval between the disease and the vaccination. No recurrence of MIS-C was reported.

PV1056 / #866

DYNAMICS OF MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN ASSOCIATED TO COVID-19 IN CHILE: EPIDEMIOLOGIC TRENDS DURING PANDEMIC AND AFTER CHILDREN VACCINATION

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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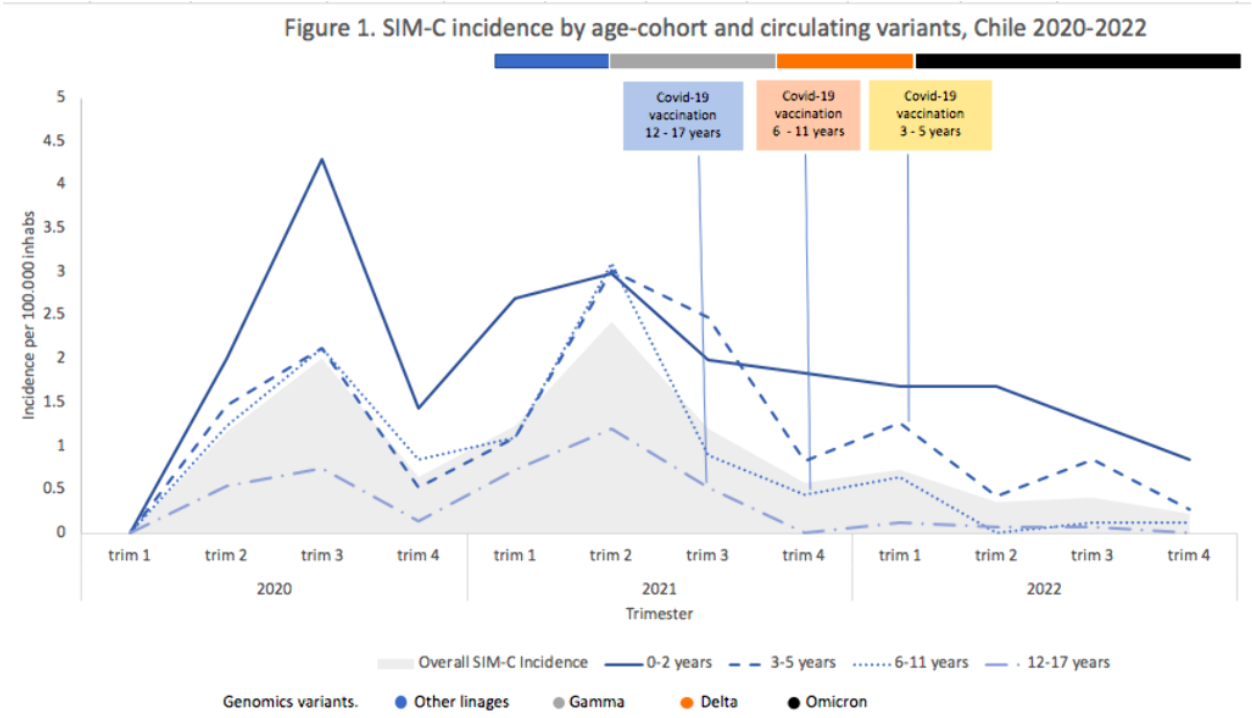
Backgrounds: Multisystem inflammatory syndrome associated to Covid-19 (MIS-C) is one of the most severe outcomes of SARS-Cov-2 in children. Covid-19 vaccines were successfully implemented in Chile and effectiveness against MIS-C has been suggested. During 2021, mRNA and inactivated vaccines for the pediatric population were introduced in the country. The aim of this study was to describe the epidemiologic trends of MIS-C in Chilean children during the pandemic and after children vaccination
Methods: Analytic study of MIS-C cases from April 2020 to October 2022. Epidemiologic, SARS-CoV-2 variants and vaccination uptake data were obtained from the National Surveillance Program (Department of Epidemiology), Public Health Institute and National Immunization Program, respectively.
Results: 487 cases were reported, 58% males. Median age was 5 years (0-2 years:32%; 3-5years:21%; 6-11years:34% and 12-17years:13%). Incidence rates were 3.8, 5.4 and 1.6 per 100,000-inhabitants in 2020, 2021 and 2022 respectively. 73% required PICU admission and case fatality rate (CFR) was 1%. 97% of cases occurred in unvaccinated subjects. On those previously vaccinated, all but one case were in subjects receiving inactivated vaccines. No association among circulating variants and incidence was observed. Incidence risk rate (IRR) comparison between 2020 and 2021-2022 period was 0.72 (CI95% 0.65-0.81, $p<0.05$) for the overall; 0.86 for 0-2years (CI95%:0.71-1; $p=0.12$); 0.88 for 3-5years (CI95%:0.69-1.11; $p=0.28$); 0.61 for 6-11years (CI95%: 0.50-0.75; $p<0.05$); and 0.64 for 12-17years (CI95%:0.47-0.89; $p<0.05$). Vaccination uptake was 63% for 3-5years, 91% for 6-11years, and 99% for 12-
17years.



Conclusions/Learning Points: A decline of MIS-C incidence and age distribution shifting to younger population overtime have been observed. CFR was low but with high PICU admission. IRR only decreased in the cohorts of children who were vaccinated, but with high COVID-19 immunization coverage

PV1057 / #2687

COVID-19 VACCINE HESITANCY IN TUTORS OF CHILDREN IN A SOUTH-AMERICAN COUNTRY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: COVID-19 vaccine hesitancy varies according to the population studied worldwide. Concerns regarding the safety and the fear of adverse effects are one of the drivers for it. Uptake of COVID-19 vaccines in Chile have been high, mainly in adult and adolescent population, however is lower in children <6 years. Data on factors associated with reluctance are scarce. The aim of this study was to identify the factors associated with COVID-19 vaccine hesitancy in tutors of children between 3 and 15 years old, in Chile
Methods: Analytical cross-sectional study. Data was obtained through a survey applied online or face-to-face to tutors in the metropolitan region of Chile, in February-March 2023. The sample was selected by convenience, considering a confidence interval (CI) of 95% and a precision of 5%.
Results: 334 surveys were answered. 9% of tutors responded that they had not vaccinated their child. Main reasons: 56.7% "do not want to vaccinate", 26.7% "want to vaccinate, but have not yet done so", and 16.7% "have not yet decided whether to vaccinate". A 13.8% of tutors manifested that they wouldn't vaccinate their children against COVID-19 if it were annual, 54.3% because they "believe they are sufficiently protected", and 39.1% because "COVID-19 is not a fatal disease". 15% of respondents believe that COVID-19 vaccine is not much important for the child-health, 14.4% believe it is not safe at all, and 55.8% are very or moderately concerned of serious adverse events for their children.
Conclusions/Learning Points: COVID-19 vaccine uptake is high for priming, however hesitancy for booster doses could be foreseen. Main factors associated with hesitancy are the lacking of risk-perception and fear of vaccine adverse events.

PV1058 / #446

SARS-COV-2 SYMPTOM BURDEN; EPIDEMIOLOGY; WILD-TYPE/ALPHA VARIANT; OMICRON BA.1 AND BA.2 VARIANT; COVID-19 VACCINATION; EUROPEAN PROSPECTIVE HOUSEHOLD STUDIES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Backgrounds: We compared age-stratified SARS-CoV-2 symptomatology of wild-type/Alpha versus Omicron BA.1/BA.2 variant infected individuals, and the impact of COVID-19 booster vaccination on Omicron symptom burden.
Methods: Data from three European prospective household cohorts were used (April 2020 to April 2021 and January to March 2022). Standardized outbreak protocols included (repeated) PCR testing, paired serology and daily symptom scoring for all household members. Comparative analyses was performed on 346 secondary household cases from both periods.
Results: Children< 12 years (all unvaccinated) experienced more symptoms and higher severity scores during Omicron compared to wild-type/Alpha period ($p \leq 0.01$). In adults, Omicron disease duration and severity were reduced ($p \leq 0.095$). Omicron was associated with lower odds for loss of smell or taste (Adjusted Odds Ratio [aOR]: 0.14; 95%CI 0.03-0.50) and higher, but non-significant odds for upper respiratory symptoms, fever and fatigue (aORs:1.85-2.23). No differences were observed in disease severity or duration between primary versus booster series vaccinated adults ($p \geq 0.12$).
Conclusions/Learning Points: The Omicron variant causes higher symptom burden in children compared to wild-type/Alpha and lower in adults, possibly due to prior vaccination. A shift in symptoms occurred with reduction in loss of smell/taste for Omicron. No additional effect of booster vaccination on Omicron symptom burden was observed.

PV1059 / #821

TWO COMPLICATIONS OF TWO VIRUSES

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: Two complications of two viruses
Background: Multisystem inflammatory syndrome in children is a novel, life-threatening hyperinflammatory condition that develops in children a few weeks after infection with SARS-CoV-2. This disease has been likened to Kawasaki disease and shock syndrome.This case refers to COVID-19 and chickenpox with their complications- MIS-C and cellulitis accordingly.
Case Presentation Summary: A 4-year-old girl presented on the 8th day of illness with fever, weakness, sleepiness, swelling of right side of the neck, vesicular rash.
Physical examination revealed skin pallor, cheilitis, irritability, strawberry tongue, spotted rash on the trunk and extremities, cervical lymphadenopathy, and swelling, hyperemia, tenderness of the right half of the neck, hepatosplenomegaly. The cervical movement to right was restricted. CBC showed leukocytosis with high neutrophil count(WBC-22.73x10^9/L,NEUT-12.92x10^9/L,LYMPH-7.45x10^9/L), anemia(RBC-3.07x10^9/L,HGB-80g/L,MCV-77.2fL) and thrombocytopenia(PLT-51x10^9/L). Biochemistry profile included high LDH levels(395U/L), low Total Protein(56.6g/L) and Albumin(31.62g/L) levels. Anti-COVID-19 antibodies were positive(79U/L). The coagulation studies were normal. Ferritin level was 409.7ng/ml and D-dimer
8.4ng/ml.

During admission	12.07.2022	15.07.2022	23.07.2022
WBC	22.73	24.96	9.59
NEUT	12.92	10.11	1.51
LYMPH	7.45	12.49	7.19
PLT	51	270	679
RBC	3.07	3.22	3.43
HGB	80	83	88
MCV	77.2	79.5	81.0

Imaging:EchoCG showed mild pericardial effusion. Chest X-ray: moderate right pleural effusion. Cervical ultrasonography:subcutaneous infiltration on the right, bilateral enlarged hypoechoic lymph nodes(0.9-1.3cm). Considering clinical and laboratory data the child was diagnosed with chickenpox, COVID-19-associated MIS-C and cervical cellulitis. After a surgical intervention a purulent fluid from the lesion was cultured. Alpha-hemolytic streptococci has been grown. The child received Acyclovir for chickenpox, antibacterial therapy for cellulitis(Meropenem, Vancomycin, Metronidazole, Clindamycin). MIS-C was treated with IVIG and symptomatic therapy.
Learning Points/Discussion: Sometimes it is challenging to treat children with multiple diseases. Two different viral infections with their complications potentiate duration of the disease and makes it hard to treat the patient. Although there was a high risk of thrombosis because of MIS-C (high platelet number), Aspirin was not used in this case to avoid Reye syndrome.

PV1060 / #2465

A GLIMPSE OF PEDIATRIC COVID-19 INPATIENTS AND OUTPATIENTS: A POINT PREVALENCE STUDY FROM TURKEY

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Background: This multi-center point prevalence study evaluated children diagnosed with coronavirus disease 2019 (COVID-19).
Methods: On 2nd February 2022, inpatients and outpatients infected with severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) were included in the study from 12 cities and 24 centers in Turkey.
Results: Of 8605 patients on 2nd February 2022 in participated centers, 706 (8.2%) had COVID-19. The median age of 706 patients was 92.50 months, 53.4% were female, and 76.7% were evaluated as inpatients. The three most common symptoms of the patients with COVID-19 were fever (56.6%), cough (41.3%), and fatigue (27.5%). The three most common underlying chronic diseases (UCD) were asthma (3.4%), neurologic disorders (3.3%), and obesity (2.6%). The SARS-CoV-2-related pneumoniae rate was 10.7%. The COVID-19 vaccination rate was 12.5% in all patients. Among patients older than 12 years with vaccine accessibility given by the Republic of Turkey Ministry of Health was 38.7%. Patients with UCD presented with dyspnea and pneumoniae more frequently than those without UCD ($p<0.001$ for both). The rates of fever, diarrhea and pneumoniae were higher in the patients without COVID-19 vaccination ($p=0.001$, $p=0.012$, $p=0.027$).
Conclusions/Learning Points: To lessen the effects of the disease, all eligible children should receive the COVID-19 vaccine. The illness may specifically endanger children with UCD.

PV1061 / #2514

EVALUATION OF 601 CHILDREN WITH MULTISYSTEM INFLAMMATORY SYNDROME: A MULTICENTER OBSERVATIONAL STUDY (TURK MISC STUDY)

E-Posters Viewing
E-POSTER VIEWING: AS13. COVID 19 AND MIS-C

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Title of Case: EVALUATION OF 601 CHILDREN WITH MULTISYSTEM INFLAMMATORY SYNDROME
Background: The aim of this study is to compare the clinical and laboratory characteristics and outcomes of MISC patients who did and did not require admission to an intensive care unit (ICU).
Case Presentation Summary: Methods: This study was carried out between June 11, 2021, and January 01, 2022. The demographics, complaints, laboratory results, system involvements, and outcomes of the patients were documented. Results: A total of 601 patients were enrolled; 157 patients (26.1%) required hospitalization in the intensive care unit. The proportion of Kawasaki disease-like features in the ICU group was significantly higher than in the non-ICU group (56.1% vs. 43.2% p=0.006). The ICU group had considerably lower counts of both lymphocytes and platelets (lymphocyte count 900 vs. 1280 cells × μL, platelet count 153 vs. 212 cells × 10^3/ μL, all for $p < 0.001$). C- reactive protein, procalcitonin, and ferritin levels were significantly higher in the ICU group (CRP 164 vs. 129 mg/L, procalcitonin 9.2 vs. 2.2 μg/L, ferritin 644 vs. 334 μg/L). Being between ages 5-12 and older than 12 increased the likelihood of hospitalization in the ICU by four [95% CI 1.971-8.627] and six times (95% CI 2.575-14.654), respectively, compared to being between the ages 0-5. A one-unit increase in log D-dimer and log troponin was also demonstrated to increase the need for intensive care by 1.8 (95% CI 1.079-3.233) and 1.4 times (95% CI 1.133-1.789), respectively.
Learning Points/Discussion: Patients requiring an ICU stay had considerably higher levels of procalcitonin, CRP, and ferritin but significantly lower levels of lymphocyte and thrombocyte. In particular, high levels of procalcitonin in the serum might serve as a valuable laboratory marker for anticipating the need for intensive care.

PV1062 / #1132

THE INTESTINAL MICROBIOME AND VACCINE RESPONSES - A SYSTEMATIC REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS14. MICROBIOME

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Backgrounds: The intestinal microbiome, which plays a critical role in host immunity, might be a key factor in explaining the significant variation between individuals in vaccine responses.
Methods: We searched MEDLINE and EMBASE without language or location restrictions to identify observational studies and clinical trials in humans which investigated the association between the intestinal microbiome composition and humoral or cellular vaccine responses.
Results: We included 10 studies (3 in adults, 7 in infants) from both developed and developing countries. A higher relative abundance of different taxa from the phylum Actinobacteria was consistently associated with stronger vaccine responses, and a higher abundance of the phylum Bacteroidetes (Bacteroides and Prevotella) with weaker vaccine responses. The association between the relative abundance of the phylum Firmicutes and Proteobacteria and vaccine response varied with different genus and species. Three studies found no association between the intestinal microbiome composition and vaccine responses. Study designs were highly heterogenous, with disparities in vaccine type studied, vaccine efficacy measurement, stool analysis timing and methods, and reporting.
Conclusions/Learning Points: Current data support the concept that the intestinal microbiome composition impacts vaccine responses. Further adequately powered studies are necessary to confirm this association and inform potential microbiome-targeted interventions to optimise vaccine responses.

PV1063 / #1006

WHICH IMPACT DO CFTR MODULATORS HAVE ON THE LUNG MICROBIOME OF PEDIATRIC PATIENTS WITH CYSTIC FIBROSIS? A MONOCENTRIC RETROSPECTIVE STUDY WITH REVIEW OF LITERATURE

E-Posters Viewing
E-POSTER VIEWING: AS14. MICROBIOME

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Backgrounds: The lung microbiome of patients with cystic fibrosis (pwCF) has a characteristic, anaerobic and poorly heterogeneous flora, dominated by methicillin-susceptible and resistant S. aureus (MSSA, MRSA), P. aeruginosa, H. influenzae and Aspergillus spp. They are often subject to pulmonary exacerbations, that gradually worsen their respiratory capacity throughout life. In 2020 EMA approved Kaftrio®, a new modulator of the Cystic Fibrosis Transmembrane Regulator protein (CFTR), that has been introduced as treatment for people from 12 years with at least one Δ-F508 allelic mutation. Since that, the result is a great improvement in their quality of life.
Methods: Ours is a monocentric retrospective study, involving 20 pediatric patients aged from 12 to 18, who had been starting Kaftrio® for at least 10 months. They went to periodic control, with pulmonary sputum collection, before and after therapy (T0-T1-T2). The sputum culture sampled the bacteria present, their number in order of decimals, any resistance to antibiotics.
Results: We observed that after a transient significant reduction in the load and number of pathogens, mostly after 3-6 months, around 12 months there is a stabilization of the number of colonies. The antibiotic resistance does not change, on the contrary it decreases slightly.
Conclusions/Learning Points: The aim of our study is to underline the key role of the sputum control, that can be introduced as a long-term follow-up of pwCF treated with Kaftrio®, to stage the disease progression. In the future, it will be possible to better understand whether the CFTR modulators have beneficial implications for the innate and adaptive immune response, how it influences the individual microbiome, and whether there is the prospect of a standardized synergistic treatment with modulators and antibiotic, to promote the pwCF quality of life.

PV1064 / #2228

MICROBIOME IN AUTISM SPECTRUM DISORDER - THE KEY TO ALL SYMPTOMS OR A DEAD END?

E-Posters Viewing
E-POSTER VIEWING: AS14. MICROBIOME

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Backgrounds: Autism spectrum disorder is a complex neurodevelopmental disorder of complex and not full understood etiology. There is increasing evidence of an imbalance in the gut microbiome that can potentially exacerbate core and gastrointestinal symptoms of autism.
Methods: We performed a systematic literature review according to PRISM Checklist to analyse the current state of knowledge in gut microbiota abnormalities in children with autism spectrum disorder. We searched PubMed Central database using the following search query: (((((((autism) OR ASD) OR autistic) AND microbiome) OR microbiota) AND microflora) NOT murine) NOT mice) NOT rat and obtained 10983 results. We included only the original studies, meta-analyses and systematic reviews on microbiota, excluding those performed on animal models, and finally selected 26 papers – 4 meta-analyses and 22 original manuscripts - to be included. The data from analysed manuscripts comes from 628 patients in total.
Results: The results concerning the diversity and the composition of microbiota differed between analysed papers, however we observed a visible tendency for patients with autism to present with lower abundance in Bacteroidetes and Firmicutes, with abnormal Bacteroidetes/Firmicutes ratio. The autistic patients had also lowered Bifidobacterium, Actinobacteria and Proteobacteria abundance. While some researchers suggested the positive influence of galactooligosacharyde or microbial intervention (probiotics or faecal microbiota transplant), others show no difference in patients' functioning.
Conclusions/Learning Points: The results of the analysis suggest that the subject requires further research on a larger group of patients. The authors currently conduct a research on oral and stool microbiota in children with autism.

PV1065 / #2596

SMALL INTESTINAL BACTERIAL OVERGROWTH IN CHILDREN WITH SHORT BOWEL SYNDROME – A RETROSPECTIVE STUDY FROM A UNIVERSITY HOSPITAL

E-Posters Viewing
E-POSTER VIEWING: AS14. MICROBIOME

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Background: Children with short bowel syndrome (SBS) have abnormal intestinal anatomy, secretion, or motility, which can lead to small intestinal bacterial overgrowth (SIBO). Reduction of the bacterial burden with antibiotic therapy is the mainstay of SIBO treatment.
Methods: A 5-year (January 2018 – December 2022) descriptive single-centre retrospective chart review of all episodes of clinically suspected SIBO in children with SBS on parenteral nutrition (PN).
Results: Of all patients with SBS, 31.2% (5/16) had at least one episode of clinically suspected SIBO, with a total of 25 episodes (5 episodes/child, range 1–14). The most common clinical presentation was diarrhoea (76%, 19/25), followed by meteorism (56%, 14/25), inappetence (48%, 12/25), flatulence (48%, 12/25), weight loss (36%, 9/25), abdominal pain (25%, 4/16), and vomiting (12%, 3/25). The mean laboratory values were 7.2 ±5.7 mg/L for CRP and 9.5 ±3.9 $x10^9$/L for WBC. Acidosis was present in 12% (3/25). All children received antibiotics, with 56% (14/25) receiving monotherapy, 36% (9/25) a combination of two, and 8% (2/25) of three antibiotics. TMP/SMX was prescribed most commonly (68%, 17/25), followed by metronidazole (48%, 12/25), amoxicillin/clavulanic acid (20%, 5/25), rifaximin (8%, 2/25), vancomycin (8%, 2/25) and gentamicin (4%, 1/25). The mean duration of antibiotic therapy was 11 ±4.5 days. In 20% (1/5) additional serial transverse enteroplasty procedure was needed. Fifty percent of all SBS managed to achieve bowel autonomy. Of the remaining, 62.5% (5/8) had SIBO.
Conclusions/Learning Points: Children with SBS are at high-risk for SIBO, affecting their ability to successfully wean off PN. SIBO is suspected on the basis of clinical presentation, with inflammatory markers remaining normal. Diagnostic tests have innate challenges, and a strong index of clinical suspicion is paramount. Empirical oral antibiotic treatment is efficient in most cases.

PV1066 / #735

DIVERSITY OF EARLY LIFE RESPIRATORY MICROBIOTA IS ASSOCIATED WITH LOWER RESPIRATORY TRACT INFECTIONS IN FIRST YEAR OF LIFE IN INFANTS WITH CYSTIC FIBROSIS

E-Posters Viewing
E-POSTER VIEWING: AS14. MICROBIOME

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Backgrounds: Lower respiratory tract infections (LRTI) are a driving force for pulmonary exacerbations and lung function decline in people with cystic fibrosis (CF), leading to recurrent antibiotic treatment. Over the last years, it could be shown that the respiratory microbiota is closely related to the pathogenesis of LRTIs. While several studies could show these associations in healthy infants, data in infants with CF is scarce. However, early life is an especially vulnerable period for later lung development.
Methods: We analyzed the microbiota in biweekly nasal swabs in 50 infants with CF and 30 healthy controls from two prospective birth cohorts followed throughout the first year of life. We assessed respiratory symptoms, antibiotic treatment and changes in the environment at time of swab via standardized telephone interviews.
Results: We analyzed 1557 data points (963 in CF). The respiratory microbiota differed between healthy and CF infants as expected, but differed also within the CF group. Healthy infants suffered only rarely LRTIs (n= 6). In infants with CF having more frequent LRTIs (n=15 infants, 300 swabs) α-diversity (measured via Shannon diversity index) was lower compared to those with no or few LRTIS (n=35 infants, 633 swabs) (Coef -0.42; SE 0.099; $p<0.0001$). Interstingly, this difference was already present before first respiratory symptoms occurred (Coef -0.612; SE 0.22; $p<0.01$). This finding was independent from antibiotic treatment.
Conclusions/Learning Points: We found that α–diversity of the respiratory microbiota is lower in infants with CF with frequent LRTIs. Importantly, the lower α- diversity was already present before first respiratory symptoms occurred and independent of antibiotic treatment. Thus, a disbalanced composition of the respiratory microbiota in early life might contribute in susceptibility towards respiratory tract infections. Next, we will investigate strain level microbiota profiles to detect potential pathogenic microbes in more detail.

PV1067 / #1975

KAWASAKI DISEASE – STILL AN UNDERRECOGNIZED ENTITY?

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Backgrounds: Kawasaki Disease (KD) is a systemic vasculitis of unknown etiology that mainly affects young children. Diagnosis is based on characteristic clinical signs and laboratory abnormalities that can occur in other childhood febrile illnesses, making it challenging to promptly recognize and treat it. We aimed to explore the clinical characteristics of a cohort of children with KD admitted to our hospital and assess challenges in their approach.
Methods: Single-center, 10-year, retrospective analysis of children admitted for KD.
Results: In this period, 13 children were diagnosed with KD (53.9% male, median age of 3.0 years). The time from fever onset to treatment was a median of 5 days, during which 81.8% of patients required multiple medical evaluations and 53.8% started antibiotic treatment. Two of them already had positive criteria for KD listed in medical records before diagnosis. During the course of disease, a rash appeared in 100% of patients, 76.9% displayed mucosal involvement, 61.5% showed extremity changes and 46.1% had lymphadenopathies. Gastrointestinal and osteoarticular symptoms were described in 30.7% and 23.1%, respectively. Of the cohort, 61,5% met the criteria for classic KD and 38.5% for atypical or incomplete KD. After establishing the diagnosis, every patient was treated with immunoglobulin and acetylsalicylic acid, 15.3% after day 8 of disease. Coronary involvement occurred in 1 patient (7.7%). The mean period of hospitalization was 7.42 days.
Conclusions/Learning Points: From our analysis, diagnosing KD was challenging and never achieved in the first medical evaluation. The underreporting in this study also emphasizes the need for a systematic review of organ involvement in systemic disease. KD should always be suspected in the presence of fever of unknown etiology, so that the appropriate treatment is not delayed.

PV1068 / #2192

KAWASAKI DISEASE – A REFRACTORY CASE

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: Kawasaki Disease – A refractory case
Background: Kawasaki disease (KD) is one of the most common vasculitides of childhood and its main complication is coronary artery aneurysms (CAA). Its etiology remains unknown. Early treatment with intravenous immune globulin (IVIG) is recommended and decreases the risk of CAA development. It is mandatory to identify risk factors which may contribute to IVIG resistance - refractory KD.
Case Presentation Summary: A 4-months-old male-infant, whose parents were born in Uzbekistan, without relevant medical history, was admitted because of a 3-day fever, left cervical swelling, diarrhea and irritability. Blood analysis revealed elevation of acute-phase reactants with C-reactive protein 115mg/L; procalcitonin 85ng/mL, erythrocyte sedimentation rate 33mm and enterovirus was detected by PCR-assay. Cervical ultrasonography showed a lymph node conglomeration on the left side. Because of lymphadenitis, it was initiated intravenous antibiotic treatment. On the fourth-day of illness, he developed a diffuse erythematous maculo-papular rash. On the fifth-day of fever, he presented bilateral conjunctival injection and redness and crust formation at the site of BCG inoculation. Following KD suspicion, transthoracic echocardiography was performed which showed small CAA. The patient was treated with a combination of IVIG (2g/kg) and oral aspirin. Since the fever persisted for longer than 48 hours after IVIG administration, he was given a second dose of IVIG combined with intravenous methylprednisolone, with clinical and laboratory improvement. He was discharged with aspirin and an oral corticosteroid slow tapering off.
Learning Points/Discussion: This case illustrates an incomplete KD, with more than 5 days of fever, 3 clinical diagnostic criteria and laboratory and echocardiography criteria. Enterovirus isolation in blood supports the evidence that several infectious agents may trigger the immunopathogenesis of KD. Persistent fever after IVIG administration, should raise concern for refractory KD.

PV1069 / #2267

VISCERAL LEISHMANIASIS IN PEDIATRICS MIMICKING BACTERIAL SEPTIC SHOCK

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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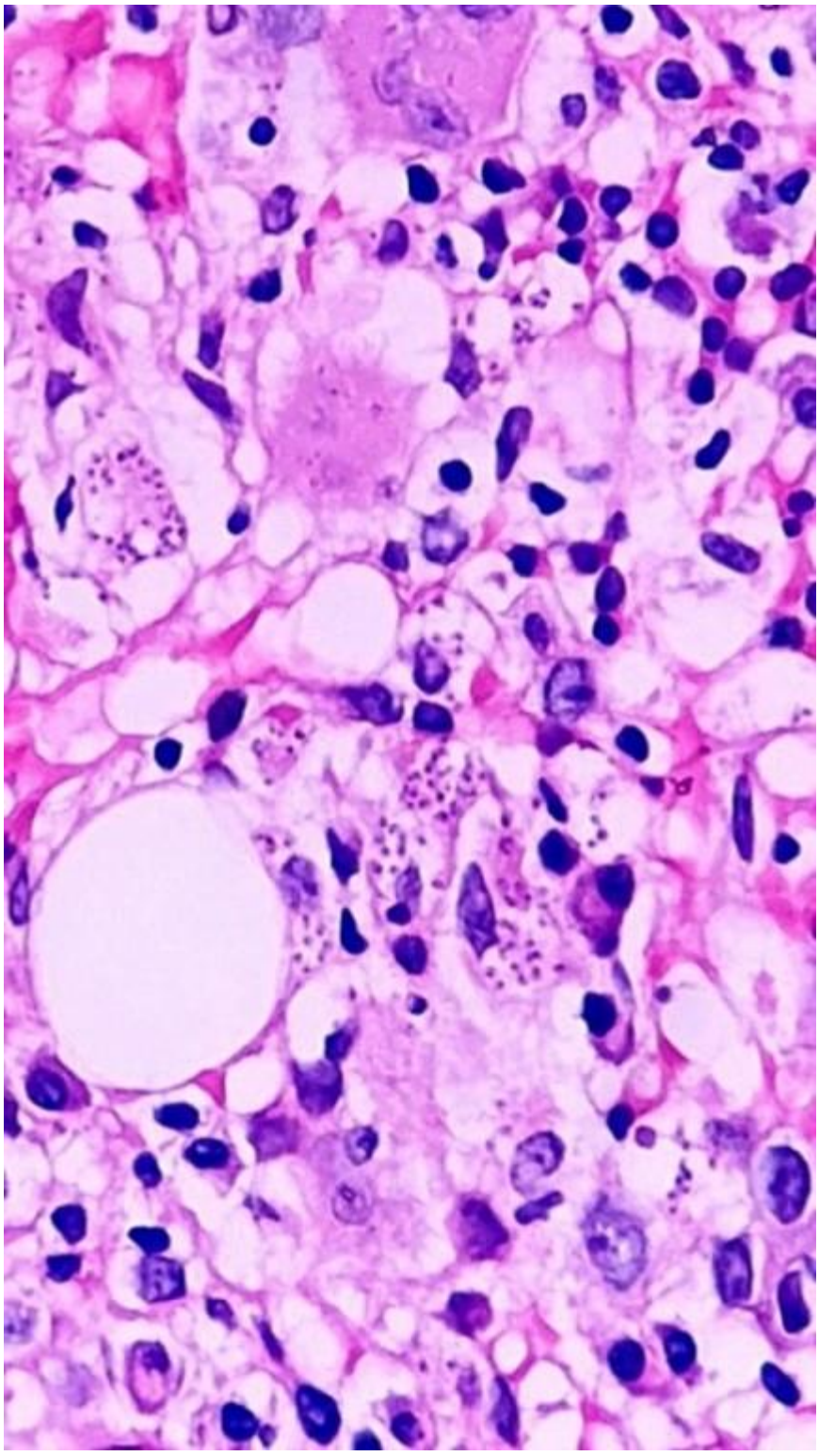
Title of Case: VISCERAL LEISHMANIASIS IN PEDIATRICS MIMICKING BACTERIAL SEPTIC SHOCK
Background: A Venezuelan male 16-year-old without medical history, presented to the ER for a 1-week history of fever of up to 39.5°C, predominantly in the afternoon with diaphoresis associated with chills, asthenia, adynamic, and retroocular pain.
Case Presentation Summary: On admission, the patient described intermittency for the previous five months without specific treatment. The physical examination consisted of hepatomegaly and pale appearance. blood count showed leukopenia (WBC: 1520 cells/mm3), hypochromic microcytic anemia (HB: 8.5 g/dL), moderate thrombocytopenia (110,000 cells/mm3), elevated acute phase reactants (PCR 160 mg/L). Invasive Salmonella infection was suspected, and ceftriaxone was started empirically, clinical deterioration with persistent pancytopenia needing admission to ICU for septic shock, meropenem and vancomycin were started. Peripheral blood smear red blood cells with moderate anisocytosis with microcytes (++) and macrocytes (+), moderate polychromatophilia; ovalocytosis (++), leukocytes with marked leukopenia; IgM dengue negative, IgM Leptospira negative, IgG Trypanosoma cruzi negative, blood smear for malaria negative, serology for Hepatitis B and C negative, HIV not reactive, rapid treponemal test negative. Abdominal ultrasound shows mild hepatomegaly and splenomegaly grade II. Due to the previous findings, the clinical progression and the persistence of fever without recovery of blood cultures. Bone marrow biopsy reported: histiocytes with hemophagocytosis and intracellular forms of Leishmania amastigotes (VL) (Figure 1.) Liposomal amphotericin B was started at 3 mg/kg IV every day during the first 5 days due to candidemia coinfection, subsequent doses on day 14 and 21 was



administered.

Learning Points/Discussion: VL is considered a neglected disease, and has a broad spectrum of signs and symptoms, without suspicion it is often misdiagnosed with a delay in treatment, more severity, and progress to systemic multiorgan dysfunction, mimicking bacterial septic shock.

PV1070 / #737

PROLONGED FEVER DUE TO CHRONIC MENINGITIS AND SPINAL ARACHNOIDITIS: A DIAGNOSTIC CONUMDRUM

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: PROLONGED FEVER DUE TO CHRONIC MENINGITIS AND ARACHNOIDITIS: A DIAGNOSTIC CONUMDRUM
Background: Chronic meningitis often remains undiagnosed. Immunological status, radiological findings and epidemiological exposure are important diagnostic clues.
Case Presentation Summary: We report a 3 year 10 month old previously healthy Bangladeshi boy with possible tuberculous meningitis (TBM) and confirmed Aspergillus meningitis. He presented in Dhakar with fever, vomiting, photophobia, after 1 month of headaches and lethargy. Cerebrospinal fluid (CSF) was turbid with significant pleocytosis, low glucose, high protein. No bacterial, fungal or mycobacterial pathogen was identified. He had prolonged hospitalisation for chronic meningitis and hydrocephalus requiring ventriculo-peritoneal (VP) shunt insertion, broad-spectrum antibiotics, empiric 4-drug anti-tuberculous therapy (ATT), steroids and levetiracetam. He then presented to Singapore after 2 months of unresolved fever, intermittent lower back pain, and bilateral lower limb weakness. Further imaging showed basal cistern meningitis and spinal arachnoiditis. L5/S1 laminectomy and spinal lesion biopsy revealed a fibroinflammatory lesion adherent to dura and nerve root clumping. Histology showed no granulomas or malignancy. Extensive infectious workup was done. Investigations for other organ involvement were normal. ATT was changed to include ethionamide and steroids increased. CSF showed galactomannan >5.0; Aspergillus flavus PCR positive. He received liposomal amphotericin followed by voriconazole. VP shunt was changed. CSF pleocytosis normalised; galactomannan remained elevated. Immunodeficiency investigations showed IFN-γ/IL-12p70 pathway non-responsiveness; whole genome sequencing did not detect mutations. He was discharged 6 weeks later, afebrile and walking, with Cushingoid features and mood/behavioural change.
Learning Points/Discussion: TBM is an elusive diagnosis with low CSF culture yield, and reliance on suggestive radiological findings of hydrocephalus and basal meningeal enhancement. TB arachnoiditis causing myeloradiculopathy may cause concomitant, paradoxical, or late lower limb symptoms. Aspergillus meningitis can rarely mimic TBM or occur as VP shunt infection.

PV1071 / #1510

PRESENTATION OF KAWASAKI DISEASE IN A 12-YEAR-OLD MALE PATIENT, DIFFERENTIAL DIAGNOSIS AND LACK OF ETIOLOGICAL DEFINITION: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: KAWASAKI DISEASE IN A 12-YEAR-OLD MALE PATIENT, DIFFERENTIAL DIAGNOSIS AND LACK OF ETIOLOGICAL DEFINITION: A CASE REPORT
Background: The diagnostic criteria for Kawasaki disease (KD) consists in clinical features that are common in many other typical febrile illnesses in childhood. KD predominantly affects children between six months and five years of age. The purpose of this report is to present a case of KD in an adolescent and highlight its similarity to scarlet fever (SF).
Case Presentation Summary: Healty, 12-year-old healthy boy was admitted with a 7-day history of widespread erythema on the face, fever (38-39ºC), and a previous diagnosis of SF. He didn't have symptoms of exudative pharyngitis and was being treated with benzathine penicillin but showed no improvement. The patient presented with symptoms of a "bumpy raspberry" tongue,dysphagia, bilateral conjunctivitis without exudate, bilateral cervical lymph node enlargement, edema of hands and feet with subsequent desquamation of the skin, which closed criteria for diagnosis of KD. IgM serologies and SARS-CoV-2 tests were negative, he was previously vaccinated. On D7, an echocardiogram revealed dilation of the anterior descending and right coronary arteries, as well as insufficiency of the mitral and tricuspid valves. Human immunoglobulin (IVIG) treatment was initiated along with Aspirin and he responded positively to the treatment, D27 there was full resolution.
Learning Points/Discussion: This case highlights that clinical symptoms can lead to confusion as it may resemble other viral exanthematous diseases and SF. It's important to be aware of the clinical signs and diagnostic criteria, even if the age of the patient is differes from what's typically seen in the disease's epidemiology, as early treatment with IGIV within the first 10 days can change the course of the disease and prevent complications.

PV1072 / #2083

NASAL PORTAGE OF STAPHYLOCOCCUS AUREUS IN A RARE CASE OF WEGENER GRANULOMATOSIS IN A CHILD

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: Interrelationships between granulomatosis with polyangiitis, carriage of Staphylococcus aureus and acute infections – a case report
Background: Granulomatosis with polyangiitis, also known as Wegener's granulomatosis, is a systemic vasculitis affecting small and medium vessels. It is characterized by granulomatous inflammation of the upper and lower respiratory tract, pauci-immune necrotizing glomerulonephritis, and vasculitis involving other organs.
Case Presentation Summary: The 10-year-old patient presents with febrile syndrome, refractory to treatment lasting 3 weeks, headache, ataxia, non-inflammatory joint syndrome. Previously, during the last month, the patient diagnosed with maxillary sinusitis and pneumonia. Septic workup revealed repeated positive blood cultures for St.aureus.In spite to adequate antibiotic treatment child's condition gradually worsened. Nasal crusting and epistaxis was reported by patient. Sanguineous crusts present an entrance gate for staphylococcus, which in conditions of immune dysfunction can lead to severe complications from the internal organs. An repeated X-ray of the chest showed multiple nodules and cavities in the lungs. Lung biopsy was taken and the diagnosis of GPA was confi rmed. Considering the persistence of symptoms, but also the presence of 4 criteria for granulomatosis with polyangiitis, it was decided to initiate immunosuppressive treatment to induce remission. On heart ultrasound vegetations were revealed. The diagnosis of infective endocarditis was made. After the treatment of active infection, an alternative regimen of GPA treatment was chosen (biological therapy with rituximab). No relapse of lung disease was reported in 3 months follow-up.
Learning Points/Discussion: Patients presenting with upper respiratory tract pathology and chronic carriage of Staphylococcus aureus may be eligible for topical antibiotic treatment to prevent exacerbations and generalization of staphylococcal infection. GPA is an important diagnostic option in patients with upper respiratory tract involvement (especially non-responsive to treatment) and the presence of Staphylococcus aureus carriage.

PV1073 / #1003

KEEP CALM: IT'S KIKUCHI!

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: Keep Calm: It's Kikuchi!
Background: Fever of undetermined origin can be a diagnostic challenge. It is usually caused by common disorders, often with an unusual presentation. Many differential diagnoses course with adenopathies. Most common etiologies are infectious, connective tissue diseases and neoplasms, the latter, due to their severity, must be excluded.
Case Presentation Summary: Fourteen y.o boy with worsening cervical lymphadenopathies for 2 months, non responsive to NSAIDs. Three weeks prior to hospitalization he had fever with chills, fatigue, weight loss (4kg), headache with nocturnal awakening. He had several visits to the Emergency Department, and was tested negative for EBV and CMV. On the last admission he was emaciated, extremely tired, with cervical, axillary and supraclavicular adenopathies. Diagnostic workout showed anemia, leukopenia (with reactive lymphocytes), increased transaminases, ferritin and LDH, normal CRP. Serologies for infectious diseases, Mantoux, Igra and ANAs negative. Cervical-CT showed reactive adenopathies and Cranioencephalic and thoraco-abdomino-pelvic CT were normal. He was referred to the Oncology Center. Had a normal medulogram and ganglionic aspirate flow cytometry. Aspiration citology couldn't exclude Hodgkin's Lymphoma, so an excisional biopsy was performed and was suggestive of Kikuchi lymphadenitis(KL). During hospital stay, he became afebrile and clinically improved so was discharged home after 6 days. Two months later, he is clinically well, afebrile, recovered his usual weight, with no adenopathies and normal blood tests.
Learning Points/Discussion: The clinical presentation raised serious concern of neoplastic disease. Only excisional biopsy allowed to exclude linfoma and to establish KL. It is described as a self-limiting condition, and no effective treatment has been established. When symptoms are severe or persistent, glucocorticoids or immunoglobulin may help. This case illustrates how conservative treatment with active surveillance can spare the patient to high doses of corticoids.

PV1074 / #1821

DISSEMINATED HISTOPLASMOSIS IN EARLY CHILDHOOD

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: Disseminated histoplasmosis in early childhood
Background: Histoplasmosis is a systemic fungal disease that can range from asymptomatic illness to mild to disseminated disease,that can course with death. The disseminated form most often occurs in immunocompromised patients,but not only,it can also occur at extremes of age.Infection commonly disseminates to the skin and gastrointestinal tract, but can occur anywhere.
Case Presentation Summary: An 8-month-old infant, previously healthy, is admitted with a history of fever, pallor and increased abdominal volume for 20 days, evolving with progressive worsening of the general condition.Epidemiology: he is from the rural area of Mata Verde,Minas Gerais, Brazil. The mother reported contact with animals (chicken, pig, horse, cow and bats).On physical exam, he looked pale, tachypneic, prostrated.He had globose,distended abdomen, normal hydro-air noise, diffusely painful on palpation, with the presence of enlarged liver and spleen.His spleen was almost at the left iliac crest.Laboratory tests revealed pancytopenia: hemoglobin 5.2 g/dL; leukocytes 1100/µL (704 neutrophils; 228 lymphocytes); Platelets 6.000/µL.A myelogram was performed and showed an increase in macrophages full of parasites with crescent-shaped nuclei,characteristic of Histoplasma, and the diagnosis of disseminated Histoplasmosis was made.The patient evolved with respiratory failure,attributed to restriction due to the large abdominal volume,requiring orotracheal intubation.Treatment was made with liposomal amphotericin B for 30 days,followed by itraconazole for 12 months.Clinical improvement was gradual,the fever ceased after one month of treatment and the liver and spleen were improved,return on the normal size after 6 months.Primary immunodeficiencies, neoplasms and HIV infection were excluded.
Learning Points/Discussion: Acute disseminated histoplasmosis can occur in early childhood,in some endemic areas and in patients with severely impaired cellular immunity,with lethal outcome. A quick diagnostic suspicion to initiate treatment is essential for the outcome of the case.

PV1075 / #409

A MONTH-LASTING HIGH-GRADE INTERMITTENT DAILY FEVER ASSOCIATED WITH SPLENOMEGALY, LYMPHADENOPATHIES AND CYTOPENIAS IN AN OTHERWISE HEALTHY 10-YEARS-OLD BOY WITH A MISDIAGNOSED COMMON PEDIATRIC VIRAL INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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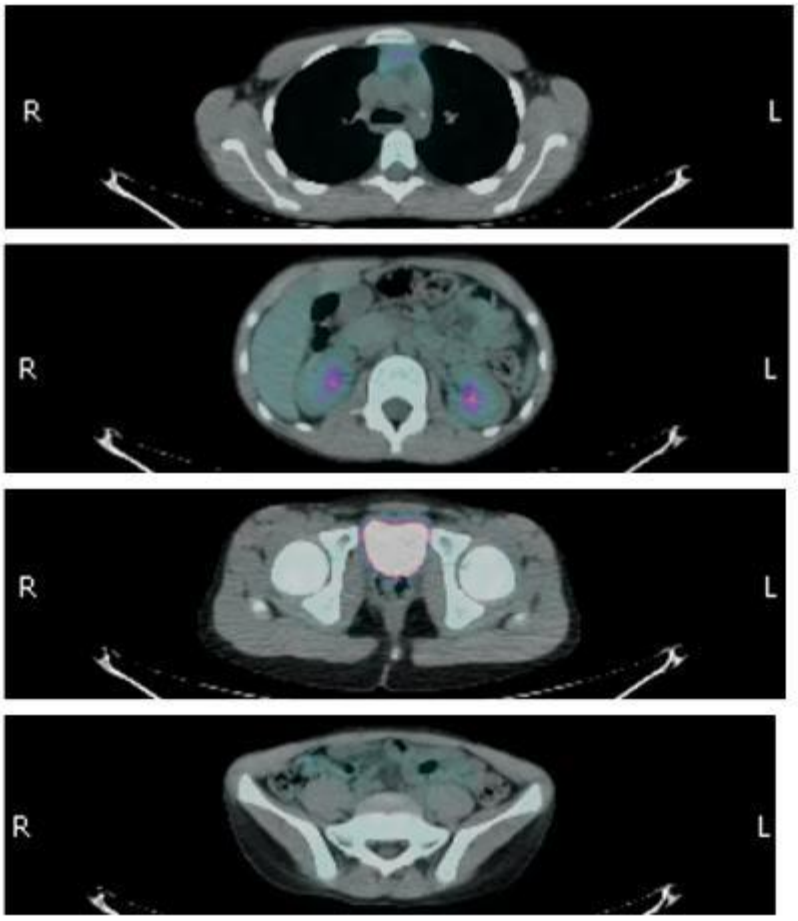
Title of Case: A MONTH-LASTING HIGH-GRADE INTERMITTENT DAILY FEVER ASSOCIATED WITH SPLENOMEGALY, LYMPHADENOPATHIES AND CYTOPENIAS IN AN OTHERWISE HEALTHY 10-YEARS-OLD BOY WITH A MISDIAGNOSED COMMON PEDIATRIC VIRAL INFECTION
Background: FUO is defined by daily temperature of ≥38.0°C for at least 14 days, defying explanation after anamnesis, physical examination, and basic laboratory tests. It represents a diagnostic challenge.
Case Presentation Summary: A 10 years-old boy referred to the emergency-room for high-grade intermittent twice-daily fever spikes, started 14 days before with a 48-hours lasting ankle arthralgia. Cefprozil and clarithromycin were ineffective. Laboratory tests excluded EBV and Group-A Streptococcus infections, showing mildly increased phlogosis indexes; the child was discharged with oral prednisone with subsequent 48-hours lasting defervescence. He was re-hospitalized for recurrence of intermittent once-daily fever spikes. Echocardiography, fundus oculi, thorax/abdomen CT excluded infectious foci, showing axillar reactive lymphadenopathies and splenomegaly. Blood/urine/faecal cultures, parasites research, Legionella urinary antigen, Mantoux/Quantiferon tests, nasopharyngeal aspirate PCR for respiratory viruses/bacteria, serology and blood PCR for Leishmania, Toxoplasma, Borrelia, Brucella, Salmonella, Bartonella, Mycoplasma, Rickettsia, Coxiella, Francisella, Babesia and Anaplasma spp., CMV, EBV, HHV6, Adenovirus, Enterovirus, Parvovirus, HBV and HCV showed positive Parvovirus IgG with <250 copies/ml of Parvovirus DNA on peripheral blood consistent with a quiet remote infection. TSH, phlogosis indexes, ANA, anti-CCP antibodies, RF, C3/C4, lymphocyte typization, IgG/IgA/IgM levels excluded immuno-rheumatological disorders. Peripheral blood smears confirmed mild leukopenia with worsening anemia, bone marrow aspirate showed intermediate cellularity consistent with ongoing viral infection. 5408 copies/ml of Parvovirus DNA were detected on bone marrow aspirate, confirming ongoing Parvovirus infection, supported by total body FDG-

Figure 1. Total body 18-FDG PET/CT



No areas of hyperaccumulation of the radiopharmaceutical frankly referable to heteroplastic lesions with high glucose metabolism, nor inflammatory-infectious foci in the active phase.

Diffuse hyperfixation in the thymic lodge, probably referable to physiological thymic uptake.

Small gastric fixation, probably of an inflammatory or non-specific nature.

PET. Fever lasted 44 days.

Learning Points/Discussion: Parvovirus is a potential cause of FUO with hematotropism. Molecular infectivological analysis on bone marrow aspirate should be considered in case of serological-molecular inconclusive results on peripheral blood.

PV1076 / #88

16 YEARS OLD BOY WITH RECURRENT FEVER

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: 16 YEARS OLD BOY WITH RECURRENT FEVER
Background: The patient was born from a physiological pregnancy. Physical and psycho-emotional development corresponded to age. At preschool age-several episodes of infections. Since 2013_6-7 cases of acute tonsillitis treated with antibiotics. Tonsillectomy was performed in April 2015. Until the summer of 2016, the child periodically had a sore throat and fever up to 39-40^{o}C. Since the autumn of 2016_high temperature almost 1-2 per month, complains of sore throat, general weakness. He was hospitalized several times, laboratory and instrumental studies were conducted, the cause of fever couldn't be determined. In March 2019 an immunological study was conducted - without pathology, a genetic for FMF- the disease was ruled out. It should be noted that when the patient has a fever, segmental neutrophils, ESR, and C-reactive protein are always elevated at >100. Consultations of otolaryngologist, rheumatologist, infectious disease specialist, hematologist were conducted. Parasitic tests - without significant changes, blood bacteriology during fever - sterile. In May 2021, a cytological examination of the lymph nodes was performed _hyperplastic lymphadenitis. Abdominal ultrasound was done several times - no hepatosplenomegaly. Echocardiography - slight prolapse of the anterior leaflet of the mitral valve, with trivial mitral regurgitation.
Case Presentation Summary: The condition has so far been assessed as PFAPA syndrome, Medrol (Methylprednisolone) has been prescribed for high temperature, after giving this medicine the temperature is normalizing. The patient continues to have fever once or twice per month, the interval between fevers has decreased, during fever he has a sore throat, general weakness, immediate response to single dose of Glucocorticoid.
Learning Points/Discussion: Are we really dealing with PFAPA? How to manage frequent episodes? What should be assessed, what risks we might be
dealing with?

PV1077 / #617

A CLINICAL CASE OF RECURRENT FEVER, NEUTROPENIA AND ARTHRITIS IN AN INFANT

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: CLINICAL CASE OF RECURRENT FEVER, NEUTROPENIA AND ARTHRITIS IN AN INFANT
Background: Neutropenia is a challenging issue for pediatricians. Neutropenia results from four basic mechanisms:decreased production, ineffective granulopoiesis, shift of circulating polymorphonuclear cells to vascular endothelium or tissue pools, or enhanced peripheral destruction. The most common type of childhood arthritis is juvenile idiopathic arthritis. Here we are presenting the case of the infant with fever, severe neutropenia, anemia and arthritis
Case Presentation Summary: Patient is 2-year-old. Second child in the family, born full term, weight 3300 gr. The mother was diagnosed with SARS-CoV-2 infection in the first trimester of pregnancy. At the age of 6 months after scheduled vaccination, the patient experienced high fever which lasted for 1 month, followed by moderate anemia, agranulocytosis. Child was hospitalized in the hematology department for anemia. Numerous investigations were performed, including immunodeficiency assessment, bone marrow aspiration-no abnormalities. Treatment included antibiotic therapy with Ceftriaxone, and cefixime p.o was continued, after stopping the antibiotic, the fever recurred, so medication was continued for the following 4 months. From March 2022, the patient expressed pain and swelling in numerous joints. Peripheral blood analysis revealed severe anemia and agranulocytosis, Intravenous antibiotic therapy was initiated, hemotransfusion was performed. During the last hospitalization there were episodes of fever, severe malaise, weight deficiency, swelling, pain, limitation of movement in joints, without hepatosplenomegaly, lymphadenopathy or skin rash. ANA was 1:2560, anti-ds DNA was negative, glucocorticosteroid therapy with high doses of i.v. was prescribed.
Learning Points/Discussion: There are two very important questions regarding this patient: whether maternal SARS-Cov-2 infection may have caused innate immune dysregulation and the resulting unusual presentation of chronic arthritis and hematological abnormality. Can this condition be classified as sJIA even if the ANA is positive?

PV1078 / #1038

CASE OF AUTOIMMUNE HEPATITIS FOLLOWING EPSTEIN-BARR VIRUS INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: CASE OF AUTOIMMUNE HEPATITIS FOLLOWING EPSTEIN-BARR VIRUS INFECTION
Background: Autoimmune hepatitis type 1 (AIH 1) is a disease of unknown etiology, that in some cases can be triggered by Epstein-Barr virus (EBV) infection. The diagnosis of AIH in the setting of EBV infection is very challenging and requires close monitoring.
Case Presentation Summary: A twelve-year-old girl was admitted to the hospital with low-grade fever and fatigue for one month. Physical examination showed moderate hepatosplenomegaly, laboratory tests revealed increased levels of aspartate aminotransferase 479 IU/L and alanine aminotransferase 478 IU/L. The level of bilirubin, albumin, and GGT was within normal ranges. Complete blood count and coagulation tests were also normal. After extensive workup HIV, hepatitis A, B, C, and CMV infections were excluded. Other causes of hepatitis (e.g drug-induced hepatitis, Wilson disease, alpha-1-antitrypsin deficiency) were also excluded. However, EBV capsid antigen was positive. During 2 weeks of hospitalization, the child was closely monitored, and liver enzyme levels were fluctuating. A serological workup was also done, and high levels of ANA antibodies and anti-smooth muscle antibodies were detected, whereas antinuclear, anti-mitochondrial, and anti-liver -liver/kidney microsomal-1 antibodies were absent. Parents refused liver biopsy, hence histological examination was not done. Considering all the above-mentioned test results, AIH type 1 was diagnosed, and the treatment with steroids was initiated, however, later therapy was switched to azathioprine. The general condition of the child improved, and the laboratory normalized.
Learning Points/Discussion: There are a number of case reports discussing the association between EBV and AIH 1. In the case of EBV infection, if the patient continues to have a high level of liver enzymes, other causes of hepatitis should be ruled out and a differential diagnosis of AIH is essential for further management.

PV1079 / #51

AN UNCOMMON CAUSE OF PERSISTENT FEVER

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: AN UNCOMMON CAUSE OF PERSISTENT FEVER
Background: Acute lobar nephronia (ALN) is a localized, non-liquefactive, renal interstitial bacterial infection, affecting one or more renal lobules. The disease is considered as an intermediate stage between acute pyelonephritis (APN) and renal abscess. This condition is probably underdiagnosed. Diagnosis is relevant since ALN requires longer antibiotic treatment and is associated with more complications.
Case Presentation Summary: A 7-year-old girl presented with a 48 hours history of high fever with chills. Physical examination was normal. Laboratory tests showed neutrophilic leucocytosis and high CRP and procalcitonin. Urinalysis revealed the presence of leucocytes and nitrites. Urine culture was positive for a multisensitive strain of E.coli (negative blood culture). Chest X-ray and abdominal US were normal. Abdomen MRI revealed multiple areas with restricted diffusion in the left kidney, compatible with ALN. Amoxicillin/clavulanate iv was started; after 48 h the patient was still febrile, therefore treatment was switched to piperacillin/tazobactam + amikacin + vancomicin. After 72 h, the fever disappeared. Amikacin and vancomycin were discontinued. Piperacillin/tazobactam iv was continued for 10 days, then switched to cefotaxime iv for 7 days. Cefpodoxime proxetil was given orally for additional two weeks after discharge. Abdomen MRI, performed one month after discharge, showed an improvement of lesions in left kidney. VCUG revealed a bilateral grade 1 reflux.
Learning Points/Discussion: ALN is probably not a rare condition in children, but difficult to diagnose due to lack of specific symtoms and laboratory findings. ALN, compared to APN, has a prolonged and more severe clinical course; the antibiotic treatment should be initially intravenous and for at least 3 weeks of overall duration. CT scanning represents the diagnostic gold standard for ALN, but MRI could be considered in order to limit irradiation.

PV1080 / #1122

SYSTEMIC BARTONELLA HAENSELE INFECTION IN AN IMMUNOCOMPETENT ADOLESCENT- CASE PRESENTATION

E-Posters Viewing
E-POSTER VIEWING: AS15. PROLONGED / RECURRENT FEVER

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Title of Case: Systemic bartonella haensele infection in an immunocompetent adolescent- case presentation
Background: Systemic clinical presentations of infection caused by Bartonella henselae are rare in immunocompetent children.
Case Presentation Summary: We report a case of a 12 years old girl with splenic, hepatic and bone involvement, presented as prolonged fever of unknown origin and sacroiliac pain. Physical examination was unremarkable; lymph nodes, liver, and spleen were not enlarged. ESR and CRP were elevated. Ultrasound revealed multiple hypoechoic splenic lesions with well-defined thick margins. Bone marrow aspiration excluded lymphoma. HIV serology was negative, negative tuberculin test with normal immunoglobulins. Serologic testing was negative for sarcoidosis and cystic echinococcosis but positive serology for Bartonella henselae (IgM and IgG), cytomegalovirus (IgM and IgG), Epstein barr (VCA IgM, IgG and EBNA) and Toxoplasmosis gondii (IgG). MRI shown multiple hepatic, splenic and bone lessions (right iliac bone, femoral neck, pubic bone and L1 L2 vertebrae) with central necrosis and diffuse edema, characteristic for Bartonella disease. Despite a prolonged QT treatment with doxycline and rifampicin was started with good evolution with strict cardiologic assessment.
Learning Points/Discussion: Bartonella henselae is mostly asymptomatic in the immunocompetent host or localized as regional adenopathy. Prolonged fever of unknown origin should raise suspicion of cat-scratch disease

PV1081 / #376

PYRIDOXIN TOXICITY IN PEDIATRIC PATIENT WITH ESRD ON PERITONEAL DIALYSIS. CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Pyridoxin Toxicity in pediatric patient with ESRD on peritoneal dialysis. Case report
Background: Pyridoxine induced toxicity was first described in 1984 in 58 years old female patient with carpal tunnel syndrome. Later on, couple of case report also reported different forms of neurosensory toxicity in adult patients on high doses and/or long-term therapy of pyridoxine. We present first case of pyridoxine toxicity in pediatric patient received[B1] therapeutic dose of pyridoxine of 1 mg/kg/day once daily who presented with low blood pressure, headache and hypersomnia.
Case Presentation Summary: A 4-year-old child with end stage renal disease secondary to Caroli syndrome. He has been on peritoneal dialysis for two years. He presented with 5 days history of a sudden onset headache, hypotension, numbness of all limbs, sleepiness and lethargy. Parents also gave a history of unsteady gait for two days. Parents denied any history of trauma, animal exposure and sick contact. Mantoux test was done recently as part of pre-transplantation work up. The test was positive and hence started on isoniazid and pyridoxine does of 20mg OD (1-2mg/kg/day, Weight: 17Kg) for treatment of latent TB. On initial examination, child was alert, conscious and Vitaly stable. Motor, sensory exam were normal. Reflex examination was normal in all extremities, and his gait was normal. Other systemic examinations were unremarkable. Laboratory investigations were insignificant for possible cause. CT head scan was done considering the acuity of child presentation and was normal. Possibility of pyridoxine induced neurotoxicity was considered yet pyridoxine level couldn't be sent because of lack of availability. Therefore, child was admitted for observation and pyridoxine was put on hold. Child showed clinical improvement subsequently
Learning Points/Discussion: In certain circumstances usage of pyridoxine supplementation should be used with cautions as in our patient.

PV1082 / #1042

A RARE CASE OF GASTROINTESTINAL BASIDIOBOLOMYCOSIS IN AN IMMUNOCOMPETENT CHILD: A CASE REPORT AND LITERATURE REVIEW

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A RARE CASE OF GASTROINTESTINAL BASIDIOBOLOMYCOSIS IN AN IMMUNOCOMPETENT CHILD: A CASE REPORT AND LITERATURE REVIEW
Background: Basidiobolus ranarum (B. ranarum) is a fungus of zygomycetesclass found in decaying vegetation, skin of insects, and dung of reptiles and amphibians. The mode of transmission for B. ranarum is assumed to be through minor trauma. These fungi typically affecting immunocompetent host causing subcutaneous infection, with rare gastrointestinal (GI) manifestations.
Case Presentation Summary: 7 -year-old previously healthy girl presented with a four-month history of abdominal pain and abdominal distention associated with anorexia, weight loss and bloody diarrhea. The examination showed a huge lower abdominal mass. The full blood count had 18.9 10∧9/L white blood cells, with 55 % neutrophils and 40.9% eosinophils. Contrast enhanced computed tomography scan of the abdomen showed (figure 1) a large heterogeneous ill-defined mass within the right side of the mesentery measuring 6.8 cm x 10.2 cm x 10.5 cm in AP with central necrosis. She underwent an imaging-guided abdominal mass biopsy. Histopathology showed infiltration of eosinophils, special stains highlighted elements with thin walls and broad hyphae surrounded by eosinophilic material , positive for fungal microorganisms with morphological features consistent with basidiobolomycosis (SPLENDORE-HOEPPLI PHENOMENON) (figure 2) The patient started on intravenous voriconazole without surgical intervention. After 8 weeks, intravenous voriconazole shifted to oral . Abdominal mass cultures for TB and fungal were negative. Serial abdomen US showed a regression in the size of the mass (figure 3). The patient has gained weight with no bloody diarrhea and no palpable abdominal mass. The patient is still on Voriconazole with regular follow-up.
Learning Points/Discussion: To highlight the importance of clinical suspicion for early diagnosis and treatment of Gastrointestinal Basidiobolomycosis to optimize the patient's outcomes.

PV1083 / #1668

PULMONARY TUBERCULOSIS AND INVASIVE PENICILLIUM SINUSITIS IN PEDIATRIC PATIENT WITH ACUTE LYMPHOBLASTIC LEUKEMIA. CASE REPORT AND LITERATURE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Pulmonary Tuberculosis and Invasive Penicillium sinusitis in Pediatric Patient with Acute Lymphoblastic Leukemia. Case report and literature report
Background: Tuberculosis (TB) diagnosis in immunocompromised host patients is challenging, mainly because of atypical presentation and increased likelihood of negative tuberculin skin tests (TST) and interferon-gamma release assays (IGRAs). The incidence of mycobacterial infections is higher in patients with hematological malignancies than in the general population. Infections caused by Penicillium spp. are rare but devastating in immunocompromised hosts.The treatment presents special problems because of the interactions between immunosuppressive drugs and antituberculous therapy as well as antifungal therapy.
Case Presentation Summary: A 2 year-11-month-old girl, High risk B-Cell Acute Lymphoblastic Leukemia, presented with prolonged non-neutropenic fever. A non-enhanced CT scan of the chest showed multiple bilateral pulmonary nodules and cavities, the largest in the left upper lobe, measuring 1.5 cm in diameter (figure 1). CT paranasal sinuses showed right maxillary antrum rounded soft tissue intensity lesion (figure 2). The patient underwent Broncho alveolar Lavage (BAL), Acid-fast bacilli (AFB) smear was positive. BAL for GeneXpert Mycobacterium tuberculosis (MTB) / Rifampicin (RIF) Real Time PCR Assay was positive , but Rifampicin resistance has not been detected. Functional endoscopic sinus surgery (FESS) was done, the culture grew Penicillium spp. with the following susceptibility (table 1). The patient started on standard therapy for pulmonary tuberculosis including isoniazid (INH), rifampin (RIF), pyrazinamide (PZA), and ethambutol (EMB).Treatment was modified as per susceptibility pattern (table 2),in addition to Liposomal amphotericin B for fungal sinusitis. Currently, infection is controlled with anti-TB and Anti-fungal therapy.
Learning Points/Discussion: Although co-infections are rare, pulmonary tuberculosis and Penicillium sinusitis require a high clinical index of clinical suspicion, early diagnosis, and prompt management to optimize the patient's outcome.

PV1084 / #1314

SHORT VERSUS PROLONGED COURSES OF ANTIBIOTIC THERAPY FOR CHILDREN WITH UNCOMPLICATED GRAM-NEGATIVE BACTEREMIA; A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: There is no consensus on the optimal duration of antibiotic therapy in children with gram-negative bacteremia. Thus, the objective of this study was to compare the short (7- 10 days) vs. long-term (> 10 days) course of intravenous antibiotic therapy in those patients.
Methods: A literature search of PubMed, EMBASE, Scopus, and Cochrane databases was performed with the keywords " short-term antibiotic therapy, prolonged antibiotic therapy, gram-negative bacilli, bacteremia, bloodstream infection, treatment failure, relapse, and complications" in children (<18Years) . Screening of titles/ abstracts, data extraction, and quality assessment were done by two independent reviewers. Data were pooled using random effect model and compared using risk difference (RD) and its 95% confidence interval (CI).
Results: Eight studies were included in the analysis; 5 were clinical trials and 3 observational studies. The total number of patients was 807; 395 were in the short course group, and 412 were in the prolonged course group. Eight studies reported data about relapses [24 vs. 20 in short vs. prolonged course groups]. The overall RD was 0 (95% CI: -0.03- 0.02). Five studies reported data related to the dissemination of infection with no difference between both groups [RD: -0.01 (95% CI: -0.03- 002)]. Five studies reported data about all-cause mortality, with a RD of 0 and 95% CI of (-0.02- 0.02). Two studies reported antibiotic-related side effects, with no significant difference, however, there was a trend towards increased risk of candidemia in the prolonged therapy group, but this did not reach statistical significance [RD: 0.05 (95% CI: -0.10 – 0.00)].
Conclusions/Learning Points: Short course of Intravenous antibiotic therapy should be sufficient for treating uncomplicated gram negative Bacteremia in children with no apparent increased risk of relapse, infection spread, or mortality.

PV1085 / #1967

DISSEMINATED CANDIDIASIS IN A CASE DIAGNOSED WITH APLASTIC ANEMIA

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Disseminated Candidiasis In A Case Dıagnosed With Aplastic Anemia
Background: Aplastic anemia is a bone marrow failure disease characterized by hypocellular bone marrow and pancytopenia without abnormal infiltration and reticulin fiber increase. Clinical findings develop depending on cytopenias. Fungi can cause infections that are difficult to treat and have high mortality in patients with aplastic anemia.
Case Presentation Summary: A 13-year-old girl, who was followed up in an external center with the diagnosis of aplastic anemia, was sent to our pediatric intensive care unit with a preliminary diagnosis of septic shock. His general condition was poor, he was hypotensive, tachycardic, and his body temperature was 38 degrees. In the examinations, acute phase reactants were found to be high, neutrophil: 0 /mm3. Due to the pain in the left eye, which was around the eye, a fundus examination was performed by the ophthalmologist. Upon detection of lesions compatible with fungal endophthalmitis, anterior chamber paracentesis and intravitreal Amphotericin B injection were performed, and systemic amphotericin B was started. In the follow-up, the patient had nasal congestion and severe pain. In the ear, nose and throat examination, a necrotic crusty appearance compatible with invasive fungal sinusitis was detected. Untypeable mold was detected in the culture of the debridement material, and Candida was grown in the blood cultures of the patient. Micafungin was added to the amphotericin B treatment because the general condition of the patient was very poor and his fever was persistent. The patient, whose neutropenia persisted during the follow-up, and whose general condition was poor, died due to fungal sepsis.
Learning Points/Discussion: Although bacterial agents are frequently seen in long-lasting neutropenia, it should not be forgotten that fungal agents may be mortal.

PV1086 / #2464

EARLY ENTERAL FEEDING IN PRETERM INFANTS EXPOSED TO RISK FACTORS OF BRAIN DAMAGE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Background: Early enteral nutrition is correlated with beneficial effects in healthy or sick premature infants. However, the protective effects of breast milk on the damaged brain are not yet sufficiently studied. Objectives Estimating the beneficial effect of breast milk in prematures at high risk of brain damage.
Methods: Case control study at the neonatal service of CHU Mustapha of Algiers from 01/12/2007 to /12/2012. Population : 801 in born prematures aged between 24 to 36 GA +6 days. -Cases : infants early fed with breast milk -Controls : infants fed with articficial milk. Exams : -CUS within the 72 hours of birth followed by weekly controls until the acquired term. - Late MRI for the 32 weeks born or less and after 40 post natal weeks if abnormal neurological exam.- -EEG : during the first week of life. - Statistical method : bi-varied analysis, logistic regression. P < to 0.05 was considered significant.
Results: Brain lesions frequency was 27.3%. The lesions included peri-intraventricular hemorrhages, cystic and non-cystic leukomalacia and the sequelae (post hemorrhagic hydrocephalus, hypotrophy or atrophy of corpus callosum, and cortical atrophy). The frequency of the breastfed infants was 83,4% (Cases: 20,12% and Controls: 79;87%). In bivaried: OR=0,14 (0,09-0,22) p<10-6 After adjustment by logistic regression ,early breast milk was an independent protector factor, ORa = 0,475 (0,25-0,90) p =0,022
Conclusions/Learning Points: In our study, breast milk was a protective factor against the occurrence of early brain damage. However, more specific studies are needed to better understand the mechanisms of this beneficial effect and its impact on distant cerebral development.

PV1087 / #1347

INCREASED INCIDENCE OF INVASIVE PNEUMOCOCCAL DISEASES (IPDS) AMONG CHILDREN AFTER COVID-19 PANDEMIC

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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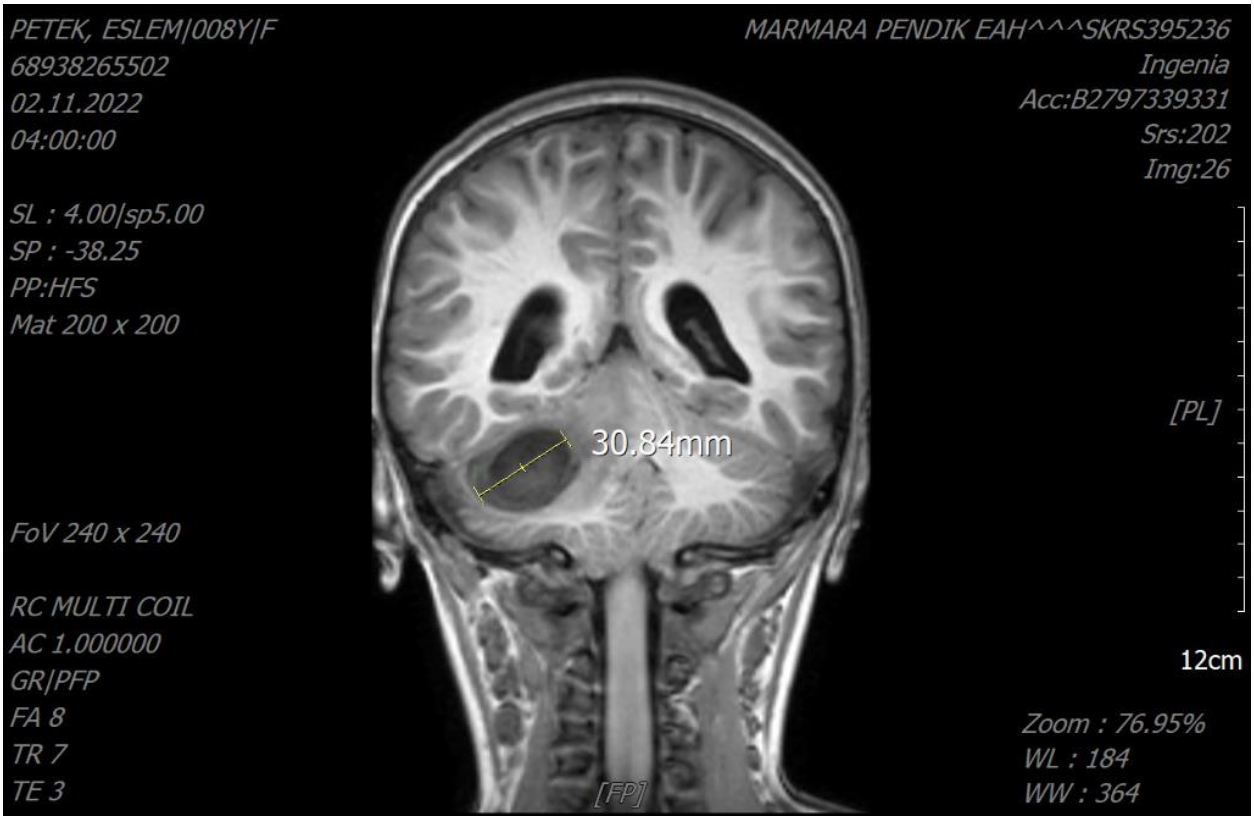
Title of Case: Increased Incidence of Invasive Pneumococcal Diseases (IPDs) among Children after COVID-19 Pandemic
Background: After lifting COVID-19 restrictions, an increase has been reported in childhood IPD that exceeded prepandemic levels. Here we present three children with the diagnosis of IPD.
Case Presentation Summary: Case 1 A 31-month-old male patient admitted with swelling and tenderness behind the left ear. He had bilateral cochlear implant for one year. There was no mastoiditis sign in computed tomography, an abscess was detected. Streptococcus pneumonia was identified in the culture of drained abscess material. Ceftriaxone and vancomycin was started. The antibiogram resulted as cefotaxime sensitive (mic: 0.047), than vancomycin was discontinued. The patient's symptoms resolved and he was discharged at 21st day of treatment. Case 2 A ten-month-old male patient presented with swelling and redness behind the left ear following otitis media. Computed tomography showed mastoiditis, and cortical mastoidectomy was performed. Meropenem and vancomycin combination therapy was started. Streptococcus pneumonia was idintified in the tissue culture and antibiogram resulted as cefotaxime sensitive (mic: 0.125). Vancomycin and meropenem were stopped and ceftriaxone was started. Ceftriaxone was stopped on the 14th day. Case 3 A nine-year-old female patient admitted with the headache following otitis media. Cranial MRI was showed an 30 mm abscess in the right cerebellar hemisphere (Figure
1).



The abscess was drained and the patient was started on metronidazole, cefepime, and vancomycin. Streptococcus pneumonia and Methicillin-resistant coagulase negative Staphylococcus spp were identified in the abscess culture. Treatment was switched to ceftriaxone and vancomycin. The abscess regressed significantly and treatment was completed to six weeks.

Learning Points/Discussion: The increased incidence of IPDs in this post-pandemic season highlights the importance of adequate immunization against S. pneumonia and the active surveillance for pneumococcal serotyping.

PV1088 / #1635

A CASE OF ACTINOMYCOSIS PRESENTING WITH A MEDIASTINAL MASS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A CASE OF ACTINOMYCOSIS PRESENTING WITH A MEDIASTINAL MASS
Background: Aktinomyces, a member of the Actinomycetaceae family may affect the bronchopulmonary, pleural, and thoracic wall and can spread from oropharynx into the deep organs. Here we present a case who was evaluated for mediastinal mass and thought to have malignancy but was diagnosed with actinomycosis.
Case Presentation Summary: A 12-year-old boy presented with back pain. The patient was admitted to pediatric surgery with presume diagnosis of malignancy when a mediastinal mass was found in the thorax magnetic resonance imaging (MRI). Magnetic resonance showed a mass lesion in the paretracheal region of the left hemithorax, extending from the T3-T4 level to the T7 level. A biopsy was obtained. In Periodic acid-Schiff (PAS) staining, microorganisms that resemble Actinomycetes forming filamentous groups were found. Pulmonary actinomycosis was diagnosed. The patient received intravenous of penicillin G. Following one month of antimicrobial therapy the mass was resolved. Immunoglobulins, the Dihidrorodamin (DHR) test and Flow cytometry analysis were normal. The antimicrobial therapy switched to the amoxicillin and was continued for one year.
Learning Points/Discussion: In conclusion, pulmonary actinomycosis lack of distinct symptoms and radiological similarities to other lung infections and cancers are significant. The diagnosis can be made by tissue sampling and special staining methods.

PV1089 / #868

FIRST FEVER AND BLOOD, THEN RASH

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: First fever and blood, then rash
Background: Fever is the single most common reason for children to present to the emergency department. When paired with a rash, it can lead to a dilemma in the diagnostic, given the broad spectrum of diseases that present these clinical symptoms, therefore the history and the physical examination are crucial. Febrile rashes are most of the time self-limited and with favorable prognostic, but some represent a public health concern.
Case Presentation Summary: A male patient, 16 years old, presented fever, cough, headache, rhinorrhea, and two loose stools, then 12 hours later he presented multiple episodes of hematemesis (fresh blood and clots) after minimal coughing. He was brought to the ED where laboratory analysis revealed an elevated CRP (152mg/L) and mild thrombocytopenia (123.000/ul). He was admitted to the Gastroenterology Department and antibiotic and supportive treatment was initiated, He underwent multiple procedures and investigations (gastroscopy, laryngeal endoscopy, chest CT, abdominal ultrasound, ENT consult) and a small portion of the tracheal mucosa was found to be congested and with accentuated vascularization, showing signs of recent bleeding. After 48 hours since the first symptoms, a generalized maculopapular rash appeared and the patient was transferred to the Infectious Disease Department. Screening for viral rashes (measles, rubella, EBV, CMV, HIV, Toxoplasma, Mycoplasma pneumoniae, Parvovirus) was performed, with negative results. He was discharged after 4 days, with clinical improvement and no further episodes of hematemesis, which was interpreted as vascular hyperpermeability linked to the viral infection.
Learning Points/Discussion: This case report demonstrates the importance of treating the patient, not just the disease. The multidisciplinary team approach is essential in allowing for a more comprehensive evaluation and management of the patient's condition, leading to early diagnosis and treatment.

PV1090 / #571

COWPER SERINGOCÉLE, MISSED ETIOLOGY OF RENAL FAILURE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Cowper seringocéle, missed etiology of renal failure
Background: The cowper's gland is a small gland located on either side of the membranous urethra, which produces mucus which it drains into the urethral lumen through these two ductThe cowper's gland cyst is a dilation of the gland, commonly called cowper's syringocele , is a disease that effects children but is unfortunately diagnosed in adulthood by missed diagnosis.
Case Presentation Summary: 5-year-old child admitted to the emergency department for urinary retention ,neonatal period unremarkable ,no history of neurological symptoms , history of repeated urinary tract infections one time every 3 month with dysuria and dribbling , managed by antibiotic and a history of feeling incomplete urination.Physical examination found a bladder globe,retention with sub pubic swelling with guarding and pain.Urinalysis found leukocytes and nitrites.The culture confirms the urinary tract infection with Escherichia coli.Blood test finds a creatinine level of 20 mg / l and urea at 0.65 g / l.Ultrasound: bladder with diverticular wall with bilateral ureterohydronephrosis and dilation.Retrograde urethrocystography: show dilated prostatic urethra and bilateral vesicoureteral refluxTherapeutic interventions: Patient relieved by placement of urinary catheter.Cystoscopy was done in peripheral hospital : stenotic urethra with demonstration of a bladder diverticulum.
Learning Points/Discussion: Suspected in the presence of a clinical or paraclinical symptomatology of urinary obstruction and confirmed by an endoscopic examination where the syringocele appears as a protrusion of a cyst in the intaurethral in the event of a closed syringocele or a defect on the posterior surface of the membranous urethra in case of ruptured syringocele.Unknown pathogenesis, congenital in children,.Several classifications used, the current trend is the use of a simple classification, ruptured syringocele and enraptured syringocele.

PV1091 / #284

SALMONELLA PARATYPHI URINARY TRACT INFECTION IN AN INFANT-A RARE MANIFESTATION OF PARATYPHOID FEVER

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: SALMONELLA PARATYPHI URINARY TRACT INFECTION IN AN INFANT-A RARE MANIFESTATION OF PARATYPHOID FEVER

Background: Salmonella is primarily known to affect the gastrointestinal tract but can rarely cause infections at uncommon sites like the urinary tract. It is known that Salmonella can infect the urinary tract directly by blood, fecal contamination of urethra, urolithiasis, or secondary intraluminal ascending infection. We present a case of 8 month old infant who presented with fever caused by Salmonella paratyphi further leading to urinary tract infection

Case Presentation Summary: An eight month old female child was admitted in the pediatrics department of our hospital with complaints of fever,irritability,refusal to feed and increased frequency of micturition for past 8 days.Fever was high grade,intermittent and associated with rigors.Baby was being given milk with a bottle which was not properly sterilized.Routine laboratory investigations were sent along with blood culture and a urine culture.Child was started on intravenous fluids and injection cefuroxime for suspected urinary tract infection.Hematological parameters were in normal range except for raised CRP levels.In liver function tests ALT as well as AST levels were raised and so was serum LDH.Urine analysis showed increased leukocytes and proteins.Urine culture showed growth of Salmonella paratyphi A which was resistant to cefuroxime .As per sensitivity reports antibiotic was changed to ceftriaxone.Child continued to have fever upto 102^0F.In the meantime blood culture also grew Salmonella paratyphi A.As fever persisted ispite of giving intravenous ceftriaxone for 5 days,oral Azithromycin was added in a dose of 20 MG/Kg/day.Within 48 hours defervescence took place and child was discharged home on 10^{th} day of hospitalization.Child received further 4 days of oral Cefixime.

Learning Points/Discussion: Salmonella paratyphi A is a rare cause of UTI.Patients who develop S.paratyphi bacteriuria should be evaluated further for underlying urinary tract abnormalities.

PV1092 / #2058

PROTEIN-LOSING ENTEROPATHY AS UNUSUAL COMPLICATION OF GIARDIASIS IN CHILDREN: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: PROTEIN-LOSING ENTEROPATHY AS UNUSUAL COMPLICATION OF GIARDIASIS IN CHILDREN: A CASE REPORT
Background: Giardiasis is an intestinal infection caused by Giardia lamblia, a protozoan parasite. The infection may be asymptomatic or present with a wide spectrum of clinical manifestations. Malabsorption is a well-known complication of giardiasis, however, selective protein-losing enteropathy (PLE) is rare. In cases of severe hypoproteinemia edema, ascites and/or pleural/pericardial effusion may occur.
Case Presentation Summary: A previously healthy, indian, 17-month-old girl presented to an emergency department with a one-week history of fever, watery diarrhea, vomiting and face, hands and feet swelling. At the admission she was apyretic and hemodynamically stable, with pale skin and generalized pitting edema without ascites, organomegaly or pleural/pericardial effusions. Laboratory results showed iron deficiency anemia, hypoproteinemia (2.9 g/dL) and hypoalbuminemia (1.4 g/dL). Biochemical examinations, urinalysis and 12-hours urinary protein excretion excluded proteinuria and hepatic dysfunction. Serum immunoglobulin G, vitamin D, calcium and ferritin levels were low. Celiac disease was excluded. Although stool cultures failed to reveal pathogenic organisms, stool analysis for Giardia lamblia antigen were repeatedly positive in three samples. The patient was managed with fluid-restriction and a high protein content diet. Vitamin D, calcium and iron were also supplemented. After five days of Albendazole (400 mg/day), the edema decreased progressively and she was discharged from hospital 13 days after admission. Four weeks later, she was asymptomatic, physical examination was entirely normal and serum total protein, albumin and immunoglobulins levels were in the normal range.
Learning Points/Discussion: Giardiasis is a treatable cause of PLE, which can be associated with severe comorbidities. An epidemiological investigation, early recognition and treatment of Giardia infection presenting with PLE, allows rapid clinical and laboratory recovery thus preventing malnutrition, particularly in growing children.

PV1093 / #1330

AN AUDIT EVALUATING THE USE OF A LOCAL PAEDIATRIC SEPSIS SCREENING TOOL COMPARED TO THE NICE STRATIFICATION TOOL IN IDENTIFYING PAEDIATRIC SEPSIS CASES

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: An effective screening tool to identify cases of paediatric sepsis is paramount to ensuring prompt recognition, and management of sepsis. At Heartlands University Hospitals Birmingham (UHB) there is a screening tool for paediatric sepsis based off NICE guidelines. This audit aims to compare how many children admitted to paediatric assessment unit (PAU) triggered the sepsis pathway on the UHB screening tool compared to the NICE stratification tool, and of these how many had a final diagnosis of sepsis.
Methods: We collected data from 147 PAU admissions in a period of 18 days from August to September 2022. Outcomes recorded include completion of the UHB sepsis screening tool at admission; if the sepsis pathway was triggered by the UHB screening tool, or NICE tool; and number of final diagnoses of sepsis along with time for senior review and antibiotic administration.
Results: 94 children presenting to PAU out of 147 (64%) had sepsis forms completed. Four children (3%) triggered the sepsis pathway via the UHB tool whereas 32 children (22%) triggered via the NICE tool. Of these, 27 children (18%) triggered due to age-specific tachycardia. In total, no children had a final diagnosis of sepsis.
Conclusions/Learning Points: In our 147 PAU admissions, we found only 64% had sepsis forms completed. Of these, over seven times the number of children triggered the sepsis pathway for urgent senior review via the NICE stratification tool compared to our local UHB sepsis screening tool; no children had a final diagnosis of sepsis. This suggests more emphasis should be placed on completion of the sepsis form in our PAU, and more research should be undertaken evaluating the sensitivity of the NICE stratification tool in PAU.

PV1094 / #2148

ACUTE LYMPHOCYTIC LEUKEMIA - AN UNEXPECTED DIAGNOSIS: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: ACUTE LYMPHOCYTIC LEUKEMIA - AN UNEXPECTED DIAGNOSIS: A CASE REPORT
Background: Leukemia is the most common cancer in children and teens, accounting for almost 1 out of 3 cancer cases, the most common type being acute lymphocytic leukemia (ALL). In this clinical case, asthenia and recurrent infections were the symptoms that motivated the patient to seek professional help, but the overall nonspecific clinical presentation created a diagnostic challenge.
Case Presentation Summary: Three-year old male is brought to the hospital with fever (maximum 39,3ºC, 4/4 hours, resolves with antipyretic and without signs of hypoperfusion), productive cough and odynophagia with 3 days of evolution. A physical examination presented with paleness, normal breath sounds, no dyspnea, 99% oxygen saturation and hyperemic tonsils. Rapid antigen detection test for group A streptococcus negativity lead to the assumption of viral respiratory infection. Paleness was attributed to breastfeeding and the mother was advised to start weaning in order to prevent iron absorption deficits and related anemia. A week later is brought again to the hospital due to asthenia and hypoactivity, noticed by the mother and teacher, and to recurrent respiratory infections over the last month. Analytical assessment showed severe anemia (Hb 4.9) – 2 blood units were transfused, mild leuko- and thrombocytopenia, elevated ferritin and reticulocytes, and a peripheral blood smear with 7% blasts of apparent lymphoid lineage. Bone marrow examination confirmed precursor B-acute lymphoblastic leukemia.
Learning Points/Discussion: Early diagnosis of ALL is essential for proper treatment. Nonspecific symptoms might be overlooked and misguide clinical investigation. Hemogram is a simple but valuable diagnostic tool and its routine use can hasten diagnosis, improving patients' prognosis.

PV1095 / #1074

MURINE TYPHUS IN CHILDREN IN CYPRUS BETWEEN 2007 AND 2021

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: MURINE TYPHUS IN CHILDREN IN CYPRUS BETWEEN 2007 AND 2021
Background: Murine typhus is caused by the intracellular bacterium Rickettsia typhi and is usually transmitted by the rat-flea Xenopsylla cheopis. In Europe the disease is endemic in Southern European countries. This study aims at defining the epidemiological and clinical characteristics of murine typhus in children in Cyprus.
Case Presentation Summary: In this retrospective cohort study, the medical records of patients under 15 years old, admitted to three public hospitals in Cyprus were reviewed. Cases were diagnosed as confirmed or possible based on the Ministry of Health definitions of Notifiable diseases 2018. Thirty children were diagnosed with murine typhus between 1/1/2007 to 31/12/2021. 15 of them were males (50.0%). Median age 10 yrs. Most of cases occurred between July and September. Median duration of fever before admission was 7 days. The most common clinical findings were fever 100%, rash 60.0%, chills 50.0%, headache 46.7%, myalgias 36.7%, lymphadenopathy 30.0%, splenomegaly 30.0%. Most common laboratory abnormalities were elevated C-reactive protein 93.3%, low albumin 63.2% and elevated transaminases 63.3%. Complications such as meningitis and nephritis occurred in 20% of cases, mostly in patients above 10 years old. No patient was admitted in Intensive care unit or died. Treatment regimens included doxycycline (73.3%) and azithromycin (16.6%).
Learning Points/Discussion: Murine typhus is a rare but important cause of fever and hospitalization in Cyprus. Complications occur mostly in patients above the age of 10 years. Murine typhus should be considered in children with fever and rash during summer and autumn months in Cyprus. Improved physician awareness will lead to early recognition of R. typhi infection in children and will prevent unnecessary use of non-effective antibacterials and prolonged morbidity.

PV1096 / #889

SEROPREVALENCE OF TOXOPLASMA GONDII AND PEDIATRIC TOXOPLASMOSIS IN SOUTH KOREA: A SINGLE CENTER RETROSPECTIVE STUDY DURING 2010-2022

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Primary Toxoplasma gondii infection in pregnant women or reactivation of chronic infection in immunocompromised patients can result in severe consequences. We investigated the seroprevalence of Toxoplasma in South Korea.
Methods: A retrospective review was conducted on individuals of all ages who underwent serologic testing for Toxoplasma gondii at Pusan National University Hospital from January 2010 to December 2022. We analyzed the seroprevalences of Toxoplasma by age group, age group, and periods.
Results: Data on 4,921 Toxoplasma IgM and 3,635 Toxoplasma IgG were collected. The overall seroprevalence of Toxoplasma IgM and IgG was 1.4% and 16.6%, respectively. Of 2,669 individuals who underwent Toxoplasma IgM and IgG, 2.2% tested positive for both. The seroprevalence of Toxoplasma IgM was the highest in individuals aged 30-39 (3.6%). As the age increased, the seroprevalence of Toxoplasma IgG showed a significant upward trend (P <0.001). The seroprevalence of Toxoplasma IgG was the highest among individuals aged ≥70 years old (27.3%). In females of reproductive age (15-49 years), the seroprevalence of Toxoplasma IgM was 2.6% (3.1%, aged 20-29; 3.8%, aged 30-39). There were no significant differences by gender (male vs. female): 1.3% vs. 1.5% (P = 0.623) in IgM and 16.1% vs. 15.4% in IgG (P = 0.604). Over the study period, the seroprevalence of Toxoplasma IgG noted a significant upward trend over time (P = 0.036). Among the infants, the seroprevalence of Toxoplasma IgM and IgG was 0.2% (3/1,531; all congenital toxoplasmosis) and 8.6% (7/81; 5, transplacental transmission related to maternal toxoplasmosis), respectively. In children aged 1-18, the seroprevalence of Toxoplasma IgM and IgG was 0.5% (4/812) and 8.0% (12/150).
Conclusions/Learning Points: The seroprevalence of Toxoplasma IgM was relatively high among young adults, and monitoring for congenital toxoplasmosis is needed.

PV1097 / #1942

SEVERE RHABDOMYOLYSIS IN A PATIENT WITH MALARIA

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Severe rhabdomyolysis in a patient with malaria
Background: Rhabdomyolysis in Plasmodium falciparum (PF) malaria is reported occasionally in the literature, and it can lead to severe metabolic and renal complications.
Case Presentation Summary: A 14-year-old boy, natural from Ivory Coast, had no relevant medical history, other than non-complicated malaria 2 years before. During his vacation in Portugal he went to an emergency department with complaints of fever, headache, and myalgias, with 3 days of evolution. He had already taken a dose of artemether/lumefantrine at home. At admission he was prostrated and drowsy. Initial blood workout revealed a creatine-kinase (CK) of 15427 U/L, creatinine of 1.24 mg/dL, and CRP of 75 mg/L. P. falciparum malaria was diagnosed, with a parasitemia of 0.12%.
He started IV artesunate, ceftriaxone and fluid therapy. There was a global clinical improvement, however, his urine was dark-colored and he referred significant leg pain. Analytically, there was myoglobinuria (with choluria), exacerbation of CK and myoglobin values (117668 U/L and 5585.2 ng/ml, respectively). He was admitted in intensive care, with renal insufficiency and rhabdomyolysis. During hospitalization, CK and myoglobin values progressively increased, reaching maximum values of 345139 U/L and >12000 ng/mL, respectively; with normalization of kidney function. Besides antimalarial drugs, he was treated with intravenous hyperhydration and sodium bicarbonate boluses. After 2 weeks of treatment, he was discharged with normal CK and myoglobin levels. He has an ongoing genetic study to determine if there is an individual susceptibility to justify these extremely elevated CK levels.
Learning Points/Discussion: In patients with Falciparum malaria presenting with severe myalgia and black-colored urine, rhabdomyolysis should be considered. This is a particular and rare case, due to these extremely high levels of CK, compared to other published case reports.

PV1098 / #1472

SPLENIC ABSCESS AS A CLUE TO DIAGNOSIS OF ENTERIC FEVER: A CASE SERIES

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: SPLENIC ABSCESS AS A CLUE TO DIAGNOSIS OF ENTERIC FEVER: A CASE SERIES
Background: Salmonella infection is a major public health problem in low-middle income countries. India accounted for nearly 50% of 14.3 million global cases of enteric fever in 2017. Typhoidal Salmonella rarely cause abscesses in different organs as opposed to non-typhoidal strain; isolated splenic abscess, in particular is uncommon. Here we report 3 children who presented with non-localizing fever and splenic lesions.
Case Presentation Summary: A 12-year-old boy presented with 3-weeks history of fever with chills and pain in left upper abdomen. Ultrasound (US) examination of abdomen revealed 3 anechoic to hypoechoic lesions in spleen, that were aspirated under US guidance. Pus culture grew Salmonella paratyphi A. He recovered completely with 3 weeks of ceftriaxone. A 5-year old girl presented with 10 days history of fever, pain abdomen, vomiting and loose stool. Blood culture showed growth of Salmonella typhi (pan-sensitive). She was started on intravenous ceftriaxone. Despite 7-days therapy, fever did not defervesce hence an US was done that showed solitary splenic abscess. Aspiration & drainage of pus while continuing antibiotics helped in her complete recovery over 3 weeks. Another 4-year-old girl was admitted with complaints of fever with chills, pain abdomen and vomiting for 10-days. US done as a part of evaluation for fever showed multiple splenic granulomas. Her blood culture grew Salmonella typhi at 48 h incubation. She had complete resolution following 14-days of systemic antibiotics without any additional intervention.
Learning Points/Discussion: Splenic abscesses/lesions in typhoidal Salmonella infection are not as uncommon. Non-resolution of fever despite sensitive antibiotic therapy in enteric fever cases should raise the suspicion of intraparenchymal abscess particularly in spleen. Ultrasound guided pus aspiration may help in diagnosis and treatment.

PV1099 / #1849

COVID-19 VACCINATION IN CHILDREN OVER 3 YEARS OLD. CROSS-SECTIONAL STUDY OF PEDIATRICIANS' AND PARENTS' PERCEPTIONS AND VACCINE ACCEPTANCE IN COLOMBIA.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: COVID-19 vaccine is indicated in children over 3 y.o. in Colombia, vaccination coverage rate in the 3-11 y.o. age group was 67% for the second booster, as of Dec 6, 2022. Vaccine acceptance is one of the main factors impacting coverage; little is known about it in Colombia. Our goal was to assess pediatricians' and parents' perception and acceptance of COVID-19 vaccines in children in the country.
Methods: From January 2-15, 2023 we carried out two cross-sectional online surveys among pediatricians and parents of children of COVID-19 vaccination age in Colombia.
Results: 767 physicians completed the questionnaire (52.1% from private practice; 81.2% > 5 years of clinical practice). The risk of COVID-19 was perceived as low both for adults and children (16.8% and 37.0%, respectively) while vaccine acceptance was higher for adults (96.4%) than for healthy children (69.4%); 23.0% would only indicate the vaccine to children at risk. Lack of scientific information (57.3%), fear of immediate and long-term side effects (20.8% and 33.3%, respectively), and non-severity of the disease in children (21.8%) were the main reasons impacting vaccine hesitancy. Of the 646 parents who answered the survey, 82.6% were mothers over 35 y.o.; 57.7% had postgraduate degrees; 89.4% had vaccinated their children against COVID-19. The main reason for non-vaccination was concern about vaccine safety (36.6%). 71.2% of participants had received information from their pediatricians about how vaccines work, and 64.8% about the risks of COVID in children.
Conclusions/Learning Points: Acceptance of COVID-19 vaccines is high in Colombia, as shown by the results of this study and the vaccination coverage rates. However; evaluating and designing strategies to revert vaccine hesitancy should not be overseen in light of the current global and regional antivaccine moment.

PV1100 / #1902

COVID-19 VACCINATION IN CHILDREN OVER 6 MONTHS OF AGE. CROSS-SECTIONAL STUDY OF PEDIATRICIANS' AND PARENTS' PERCEPTIONS AND VACCINE ACCEPTANCE IN ARGENTINA.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: COVID-19 vaccine is indicated in children over 6 months of age in Argentina, vaccination coverage rate is 62% in children over 3 yo, and it is low in the 6 mo-3 yo age group. Vaccine acceptance is one of the main factors impacting coverage; little is known about it in Argentina. Our goal was to assess pediatricians' and parents' perceptions and acceptance of COVID-19 vaccines in children in the country.
Methods: From January 2-15, 2023 we carried out two cross-sectional online surveys among pediatricians and parents of children of COVID-19 vaccination age in Argentina.
Results: 919 physicians completed the questionnaire (68.1% from public hospitals and primary health care; 90.2% > 5 years of clinical practice). The risk of COVID-19 was perceived as moderate in adults (54.9%) and low in children (52.6%), vaccine acceptance was higher for adults (91.5%) than for healthy children (68.2%); 17.1% would only indicate the vaccine to children at risk. Lack of scientific information (29.0%), concern about long-term side effects (19.9%), and non-severity of the disease in children (9.7%) were the main reasons impacting vaccine hesitancy. Of the 2,692 parents who answered the survey, 97.3% were mothers, 87.2% over 30 y.o., 46.0% had university studies and 59.7% had not yet vaccinated their children against COVID-19. The main reason for non-vaccination was their concern about vaccine safety (50.1%); 63.7% of participants had received information from their pediatricians about how vaccines work, and 55.3% about the risks of COVID in children.
Conclusions/Learning Points: Acceptance of COVID-19 vaccines is still low in Argentina, as shown by vaccination coverage rates and the results of this study. Evaluating and designing strategies to revert vaccine hesitancy and improve vaccine uptake is essential in the current global and regional antivaccine moment.

PV1101 / #1929

INTENSIVE TRAINING PROGRAM IN VACCINOLOGY AND VACCINES POLICIES: A LATIN AMERICAN INITIATIVE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Several Vaccinology courses are offered worldwide. Language and costs are barriers to access international education for Latin American physicians. We describe a training initiative aimed at filling this gap.
Methods: We designed an 8 days' training on Vaccines and Vaccination Policies in Spanish language, directed to Latin American (LATAM) physicians, members of governmental agencies, the academia, and the industry. Top-notch experts were invited as professors and lecturers. Participants' selection criteria was based on academic and professional background. The agenda included a comprehensive insight on vaccine development, economics, production, vaccination programs and policies, through lectures, workshops, master classes, coached peer groups, and digital tools.
Results: 423 inquiry forms and 96 applications were received; 52 participants from 11 LATAM countries were selected (81% physicians; 35% infectious diseases; mean age 41; public/private practice ratio 50/50, male/female ratio 20/32). The program took place on September 18-25, 2022 in Miami, Florida, USA, during 8 days (70 class hours, 50 sessions, 140 educational objectives, 30 professors). Before joining, participants were asked to agree to a "digital silence" policy (no use of personal devices during sessions) and attended a virtual leveling course during the 9 weeks prior to the training. The online program platform included interactive tools, all presentations, videos, and suggested readings; iPads with access to the platform were provided to be used during digital silence. In the post-training survey, 89.1% of participants ranked the agenda as excellent and gave high scores to all academic activities and faculty; 100% confirmed to have gained new knowledge, and would recommend the program to their colleagues.
Conclusions/Learning Points: This training program fills in an educational gap, and might become a new opportunity to identify and develop future leaders in Vaccinology and Vaccines Policies in LATAM.

PV1102 / #1729

VIRTUAL MEDICAL EDUCATION IN PEDIATRIC INFECTIOUS DISEASES: A LATIN AMERICAN EXPERIENCE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Discussion of difficult or controversial cases is a traditional tool to update medical knowledge. Virtual case discussion meetings (VCDM) also allow knowledge exchange at regional and global levels. Since 2020, our PID scientific society in Latin America holds a regional weekly VCDM. We describe this educational initiative and the participants' feedback.
Methods: We revised the diagnoses, attendance and participants' profile, and designed a survey to assess their feedback on the activity.
Results: From January 11 to December 13, 2022 we hosted 44 VCDM. Society members were invited to attend via email campaigns. Presenters were selected by the medical education committee. Average attendance was of 115 physicians from 229 institutions in 20 Latin American countries. The most frequent pathologies were infections in ICH (20%), infrequent invasive bacterial infections (18%), endemic mycosis (10%), and neonatal infections (10%). 72 participants completed the survey (78.5% PID specialists, 14.2% PID fellows, and 7% others); 65.28% had over 5 years of clinical practice. 50% stated that they had changed their agendas to attend the meetings, 20% did not attend but watched the videos. Most participants (91.5%) agreed that these meetings contribute to their daily clinical practice, provide opportunities for networking and update (35.7% and 34.3%, respectively). Most prefer to discuss frequent pathologies with unusual clinical manifestations (77.1%); everyone stated that they will continue participating in 2023.
Conclusions/Learning Points: Our VCDM allowed specialists and fellows in training to interact and learn from diverse clinical cases presented by their peers throughout the region. Scientific societies promoting this type of forums contribute to improve medical knowledge on the epidemiology, presentation, diagnosis and management of diseases, and favor academic and scientific networking.

PV1103 / #1383

FIRST CASE OF CONGENITAL VISCERAL LEISHMANIASIS IN MONTENEGRO

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Clinical Centre, Clinic For Infectious Disease, Podgorica, Montenegro

Title of Case: First case of congenital visceral leishmaniasis in Montenegro
Background: Occurence and outcome of congenital Visceral Leishmaniasis (VL) is rare publishing. The disease is endemic in some Countries including Montenegro with annually incidence of 3-5 cases. The aim of the case was to present the first case of congenital VL in our Country.
Case Presentation Summary: A 29 years female was hospitalized at the Clinic for Infectious disease, Podgorica, Mongenegro in the March 2017. 10 days after natural childbirth. Three days after giving birth she develope symptoms of fever, weakness, and abdominal pain with conjuctival hyperemia, generalised lymhadenopathy, hepatomegalia and spleen enlargment (up tp 25 cm cranio-caudal diameter) at physical examination. Laboratory analysis revealed pancytopenia, mild elevated of liver function tests, increased in inflamatory markers and hypergammaglobulinemia. Microbiology results incluing blood and urine culture and other viral and bacterial infections were negative. Hematologic, rheumatologic, and autoimmune disorders were ruled out. Positive antibodies agains Leishmania Donovani confirmed by bone marrow biopsy and finding the amastigote form of the parasite in cells confirmed the diagnosis of VL. She was treated with liposomal Amphotericin B within 28 days with resotions of symtoms, imrovement of laboratory markers decrease of spleen enlargement (up to 16 cm). Three months after mothers disharge, the newborn boy developed the same symtoms as mother has and the diagnosis of VL suggesting congenital transmission. He was hospitalized at the Pediatric Clinic, Podgorica, Montenegro and treated with Amphotericin B with complete resolution of symptoms and improvement of clinical and laboratory parameters.
Learning Points/Discussion: Despite the fact that the occurence of congenital Vl is rare it could be considered in endemic Countries uncluding Montenegro and routine testing of pregnant women should be recommended.

PV1104 / #1018

COMPLICATIONS OF INFECTIOUS MONUNUCLEOSIS IN CORRELATION WITH SPLEEN ENLARGEMENT AMONG HOSPITALIZED CHILDREN IN MONTENEGRO

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Clinical Centre, Clinic For Infectious Disease, Podgorica, Montenegro

Backgrounds: Infrctious mononucleosis (IM) is an infective disease coused by Epstein Barr Virus (EBV) with differences in clinical features and complications. This study aimed to determine corelation of complications with spleen enlargement in hospitalized children with IM.
Methods: This retrospective study included 160 children aging from 3-16 years with acute IM confirmed by finding specific anti EBV VCA IgM antibodies, hospitalized at the Clinic for Infectious Disease, Podgorica, Montenegro from 2014-2019. Collecting data included epidemiological, clinical and laboratory parameters and ultrasound examination of the abdomen on addmition with dividing subjects into study group 105 patients with spleen enlargment, and control group 55 patients, without spleen enlargement.
Results: Mostly of included patients mostly aged between 7-16 years 61.25%. The most common symptoms and finding at addmition were fever, sore throat and fatigue, with tonsillopharyngitis, hepatosplenomegaly and lymphadenomegaly mostly founded in study compared to control group 90.5% vs 87.2%. Statistically significant lenght of hospital stay and complications were founded in study compare to control group: bacterial superinfection of the throath founded in 35 (33.3%) vs 15 (27.3%) patients, Mononucleous hepatitis 52.3% vs 20.4%, anaemia 26.7% vs 10.9%, uper airway obstruction 10.5% vs 5.4%, peritonsillar abscess and jaundice founded in 1.9% each and accute meningitis in one patient in study group. Other complications: pneumonia, leukopenia and exanthema: 7.1%, 27.5%, 6.5% respectivally, showed no statistical significance between the study groups.
Conclusions/Learning Points: In our study statistically significant difference was founded of respiratoray hematological, and liver complications as well as lenth of hospital stay in the group with enlarged spleen which in conclusion may predict the severity and complications of the disease.

PV1105 / #1240

RECURRENT PAROTITIS: CLINICAL CASE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: RECURRENT PAROTITIS: CLINICAL CASE
Background: Recurrent parotitis is defined as the occurrence of two or more episodes of parotid gland inflammation. Several etiologies must be considered when approaching these patients.
Case Presentation Summary: Male child, 4 years old, with history of repeated tonsillitis and viral pharyngitis. Updated national vaccination plan. At 2 years of age, he presented with fever and inflammatory signs on the right hemiface, which resolved after treatment with anti-inflammatory drugs. After 6 months, he experienced a similar episode of fever and right facial swelling. This pattern repeated 8 months later, leading to an outpatient ultrasound of the salivary glands, showing a slight prominence of the right parotid gland with heterogeneity, but no circumscribed focal lesions. At 4 years of age, right facial swelling again, accompanied by slight effacement of the ipsilateral mandible angle. An acute context ultrasound was performed, with a diagnosis of acute right parotitis, with no evidence of ductal ectasia or collections. He was referred for pediatric consultation to further investigate the etilogy of the recurrent parotitis. A subsequent ultrasound of the parotid glands was performed, revealing echostructural alterations on the right, with a heterogeneous texture and numerous infracentimetric nodularities, indicative of chronic parotitis. An analytical study was carried out, including viral serologies, which revealed reactivity for IgG cytomegalovirus, IgG Epstein-Barr virus and IgG paramyxovirus.
Learning Points/Discussion: The prognosis depends on the underlying etiology. Recurrent idiopathic parotitis is a common cause, often associated with spontaneous epidodes' resolution by early adulthood (90% of cases). Infectious cause is also important, with complications of orchiditis and oopharitis after puberty. However, despite the positive viral serologies, given the patient's background and vaccination status, they may not necessarily indicate a causal relationship with the recurrent parotitis.

PV1106 / #1800

INTRACRANIAL ABSCESSES AND EMPYEMA IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Amal Elleuch[1], Cyrine Kharrat[2], Khaoula Mekki[3], Asma Ben Hlima[3], Mahdi Ben Dhaou[4], Lamia Gargouri[3], Abdelmajid Mahfoudh[3]
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Backgrounds: Introduction: Intracranial abscesses and empyemas are rare and constitute a medical-surgical emergency Objective: The objective of our study was to describe the clinical, microbiological, therapeutic characteristics and evolution of intracranial abscesses and empyemas in children
Methods: This is a retrospective study of cases collected over a period of 9 years (2013-2022) in the emergency department and pediatric resuscitation in sfax.
Results: 8 cases were included. The mean age was 1 year 5 months with extremes of 3 months to 3 years. The Sex ratio was 1.6. We observed 5 cases of abscesses and 3 cases of empyema. Among the 3 cases of empyema 1 case of extra dural empyema was observed. The portal of entry in 6 cases was post meningitis in 3 cases, ENT infection in 2 cases and skin infection in 1 case. The germs isolated from the patients were: pneumococcus (3 cases), SAMS (1 case) and pseudomonas aeruginosa (1 case). Empirical broad-spectrum antibiotic therapy was initiated in all patients. Surgical treatment was indicated in 5 children. The evolution was favorable in 7 patients with only 1 case of death.
Conclusions/Learning Points: Conclusion: Intracranial abscesses and empyemas in children are a therapeutic emergency. It is necessary to insist on an early diagnosis and an adequate and rapid management in order to avoid the various dreadful complications.

PV1107 / #1814

CLINICAL FEATURES OF RICKETTSIAL INFECTION IN CHILDREN IN TUNISIA: A REPORT OF 9 CASES

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: INTRODUCTION Rickettsial infections are an under-recognized cause of acute fever because of their non-specific clinical presentation.
Methods: MATERIAL AND METHODS This 13-year (2010 to 2022) retrospective study of children with serologically confirmed rickettsial infections was performed at a pediatric emergency department in Tunisia.
Results: RESULTS There were 9 pediatric cases during the study period. The mean age at presentation was 6.3 years (1 year 7 months–11 years). The sex ratio was 0,8. At presentation, the most frequent complaints were fever (9 cases). A maculopapular rash involving palms and soles was noted in 8/9 (88%), and eschars were identified in two cases. Cough (4 cases), nausea and vomiting (5 cases), and myalgia (4 cases) were common. Examination showed hepatomegaly (2 cases), edema (3 cases), arthritis (3 cases), conjunctival congestion (3 cases), and lymphadenopathy (2 cases). Elevated CRP (9 cases), hyponatremia (4 cases), and elevated transaminases (3 cases) were the most frequent laboratory abnormalities. Thrombocytopenia occurred in 2 cases, and leukopenia in one case. The diagnosis was based on serologic tests which detected IgM and IgG antibodies to conorii rickettsial antigens (6 cases) and to typhi rickettsial antigens (3 cases). Azithromycin was prescribed in 5 cases and Doxycycline in 4 cases. All children had good outcomes.
Conclusions/Learning Points: CONCLUSION Rickettsial infections have a relatively benign clinical course in children. It should be thought in any case where fever, rashes, and arthropods are involved. Clinical response to treatment often gives a clue to the diagnosis before serological test results are available.

PV1108 / #1140

SEPSIS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Introduction Sepsis is a common, complex condition that requires early recognition and aggressive management to improve outcomes. Objective To describe clinical manifestations, diagnostic testing, management options, and outcomes of sepsis in children.
Methods: This is a retrospective study conducted in the pediatric emergency and resuscitation department over a 3-year period (January 2019 - October 2022).
Results: There were 20 cases of sepsis : 11 girls and 9 boys. The mean age was 7 months with extremes ranging from 1 month to 3 years. A recent hospitalization was noted in 6 cases. These were mainly nosocomial sepsis (53.9%). The main clinical features observed in the infected patients were: fever (16 cases); respiratory distress (12 cases); altered general condition (10 cases) and neurological disorders (7 cases). The biology showed hyperleukocytosis (14 cases), thrombocytosis (9 cases), and positive CRP in all cases. The majority of infections causing sepsis were cutaneous (5 cases), urinary (4 cases), and respiratory (2 cases). The most common infecting organism was Serratia marcescens (6 cases) followed by pneumococcus (3 cases), staphylococcus (3 cases), enterobacter cloacae (3 cases), and pantoea spp (2 cases). The respiratory tract was the most common secondary location of infection (8 cases), followed by central nervous system (1 case). Antibiotic treatment was initially empirical and then adapted to the results of the antibiogram. The most prescribed class of antibiotics was cephalosporins (61.6%). The mean length of stay was 15 days. 14 patients required an intensive care unit stay. The death rate was 23.1%.
Conclusions/Learning Points: Pediatric sepsis remains a significant cause of morbidity and mortality worldwide. Early recognition and diagnosis of sepsis, together with appropriate management has been shown to reduce mortality.

PV1109 / #1984

IS DELAYED SURGERY A RISK FACTOR FOR POSTOPERATIVE INFECTIONS IN PATIENTS WITH ESOPHAGEAL ATRESIA?

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Introduction Postoperative infections (PI) are common cause of mortality and morbidity in children with esophageal atresia (EA). Aim: To determine the impact of surgical timing on PI, the results of patients with delayed surgery and those with early surgery were compared.
Methods: Medical records of children who underwent primary esophageal repair from 2007 to 2020 were retrospectively reviewed. A delay of more than 48 hours from birth was defined as delayed surgery. Statistical significance was assigned to p-values <0.05.
Results: Results 55 cases were included. The male-female ratio was two to one. The mean gestational age was 38 weeks (33–42 weeks) and the mean birth weight was 2649 grams (1250–3550 g). The average time to surgery was 43 hours, with 30.9% of patients having a delayed surgery (delay > 48 hours). The incidence of PI was 36.3%. The most common infections were pneumonia (n = 12, 21.81%), wound infections (n = 6 cases, 10.90%), blood stream infections (n = 4, 7.27%), and urinary tract infections (n = 1). Microbiologic evaluations revealed that five cases had staphylococcus spp, four cases had streptococcus spp, and two cases had mixed bacteria. Gram-positive bacteria were found in 64% of the cases. Four of the patients died as a result of sepsis. There was no difference in the incidence and risk of PI between cases with delayed surgery and those with early surgery (p > 0.05).
Conclusions/Learning Points: Conclusion PI can be seen in 36.3% of cases after EA repair. Delayed surgery wasn't found to be a risk factor for postoperative infections. More large studies are needed to confirm these findings.

PV1110 / #1754

A 10-YEAR RETROSPECTIVE STUDY OF SALMONELLA INFECTIONS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Amal Elleuch[1], Khaoula Mekki[2], Cyrine Kharrat[3], Taycir Cheikrouhou[4], Asma Ben Hlima[2], Mahdi Ben Dhaou[4], Lamia Gargouri[2], Abdelmajid Mahfoudh[2]
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Backgrounds: Introduction Salmonella infections are a major cause of gastroenteritis worldwide.
Methods: Our study was conducted from January 2013 to October 2022. Cases were children who were hospitalized in the pediatric emergency department because of diarrhea and found to have a culture-proven nontyphoidal Salmonella infection.
Results: Results Nine children with Salmonella infection were identified. The mean age at presentation was 4 years (6 months-9 years). The sex ratio was 2; Presenting complaints included fever (7 cases), diarrhea (6 cases), vomiting (5 cases), and febrile seizures (2 cases). Stools were bloody in 1 case. Elevated CRP (9 cases), and hyperleukocytosis (3 cases) were the most frequent laboratory abnormalities. Salmonella was identified in stool cultures (3 cases), and in blood cultures (one case). Serologic tests were positive in 5 cases. Two different Salmonella species were isolated, including Salmonella spp and Salmonella entertidis. All children benefited from supportive treatment (fluids and rest). Antibiotics were prescribed in 4 cases. All children had good outcomes.
Conclusions/Learning Points: Conclusion Salmonella infections are the cause of significant morbidity and mortality worldwide. The most important measures to prevent the spread and outbreaks of these infections are adequate sanitation protocols for food processing and handling as well as hand hygiene.

PV1111 / #1352

A CASE OF HAND, FOOT, AND MOUTH DISEASE WITH ATYPICAL COURSE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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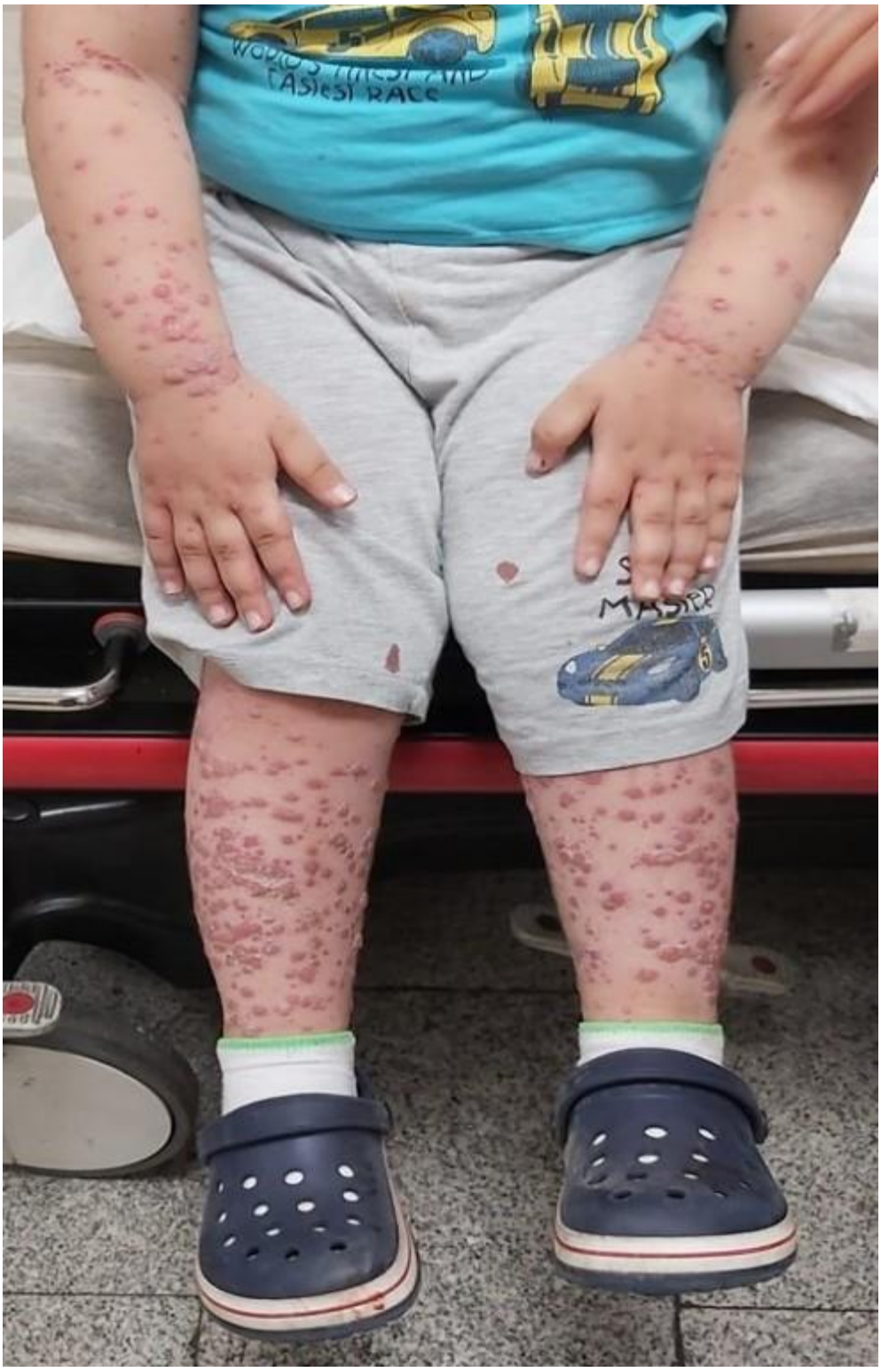
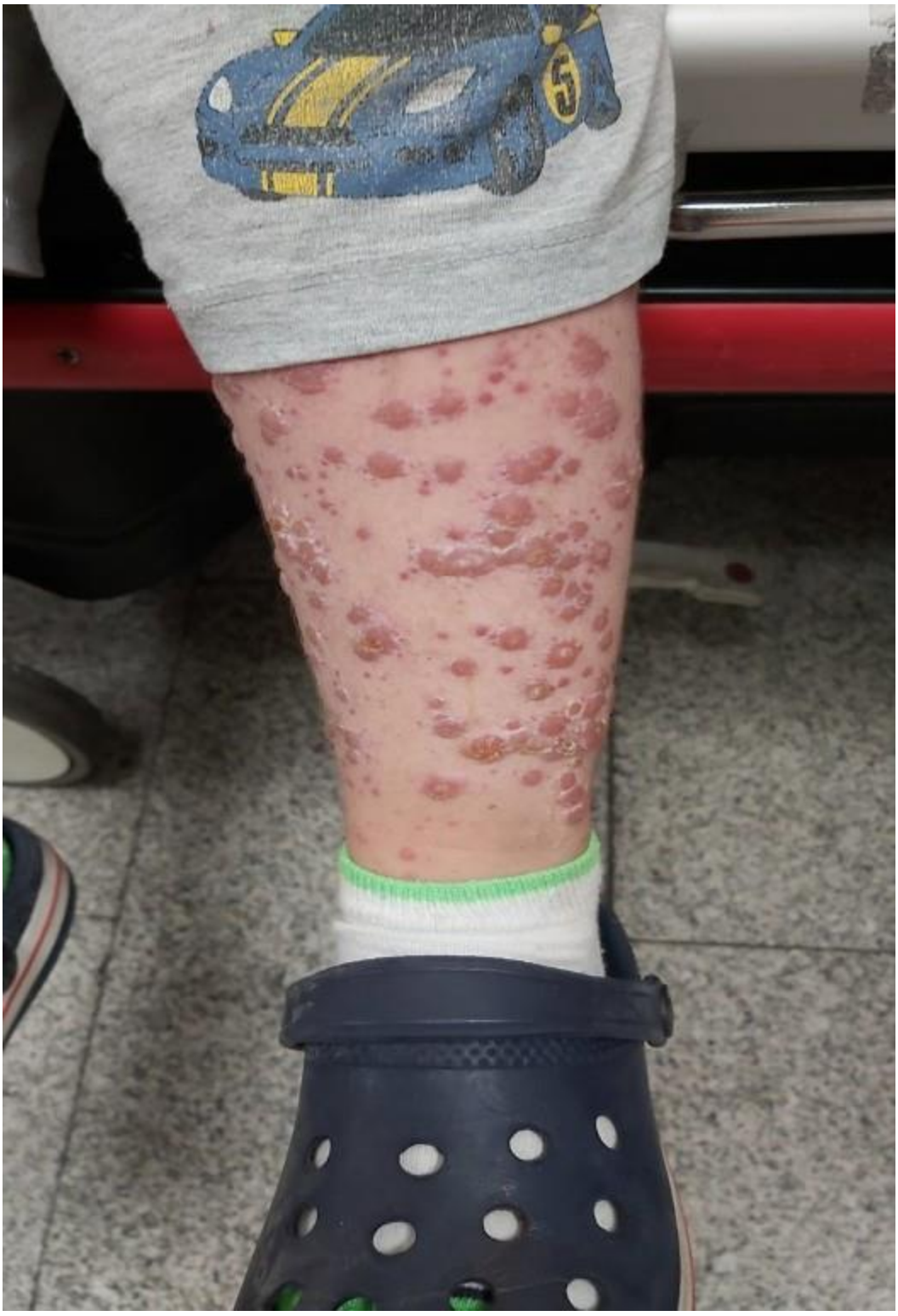
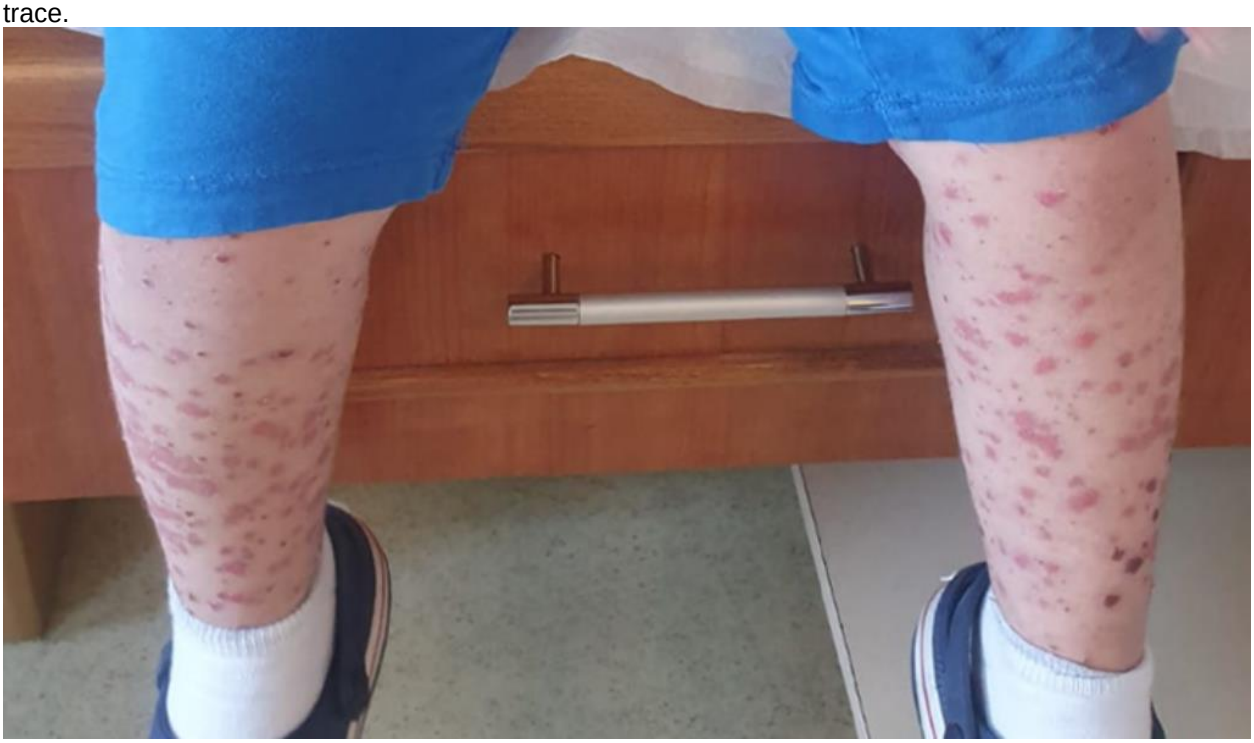
Title of Case: A Case Of Hand, Foot, And Mouth Disease With Atypical Course
Background: Hand, foot, and mouth disease is an enteroviral infection usually in children younger than five years, and it is caused by Coxsackievirus A16. Patients typically present with fever, deeply located oval vesicles on the palms and soles, and erosive areas on the buccal mucosa and tongue. Eczema coxsackium is a manifestation of the disease especially in children with atopic dermatitis. Here we report a case of eczema coxsackium presented with atypical lesions.
Case Presentation Summary: A three-and-a-half-year-old boy presented with a rash that started 2 days ago. He had a fever and sore throat that started 1 week ago and resolved spontaneously. Physical examination revealed numerous, unfading, raised, and itchy vesicles, some with honey-colored crusts on the distal four extremities. (Picture 1-

2) 



Lesions were less numerous on the feet and hands and were absent in the mouth. Laboratory tests detected white blood cell count: 8100/mm3, absolute neutrophile count: 2000/mm3, absolute lymphocyte count: 5500/mm3, hemoglobin: 10.8 g/dL, platelet count: 259000, C-reactive protein: 9 mg/L. The diagnosis of eczema coxsackium and impetigo was considered in the patient, and he was followed up closely with oral co-amoxiclav therapy. His lesions regressed on the 5th day(Picture 3), and returned to normal without leaving a

trace.



Learning Points/Discussion: Eczema coxsackium is an atypical presentation of hand, foot, and mouth disease, and can cause secondary skin infections. Eczema coxsackium should be considered in the differential diagnosis in children presenting with fever and vesicular rash.

PV1112 / #1483

SINUS DRAINAGE IN ORBITAL CELLULITIS TREATMENT: A CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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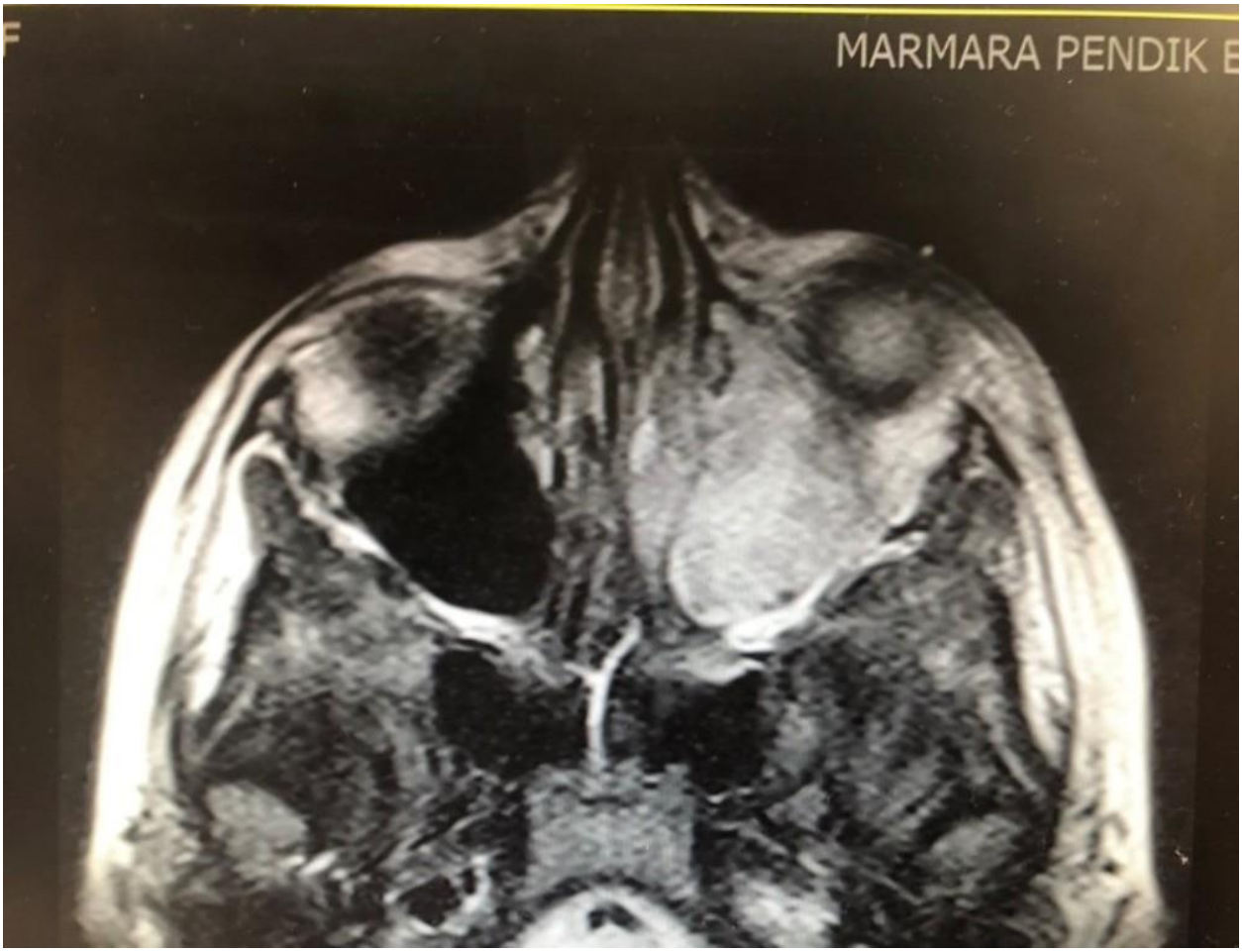
Title of Case: Sinus Drainage In Orbital Cellulitis Treatment: A Case Report
Background: Orbital cellulitis results from the spread of infection from structures adjacent to the orbit, like dental infections or sinusitis, or direct inoculation of the infectious agent as a result of trauma or surgery. Here we present a severe case of orbital cellulitis, which was a complication of sinusitis, refractory to medical treatment, and required sinus drainage surgery in follow-up.
Case Presentation Summary: A ten-year-old girl presented with a swollen left eye and left-sided head and eye pain. In the physical examination, the left eyelid was edematous and eye movements were painful (Picture

1).  Laboratory examination revealed white blood cell count: 7800/μL, absolute neutrophile count: 6800/μL, absolute lymphocyte count: 600/μL, and C-reactive protein: 307 mg/L. Intravenous ampicillin-sulbactam and clindamycin and local moxifloxacin treatments were started with the diagnosis of orbital cellulitis. In the follow-up, the eyelid edema increased, the eye-ache worsened, and the patient had a significant chemosis under the eyelid. Parenteral antibiotics were changed to vancomycin and meropenem. Orbital computerized tomography (Picture 2) and Magnetic Resonance Imaging (MRI) scans detected left

dacryoadenitis and maxillary, ethmoid, and frontal sinusitis.



Maxillary sinus drainage surgery was performed by the otolaryngology and 15 ccs of pus were drained with Streptococcus intermedius growth. The meropenem treatment was completed 28 days after the surgical intervention. The patient was discharged with oral co-amoxiclav treatment without any sequelae.

(Picture 3). 

Learning Points/Discussion: In cases of preseptal/orbital cellulitis that do not respond to appropriate antibiotic therapy, radiological imaging should be performed to detect the source of infection such as sinusitis or sinus abscess, and if detected, surgical intervention should be performed.

PV1113 / #910

SEVERE CUTANEOUS CONDITION WITH SHOCK SYNDROME: CHALLENGES IN RECOGNIZING AND MANAGEMENT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: SEVERE CUTANEOUS CONDITION WITH SHOCK SYNDROME: CHALLENGES IN RECOGNIZING AND MANAGEMENT
Background: We discuss about a 3-year-old boy presenting fever and sudden multiorgan system involvement that mimics a lot of syndromes, from MIS-C and Kawasaki to shock toxic syndrom and Stevens-Johnson. His clinical course was severe and all hypotheses and therapies were considered until the final diagnosis.
Case Presentation Summary: We describe the evolution of a 3-year-old boy, born in Russia, living in Brazil since 2019, previously healthy, admitted to the emergency department with fever and respiratory distress that started 1 day ago. Physical examination showed diffuse erythema on trunk, back and face, mucosal lesions, purulent ocular discharge and purulent urethritis. Initially, in hypothesis of toxic shock syndrome, received ceftriaxone and clindamycin and, in the intensive care unit (ICU), associated vancomycin for MRSA cover. After admission he developed distributive shock requiring vasoactive drug and mechanical ventilation. He also received immunoglobulin and corticosteroid therapy for three days to manage clinical conditions with pro-inflammatory response. On etiologic evaluation cultures remain negative and inflammatory biomarkers rapidly lowered, viral sorologies was not negative for active disease and infectious causes was discarded. After fourteen days from admission a skin biopsy made definitive diagnosis of Stevens-Johnson Syndrome. The patient had satisfactory evolution being discharged from the ICU after 22 days of hospitalization and discharged home on the 36th day.
Learning Points/Discussion: We aim to discuss importance of considering all infectious syndromes that mixes skin lesions and multi-organ envolvment. In the current times physicians could just focus on MIS-C syndrome and forget about classical conditions like staphylococcal toxic shock syndrome and mucocutaneous reactions. Also pointed use of antibiotic treatment, corticosteroids and immunoglobulin in a not defined management and importance of skin biopsy to final diagnosis.

PV1114 / #768

AN STROKE CODE OF INFECTIOUS ETIOLOGY

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: An stroke code of infectious etiology
Background: Sinusitis is rarely complicated by a subdural empyema. We present a case of a “Code Stroke” activation in a patient that developed sudden hemiplegia in the context of sinusitis
Case Presentation Summary: A previously healthy, 14-year-old boy developed a sudden muscle strength loss of the left side of his body. Around 48 hours earlier he had consulted in A&E for a cold that associated fever and retroocular headache that worsened with valsalva maneuver, he was discharged under antipyretic treatment. In the Emergency Department he presented paresis of his lower left limb, paratonia of the upper left limb and preference to right ocular deviation. The blood tests showed leukocytosis (19,000/uL) with a neutrophil count of (10,000/uL), PCR 31mg/dL, PCT 0,21ng/mL and coagulopathy with an INR of 1,4. The brain CT scan revealed right subdural and subarachnoid hemisphere occupation consistent with hemorrhage vs purulent collection. The “Code stroke” was activated. An urgent MRI was performed showing a complicated pansinusitis with subdural empyema, associating a 6mm abscess in frontal parenchyma. Empirical antibiotics were initiated with Cefotaxime, Metronidazole, and Vancomycin, alongside dexamethasone, vitamin K and fresh frozen plasma. An urgent surgical approach was performed by neurosurgery and ENT, draining the sinuses and the subdural empyema. The culture of the drained pus grew S.intermedius.
Learning Points/Discussion: Intracranial complications of sinusitis are rare; however, we are attending to an increased incidence in the last six months in our center. The consequences and sequelae are severe. Empirical treatment must cover microorganisms that cause sinusitis and must have a high central nervous system penetration. The multidisciplinary care of these patients as well as the early drainage of intracranial empyema and sinus collections improve the prognosis and outcomes.

PV1115 / #2052

A CASE OF STEVENS-JOHNSON SYNDROME - FINDING THE CULPRIT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A case of Stevens-Johnson syndrome - finding the culprit
Background: Stevens-Johnson syndrome (SJS) is a rare and severe immunologic phenomenon characterized by rash and mucous membrane disease, that can result in severe morbidity from scarring of mucosal surfaces, leading to blindness as well as urethral and esophageal strictures. It may be triggered by medications and, less frequently, by infections such as Mycoplasma pneumoniae (Mp). Less than 1% of Mp infections can lead to SJS. It is not clear that treatment with intravenous immunoglobulin, corticosteroids or macrolide antibiotics can improve the outcome.
Case Presentation Summary: A 7-year-old boy, presented with a 8-day history of rhinorrhea, cough and fever, diagnosed on day 3 with pneumonia, treated with amoxicillin/clavulanic, ibuprofen, paracetamol and carbocisteine (which was taken for the first time). On day 5, new perioral swelling and erythematous ulcerations were found, leading to desquamation around the mouth and anogenital regions, compatible with SJS. Blood tests showed 9 × 109 white blood cells/L, 7.6 × 109 neutrophils/L and a C-reactive protein level of 14 mg/L. Initial Mp serologies were negative. He got better without any specific treatment. Repeat serologies showed a positive IgM and IgG for Mp. Specific IgE was negative for amoxicillin/clavulanic. Follow-up showed no recurrence.
Learning Points/Discussion: Similar to our case, literature states that Mp-associated SJS has a distinct clinical presentation that includes evidence of a preceding respiratory infection and less extensive skin disease than non–Mp-associated SJS. Our case supports this finding of mucositis-predominant disease. There is no established standardized treatment guideline that has been shown to reduce hospitalization duration and/or disease progression.

PV1116 / #1136

EFFECT OF COVID-19 PANDEMIC ON HOSPITALIZATIONS DUE TO INVASIVE BACTERIAL INFECTIONS - A RETROSPECTIVE STUDY IN A PAEDIATRIC COHORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Invasive bacterial infection (IBI) remains a major cause of morbidity and mortality in children. COVID-19 pandemic caused changes in the epidemiology of several infectious diseases. We aimed to characterize hospitalizations in children due to IBI in the last 5 years and a half and assess the impact of the COVID-19 pandemic.
Methods: We retrospectively analysed all IBI related hospitalizations occurring in patients under 18-years-old in our tertiary center between July 2017 and December 2022. Trends in hospitalization and microbiological agents were compared in the 2 year and 9 month period immediately before and after the start of the COVID-19 pandemic (March 2020).
Results: In our cohort of 69 IBI related hospitalizations, 39 (56.5%) were female, median age was 8 months (IQR 1.5-34). S. pneumoniae was the most common microorganism (17.4%), followed by E. coli (13%), S. aureus (10.1%) and N. meningitidis (5.8%). In infants < 3 months E. coli was the most frequent pathogen (29.1%), whereas in children > 2 years it was S. pneumoniae (38.4%). 2020 was the year with fewer hospitalizations (3, 4,3%). IBI hospitalizations were significatively less frequent after the start of the pandemic (64% vs 36%, p=0.029). We found four invasive meningococcal infections in the period preceding the pandemic, and none after its beginning. As for pneumococcal invasive infections, 9 were observed before March 2020 and only 3 after this time point. IBI due to S. aureus and S. agalactiae remained stable (3vs4, 2vs1, respectively).
Conclusions/Learning Points: The occurrence of IBI was reduced during the COVID-19 pandemic probably in consequence of the containment policies introduced. Further investigation is needed to assess post-pandemic epidemiology of IBI.

PV1117 / #2131

NEONATAL INVASIVE CANDIDIASIS (NIC) IN LOW- AND MIDDLE-INCOME COUNTRIES (LMICS): EPIDEMIOLOGY, MICROBIOLOGY RESULTS AND MANAGEMENT DATA.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Differences between NIC presentation in LMICs vs HICs (high income countries) have been previously reported. NIC is associated with high-risk neonates (birth weights <1500 g or gestational age <28 weeks) in HICs, but an increasing number of studies from LMICs have described NIC in older neonates. Whereas Candida spp. resistances in neonates remain low in HICs, fluconazole-resistant isolates seem to emerge in LMICs.
Methods: A systematic review was conducted including original articles about microbiologically confirmed NIC in LMICs until April 2022. Data on epidemiological characteristics, fungal prophylaxis, treatment, and species distribution were presented. Results from the English literature are presented here.
Results: A total of 198 articles were eligible for inclusion, reporting 8037 NIC-cases from 36 LMICs. The mean (standard deviation) for gestational age and birth weight were 31.6 (3.3) weeks and 1500.9 (652.1) g respectively. 14.9% (n=1198) were high-risk neonates. The species isolates distribution was C. parapsilosis (n=1742, 34.8%); C. albicans (n=1686, 33.9%); C. tropicalis (n=776, 15.7%); C. krusei (n=382, 7.7%); C. glabrata (n=306, 6.2%); C. auris (n=82, 1.7%). Susceptibility testing results were available in 21 countries (58.3%); with a total of 1080/3961 (27.3%) isolates resistant to fluconazole. Prophylactic antifungals were reported in 288 cases (3.6%). Treatment for NIC (specified in 1726 cases, 21.5%) was dominated by amphotericin B (712; 41.3%) and fluconazole (546; 31.6%). The overall mean treatment duration was 21.9(8.0) days.
Conclusions/Learning Points: Our results have demonstrated differences in disease profiles of NIC in LMICs compared to HICs. Future studies are required to evaluate preventive measures in these neonates, together with management strategies tailored to increasing rates of resistant isolates.

PV1118 / #2221

NEONATAL ANTIFUNGAL PROPHYLAXIS USE IN LOW- AND MIDDLE INCOME COUNTRIES (LMICS): DATA FROM THE NEOOBS STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Antifungal prophylaxis targeted to neonates at high risk of NIC (<1000g birth weight and/or <28 weeks' gestation) is recommended in neonatal units in High Income Countries (HICs). In LMICs, antifungal prophylaxis might be compromised due to access to antifungals, fluconazole-resistant isolates or different epidemiology of NIC with neonates not in the high-risk category as in HICs. We aimed to describe the extent of antifungal prophylaxis use, patient profile and agents included in the NeoOBS study.
Methods: Secondary data on antifungal prophylaxis use were extracted and analysed from the NeoOBS study, a global, prospective, longitudinal, observational cohort study of hospitalised infants <60 days postnatal age with sepsis. It enrolled 3204 infants at 19 hospitals (11 countries) in 5 WHO regions between August 2018 and February 2020.
Results: Complete antimicrobial data were available from 2986/3204 (93%) infants. 61/2986 infants (2%) received antifungal prophylaxis in the 7 days before a blood culture was taken. For those on prophylaxis, median gestation age was 28 weeks (IQR: 27-30) and median birthweight was 985g (IQR: 860-1130g). There were 215/2986 (7,2%) high risk neonates; from those, 19/215 (9%) received antifungal prophylaxis. Fluconazole was used in 59/61 (97%). Antifungal prophylaxis was reported in 9/19 hospitals with 80% (49/61) infants from 4 hospitals in 2 countries (AFRO, SEARO). Overall, 15/2986 (5%) infants had Candida spp. isolated from blood culture; 2/61 (3%) from those who were on previous antifungal prophylaxis and in 13/2925 (4%) infants who were not on prophylaxis.
Conclusions/Learning Points: The optimal method to target antifungal prophylaxis in the LMICs settings, including choice of drug dose, duration and cost-effectiveness, needs to be better defined. Further studies are required.

PV1119 / #2623

INFLUENCE OF PSEUDOMONAS AERUGINOSA FILAMENTOUS PHAGES ON THE IMMUNE RESPONSE OF HUMAN LUNG EPITHELIAL CELLS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Background: Pseudomonas aeruginosa filamentous bacteriophages (Pf) are essential virulence factors of this archetypal cystic fibrosis (CF) pathogen, which contribute to chronic infection via the promotion of biofilm formation, antibiotic resistance, and immune suppression. However, Pf phages constitute a heterogeneous group of viruses with distinct structural properties. Therefore, we aimed to determine the immune response of human lung epithelial cells after exposure to various Pf phages.
Methods: Pf phages were purified from P. aeruginosa strains isolated from CF patients using the standard PEG/NaCl precipitation method. In addition, Pf1 phage suspension (ASLA Biotech AB, Latvia) was used as the reference. Pf phages in concentrations ranging from 10^8 to 10^1 PFU/mL, alone and in combination with LPS, were used to stimulate A549 human lung epithelial cells. Subsequently, RNA was isolated from the cells to estimate the expression of the genes encoding immune response factors, including TNF-α, IL-6, IL-8, and IFNs, with SYBR Green RT-qPCR technique.
Results: Altered expression of several genes under the study was recorded in the presence of Pf phages, particularly at concentrations ranging from 10^6 to 10^4 PFU/mL. For instance, Pf1 phage-induced expression of the IFNB1 gene mostly at concentration of 10^4 PFU/mL. In addition, the expression of TNF-α gene was modulated by Pf phages in cells simultaneously stimulated with LPS compared with the cells treated with LPS only.
Conclusions/Learning Points: P. aeruginosa Pf phages interfere with the expression of the genes encoding immune factors controlling anti-bacterial and anti-viral responses, particularly at specific doses.
Research funding: HARMONIA 10 grant (2018/30/M/NZ6/00502) National Science Center (Poland).

PV1120 / #968

STIEHM-DAMROSCH/NIKLASSON PROGNOSTIC SCORE – AN IMPORTANT TOOL IN MENINGOCOCCEMIA

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Meningococcal infectious represents one of the most important health problem with a very high morbidity and mortality rate. The etiological agent of meningococcal infection is Neisseria meningitidis which can produce meningitis and meningococcemia, one of the most serious and life-threatening infectious disease during childhood.
Methods: We carried out an observational retrospective study of patients admitted in '' Saint Parascheva" Infectious Disease Hospital Iasi in period 2018-2022.Data were collected from medical file of the pediatric patients diagnosed with meningococcemia. We included 14 patients who met the selection criteria.We evaluated the Stiehm-Damrosch/Niklasson prognostic score of severity, clinical and paraclinical data and the period of the hospitalization.
Results: The prognostic score in all 14 hospitalized patients was above 3, fact that highlighted the degree of severity.One of the 14 patients (7,14%) had a fulminant evolution of the disease and died within the first hours of addmision. The age of the patients varied between 3 months and 18 years old, the averange being 6 years old. None of the patients were vaccinated against meningococcal infection.Petechials rash were present in 12 patients (85,7%), in the first 12 hours of the disease. All patients had more than 20 nuclear elements in the cerebrospinal fluid. The presence of leukocytosis in the peripheral blood was identified in 5 patients (35, 7%). Trombocytopenia was present in 2 patients (14,2%), the prognostic score for those 2 patients was 6, extremely severe, one of them died in the first hours after being addmited. The average length of hospitalization was 15 days.
Conclusions/Learning Points: Meningococcemia represents one of the biggest medical emergency, the using of Stiehm-Damrosch/Niklasson prognostic score represents an important tool in assessing the degree of severity.

PV1121 / #1970

STOOL CULTURES IN A PORTUGUESE PEDIATRIC EMERGENCY DEPARTMENT (ED): EXPERIENCE OF 5 YEARS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Although around 30% of acute gastroenteritis (AGE) worldwide have bacterial etiology, antibiotic treatment isn't routinely needed. Stool cultures should only be performed when specific criteria are met.
Methods: Longitudinal observational retrospective study of pediatric patients with acute bacterial gastroenteritis diagnosed between January 2017-December 2021 in a pediatric ED.
Results: Identified 8094 admissions in ED for diarrhea or AGE. 124 stool cultures were collected, 64 were positive (56,2% in males), median age 3,3 years (IQR 1,0-9,0). The median time of disease at stool collection was 4 days (IQR 2-6). Clinical manifestations included fever (84,4%), bloody diarrhea (62,5%), vomiting (40,6%), and dehydration (29,9%). Convulsions were described in 6,25%. Hospitalization was required in 23,4% (median length 1 day). Microorganisms isolated were Campylobacter spp (57,9%), Salmonella spp (31,9%), Aeromonas caviae (8,7%), Clostridium difficile (1,4%). Coinfections were identified in 7,8%. Multi-resistance was described in 6,9% of bacterias. Laboratory evaluation was requested in 35,9% of patients, 34,8% had leukocytosis and 47,9% neutrophilia. Median C-reactive protein level was 6,6mg/dL (IRQ 3,6-11,7mg/dL). Higher values were associated with Salmonella spp (p=0,05). When stool culture results were known 9,3% needed antibiotics. It was initiated in 4 Campylobacter spp infections and in 1 Salmonella spp infection in a 2-month-old child. The remaining Salmonella spp weren't medicated. Selected antibiotic was azithromycin except for the Clostridium difficile infection (vancomycin).
Conclusions/Learning Points: Campylobacter spp. and Salmonella spp. were responsible for most of the infections. The decision to start antibiotic therapy was based on microbiological and clinical findings associated with disease evolution and epidemiological context. Only 6 children required antibiotic therapy in 5 years. There were no records of invasive disease. Quicker stool culture results and locally validated guidelines would be useful in the uniformization of acute bacterial gastroenteritis management.

PV1122 / #2638

A CASE OF 10-YEARS-OLD GIRL WITH COMPRESSION FRACTURE OF TH7 VERTEBRA DUE TO CHRONIC RECURRENT MULTIFOCAL OSTEOMYELITIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A case of 10-years-old girl with compression fracture of Th7 vertebra due to Chronic Recurrent Multifocal Osteomyelitis
Background: ChronicRecurrentMultifocalOsteomyelitis(CRMO)/ChronicNonbacterialOsteomyelitis(CNO) is a rare autoinflammatory bone disorder that typically affects children, young adults and characterized by recurrent episodes of bone pain, inflammation, swelling, often affecting multiple bones.
Case Presentation Summary: A 10-years-old girl admitted to orthopedic department with complains of chest pain mostly at nights during the previous two months. General examination:difficulties in movements, painful and limited forward bending of torso, inability to walk tip-toes/pain in lower 3rd of left leg. Examination of other systems:unremarkable. Extensive laboratory work-up including CBC, CRP, Brucella and TB were negative. MRI revealed compression fracture of Th7vertebra, decreased height of Th6-Th7intervertebral discus, increased signal from Th12, bone marrow edema, L4-S1discs bulging. Biopsy from Th7 showed histological pattern of nonspecific osteomyelitis. Fixation of Th5-Th9 segments of spine with metal rods and screws was done, the child was discharged under the follow-up of orthopedic surgeons. After 2months the child was readmitted to the hospital with non-severe back pain. On examination she still had difficulties in movements, limited range of motion due to back pain in operated area, forward bending of torso was painful, limited. To differentiate from neoplastic disorders PET/CT scan was ordered:non-focal zones with high metabolic activity of the Th10,L1,L3vertebrae. The child was diagnosed with CRMO and treatment with Indomethacin 2mg/kg/day was initiated. On 3 and 6-months follow-up:no complains, returned to school, by scintigraphy no new foci of inflammation. Indomethacin was continued.
Learning Points/Discussion: Osteomyelitis can be manifestation of autoinflammatory bone disorders. CRMO remains a challenging and complex problem in pediatric medicine. With early diagnosis and appropriate treatment, patients with this condition are able to achieve a good outcome and return to normal activities

PV1123 / #2697

CASE SERIES OF PEDIATRIC OSTEOMYELITIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Case series of pediatric osteomyelitis S. Harutyunyan 1, L. Margaryan 1, A. Papikyan 1, H. Ghazaryan 1,2 1. Wigmore Hospital For Children, Yerevan, Armenia 2. NIH, Department of General Pediatrics and Pediatric subspecialities
Background: Background Pediatric osteomyelitis is a serious bone infection that can be caused by various factors. In this study, we analyzed six cases of pediatric osteomyelitis treated at Wigmore hospital for children, in Armenia. The Gram positive Staphylococcus aureus is the most frequently etiologic agent of the pediatric osteomyelitis.
Case Presentation Summary: Case presentation Biopsies were performed in all cases, and cultures identified Staphylococcus aureus as the most common pathogen. Surgery was required in four cases, and all patients underwent a prolonged course of antibiotic treatment, ranging from 6 to 8 weeks. In one case we have hematogenous spread of the bacteria. In four cases the empiric antibacterial therapy started with Ceftriaxone, Metronidasiole and Vancomicin, in one case with only Vancomicin and in one case with monotherapy with Ceftriaxone. After the puncture culture result, treatment continues with Co-Amoxi in 2 cases, with Ciprofloxacin and Clindamycin in two cases, in one case with CefuroxIme Comparing the cases, we found that younger patients tended to have better treatment outcomes, and those with trauma-related osteomyelitis had longer hospital stays and required more extensive surgical intervention. In contrast,patients with no trauma tended to respond better to antibiotics alone.

Case	1:	2:	3:	4
Sex	Female	Male	Female	F
Location	Left hip	Lower 1/3 of tibia	Calculus	L

Learning Points/Discussion: Conclusion Pediatric osteomyelitis is a complex disease that requires a multidisciplinary approach for successful management. Prompt diagnosis and appropriate treatment are essential for preventing long-term complications.

PV1124 / #1768

PEDIATRIC INVASIVE INFECTIONS CAUSED BY STREPTOCOCCUS PYOGENES IN PORTUGAL (2014-2022)

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Streptococcus pyogenes (Group A Streptococcus, GAS) is associated with common throat and skin infections, but upsurges of severe invasive disease (iGAS) have been recently reported in Europe. This study performed a clinical, epidemiological, and molecular characterisation of pediatric iGAS in Portugal.
Methods: A national prospective surveillance of pediatric (<18yrs) iGAS infections from 2014-2022, collected demographic and clinical characteristics of cases. Whole genome sequencing was performed for all available isolates from 2014-2021 (n=109).
Results: 195 children were included, with an average annual incidence of 1.51/100,000 (3.09/100,000 <5 years old), marked by a significant reduction during the COVID-19 pandemic period of 2020-2021. Clinical information was available for 161 cases. The median age was 3.0 years (IQR 1-5 years), 53% males, 15% with underlying chronic conditions, and 51% with a preceding acute disease. The most frequent diagnosis were bacteraemia without focus (35%), skin/soft tissue infection (25%), osteoarticular infection (20%), pneumonia (15%), and sepsis (15%). Streptococcal Toxic Shock Syndrome (STSS) occurred in 13% and necrotizing fasciitis in 5% of cases. The case-fatality rate was 5%. Risk factors for mortality were hypotension at admission (p=0.009) and STSS (p=0.001). The predominant emm types were: emm1 (35%), emm3 (17%), emm12 (10%), and emm6 (9%). The new emm1 sub-lineage, $M1_{UK}$, emerged in 2015 and accounted for 33% of emm1 cases. There were no significant associations between individual emm types or clusters and STSS or mortality, although emm1 was associated with ICU admission.
Conclusions/Learning Points: The incidence of pediatric iGAS has been stable in Portugal and slightly lower than reported in other European countries, although with similar associated mortality and STSS. The new $M1_{UK}$ strains emerged in Portugal in 2015 and represented one-third of all emm1 cases.

PV1125 / #1159

WHEN KITTENS ARE NOT YOUR BEST FRIEND: AN ADOLESCENT GIRL WITH DISSEMINATED CAT-SCRATCH DISEASE IN A SECONDARY HOSPITAL OF CENTRAL GREECE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: WHEN KITTENS ARE NOT YOUR BEST FRIEND: AN ADOLESCENT GIRL WITH DISSEMINATED CAT-SCRATCH DISEASE IN A SECONDARY HOSPITAL OF CENTRAL GREECE
Background: Cat scratch disease (CSD),caused by Bartonella henselae,is transmitted when infected kittens bite or scratch humans.CSD is usually presented as a self-limited regional lymphadenopathy. However,disseminated infection may occur in up to14%of patients with hepatosplenomegaly,bone, neurologicaland ocular involvement.We describe an atypical case of extended disease in an immunocompetent patient.
Case Presentation Summary: A previously healthy 12,5 year old female adolescent was admitted in our pediatric clinic due to tonsillitis with a 5-day history of high fever, rigor, upper respiratory tract symptoms and raised CRP (190mg/l) with normal CBC. Her serological tests were negative for EBV, CMV, Toxoplasma infection. She was treated with iv cefuroxime. On the 3rd day while she was still febrile, the physical examination showed a tender left-sided submandibular swelling and hepatosplenomegaly. Laboratory tests revealed normal CBC and lower CRP:122mg/l. he ultrasound of the cervical region showed bilateral multiple enlarged cervical lymph nodes and inflammatory left-sided submandibular lymph nodes (max diameter=2.7cm). Abdominal ultrasound demonstrated enlarged hepatic lymph nodes(diameter=2cm) and multiple hypoechoic splenic lesions. In the MR of the abdomen besides the splenic and hepatic abscesses, cysts in the lumbar vertebrae were revealed. Treatment was altered to iv cefotaxime, iv clindamycin and po azithromycin and the patient was transferred to a tertiary pediatric hospital for further investigation and treatment. The results of the IFA tests demonstrated infection with Bartonella henselae (IgG:>1/16.384,IgM:>1/320).
Learning Points/Discussion: Disseminated CSD is infrequent. Therefore, the diagnosis and management of the disease require a high rate of suspicion and the use of the appropriate diagnostic tools. There is no one single universal therapy for this infection, and treatment should be tailored individually.

PV1126 / #1325

INVASIVE FUNGAL DISEASE BY YEASTS IN A TERTIARY PEDIATRIC HOSPITAL.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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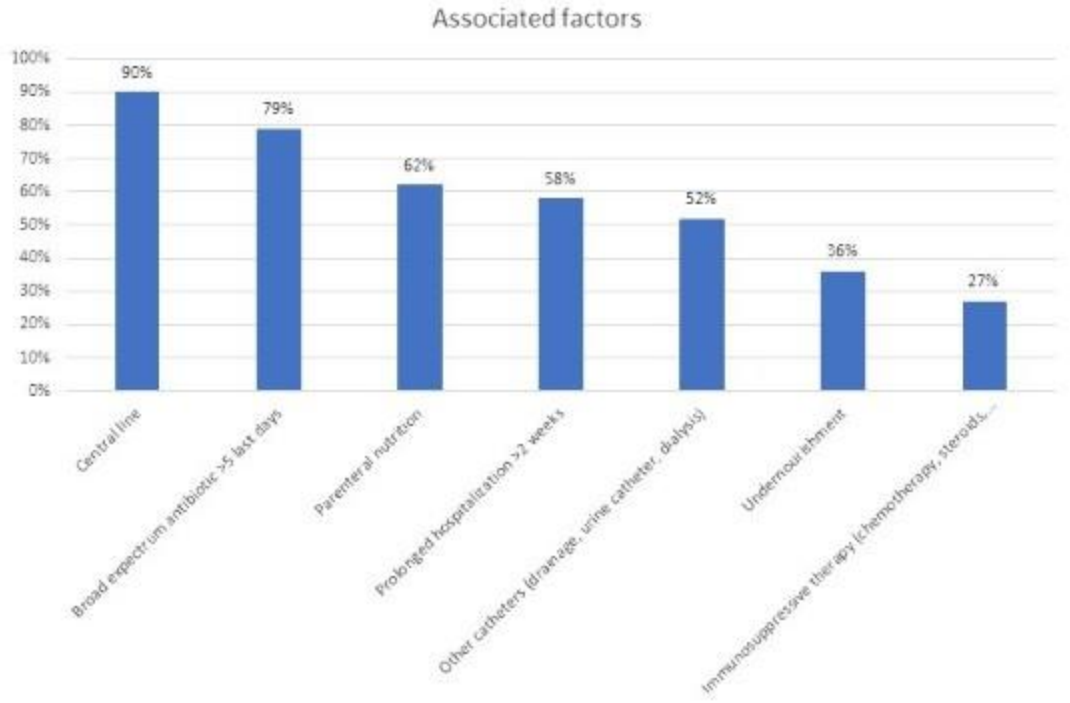
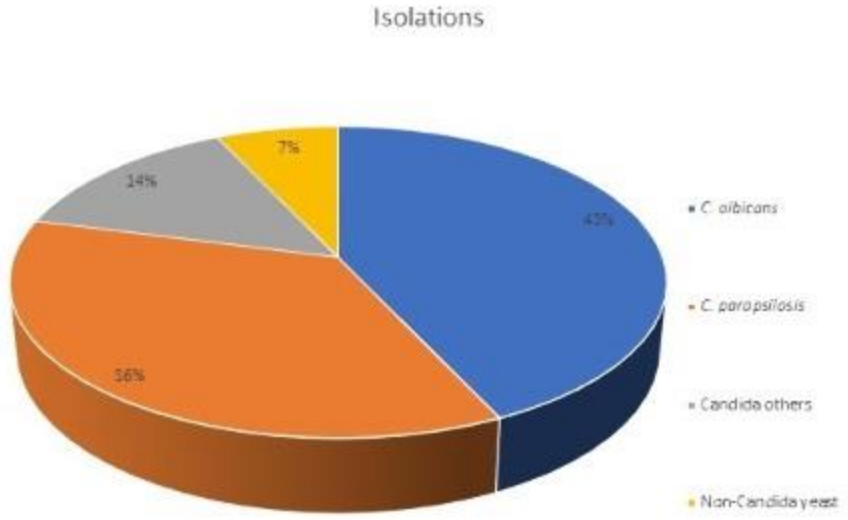
Backgrounds: Invasive fungal disease (IFD) is an important cause of morbi-mortality in at risk pediatric population. This study aims to describe characteristics of patients, fungal isolation, prophylaxis, treatment and the outcome of proven IFD in a tertiary pediatric hospital.
Methods: Retrospective observational study (January 2015-December 2021) focused on admitted pediatric patients who had a proven IFD with microbiological isolation of yeast from a sterile sample.
Results: 102 cases were identified. Median age at diagnosis was 6 months (IQR1.3-27 months); 52% were male. The main admission departments were neonatology (40/102,39%) of which 30/40,75% were preterm, and hemato-oncology (12/102,12%) of whom 7/12,58% had received hematopoietic stem cell transplantation, which means 7% of the total, 7/102. 11%(11/102) were solid organ transplant recipients. Up to 64%(65/102) of the isolations were from blood and 36%(37/102) from other sterile sites (cerebrospinal fluid(1/37,3%), ascitic fluid(5/37,13%), pleural fluid(1/37,3%), vitreous humour(2/37,5%) and urine(28/37,76%)). Figure 1 shows the most frequently associated risk factors(Figure1A) and the yeasts isolated(Figure1B). Thirty-three cases (33/102,32%) were breakthrough IFD. Fluconazole was the antifungal most frequently used as prophylaxis (14/33,42%). Median duration of treatment was 17 days (IQR14-30) and the main first-line antifungals were fluconazole (51/102,50%) and liposomal amphotericin-B(31/102,30%). In breakthrough IFD, 15/33(45%) maintained treatment used as prophylaxis. Related to outcomes: 76% were recovered, 4% had sequelae and 20% died, of which 20% (4/20) were attributed to IFD.



A



B

Conclusions/Learning Points: C. albicans was the most frequent yeast in IFD in our series and fluconazole the first-line treatment. The significant number of breakthrough IFD with fluconazole leads us to reconsider it as prophylaxis in some cases. The high proportion of patients who maintained the same antifungal used as prophylaxis during a breakthrough IFD leave us margin of improvement in the management of IFD.

PV1127 / #1250

INVASIVE FUNGAL DISEASES BY NON-CANDIDA YEASTS IN A TERTIARY HOSPITAL.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: INVASIVE FUNGAL DISEASES BY NON-CANDIDA YEASTS IN A TERTIARY HOSPITAL.
Background: Invasive fungal disease (IFD) is an important cause of morbi-mortality. IFD due to yeast fungi different from Candida are rare. The aim of this study is to describe a series of IFD cases caused by non-Candida yeasts.
Case Presentation Summary: Retrospective observational study in a tertiary pediatric hospital (January 2015-December 2021) of proven IFD by microbiological isolation from sterile samples of non-Candida yeasts fungi. Five of 102 cases of proven IFD (5%) were due to non-Candida yeasts: 2 Trichosporon asahii, 1 Trichosporon inkin, 1 Saccharomyces cerevisiae, and 1 Magnusiomyces capitatus. Four cases were breakthrough IFD. Median age was 24 months (range 1.4 months-14 years). All patients have received broad-spectrum antibiotics and carried central lines, and 4 received parenteral nutrition. Characteristics of the patients and the isolated species are shown in Table 1. Four yeasts were resistant to echinocandins; however 4 were sensitive to liposomal amphotericin B. Only T.inkin was sensible to fluconazole. Liposomal amphotericin B was part of initial therapy in all cases; 2 patients required a change of antifungal due to clinical impairment or drug toxicity. The mean duration of treatment was 17 days (range 5-30 days). Three patients died within the first 19 days after diagnosis of IFD (days 5, 17 and 19); being only attributable to IFD the case who died 5 days after IFD diagnosis.

Yeast	Age (years)	Isolation	Location at diagnostic	Co-morbidity	Antifungal profhylaxys	IFD treatment	Antifungal resistance	Treatment duration (days)
Trichosporon inkin	14	BC	PICU	HSCT	MFG PCZ	LA-B iv FLZ iv MFG	ADF CPF MFG	5
Trichosporon asahii	2	BC	PICU	Primary Inmunodeficiency	LA-B iv MFG	LA-B iv VO	ADF CPF FLZ MFG	15
Trichosporon asahii	1,7	Ascitic Fluid	PICU	SOT (liver)	LA-B iv	LA-B iv FLZ iv VO	ADF CPF FLZ MFG	30
Saccharomyces cerevisiae	2	BC	Pediatric ward	Short bowel syndrome	No	LA-B iv	FLZ	17
Magnusiomyces capitatus	1	Ascitic fluid	PICU	SOT (liver)	LA-B iv	LA-B iv VO FCT	ADF CPF FLZ MFG	17

Blood culture (**BC**) Pediatric Intensive Care Unit (**PICU**). Hematopoietic Stem Cell Transplant (**HSCT**). Solid organ transplant (**SOT**). Liposomal Amphotericin B (**LA-B**), intravenous (iv). Voriconazole oral (**VO**). Micafungin (**MFG**). Posaconazole (**PCZ**). Fluconazole (**FLZ**). Flucytosine (**FCT**). Anidulafungin **(ADF**). Caspofungin (**CPF**).

Learning Points/Discussion: IFD caused by non-Candida yeasts was infrequent in this series, but it was associated with high mortality rate. These fungi should be considered in patients under antifungal prophylaxis, particularly with fluconazole or echinocandins, due to their resistance pattern.

PV1128 / #827

HEPATOSPLENOMEGALY AND ANEMIA PROMPT TO INCLUDE VISCERAL LEISHMANIASIS IN THE LIST OF DIFFERENTIAL DIAGNOSIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Visceral Leishmaniasis is fatal if left untreated in over 95% of cases. It remains one of the top parasitic diseases with outbreak and mortality potential.Leishmania parasites are transmitted through the bites of infected female phlebotomine sandflies, which feed on blood to produce eggs. Leshmania and is the second-largest killer in the worl(after malaria). Armenia is an endemic region for the visceral leishmaniasis caused by Leishmania infantum.
Methods: Medical records of 22 pediatric patients with Visceral and Cutaneous Leishmaniasis hospitalized during March2020 to January2021 period in Isolation Unit of Muratasan University Hospital Complex have been analyzed. The average age of patients was 4years old(46 months,max:11y.o.,min:8m.o.).Male to female ratio was approximately 3:2.
Results: The analysis shows 3 out of 22 patients were diagnosed Cutaneus Leshmaniasis and other 19 had Visceral Leshmaniasis.The average duration of onset of symptoms to hospital admission was 68.6 days (max300:min5).The vast majority of patients with VL(n=15) were severe ill at presentation. Hepatomegaly was seen in 16 and splenomegaly in 17 patients simultaneously.The average length of stay(ALOS) was 24 days(max:69,min:8). ALOS depends on the drug used during treatment, the complications of disease and the adverse events of treatment.Treatment of 3patients was continued after a short break because of QT prolongation. Laboratory data are presented in table.

	HGB	MCV	PLT	LYM	NEU	Albumin
min	$52*10^{12}$ g/l	$61.4*10^{12}$ fL	$19*10^{9}$g/l	$0.9*10^{9}$g/l	$0.09*10^{9}$g/l	17.3g/l
avereg	$87.2*10^{12}$ g/l	$72.2*10^{12}$ fL	$169.8*10^{9}$g/l	$5.4*10^{9}$g/l	$3.6*10^{9}$g/l	33.4g/l
max	$145*10^{12}$ g/l	$89.5*10^{12}$ fL	$571*10^{9}$g/l	$89.5*10^{9}$g/l	$54*10^{9}$g/l	49g/l

Conclusions/Learning Points: Severe illness associated with belated admission to the hospital is common among VL patients. Considering this fact reinforce bond between population and primary health care centers, and encourage and/or train medical stuff to be focused on children with hepatosplenomegaly and severe anemia.

PV1129 / #1394

HHV-6 ENCEPHALITIS IN AN INMUNOCOMPETENT PATIENT DUE TO REACTIVATION IN THE CONTEXT OF FLU SYNDROME

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: HHV-6 ENCEPHALITIS IN AN INMUNOCOMPETENT PATIENT DUE TO REACTIVATION IN THE CONTEXT OF FLU SYNDROME
Background: Human herpesvirus 6 belongs to the Herpesviridae family, so it shares the characteristics of DNA integration and reactivation. Its classic clinical manifestation is roseola infantum. The highest rate of seropositivity is between six months and two years of age. Other less frequent complications described are: encephalitis, hepatitis or myocarditis, which occur especially in immunocompromised patients.
Case Presentation Summary: A 7-year-old boy admitted for atypical febrile seizure with focal characteristics, associated with a 3-day febrile syndrome with cough, runny nose, headache and myalgia. On examination, tending to sleep, temporal-spatial disorientation, incoherent speech, mild dysarthria, with episodes of nervousness, visual hallucinations, symmetrical face, preserved strength and sensitivity, normal ROT, difficulty walking and pain on palpation of lower limbs. The following complementary tests are carried out: *PCR Influenzae A virus: Positive. *PCR Sars-cov2 virus: Negative. *Lumbar puncture: Cytochemical study of viral characteristics, negative gram stain, negative culture. PCR to neutrotrophic virus: Positive for human herpesvirus 6, along with determined in CSF, positive. *Cranial CT: No pathological findings. *Cranial MRI: No pathological findings. *EEG: Normal base rhythm. It was interpreted as encephalitis due to herpes virus 6, in an immunocompetent patient due to reactivation, in the context of flu syndrome. Treatment with ganciclovir was started for 14 days, and the patient was finally asymptomatic with no neurological sequelae.
Learning Points/Discussion: Like other herpesviruses, herpesvirus 6 can remain latent after primary infection. Being able to reactivate, producing complications such as encephalitis, especially in immunocompromised or post-transplant patients. Encephalitis due to this virus in immunocompetent patients without risk factors is rarely described, although cases with a good response to ganciclovir have been seen.

PV1130 / #1406

EXPERIENCE IN THE TREATMENT OF VISCERAL LEISHMANIASIS IN OUR HOSPITAL. CASE SERIES.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: EXPERIENCE IN THE TREATMENT OF VISCERAL LEISHMANIASIS IN OUR HOSPITAL. CASE SERIES.

Background: Leishmaniasis is a parasitosis produced by a protozoan that infects through the mosquito bite. Its clinical manifestations moves in a wide range from asintomatic to severe systemic infection. We present our experience in handling this pathology through two cases with different regimens of the same treatment:

Case Presentation Summary: Patient 1: 2-year-old female with fever and pancytopenia.At physical examination she has skin and mucosa pallor with widespread bruising and splenomegaly were found.In blood smear we objectify anisocytosis and polychromasia of the red series and lymphocytosis of mature elements. In bone marrow biopsy we detected PCR positive to Leishmania donovani.The patient receives transfusion of red blood cells and treatment with intravenous liposomal amphotericin B at 7 mg/ kg/dose on the 1st-5th and 14th days. Patient 2: 2-year-old male with prolonged febrile syndrome, asthenia and anorexia.At physical examination we saw highlights cutaneous-mucosal pallor with palpebral and malleolar edema, splenomegaly and hepatomegaly.Blood smear show us pancytopenia, with activated lymphocytosis and red blood cells with tendency to form roulox.The results of serology were IgG positive to Leishmania Donovan at titer 1/1280.The patient receives treatment with amphotericin B Liposomal at 4 mg/kg/dose in a regimen of 1-5,10, 14 and 21 days. In both cases complete healing occurs without relapse.
Learning Points/Discussion: Due to its safety profile, liposomal amphotericin B has become the treatment of choice.Treatment with short-course liposomal Amphotericin B offers results similar to treatment with a long regimen, and both of them were equally effective.Currently, the trend is to make shorter guidelines to avoid side effects, although in this series of cases, it has not been shown that the long regimen produced side effects to our patients.

PV1131 / #901

A CASE REPORT OF BLACKWATER FEVER IN A 5 YEAR OLD GIRL WITH HER THIRD MALARIA INFECTION IN JAYAPURA PAPUA

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A CASE REPORT OF BLACKWATER FEVER IN A 5 YEAR OLD GIRL WITH HER THIRD MALARIA INFECTION IN JAYAPURA PAPUA
Background: A severe febrile illness accompanied by the passage of dark urine was documented by an English surgeon, Tidlie, in West Africa, given the condition name Blackwater fever in 1884. Black water fever itself is a rare manifestation of falciparum malaria characterized by sudden intravascular haemolysis followed by fever and haemoglobinuria.
Case Presentation Summary: A 5-year-old girl, who was born and raised in Papua admitted with fever, malaise, abdominal pain and dark coloured urine for 2 days. Liver was palpable at two to three fingerbreadths. The initial laboratory tests revealed severe anemia (Hb 6.2 g/dL). Colour of Urine dark-coloured; Blood in urine +3, Leukocytes in Urine +1, Microscopic finding listed Leukocytes 5-8/Visual Field, Erythrocytes 15-20/Visual Field. The thick and thin blood is confirmed. The patient has 2 times history of Malaria; Mixed and Tropicana. Anti-malaria was administered IV and single dose per oral. Red Blood Cell transfusion is given 3 times to overcome the Anemia. On the 14th day, the patient was discharged.
Learning Points/Discussion: Patients who have been repeatedly infected with malaria in endemic countries are still at risk for complications from malaria. Either the patient has re-infected; or the parasite is in dormant from the previous infection. Screening and early the diagnosis can lower the chance of life-threatening complication. For pediatricians, giving an aggressive approach in treatment also give the best result based on the patient condition.

PV1132 / #1888

SYPHILIS AND HIV IN ADOLESCENTS IN SOUTHERN MADRID, SPAIN (2018-2022)

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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[1]12 de Octubre University Hospital, Paediatric Infectious Diseases, Madrid, Spain, [2]Hospital Clínico San Carlos, Pediatric Infectious Diseases Unit, Department Of Pediatrics, Madrid, Spain, [3]Vall'd Hebron University Hospital, Paediatric Infectious Diseases, Barcelona, Spain, [4]Gregorio Marañon Hospital, Gregorio Marañon Hospital, Madrid, Spain, [5]Sant Joan de Deu Hospital, Paediatric Infectious Diseases, Barcelona, Spain, [6]Virgen del Rocío Hospital, Paediatric Infectious Diseases, Sevilla, Spain, [7]12 de Octubre University Hospital, Microbiology And Parasitology, Madrid, Spain

Backgrounds: The incidence of sexually transmitted infections (STI) is rising worldwide. Its incidence in Spain has doubled since 2016, including in the adolescents. Data about STI in this population could help tailoring preventive measures.
Methods: Retrospective descriptive study describing syphilis and HIV serologies requests in 2018-2022, to adolescents aged 10-19 years, in a health area in Southern Madrid, Spain (including hospital and primary care settings). The results and clinical records were reviewed.
Results:

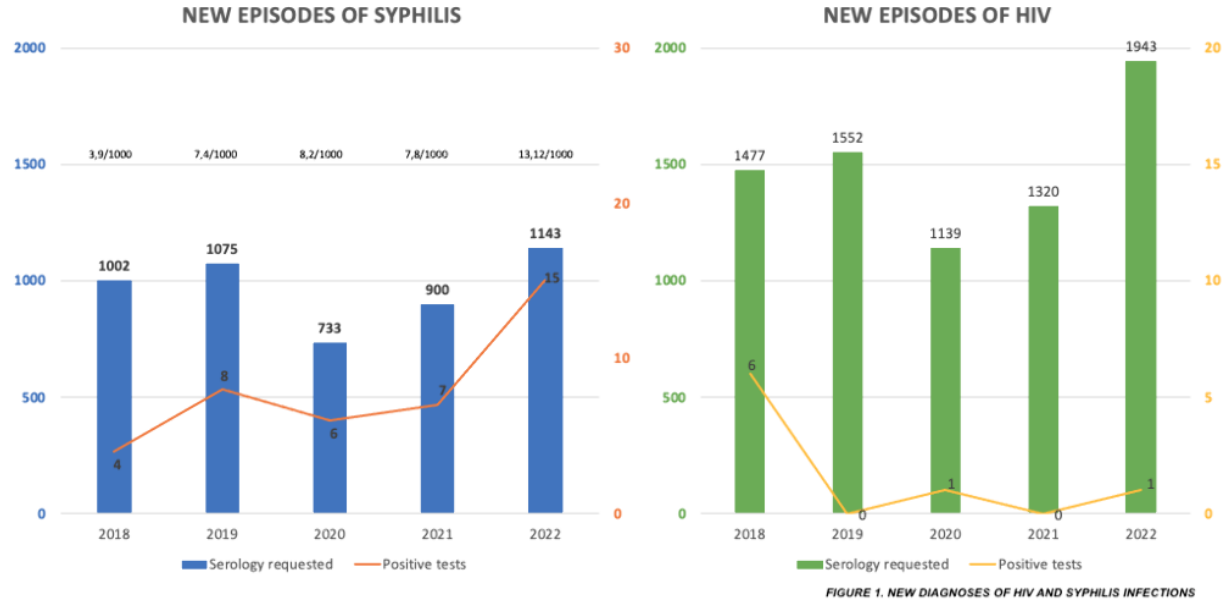

FIGURE 1. NEW DIAGNOSES OF HIV AND SYPHILIS INFECTIONS

From 4853 syphilis serologies analyzed, 40 new [C1] episodes occurred[C2] , from 2018 to 2022. The median age at diagnosis was 18 years (18-19 IQR); [C3] 31/40 (77.5%) in late adolescents (18-19 years) and 9/40 (22.5%) in middle adolescents (15-17 years). A significant increase in the annual incidence of the rate of syphilis was observed, from 0.39% in 2018 to 1.31% in 2022 (p=0.035) (Figure1). Regarding HIV, there were 8 new diagnoses in the study period, all in late adolescents (18-19 years). Likewise, our study showed the impact that health alerts had on STI screening. During the COVID-19 pandemic (2020), the minimal number of serologies were requested both for syphilis and HIV, while during the Monkeypox virus emergency (2022), the maximum requests were seen (Figure1).
Conclusions/Learning Points: Our data show an increase in the incidence of syphilis in adolescents in

Southern Madrid in recent years. In addition, this study reveals the impact that health emergencies have on the screening of these infections.

PV1133 / #1595

ANALYSIS OF MENINGOCOCCAL B IMMUNISATION IN CHILDREN UNDER 15 YEARS OF AGE. VALENCIAN REGION (SPAIN). YEARS 2018-2022.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Meningitis B vaccine was allowed to be sold in pharmacies in 2015 and recommended by Paediatrics Associations, funded by parents. In November 2022 its funding was recommended for infants with a 2-4-12 months regimen besides already financed risk groups. The Valencian Region, with 35,000-37,000 births per year, registers through the Vaccine Information System over 97% of total vaccine doses sold in the region. This study aims to analyse evolution of vaccines administered in the region during 2018-2022 and assess pandemic influence over vaccination.
Methods: A descriptive analysis of meningococcal B vaccination trends was performed, by sex, age group, risk group and public/private centre, in children up to 14 years of age from 2018 to 2022.
Results: In 2018, 113,126 doses were reported compared to 80,017 in 2022. 99.74% doses were in children without risk factors in 2018. In 2022, distribution remained similar (99.83%). A total 448,854 children were vaccinated between 2018-2022 (55.04% under 1 year, 33.77% 1-4 years, 11.19% 5-14 years). Significant differences in age groups were observed in 2018 (45.2% <1 year, 33.76% 1-4 years, 24.84% 5-14 years) and 2022 (65.56% <1 year, 31.72% 1-4 years, 3.72% 5-14 years). Private centres administered 11.20% and 9.20% doses in 2018 and 2022 respectively. A decrease of 29.27% in vaccination was observed between 2018-2022, with a larger decrease in 2018-2019 (-27.53%) than in 2020-2022 (-9.41%) during pandemic years.
Conclusions/Learning Points: The number of vaccines has decreased due to fewer births. Most children vaccinated were not at risk. Vaccination was highest for children under 1 year, decreasing over time. No differences by sex. Vaccination in private centres remained around 10%. The largest decrease in vaccination was pre-pandemic in 2019, followed by the first pandemic year.

PV1134 / #1637

NON-FINANCED MENINGOCOCCUS B VACCINATION IN THE VALENCIAN REGION, SPAIN: ARE THE RECOMMENDATIONS BEING FOLLOWED?

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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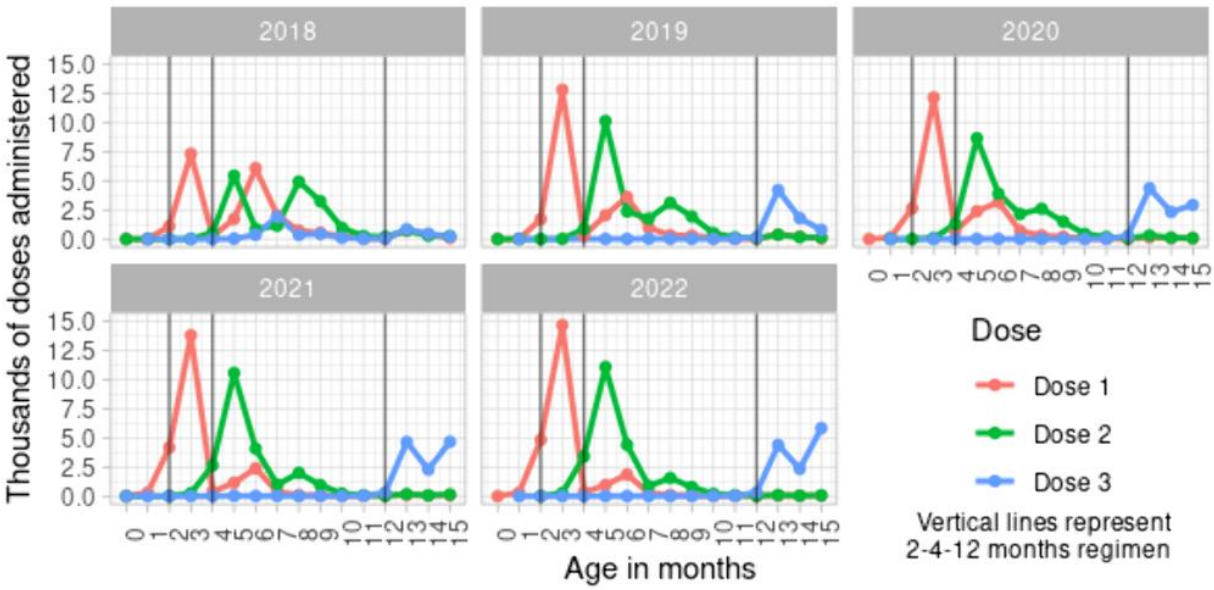
Backgrounds: The B serogroup meningococcus vaccine (menB-v) was recommended in Spain in November 2022, with a 2-4-12 months regimen, emphasizing the importance of administering its doses on time. In the Valencian Region (VR), with around 36,000 births per year, menB-v has not been financed by the regional health system (RHS) until then, following heterogeneous administration guidelines. This study aims to evaluate on-time administration to understand non-RHS-financed vaccination behaviour.
Methods: A descriptive study using data from the Vaccine Information System (VIS) of the VR was conducted. The system records the vaccines administered in both public and private centres. All doses of menB-v administered to infants 0-15 months of age without risk factors during 2018-2022 were included. The study evaluated the number of first, second and booster doses given by age according to sex and year of administration.
Results: Mean doses (SD) administered per year during 2018-2022 were: 22774 (840) first doses, 21426 (1519) second doses and 9388 (3403)
boosters.

Figure 1. No. of doses administered by age and dose order



Most first doses were given in third month (53.3%) and only 12.7% were given on time (5.2% in 2018, 20.5% in 2022). Second doses were predominantly administered in fifth month (42.8%), only 8.2% administered on time (2.9% in 2018, 14.9% in 2022). The majority of third doses were given in thirteenth month (39.3%) and only 2.3% on time (1.1% in 2018, 2.4% in 2022). However, since 2020, an increase is observed in the administration of third doses in the fifteenth month. No differences in vaccination were found by sex.

Conclusions/Learning Points: Non-financed vaccinations did not conform to national recommendations, perhaps to decrease the number of injections per visit. To achieve maximum benefits, it is important to ensure vaccination at the minimum age allowed by the technical sheet.

PV1135 / #2000

AN OVERLOOKED AND LITTLE KNOWN CAUSE OF ACUTE CHEST PAIN

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: An Overlooked and Little Known Cause of Acute Chest Pain
Background: Mediastinal fat necrosis (MFN) or epipericardial fat necrosis, as it is commonly referred to in the literature, is a rare self-limiting cause of chest pain of unclear etiology. MFN affects previously healthy individuals who present with acute pleuritic chest pain.
Case Presentation Summary: An otherwise healthy 9-year-old girl presented on the 2th day of illness with a pain in chest and right shoulder, especially while inspiration. The patient was fully alert. The patient's weight was 22kg, height 128cm. Her all vaccinations were up-to-date. There is no history about genetic disorders. The chest x-ray showed insignificant exudate in right pleural sinus. Ultrasound showed pleural effusion (exudate – 40ml) and after that child was admitted to the hospital. Laboratory findings:

During admission	First day	Last day
WBC	13.69	7.18
NEUT	10.01	3.02
LYMPH	2.49	3.42
PLT	279	361
RBC	5.02	4.90
HGB	128	130
MCV	79.0	76.1
CRP	7.24	0.69

Ultrasound of heart didn’t show any pathology Chest CT showed that in right cardio diaphragmal angle there is a 2.8 × 2.0 × 1.0 cm ovoid fat attenuation lesion delimited by a thin soft tissue. And also right sided hydrothorax without any pathology of pleura. There was no lymphadenopathy. Treatment The child received Ibuprofen 10mg/kg every 8 hours. Diagnosis Considering clinical and laboratory data the child was diagnosed with Mediastinal fat necrosis (MFN) or epipericardial fat necrosis.
Learning Points/Discussion: 1.There is not much information about mediastinal fat necrosis and patients are being diagnosed mostly after biopsy which is traumatic manipulation. 2.Because of its benign, self-limited nature, conservative treatment is preferred.

PV1136 / #2084

A CASE OF ACUTE DISSEMINATED ENSEPHALIT AFTER HHV-6 MENINGITIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A CASE OF ACUTE DISSEMINATED ENSEPHALIT AFTER HHV-6 MENINGITIS
Background: Many cases of viral meningitis are idiopathic, but increased utilization of polymerase chain reaction testing has enabled physicians to better recognize rare causes of viral meningitis. Patients who do not respond to supportive treatment and, if necessary, antiviral treatment can be challenging for the clinician. A case with ADEM (acute disseminated encephalitis) whose flaccid paralysis and confusion continues after HHV-6 meningitis will be discussed.
Case Presentation Summary: While a 9-month-old female baby was being followed up with signs of viral respiratory infection, we applied to our clinic after noticing circulatory disorder, altered consciousness, and decreased extremity movements. On physical examination, there were several crusted vesicular lesions on the anterior surface of the chest, and confusion was present. Laboratory tests revealed leukopenia and lymphopenia, and CRP was 11.2 mg/L . CSF glucose 81 mg/d L and simultaneous blood glucose was 110 mg/dL, CSF protein was 32 mg/dL, no cells were observed in CSF microscopy, HHV-6 was detected by CSF PCR. Empirically ceftriaxone, vancomycin and acyclovir was were given. In the follow-up, the patient had flaccid paralysis in 4 extremities and continued confusion. Considering the prediagnosis of acute disseminated encephalomyelitis (ADEM), intravenous immunoglobulin treatment was started for 5 days. The patient, who had a dramatic response with the first dose, was discharged after 14 days of acyclovir treatment.
Learning Points/Discussion: ADEM is an inflammation of the spinal cord and brain. Diagnosis of ADEM, due to its rare occurrence and lack of definite laboratory findings, is difficult and is never totally certain. Clinical criterion required for the diagnosis is presence of acute symptoms from the brain and/or spine with fever, occurring after viral or bacterial infection, vaccination or serum administration.

PV1137 / #888

STREPTOCOCCAL GROUP A INVASIVE INFECTIONS IN CHILDREN IN A TERTIARY REFERRAL CENTER IN CYPRUS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: STREPTOCOCCAL GROUP A INVASIVE INFECTIONS IN CHILDREN IN A TERTIARY REFERRAL CENTER IN CYPRUS
Background: Beta-haemolytic streptococcus group A (GAS) causes common infections such as pharyngotonsillitis. Rarely, it can be the cause of invasive infections such as sepsis, meningitis, chest empyema and streptococcal toxic shock syndrome(STSS). In 2022 an increase in the number of invasive GAS infections (iGAS) was observed in many countries. The aim of this study is to evaluate the epidemiology, clinical characteristics and outcome of iGAS infections in Cyprus.
Case Presentation Summary: We reviewed the medical records of patients, younger than 16-year-old admitted with iGAS infection to Archbishop Makarios Hospital, the tertiary referral center for all Cyprus, between January 2021 and January 2023. Invasive cases were defined as cases with GAS isolated from a sterile site. A total of 8 cases were reported. The incidence rate of iGAS infections in 2022 was 2,6/100000 children. The median age of children was 3,5 years(1.3 to 8.6 years). 75% of cases were female. Two children suffered pneumonia with empyema, and GAS was cultured from pleural fluid. Six children had bacteraemia(75%), two of them without any focus, and four of them concurrent with focal infection ie endocarditis, meningitis, cellulitis, and septic arthritis. STSS also occurred in three patients(37,5%). Two children with STSS died within hours after admission(25%). A third child required ECMO. Median duration of hospitalization for survivors was 29 days.
Learning Points/Discussion: iGAS infections are rare, but severe as they carry substantial morbidity and mortality. There are no previous recorded cases in Cyprus in order to make comparisons to the current year. In case of iGAS cases strict adherence to preventive guidelines should be followed. Parents have to be educated on symptoms requiring urgent medical attention.

PV1138 / #2658

PRESENTATION OF A CASE OF WEST NILE VIRUS INFECTION IN A TERTIARY HOSPITAL DURING AUGUST 2022

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: PRESENTATION OF A CASE OF WEST NILE VIRUS INFECTION IN A TERTIARY HOSPITAL DURING AUGUST 2022
Background: Outbreaks of West Nile virus concern the global medical community during the autumn and summer months. There is an increase in recorded cases in our country included pediatric patients in the year 2022.
Case Presentation Summary: The case concerns a West Nile infection in a 14-year-old pediatric patient, that was hospitalized at General Hospital of "G.GENNIMATAS", during August 2022, in Thessaloniki. The medical history and laboratory results were evaluated. The pediatric patient was a traveler from Russia and admitted to the hospital with fever, headache and characteristic skin rash. The laboratory diagnosis was confirmed in the Clinical Microbiology Laboratory of AUTH with the detection of IgM antibodies against West Nile virus in the serum and in the Cerebrospinal fluid.Commercial ELISA kits (WNV IgM capture DxSelect and WNV IgG DxSelect, Focus Diagnostics Inc, Cypress, California) were used for antibody detection. Magnetc resonance imaging showed thin meningeal hyperemia , while the general examination of cerebrospinal fluid was normal. IgM antibodies against West Nile virus in the serum and in the Cerebrospinal fluid were positive. The result was considered positive when the index value was >1.1 for IgM and >1.5 for IgG antibodies. The patient was discharged after five days of hospitalization in pediatric clinic. The diagnosis was suspected and confirmed within the first 24 hours of hospitalization.
Learning Points/Discussion: Continuous information and awareness among health professionals is a prerequisite for early differential diagnosis of West Nile virus cases. Climate change and the geographical location of Greece encourage vector-borne diseases.

PV1139 / #2716

BLOODSTREAM INFECTIONS IN PEDIATRIC PATIENTS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Background: Blood stream infection (BSI) is the leading cause of morbidity and mortality in pediatric patients and may present a diagnostic and therapeutic challenge. Objective:This study aims to describe the microbiological characteristics of BSI in pediatric patients.
Methods: Material for the study was blood samples(Pediatric vials, BACTEC, Becton Dickinson) from 453 pediatric patients, of whom 303(67%) were males and 150(33%) females. The study was conducted at General Hospital G.GENNIMATAS in Thessaloniki from January 2017 to January 2023.From the entire sample, 30 were positive for one microorganism. Positive blood culture samples were cultured on blood / Mc Conkey agar, chocolate agar in CO2 conditions and blood agar in anaerobic conditions. Identification and susceptibilty test were performed using VITEK-2 automated system(Bio Merieux, France).
Results: 30 (6,6%) blood samples were positive for one microorganism. Of them eleven 11(37%) were Gram positive bacteria included Staphylococcus aureus(72%) of which 25% were methicillin resistant, Streptococcus pneumoniae (18%), Streptococcus pyogenes (10%). Gram negative bacteria were also 11(37%) and included Escherichia coli(64%), Klebsiella oxytoca (9%) and Salmonella enteritidis(27%). One isolate was Candida parapsilosis. 75% of S.aureus were methicillin sensitive and 50% of S.pneumoniae were Penicillin resistant. All of the gram negative were ESBL negative and 43% of E.coli isolates were 57% resistant to amoxicillin/clavulanic acid. Patients with immuno- suppressive disorders with BSI had isolates such as Salmonella enteritidis, S. pneumoniae and Candida parapsilosis.
Conclusions/Learning Points: Detection of bacteria in blood has an important role in diagnosis for a febrile patient; to establish the presence of infection, to reassure the clinician about the chosen empirical therapy, and to provide up-to date information on the local etiologic patterns and antibiotic sensitivities as this will guide the clinician in the management of the patient.

PV1140 / #1818

DE NOVO ONSET OF CROHN'S DISEASE IN A 10 YEAR OLD GIRL SHORTLY AFTER COVID-19 INFECTION

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: DE NOVO ONSET OF CROHN'S DISEASE IN A 10 YEAR OLD GIRL SHORTLY AFTER COVID-19 INFECTION
Background: Introduction: The onset of autoimmune diseases may be generated by a variety of factors through the creating a hyper-stimulated state of the immune system. Infection from Sars-Cov-2 has been related to pathologic immune response even in children and could initiate various autoimmune diseases. These may present either during or shortly after resolution of disease.
Case Presentation Summary: A 10 year old girl was referred to our hospital due to daily low grade fever, diarrhea, anorexia and periodic epigastralgia, all initiating 10 days after infection from Sars-Cov-2. She wasn't vaccinated against Covid-19. Clinical findings included pallor and emaciation.Double antibiotic therapy was administered to our patient, immediately after laboratory tests were performed: Ht:30%, Hb:9.9g/dl, WBC:12.8 k/μL (N:70%),CRP:86,37mg/L, ESR:36mm/h,PCR panel for various viruses,antibodies for celiac disease,parasitological and stool cultures,C.difficile toxin,Widal-Wright, antibodies for autoimmune diseases.Each test was negative.Due to persistence of symptoms stool calprotectin was checked with upcoming results highly off normal values(1008,9 μg/g).Abdominal ultrasound revealed the presence of abnormal mesenteric lymph nodes(1cm),while X-rays of the abdomen were normal.Patient was transferred to a tertiary hospital where after gastro-colonoscopy and MR Enterography diagnosis of Crohn's disease was established and cortisone and azathioprine therapy was administered.
Learning Points/Discussion: Conclusions: According to up to date data, infection from Covid-19 can induce intestinal inflammation and lead to de novo onset of IBD, possibly due to disturbance of bowel barrier, mutations in genetic expression, intestinal dysbiosis and immunologic hyper-responsiveness. Nevertheless, more studies should be conducted in order to export safer results. Until then, the clinician should be vigilant for possible IBD manifestations after Covid-19 infection, and refer immediately any such patient to a pediatric gastroenterologist.

PV1141 / #1399

DE NOVO ONSET OF SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) DISEASE IN A 13Y OLD GIRL AFTER COVID-19 AND EPSTEIN-BARR VIRUS (EBV) COINFEC-TION

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: DE NOVO ONSET OF SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) DISEASE IN A 13y OLD GIRL AFTER COVID-19 AND EPSTEIN-BARR VIRUS (EBV) COINFECTION
Background: SLE is caused by the interaction between genetic and environmental factors, however, its underlying triggers remain unknown. Among the environmental factors, the involvement of infections, as a trigger for SLE, especially those of viral etiology, has been widely reported. Viruses such as EBV have been documented to be involved in SLE pathogenesis and the new Sars-Cov-2 is now implemented in autoimmune and autoinflammatory disorders.
Case Presentation Summary: A 13 year old girl visited our outpatient clinics due to persistent arthralgia over the past trimester.At first only major joints were affected (knee and limb) but shortly after pain and oedema presented in smaller joints of upper and lower extremitities as well. Headache, hoarseness of voice,difficulty in climbing steps, weight loss and worsening hair loss were also mentioned. The above symptoms started3months after a laboratory-confirmed COVID-19and EBVcoinfection. Due to persistence of symptoms the patient admitted to hospital and extensive laboratory tests were performed and revealed:severe leukopenia, thrombocytopenia,elevated erythrocyte sedimentation rate(ESR),hypocomplementemia,hyperglobulinemia,positive ANA,anti-ds DNA markers, anti-cardiolipin IgM antibodies,anti-β2GPI IgM antibodies,Lac test and mild proteinuria.The patient fulfilled the classification criteria for SLE and was then referred to a rheumatologist and immunosuppressive treatment was started.
Learning Points/Discussion: Learning Points/ Discussion: There is a strong belief that EBV infection is involved in SLE pathogenesis. Covid-19 infection related autoimmune response has been documented as well. It would be interesting to observe any relationship between Covid and EBV coinfection and trigger of autoimmune diseases. Until then the clinician should be vigilant for possible infections or infectious reactivation that are potential triggers for initiation of autoimmunity and for SLE flares.

PV1142 / #1491

INTESTINAL MYIASIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Intestinal Myiasis- a rare tropical infestation
Background: Intestinal Myiasis is a condition when fly larvae accidentally inhabit human gastrointestinal tract and are passed out in faeces. Ingestion of food contaminated with eggs or larvae of various types of flies in human surroundings. Visible passage of live-wriggling or dead worms in faeces is the commonest manifestation variably associated with abdominal pain, diarrhoea, failure to thrive as clinical symptoms. Persistent passage of worms in spite of repeated anti helminthic courses is typically suggestive of myiasis which resolves over long time spontaneously or after bowel wash - intestinal decontamination.
Case Presentation Summary: A 2year old boy from countryside was referred for passage of worms 50-60/stool since 2months noted by parents. The worms were of 5-8mm length, blackish brown coloured, most live wriggling and few dead. Video recordings of freshly passed stools by parents and personal gross inspection confirmed the infestation. The child also had recurrent acute diarrhoea since last year variable in colour, volume, consistency with occasional blood. Recurrent significant colicky abdominal pain lasting for an hour was reported especially at night , responded to antispasmodics. Exaggerated gastrocolic reflex was of note. Multiple consultations and repeated various anti helminthic medication courses provided no relief. The toddler weighed 10.150kg with 1400 gm documented gain over last year. Physical examination was totally normal without any abnormal finding. CBC, Stool examination results were noncontributory. History unfolded food contamination risk factors- habitual overeating of bananas, livestock stable in close vicinity, fly menace at village family house. Colonic wash with oral Polyethylene Glycol and WHO ORS repeated 3 times at weekly interval resolved all symptoms.
Learning Points/Discussion: Intestinal Myiasis is a known yet least considered tropical infestation, inappropriately over treated with anti helminthic medications.

PV1143 / #1502

OLD FRIEND / NEW ENEMY? : INVASIVE STREPTOCOCCUS PYOGENES INFECTIONS IN CHILDREN

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: OLD FRIEND / NEW ENEMY? : INVASIVE STREPTOCOCCUS PYOGENES INFECTIONS IN CHILDREN
Background: An increasing trend in invasive Streptococcus pyogenes infections has been reported from many countries, causing alarm worldwide in the last months of 2022. We followed six patients with severe invasive Group A Streptococcus (iGAS) infection in the last three months. In this study, we aimed to reveal the characteristics of the patients with iGAS infection and draw attention to the increasing disease burden.
Case Presentation Summary: We retrospectively evaluated six children with iGAS infections; three were males with a mean age of 6 years. Two deep neck infections, two septic arthritis, one bacteremia, and one pyomyositis were included. All patients had fever and were ill-appearing. All patients' acute phase reactants were high. Five of 6 patients underwent surgical drainage. Ampicillin-sulbactam was administered in five patients; clindamycin was initiated in two cases for suspected streptococcal toxic shock syndrome. Crystalline penicillin G was administered to one patient.
Learning Points/Discussion: These recently observed infections within three months draw attention to the increasing invasive nature of S.pyogenes. Despite causing severe infections, we had an excellent response to appropriate and immediate treatment, as the pathogen is still susceptible to penicillin. Particularly in the post-COVID period, iGAS infections reemerged and continue to pose a threat with the change in the epidemiology of most viral and bacterial infections.

PV1144 / #1290

STAPHYLOCOCCAL SCALDED SKIN SYNDROME (SSSS) IN CHILDREN: A 4-YEAR RETROSPECTIVE STUDY IN A SINGLE INSTITUTION

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: STAPHYLOCOCCAL SCALDED SKIN SYNDROME (SSSS) IN CHILDREN: A 4-YEAR RETROSPECTIVE STUDY IN A SINGLE INSTITUTION
Background: Staphylococcal scalded skin syndrome (SSSS) is a toxin-mediated, blistering skin disorder, produced by certain strains of Staphylococcus aureus. Mortality is approximately 4%. The purpose of this study was to describe the epidemiology, clinical features, management and antibiotic-resistant patterns of pediatric SSSS.
Case Presentation Summary: We conducted a retrospective study of children with a clinical diagnosis of SSSS from January 2019 to December 2022 in the pediatric department of a tertiary general hospital. Epidemiologic, clinical, laboratory and microbiology data were obtained. 43 patients with SSSS were included; 23/43 (55.8%) were female. Mean age of diagnosis was 3.06years (range 3.5months-6.5years). Occurrence was more frequent during summer and autumn, 16/43 (37.2%) and 12/43 (27.9%) respectively. Fever, elevated white blood cell count and high C-reactive protein levels were uncommon. Staphylococcus aureus was isolated in 33/43 (76.7%) patients; higher positive culture rates were found in nasal swabs (25/33, 75.7%). All cases were due to methicillin-sensitive S.aureus (MSSA). Susceptibility tests for the rest of antibiotics showed zero resistance rates to vancomycin and trimethoprim/sulfamethoxazole, followed by clindamycin (1/33 strains, 3%), whereas all strains were highly resistant to mupirocin (31/32 strains, 96.9%) and tobramycin (20/31 strains, 64.52%). All patients were treated with cloxacillin and clindamycin. Mean hospitalization was 5.34days. Severe complications were seen in one patient (2,33%) whose course was complicated with bloodstream infection. No fatalities were observed.
Learning Points/Discussion: SSSS remains a pediatric emergency with good prognosis when treated appropriately. Staphylococcus aureus is more often isolated from nasopharyngeal/periorificial swabs. In our study most SSSS cases were due to oxacillin and clindamycin susceptible strains. High resistant rates of mupirocin and tobramycin were demonstrated, questioning their use.

PV1145 / #2244

"HEALTHY HELMINTH": AN ASYMPTOMATIC CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: "Healthy helminth": an asymptomatic case report
Background: Ascaris lumbricoides is the most common helminthic infection worldwide. It is transmitted through the ingestion of embryonated eggs from contaminated soil or food. Predisposing factors include poverty, poor sanitation and bad personal hygiene. The prevalence is higher in children younger than 5 years. The majority of patients are asymptomatic, but it can appear as anorexia, nausea, recurrent abdominal pain, abdominal distension and diarrhea. The diagnosis is best established by detection of eggs on faeces. The treatment is mandatory, even in asymptomatics, to prevent complications from the parasite´s migration. The drugs of choice are albendazole or mebendazole and the average cure rate is more than 95%.
Case Presentation Summary: The case concerns an eleven-year-old child, with an body mass index of 18 (percentile 50-85), who presented an helminth in the stool, without any symptom. It should be noted that this is a child with access to adequate hygiene and sanitary care, who lives in an European country, but in a rural area. He made albendazole in single dose (SD), without new episodes.

Learning Points/Discussion: This case alerts us to the presence of helminthic infections even in children with proper hygiene and led us to make an approach on the treatment of helminthic infections. The literature revision points that the treatment for children is 400mg albendazole or 500mg mebendazole, in a SD. They are highly safe, but attention must be paid because hepatic toxicity may rarely occur. Other drugs may be used , but they need more studies. Helminthic infections are typical from tropical and subtropical areas, but we must keep in mind that this parasites are present in soil, so every children are potentially in risk of infection.

PV1146 / #799

PNEUMOCCOCAL VACCINATION IN INFANTS UNDER 2 YEARS OF AGE – DID THE LOCKDOWN MEASURES DUE TO THE SARS-COV-2 PANDEMIC INFLUENCE VACCINATION RATES AND TIMELINESS OF VACCINATION IN GERMANY?

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Pneumococcal conjugate vaccination (PCV) is recommended for infants <2 years of age in Germany. From 08/2006 to 08/2015, a 3+1 schedule was recommended (2, 3, 4, and 11-14 months); since 09/2015, a 2+1 schedule is recommended for term infants (2, 4, and 11-14 months [respectively 11 months since 08/2020]). In March 2020, the SARS-CoV-2 pandemic started to strongly influence daily life in Germany (e.g. nationwide lockdown measures). Study aim was to assess vaccination rates and timeliness of PCV for birth cohorts before and during the pandemic based on real-world data.
Methods: A retrospective claims data analysis was conducted using the InGef Research Database containing an age- and gender-representative sample of the statutory health insured population in Germany. The study population consisted of infants born in 2013, 2016, 2018 (birth cohorts before the SARS-CoV-2 pandemic) and 2020 (first cohort born during the SARS-CoV-2 pandemic) with an individual follow-up of 9 months (interim analysis).
Results: After 9 months 90.4% (89.7%/89.2%/89.2%) of the 2020 (2018/2016/2013) birth cohort had received at least one PCV dose. The basic PCV series (2 doses in 2016-2020; 3 doses in 2013) was administered in 83.3% (79.5%/77.9%/75.4%) of infants of the respective birth cohorts. If administered, the first dose was received within the recommended timeframe only in 57.6% (2020), 53.6% (2018), 51.9% (2016), and 44.9% (2013).
Conclusions/Learning Points: Although nationwide lockdowns due to the SARS-CoV-2 pandemic strongly influenced daily life in Germany, there is currently no evidence of a negative impact on PCV rates and timeliness of vaccination. The rate of unvaccinated infants remained constant at about 10%. Vaccinations were often delayed but a positive trend regarding timeliness of the first dose and basic PCV was observed from birth cohort 2013 to 2020.

PV1147 / #809

POTENTIAL IMPACT OF TWO DIFFERENT RECOMMENDATIONS FOR PNEUMOCOCCAL AND HEXAVALENT VACCINATION IN PRETERM (3+1) AND TERM (2+1) INFANTS – A GERMAN CLAIMS DATA ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: In August 2020, the German Standing Committee on Vaccination (STIKO) changed the hexavalent (HEXA) vaccination schedule for term infants (TI) from a 3+1 (2, 3, 4, and 11-14 months) to a 2+1 scheme (2, 4, and 11 months). For preterm infants (PI), the 3+1 schedule remained unchanged. A respective recommendation change for pneumococcal vaccination (PCV) took place in August 2015. Study aim was to assess vaccination rates and timeliness of PCV and HEXA vaccination in PI after the change in recommendation for TI based on real-world data.
Methods: A retrospective claims data analysis was conducted using the InGef Research Database containing an age- and gender-representative sample of the statutory health insured population in Germany. The study population consisted of all PI in the database (identified by ICD-10-GM codes P07.2 and P07.3) born in 2013, 2016, 2018 or 2020 with an individual follow-up of 9 months (interim data analysis).
Results: After 9 months, 91.5% (91.8%/92.0%/89.7%) of PI born in 2020 (2018/2016/2013) had received at least one HEXA vaccination, but only 62.8% (74.9%/73.3%/70.7%) obtained the three recommended HEXA vaccinations. At the same age, 92.7% (92.3%/90.9%/91.5%) of PI had received at least one PCV dose, but only 57.5% (49.2%/43.3%/70.5%) obtained the basic PCV series (three recommended doses). Only 56.3% (57.7%) of 2020 born PI receiving the first dose of PCV (HEXA) were vaccinated on time.
Conclusions/Learning Points: Although STIKO still recommends a 3+1 schedule for PCV and HEXA vaccination for PI in Germany, a significant decrease in PI receiving the three recommended doses within the first 9 months of life was observed after the respective recommendation change for TI. More efforts are needed to improve the adherence to STIKO recommendation to protect this vulnerable group of PI.

PV1148 / #2632

A CASE OF INFANT BOTULISM DETECTED IN LISBON

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A CASE OF INFANT BOTULISM DETECTED IN LISBON
Background: Infant Botulism (IB) is a rare potentially life-threatening disorder, caused by botulinum neurotoxins-producing Clostridium. In Portugal, botulism is a statutory notifiable disease since 1999 and the first case of IB occurred in 2009.
Case Presentation Summary: In October 2022 a previously healthy 6-month-old female infant, born in USA, living in Austria for 2 months and on vacation in Portugal for 2 days, presented with subacute generalized hypotonia. Two days before she had become lethargic and was feeding poorly, also being constipated for six days. On admission decompensated hypovolemic shock was treated. Flaccid tetraparesis with preserved tendon reflexes, bilateral facial involvement and asymmetrical ptosis without pupillary disfunction were latter noted. She remained stable, requiring a nasogastric tube for feeding due to decreased sucking and gag reflexes. Blood work was unremarkable. Further investigation included neuroaxis MRI, CSF analysis, EEG, EMG with repetitive stimulation and infectious and metabolic investigations, all negative. Despite the absence of known risk factors, IB was considered. In serum the ELISA assay was negative for detection of botulinum neurotoxins (BoNT). Type A BoNT was detected in stools by Mouse Bioassay and PCR was positive for the gene that encodes type A BoNT-producing Clostridium, isolated from the faecal sample. A thorough epidemiological enquiry showed a context of family consumption of honey from Austria and the child had been given a home nuts paste. Human-derived Botulism Immune Globulin was administered at day 8. One week after and with rehabilitation support there was a slow but progressive improvement.
Learning Points/Discussion: IB is an under-reported disease possibly due to its nonspecific presentation and diagnostic difficulties. In this case,early treatment,considering the clinical and epidemiological context,while waiting laboratorial confirmation,was essential to reduce morbidity/mortality.

PV1149 / #601

CONCOMITANT TRIGEMINAL HERPES ZOSTER AND RAMSAY HUNT SYNDROME: A PEDIATRIC CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: CONCOMITANT TRIGEMINAL HERPES ZOSTER AND RAMSAY-HUNT-SYNDROME: A CASE REPORT
Background: Herpes zoster (HZ) infection results from reactivation of latent Varicella Zoster Virus (VZV) gaining access to the sensory ganglia during varicella infection. Ramsay-Hunt-Syndrome (RSH) includes the triad of facial palsy, ear pain, and vesicles in the auditory canal and reflects reactivation of latent VZV in the geniculate ganglion. Multiple cranial nerve involvement is rare.
Case Presentation Summary: A healthy 17-year-old adolescent presented with right ear and facial pain during 5 days. Vesicles developed in the area of the right second and third branch of the trigeminal nerve and on the right soft palate (facial nerve) during two days. Corneal involvement was excluded and intravenous Acyclovir was initiated assuming concomitant trigeminal HZ and RHS. The next day RHS was completed as he developed right-sided facial palsy. Prednisolon was commenced. PCR swab of the vesicles was VZV positive. Cerebrospinal fluid (CSF) was VZV PCR negative. The patient was discharged after five days with complete recovery of the facial palsy. Acyclovir was administered orally for another 5 days.
Learning Points/Discussion: Co-occurrence of trigeminal HZ and RSH is rare. Adult cases presenting with serial occurrence of VZV cranial nerve involvement have been reported, assuming transaxonal spread within the area of the spinal trigeminal nucleus and tract (corresponding MRI alterations) or spread through CSF. In our case trigeminal HZ and RHS occurred simultaneously and CSF VZV PCR was negative assuming concurrent reactivation in the gasserian and geniculate ganglions. To the best of our knowledge, this represents the first described case with multiple cranial nerve involvement in an immunocompetent child. It's important to recognize this phenomenon even in healthy children and to initiate prompt therapy in order to prevent sequelae.

PV1150 / #740

WHAT'S COMMON IS NOT SO COMMON (FOLLOW THE HEART OR THE HEAD?)

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A rare presntation of brucellosis in a 12 year old child
Background: Brucellosis is a zoonotic disease. infection occure after contact with infected animals or animal products as raw unpasteurized dairy. The clinical presentation is not specific and usually include fever, arthralgia and hepatosplenomegaly. Some are pesented as fever of unknown origin. involvment of the cardiac system is rare and myocarditis is much rarer. A high level of suspicion lead to early treatment and good prognosis.
Case Presentation Summary: 12 years old, Muslim origin, generally healthy, vaccinated. Admitted due to fever and pain, weakness, fatigue, loss of appetite and vomiting. On admission – he is fully conscious, temperature 38.5 C, pulse 115 per minute, blood pressure 115/67, saturation 98% on room air. Physical examination - normal. Lab results- leucopenia and thrombocytopenia and elvetaed CRP. ECG: Inversion of T waves V1-V6, III, AV . Troponin- positive Readback from the laboratory on the identification of gram-negative rods in blood culture. In a second anamnesis: Regularly drinks and eats non-pasteurized dairy products that his family buys direct from a farm. Treatment with Ceftriaxone and Doxycycline was started. Identification by MALDI-TOF (direct from the bottle) of serratia spp. Serology for brucella is taken and returns negative. Despite the negative serology and detection by MALDI-TOF the treatment continued and gentamycin is added. Identification of Brucella melitensis in blood culture and serology is pusitive.
Learning Points/Discussion: Diagnosis of brucellosis is not so easy and there should be high index of suspicion in ethnic groups in risk. Negative serology does not exclude the diagnosis. One should be aware of the limitations of MALDI-TOF in detection brucella Brucella myocarditis is rare and there are no guidelines for treatment this manifestation.

PV1151 / #433

SKULL BASE OSTEOMYELITIS IN AN ADOLESCENT GIRL CAUSED BY INFECTION VIA CANALIS BASALIS MEDIANUS – AN EMBRYOLOGIC REMNANT IN THE CLIVUS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: SKULL BASE OSTEOMYELITIS IN AN ADOLESCENT GIRL CAUSED BY INFECTION VIA CANALIS BASALIS MEDIANUS – AN EMBRYOLOGIC REMNANT IN THE CLIVUS
Background: A healthy 16-year-old girl presents with fever, neck pain and headache since 3 days, followed by neck stiffness, left-sided exophthalmos and torticollis. Liquor pleocytosis and CrP elevation lead to suspicion of acute meningitis, therapy with cefotaxime and aciclovir is initiated. Clindamycin is added due to slow clinical response. MRI shows enlarged tonsils and edema of the neck muscles. Gentamicin and clarithromycin are added to the therapy due to further clinical deterioration. In the course, the patient develops palsy of abducens and hypoglossus nerve. Follow-up MRI shows pathologic contrast enhancement of cranial nerves, the clivus and occipital condyles congruent with basal meningitis and skull base osteomyelitis.
Case Presentation Summary: The origin of the osteomyelitis remains enigmatic, no pathogen is detected; antibiotic therapy with clindamycin and cefotaxime is continued. Under the therapy the cranial nerve palsies regresse completely. The contrast enhancement of the skull base disappers, follow-up MRI shows demarcation of an accessory canal in the clivus, corresponding to „canalis basilaris medianus“ (CBM) or “fossa navicularis“. CBM is believed to occur in up to 5% of individuals as anatomical variation either as persistence of several emissary veins passing through the clivus or as an embryological remnant of the notochord. Otherwise, several case reports reported on meningitis in association with CBM, most likely serving as an infection route connecting the pharynx with the skull base and CNS. Surgical treatment might be necessary; in our case conservative treatment was sufficient.
Learning Points/Discussion: We suggest that in cases of unclear pediatric basal meningitis or skull base osteomyelitis, MRI (or CT scans) should be carefully searched for signs of CBM.

PV1152 / #928

NECROTIZING FASCIITIS: RISK FACTORS IN CHILDREN IN BAMAKO

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Necrotizing fasciitis (NF) is a serious bacterial infection, fatal in approximately 30% of cases, and is a medical and surgical emergency. This disorder is rare in children, although it is complicated by severe septic shock in 74% of cases. The aim of this study was to investigate the risk factors for the occurrence of necrotizing fasciitis in children in Bamako.
Methods: This was a case-control study of children aged 0-15 years seen in dermatology consultations and included according to the study objectives for a given period of one year. Each case was matched to a control.
Results: In total, out of a total of 48979 children seen, 20 children had necrotising fasciitis, representing a hospital incidence of 0.04%. Boys accounted for 55% and the mean age was 11.7 years. Of our children, 75% were from rural areas and 25% from urban areas. The lower limb was affected 65%, the upper limb 20%, the trunk 15% and the head 5%. The risk factors sought were: intertrigo (OR: 0.4; 95% CI: 0.03-3.66), varicella (OR: 0.21; 95% CI: 0.00-2.50), traumatic wound (OR: 10.3; 95% CI: 1.04-484.58), obesity (OR: 1; 95% CI: 0.01-82.57), HIV (OR:2.11; 95% CI: 0.09-130.99), lymphedema (OR:4.75; 95% CI: 0.39-245.95), NSAIDs (OR:19; 95% CI: 2.01-866.53), herbal medicine (OR:4.88; 95% CI: 1.00626.52).
Conclusions/Learning Points: In our study, the risk factors associated with the occurrence of necrotising fasciitis in children were NSAIDs, herbal medicine, lymphoedema and traumatic wounds. A large-scale cohort study is needed to better describe these factors

PV1153 / #1683

INNOVATIVE AND AFFORDABLE HIV-1 DRUG RESISTANCE TESTING FOR RESOURCE LIMITED SETTINGS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: As use of dolutegravir (DTG) becomes more common in resource limited settings (RLS), affordable methods for genotyping all relevant HIV-1 pol genes (i.e., protease (PR), reverse transcriptase (RT) and integrase (IN)) are required to guide choice of future antiretroviral therapy (ART) regimens. We designed an in-house HIV-1 drug resistance (HIVDR) genotyping method that is affordable and suitable for use in RLS.
Methods: We obtained remnant plasma samples from CAPRISA 103 study and amplified HIV-1 PR, RT and IN genes, using an innovative PCR assay. We genotyped samples by Sanger sequencing and assessed HIVDR mutations using the Stanford University HIV drug resistance database. We compared PR and RT mutations to previous sample genotypes, calculated method cost-estimates, and performed phylogenetic analysis.
Results: From 96 samples processed, we obtained sequence data for 78 (81%), of which 75 (96%) had a least one HIVDR mutation, with no major-IN mutations observed. When compared to previous genotypes, 18/78 (23%) had at least one discordant mutation, but only 2/78 (3%) resulted in different phenotypic predictions that could affect choice of subsequent regimen. Overall genotyping cost per sample was estimated at ~US$43, with a processing time of ~2 working days. All sequence pairs clustered together in phylogenetic analysis.
Conclusions/Learning Points: We successfully designed an in-house HIVDR method that is suitable for genotyping HIV-1 PR, RT and IN genes, at an affordable cost and shorter turnaround time. This HIVDR genotyping method accommodates changes in ART regimens and will help guide HIV-1 treatment decisions in RLS.

PV1154 / #2086

A CASE OF A 3.5-YEARS OLD BOY WITH INVASIVE GROUP A STREPTOCOCCUS (IGAS)

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A CASE OF A 3.5-YEARS OLD BOY WITH INVASIVE GROUP A STREPTOCOCCUS (iGAS)
Background: During 2022 an increase of cases of iGAS was indicated. This is a case report of a 3.5-years old boy with iGAS.
Case Presentation Summary: A previously healthy child admitted to the "Wigmore Hospital" on 5th day of the following complains: fever, swollen right ankle. Five days before admission X-ray of right leg was normal after trauma. On next day fever, rash on back, dry lips and pain on right ankle was observed. On 3rd day after the injury the child refused to walk due to swollen and painful ankle. On admission: child was very anxious, fine erythematous punctate eruption on back, on inguinal region, skin around the anus is wrinkled, peeling of the skin in some areas, red strawberry tongue, red throat, right leg: on preventive position, right ankle: swollen, hyperemic, warm. Rapid strep test from throat was positive, elevated CRP, leukocytosis were detected, echocardiography was normal. Treatment with IV Amoxicillin-Clavulanate were prescribed. On 3rd day child's condition improved, but on day 11 clinical signs worsened and the MRI was performed: a picture of phlegmon was described. The antibacterial therapy replaced by combined therapy with Ceftriaxone+Vancomycin+Metronidazole. Phlegmon was removed. Rapid strep test from puncture was positive and by microscopy cocci were found, on 10th day by culture: GAS. After surgical intervention some clinical improvement was observed. By 2nd MRI synovitis, tenosynovitis was described. On 30th day of hospitalization antibacterial treatment changed to TMP-SMX and continued 3 weeks. Fiberglass splint fixed. After two months: defect of the talus on X-ray, walk on small destinations without help but with difficulty.
Learning Points/Discussion: Raising awareness among clinicians can reduce transmission of GAS, number of iGAS.

PV1155 / #2688

CHILDREN WITH SUSPECTED ACUTE LYMPHOBLASTIC LEUKEMIA: CHALLENGES OF VISCERAL LEISHMANIASIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: CHILDREN WITH SUSPECTED ACUTE LYMPHOBLASTIC LEUKEMIA: CHALLENGES OF VISCERAL LEISHMANIASIS
Background: Visceral leishmaniasis (VL) is a vector-borne infection caused by the parasite Leishmania. The infection is endemic in subtropical and tropical areas and is listed as one of WHO´s neglected tropical diseases. Italy is considered an endemiccountry for Leishmania infantum. The incidence of infantile VL in Italy is decreased to a few cases per year. We present a child initially evaluated for acute lymphoblastic leukemia due to his clinical and hematological presentation, but subsequently found positive and treated for L. infantum infection.
Case Presentation Summary: a 15- month-old boy was evaluated in the emergency department for fever and pallor. His family was originally from Macedonia, and he spent some months there during summertime. Clinical evaluation showed hepatomegaly and splenomegaly without other pathological findings at clinical examination. Laboratory results showed anemia, thrombocytopenia and neutropenia with elevated reactive C protein and procalcitonin. Acute lymphoblastic leukemia was suspected, and the patient was admitted to the Hematological ward of Padua Children Department. A
bone marrow aspirate was obtained, with no evidence of any leukemic form was cytologically detected. Morphology evidence and polymerase chain reaction on marrow blood and in peripheric blood confirmed the diagnosis of Leishmania infantum. Therapy with a standard doses of liposomal amphotericin B was administered with rapid improvement of clinical conditions.
Learning Points/Discussion: Prompt identification of VL is essential to prevent severe outcomes. It should always be considered in the differential diagnosis of patients presenting with fever, hepatosplenomegaly and peripheral blood cytopenia

PV1156 / #513

THE MAIN SIGNS AND SYMPTOMS OF NICU ADMITTED PATIENTS, YEREVAN, RA, JANUARY-JUNE 2017

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Prematurity is a term for the broad category of neonates born at less than 37 weeks' gestation. Preterm birth is the leading cause of neonatal mortality and the most common reason for antenatal hospitalization. The main purpose of the study to conclude epidemiologic correlation between way of delivery and weight of newborn among neonates with preterm birth admitted to NICU of Muratsan UHC, Yerevan, Armenia.
Methods: Retrospective study included patients admitted during 01.01-01.06.2017period. We divided patients by gestation age(28-36-week and 37-41-week) as well as by weight after delivery(<1500g,1500-1999g, 2000-2499g, ³2500g).
Results: Analysis showed physiologic delivery among 85patients, Caesarean delivery– 42patients and there is no data about other 6patients. In general, 45 out of 133patients were 28-36-week gestation age, 82patients -37-41-week and there is no data about other 6. The average gestation age was 36.9(min-28 and max-41). The mean weight of neonates after delivery was 2767grams(min-980, max-5200). In the group with <1500g weight there were 5patients(3mothers had complicated pregnancy, 2 of them undergone C-section), 1500-1999g– 10patients(9mothers had complicated pregnancy, 5 of them–C-section), 2000-2499g– 28patients(19mothers- complicated pregnancy, 13–C-section), ³2500g– 90patients (48mothers- complicated pregnancy and 23-C-section). Complications during pregnancy were mainly due to respiratory infections.
In this period 30cases with death outcome were registered, 20(66.67%) of them were preterms. Breastfeeding patients were 49(36.8%).
Conclusions/Learning Points: The portion of women with complicated pregnancy tend to be higher in preterm births with lower weight. The major way of delivery among mothers with complicated pregnancy of the group <2500g was C-section.

PV1157 / #1398

POTT'S PUFFY TUMOR

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: POTT'S PUFFY TUMOR: A FORGOTTEN COMPLICATION OF A COMMON INFECTION IN CHILDREN
Background: Pott's Puffy Tumor (PPT) is defined as a subperiosteal abscess of the frontal bone that appears as a localized swelling of the forehead, associated with frontal osteomyelitis. It's a rare condition more frequently seen as a complication of frontal sinusitis.
Case Presentation Summary: A previously healthy 10-year-old male child, presented to the emergency room complaining of frontotemporal stabbing headache, associated with fever without flu-like symptoms, for two weeks. An edema appeared in the forehead region, and he had an isolated episode of generalized tonic-clonic seizure. Cranial CT scan showed left pansinusitis with extension of the infectious process into the bone (acute osteomyelitis) and signs of empyema, highlighting the hypothesis of PPT. The patient was evaluated by the neurosurgery and otorhinolaryngology teams, who performed a maxillary antrostomy and anteroposterior ethmoidectomy with drainage of the subdural empyema and frontal purulent collection. In addition,empiricalbroad-spectrum antibiotic therapy, with vancomycin (60), ceftriaxone (100) and metronidazole (30), was started. The results of blood and drained fluid culture were negative. The patient remained hospitalized for twenty-one days for intravenous antibiotic therapy, maintaining nasal lavage with high volume and low pressure, followed by a 6-week course of oral amoxicillin-clavulanate. He evolved with progressive clinical and laboratory improvement.
Learning Points/Discussion: PPT is a rare condition that predominantly occurs in previously healthy children and adolescents, being more frequent as a complication of undiagnosed or inadequately treated frontal sinusitis. The diagnosis is made on the basis of a clinical history, physical examination and imaging. Early diagnosis and treatment with intravenous broad-spectrum antibiotics and surgical drainage are of paramount importance to avoid complications and reduce morbidity and mortality.

PV1158 / #1097

A RARE CASE OF DISSEMINATED CAT SCRATCH DISEASE IN AN IMMUNOCOMPETENT TEENAGER PRESENTING WITH HEPATOSPLENIC ABSCESSES, VERTEBRAL OSTEOMYELITIS-PARASPINAL ABSCESS AND AUTOIMMUNE THYROIDITIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A rare case of disseminated cat scratch disease in an immunocompetent teenager presenting with hepatosplenic abscesses, vertebral osteomyelitis-paraspinal abscess and autoimmune thyroiditis
Background: Cat scratch disease has a wide spectrum of presentation. It can be accompanied by vertebral osteomyelitis which is a rare clinical manifestation and autoimmune thyroiditis, which, however, is extremely rare.
Case Presentation Summary: An 11-year-old girl was admitted with a two week history of fever, a cervical painful mass and a few days history of torticollis and upper back pain. On clinical examination, she had neck stiffness, pain upon palpation of upper thoracic vertebrae and a submandibular enlarged painful lymph node. Inflammatory markers were elevated. Ultrasound revealed splee and liver microabcesses and an impressive picture of enlarged, hypoechoic thyroid gland with increased vascularity. Thyroid function tests revealed autoimmune hypothyroidism. Medical history revealed that the child had frequent contacts and abrasions from kittens. Antibodies for bartonella henselae were positive. MRI of the spine revealed bone lessions in T4 vertebral body and a paraspinal soft tissue mass. With the diagnosis of disseminated cat scratch disease, our patient received oral doxycycline, rifampicin and iv gentamycin. Thyroxine was also started. Due to severe gastrointestinal symptoms doxycycline was discontinued on the 12th day and was replaced by ciprofloxacin. Gentamycin was administered IV for the first two weeks. Total duration of the antibiotic course was 6 weeks. The fever resolved within 2 days of initiation of antibiotic treatment and her backache completely disappeared within 10 days. Within 10 weeks, the anti-thyroid antibodies titer decreased significantly and thyroid ultrasound normalized.
Learning Points/Discussion: Cat-scratch disease can present with rare clinical manifestations as vertebral osteomyelitis and reversible autoimmune thyroiditis. The latter is extremely rare with only two cases reported in the literature.

PV1159 / #1872

PERITONEAL TUBERCULOSIS IN CHILDREN: DOES THE LAPAROSCOPY HAVE ANY INTEREST?

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Introduction Peritoneal tuberculosis is a rare presentation of tuberculosis, especially for children with no debilitating disease. The diagnosis is usually difficult, unsuspected, and often delayed, especially in the pediatric patient, who frequently presents with nonspecific and insidious symptoms. Aim: To evaluate the contribution of laparoscopy in the positive diagnosis of peritoneal tuberculosis
Methods: Medical records of children who underwent laparoscopic approach for peritoneal tuberculosis between 2013 and 2021 were retrospectively reviewed
Results: Results Five patients (4 boys, and 1 girl) with a mean age of 5.5 years (1 year 8 months - 10 years) were diagnosed with peritoneal tuberculosis. All patients presented with abdominal pain. Fever was found in 80% of the patients. No cases of coexisting pleural efusionof pulmonary tuberculosis were found. The mean duration from symptoms to diagnosis was 19 days (15 days-1 month). CT scan showed ascites (5 cases), mesenteric lymph nodes (3 cases), and thickening of the peritoneum and mesentery (4 cases). In all cases a laparoscopy was performed and showed that whitish tuberculosis was the most common appearance. Adhesions were also seen in one case. Peritoneal biopsy was performed and the diagnosis of peritoneal tuberculosis was confirmed histopathologically in all the cases. Four patients completed the antituberculous therapy without complications and death occurred in one case.
Conclusions/Learning Points: Conclusion Laparoscopy with peritoneal biopsy is safe, feasible, and effective in the diagnosis of peritoneal tuberculosis in children.

PV1160 / #1925

URINARY INFECTION IN CHILDREN WITH URINARY TRACT ABNORMALITIES AND ASSOCIATED UROLITHIASIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Introduction: A urinary tract infection (UTI) is a symptom of underlying urinary tract abnormalities that may be related to urolithiasis. Aim: The aim of this study was to determine the incidence and pattern of UTI in children with urolithiasis and urinary tract malformations.
Methods: We retrospectively reviewed the medical records of children (18 years old) with urolithiasis associated with urinary tract abnormalities.
Results: Results 36 patients (16 boys and 20 girls) of a mean age of 7 years (5 months–18 years) were diagnosed with urolithiasis and associated urinary tract abnormalities. UTI was the most common presentation in 21 patients (58.3%). It was repeated in more than two episodes in 53.7% of cases. The most common presentations were fever (83%) and dysuria (48%). The two most common causative agents were E. coli (78%) and Proteus (14%). Urinary tract abnormalities were primary obstructive megaureter in 15 (41.6%), pelvic ureteric junction obstruction in 13 (36.1%), primary vesicoureteral reflux in 6 (16.6%), and ureterocele in 2 cases. All patients underwent surgical treatment for their urinary abnormalities. Stones were analyzed by infrared spectroscopy. Struvite stones were found in 33.4% of cases. The incidence of postoperative UTI was 2.7%.
Conclusions/Learning Points: Conclusion UTI is found in 58.3% of children who have urinary tract abnormalities and associated urolithiasis. In those patients, untreated UTI and concurrent urinary obstruction may contribute to calculus formation. The treatment of underlying urinary tract abnormalities is essential for the regression of postoperative urinary tract infections, thus protecting the renal function.

PV1161 / #1962

RISK FACTORS FOR RENAL SCARRING IN CHILDREN WITH PRIMARY VESICOURETERAL REFLUX DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Background and aim Primary vesicoureteral reflux (VUR) may result in renal scarring and nephropathy due to reflux of the infected urine to the upper tract. At the time of diagnosis, 30-49% of children with VUR were reported to have renal parenchymal scarring at DMSA scans. The aim of this study was to determine the risk factors for development of renal scarring in patients with primary VUR.
Methods: Charts of patients with VUR operated in the department of pediatric surgery 2010 to 2020 were reviewed. Micturating cystourethrogram (VCUG) was performed to evaluate and graduate VUR using the International Reflux Study Committee grading system (IRSCGS): Grades from I to V. Renal scarring was assessed by DMSA performed minimally six months after the treatment of urinary tract infection (UTI).
Results: 56 children were included (the mean age was 2.21 years). The Sex ratio was 1.15. Grade I, II, III, IV, and V was found in 2(3.57%), 12(21.42%), 19(33.92%), 16 (28.57%), and 7(12.52%) children, respectively. Unilateral VUR was observed in 33 children (58.92%). Renal scars are present in 78.56% of patients. Renal scarring was not significantly different between the different reflux sites (P >0.05). The risk factors in the development of renal scars were: Male gender (p= 0.007), antenatal hydronephrosis (p= 0.005), and the number of UTI episodes (≥3) (p=0.041).
Conclusions/Learning Points: Conclusion: Considering that the higher rate of renal scarring may be attributed to delayed diagnosis of VUR and ineffective treatment of previous UTI episodes, the presence of scars, once detected, should alert the physician for UTI recurrence prevention in order to avoid progressive injury to the renal parenchyma and deterioration of function.

PV1162 / #2003

THE MANAGEMENT OF PARAPNEUMONIC PLEURAL EFFUSION IN CHILDREN: UNICENTRIC STUDY.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Taycir Cheikrouhou[1], Mahdi Ben Dhaou[1], Amal Elleuch[2], Mohamed Zouari[1], Khaoula Mekki[3], Manar Hbaieb[1], Hayet Zitouni[1], Riadh Mhiri[1]
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Backgrounds: Background: The management of parapneumonic pleural effusion is still a matter of controversy between surgical and non-surgical options. Therapeutic options include antibiotics, thoracentesis, thoracostomy tube drainage, fibrinolysis, video-assisted thoracoscopic surgery (VATS), and thoracotomy (2). Aim: To evaluate the clinical characteristics and pathological features of parapneumonic pleural effusion in children and to explore the feasibility and safety of thoracoscopic approach.
Methods: Medical records of children with parapneumonic effusion from 2007 to 2020 were retrospectively reviewed.
Results: Totally, 35 patients with a mean age of 5.14 ± 3.9 years were diagnosed with parapneumonic pleural effusion. All children were hospitalized in a Pediatric Continuing Care Unit. Antibiotic therapy was administrated in combination in all cases. Corticosteroid therapy was used in 2 patients. Thoracentesis was performed in 6 patients. Thoracostomy tube drainage were placed before surgery in 11 patients. In all cases, a thoracoscopic approach was performed with an average duration of drainage before VATS was 6 days ±4. VATS decortication and/or debridement was indicated as second-line in 23 patients. The average duration of the surgery was 51 minutes (20 min-115 min). There is no conversion to open surgery and no intraoperative procedure-dependent complication. There were 4 children who have early complications after the VATS and one patient had a late postoperative complication. There were no deaths during the hospital stay or during follow-up.
Conclusions/Learning Points: Conclusion: VATS is safe, feasible, and effective in the management of parapneumonic pleural effusion in children with excellent outcomes. Further large studies are required to confirm these findings.

PV1163 / #2104

SCHISTOSOMIASIS IN MIGRANT CHILDREN: DIAGNOSIS AND LONG-TERM MANAGEMENT CHALLENGES

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Isabel Mellado Sola[1], Paula Rodriguez Molino[2], Carlos Grasa[3], Lucía Escolano[4], Blanca Bravo Queipo De Llano[5], Jorge Bustamante[3], Iker Falces Romero[6], Milagros García López-Hortelano[2], Talia Sainz[6]
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Backgrounds: Schistosomiasis is a parasitosis included among the tropical neglected diseases by the WHO. It is caused by a blood trematode, acquired through contact with contaminated fresh water via skin penetration. This study aims to describe our experience in the diagnosis, management and long-term follow-up of migrant children diagnosed with Schistosomiasis.
Methods: A retrospective, observational study in a National Reference Unit in Madrid, Spain, attending patients referred for the screening of imported diseases. Patients below 18 years of age and diagnosed with schistosomiasis from January 2014 to July 2021 and follow-up visits up to May 2022 were included.
Results: Seventy-seven children were included. Most were male adolescents from Sub-Saharan Africa and Asia, with a median age of 16,3 years (IQR 9 – 17,5), mainly unaccompanied migrants or internationally adopted children. 60.3% were asymptomatic. 28.8% were screened due to peripheral eosinophilia. All presented with positive serology. Parasitological urine analysis was performed in 52 patients and ova were visualized in only 2 cases (3.8%). All received praziquantel 40-60 mg/kg/day for 1-2 days, 25.4% requiring several cycles. Serological test for Schistosoma persisted positive in 82.8% and 65% in the first and follow-up visits, respectively . However, a progressive decline in ELISA optical density, total IgE and peripheral eosinophil count was identified.
Conclusions/Learning Points: This study describes a large series of children diagnosed with schistosomiasis in Europe and the longitudinal follow up. Schistosomiasis is frequently asymptomatic in children and the absence of eosinophilia does not rule out the disease. Our results suggest that schistosomiasis' serology is useful for the screening of children recently arrived from endemic areas, specially from Sub-Saharan Africa and Asia. Eosinophilia, total IgE and ELISA optical density may be useful to monitor treatment response during follow-up visits.

PV1164 / #2004

STIS IN UNACCOMPANIED MIGRANT MINORS: TO SCREEN OR NOT TO SCREEN.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Sexually transmitted infections (STIs) are an increasing concern, especially among youths. Screening for STIs is key to prevent transmission and any contact with health care system might be an opportunity. Unaccompanied migrant minors (UMM) are a especially vulnerable population due to social determinants of health, language and cultural barriers. The inclusion of STIs screening in imported diseases' screening protocols is an opportunity for diagnosis and treatment.
Methods: Retrospective study including UMM screened for imported diseases at a pediatric reference unit for tropical and infectious diseases in Madrid, Spain (2020-2022). In 2020, collection of urine samples for STI screening was included in the protocol for the screening of imported diseases in adolescents. The multiple STIs-PCR included G. ureaplasma, C. trachomatis, M. genitalium, N. gonorroheae, T. vaginalis.
Results: Ninety-nine UMM were screened during the study period, with a mean age of 17.1 years (±0.8), all were male. The most common diagnosis was latent tuberculosis infection. Urine sample for PCR was obtained in 39/99 (39%) and resulted positive in one asymptomatic patient, with identification of C. trachomatis and M. genitalium. This patient referred unprotected sex in the initial anamnesis . Azitromycin was prescribed to treat C. trachomatis. Patient was lost to follow-up.
Conclusions/Learning Points: UMM first contact with the healthcare system is an opportunity for diagnosis and treatment in a vulnerable population with many barriers to care. We believe that opportunities should not be missed when it comes to screen STIs among adolescents. However, larger studies are needed to address the cost-effectiveness of the inclusion of STIs screening among UMM, a population with language and cultural barriers, and a vulnerable legal and social situation that challenge the management and limits follow-up.

PV1165 / #1871

RESPIRATORY TRACT DISEASES AND THE PERINATAL PERIOD

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Respiratory tract diseases(RTD) are one of the main causes of mortality and morbidity in children. Risk factors such as tobacco exposure, daycare and older siblings are well known. Nowadays, different studies have reported a correlation between other factors, such as type of birth(TB) and gestational age(GA), with the development of RTD. This study aims to demonstrate this correlation.
Methods: Retrospective/descriptive/analytical study of children admitted to the pediatric ward due to RTD in 2019 and 2022. Studied TB(vaginal delivery(VD), assisted vaginal delivery(AVD) or c-section(C)) and GA(preterm(PT), term(T) and post-term). Chi-square test was used and considered significant if $p<0.05$.
Results: A total of 362 children were included, ages between 9 days and 13 years. Were born by VD 43.8%, AVD 19.5% and C 31%; of these, 82.3% T and 12% PT. No correlation between TB/GA and the incidence or severity of the RTD was found. Nonetheless, a significant correlation was found for personal history of RTD such as wheezing/asthma. Chronic RTD are more common in preterm children (PT 45.7%, T 24.4%; $p< 0.002$) and in those born by c-section (VD21.4%, AVD26.7%, C35.3%; $p<0.034$). Bronchodilators are more frequently administered in children born by AVD(64%; $p<0.03$) and preterm(60.9%; $p<0.043$); corticotherapy is mainly administered in those born by AVD(48%; $p<0.025$).
Conclusions/Learning Points: Children born preterm and/or by AVD/c-section are at higher risk of developing long-term respiratory problems. A higher risk of more severe RTD was not possible to conclude. Preventive strategies aimed at protecting high-risk groups are essential.

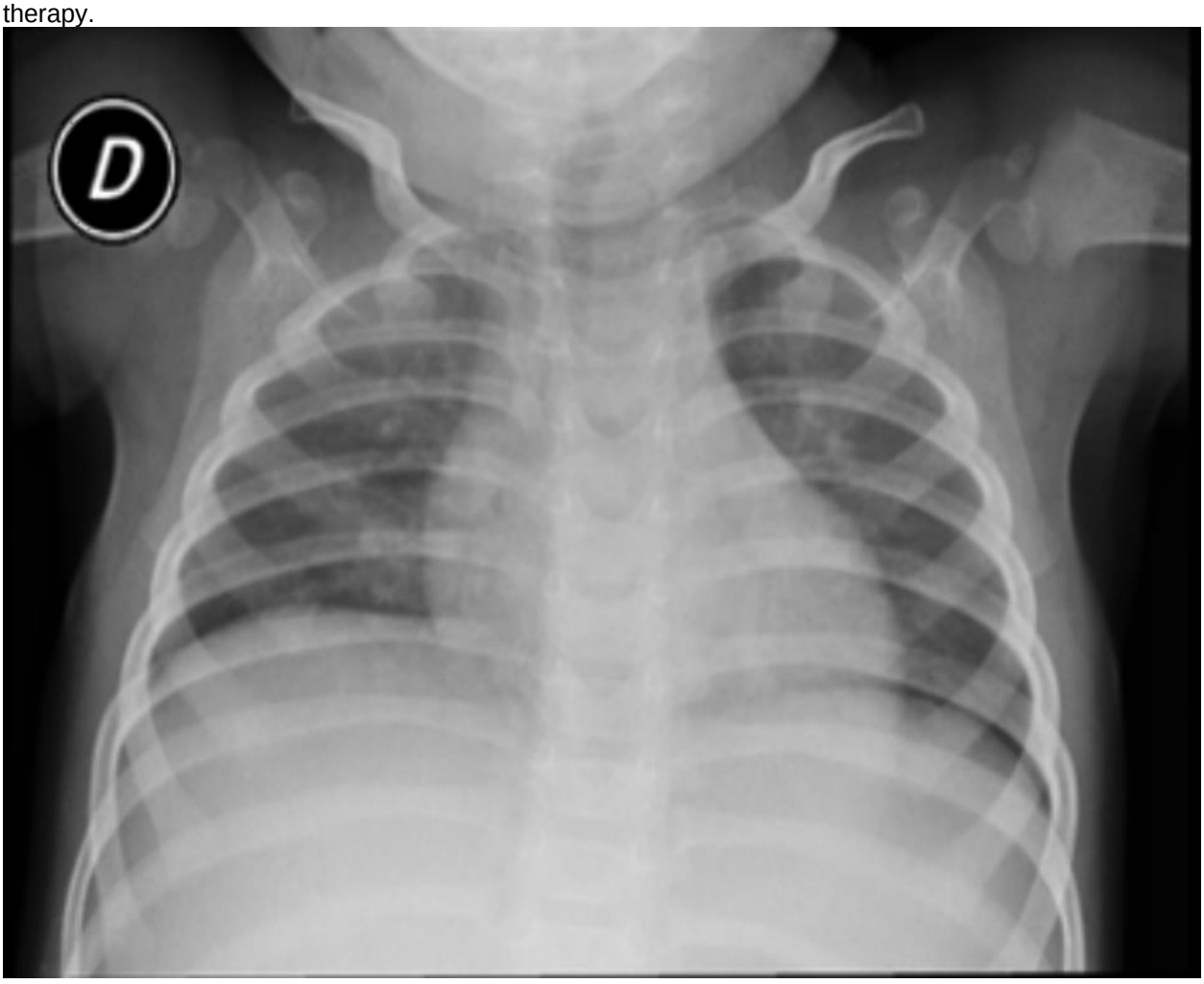
PV1166 / #589

MELIOIDOSIS IN CHILDREN: DIFFERENT FACES OF THE SAME DISEASE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

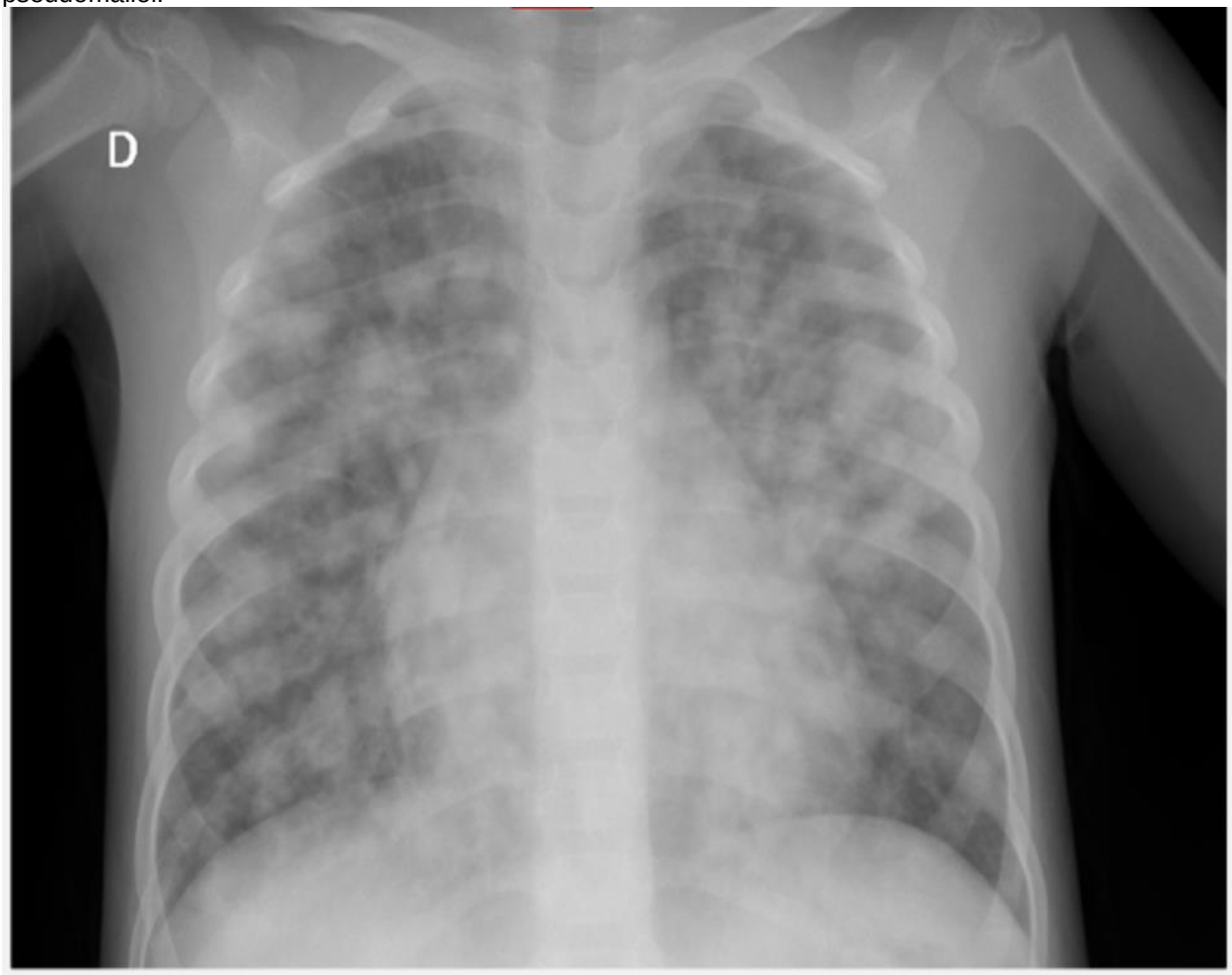
Laura Mendoza Rosado
OHI, Pediatrics, VALLEDUPAR, Colombia

Title of Case: Melioidosis in children: Different faces of the same disease
Background: Melioidosis is a disease caused by Burkholderia pseudomallei. It presents as a febrile illness, localized infection, or fulminant septicemia. Sporadic cases have been reported in Colombia. I report three cases in children without relevant past medical history reflecting the wide range of presentation.
Case Presentation Summary: Case#1. A 1-month-old boy presented with a history of 3-days fever and progressive respiratory symptoms. Acute bronchiolitis was suspected (Image 1) but blood culture was taken at admission because his age. Ceftazidime was started when microbiologists informed the growth of colonies suggestive to B. pseudomallei. The final report confirmed the isolation and antibiotic susceptibility. The patient continued improving, he completed 14 days and then switch to oral trimethoprim-sulfamethoxazole for eradication
therapy.

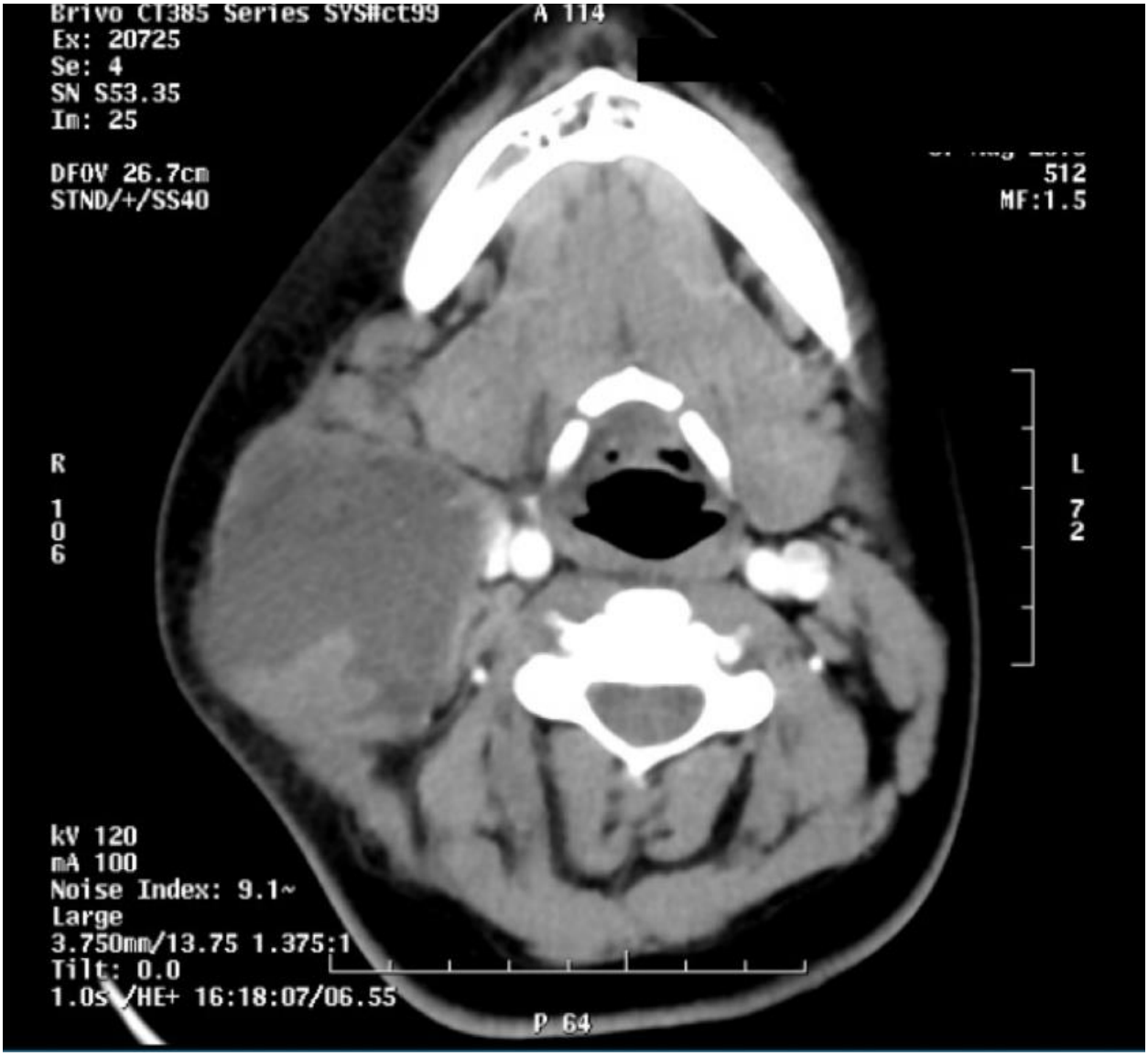


Case #2. A 3-year-old girl was admitted with acute fever and nonproductive cough, progressive

respiratory distress and finally ventilatory failure. A diagnose of complicated pneumonia (Image 2) was made and empiric antibiotics (ceftriaxone/Clindamycin) were started. She continued with septic appearance, multiorgan failure and died in 48 hours. Blood cultures were postmortem reported positive to B.
pseudomallei.



Case #3. Female Adolescent was hospitalized after several antibiotic courses without improvement due to a 5-weeks abscess located in herneck. A CT reported an organized abscess (Image 3). A percutaneous drainage was made and B. pseudomallei growth in culture. She received meropenem for 2 weeks and then switched to TMP/SMX with fully
recovery.



Learning Points/Discussion: Climate change has conditioned the emergence of certain pathogens in recent years as B. pseudomallei. It´s necessary a high suspicious level of this disease.

PV1167 / #2275

INFECTIOUS DISEASES SCREENING IN CHILDREN ARRIVING TO THE CANARY ISLANDS THROUGH THE ATLANTIC MIGRATING ROUTE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: The number of surviving children arriving to Canary Islands from Africa in precarious boats (pateras) increased substantially over the last years. This has led to the implementation of analytical screening protocols adapted to this population, following the recommendations of the ECDC.
Methods: The objective of this descriptive retrospective observational study is to define the prevalence of HIV, hepatitis (A-C), syphilis, Strongyloides and Schistosoma spp infections in a sample of children under 18 years of age arriving from different African countries in ‘’patera’’ to Gran Canaria between January 2021 to October 2022. Analytical results collected in the electronic medical records were reviewed.
Results: 1977 blood samples were analyzed, 82.1% were male. 54.7% were Moroccans and 45,3% sub-Saharan Africans (SSA). Notably higher proportion of SSA population (almost 1/3) passed the infection naturally in comparison to Moroccans (p<0,001) and 51 patients presented a chronic form of HBV infection. 53,9% of the sample tested negative for anti-HBs, most of them Moroccans (62,86% vs 43,19%, p< 0,001). The global proportion of susceptible patients for HAV infection was 12%, majority Moroccan (71,3%). We identified 4 patients with HIV infection (all asymptomatic) and 6 with syphilis, none of them previously treated (83,3%, SSA). 1110 Strongyloides spp serologies were analyzed, 28 resulted positive (majority SSA, p= 0,002) out of which 57,6% presented eosinophilia. We observed statistically significant (p=0,004) association between relative eosinophilia (>5% eosinophils) and positive Strongyloides spp serology. Of the 768 urine samples analyzed in SSA, 88 (11,45%) revealed hematuria and in 32 of them (42%) S. haematobium eggs were found. In children diagnosed with Schistosomiasis, 95,8% had eosinophilia (p<0,001).
Conclusions/Learning Points: The implementation of analytical screening of African migrant children helps to detect potentially serious diseases in a highly vulnerable population.

PV1168 / #1015

THE ROLE OF PSEUDOMONAS AERUGINOSA IN CHILDREN WITH ACUTE APPENDICITIS; INCIDENCE, PREDICTORS, AND OUTCOMES

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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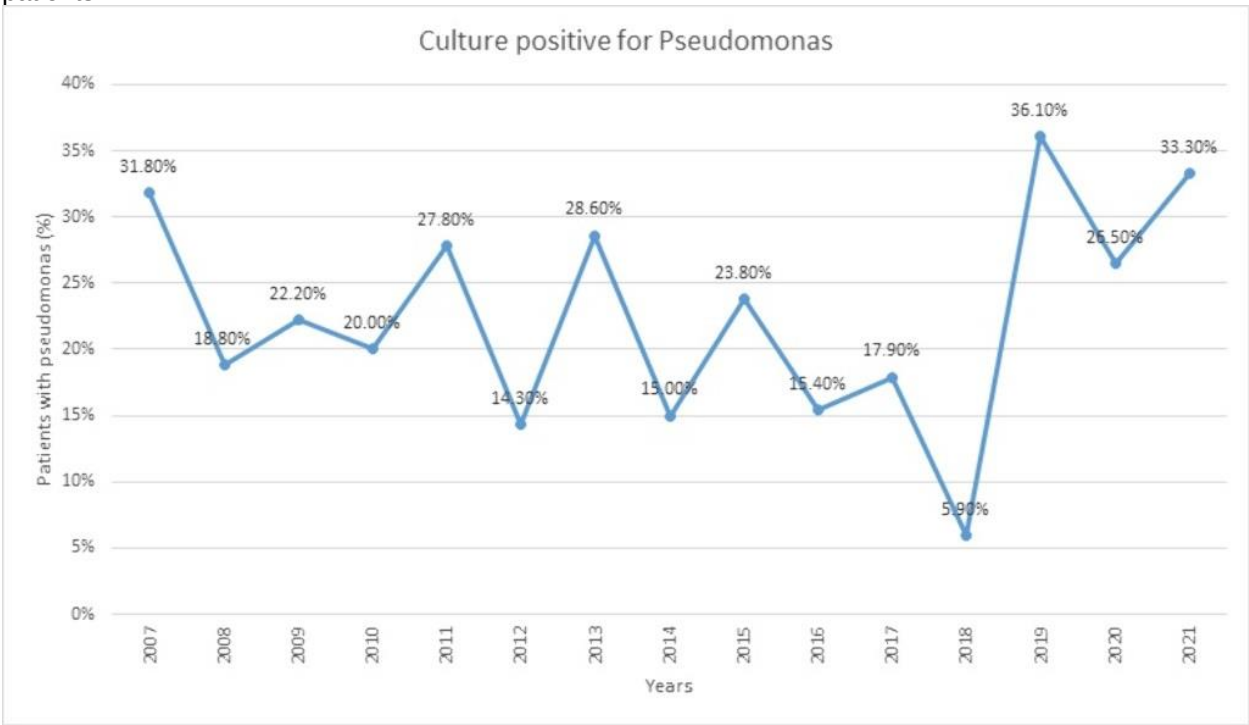
Backgrounds: Surgery and antibiotic treatment are the main treatment components for acute appendicitis. Some of the antibiotic regimens proposed for treatment may not cover Pseudomonas aeruginosa. The aim of this study is to determine the incidence, predictive factors and outcomes of Pseudomonas associated acute appendicitis in children.
Methods: A retrospective cohort study of children <18 years who presented with acute appendicitis, underwent surgery and had positive peritoneal cultures at a tertiary university hospital during 2007-2021. Patients with Pseudomonas isolated from peritoneal cultures were compared for predictors and outcomes with patients without Pseudomonas.
Results: Acute appendicitis with positive peritoneal cultures was documented in 338 patients, 77(22.8%) were positive for Pseudomonas, of whom 66(85.7%) were treated with anti-pseudomonas treatment on admission. Patients <5 years were more likely to have Pseudomonas than older patients (33.3% vs. 20.6%, p=0.032, OR=1.939, 95%CI:1.053-3.57). Pseudomonas was more prevalent in patients with polymicrobial compared to monomicrobial peritoneal cultures (29.6% vs. 8.3%, p<0.001, OR=4.617, 95%CI:2.206-9.666). Neither high intraoperative grading nor duration of symptoms were associated with prediction of Pseudomonas in peritoneal cultures (p=0.827 and 0.764 respectively). Patients with Pseudomonas had a longer median length of stay 8 days (IQR:7-10) compared to 7 days (IQR:5-9) in patients without Pseudomonas(p=0.004). However, median length of antibiotic treatment (p=0.893), admission to intensive care unit (p=0.197), readmission (p=0.760) and 30-day mortality (p=0.761) were similar.
Conclusions/Learning Points: Pseudomonas was found in high percentage of peritoneal cultures in pediatric acute appendicitis. Polymicrobial cultures and young age are predictors for Pseudomonas isolation. Empiric antibiotic regimens including anti-pseudomonal coverage should be highly considered in acute appendicitis in pedaitric

patients.


Culture positive for Pseudomonas
Patients with pseudomonas (%)
40%
35%
30%
25%
20%
15%
10%
5%
0%
31.80%
18.80%
22.20%
20.00%
27.80%
14.30%
28.60%
15.00%
23.80%
15.40%
17.90%
5.90%
36.10%
26.50%
33.30%
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Years

PV1169 / #524

EPIDEMIOLOGICAL-CLINICAL PROFILE IN DIAGNOSED AND HOSPITALIZED ALBANIAN CHILDREN FOR MENINGITIS DISEASE DURING PERIOD 2017-2019

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Bashkim Nezaj[1], Geogina Kuli-Lito[2], Raida Petrela[3], Ferit Zavalani[1], Blerina Gjoni[1], Diana Shtembari[1], Laureta Sadedini[4], Sosjana Baja[5], Marsida Kurti[6]
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Backgrounds: Acute meningitis is a rapidly progressive disease caused by the inflammation of the tissues surrounding the brain and spinal cord. Incidence of the disease has been decreasing over the years, but it still remains a concern for state and public health institutions.
Methods: In this retrospective study, we enrolled 60 children diagnosed and hospitalized with acute meningitis in Pediatric Infectious Disease Service, for the period 2017-2019.
Results: The percentage of cases hospitalized with acute meningitis, compared to all children hospitalized in our service in the same time period, was 1.07% in 2017, 0.62% in 2018 and 0.92% in 2019. According to the causing agent, bacterial ones were found to be more frequent with 61.67% of cases. According to gender predominate males with 56.67% of cases.The average age is 4,7 years old. According to living area predominate urban area. According the sesonality, it is observed that the peak of cases are presented in the beginning of summer and in the last two months of winter. Clinical signs based on frequency are: drowsiness in 75% of cases, nuchal rigidity in 73.33%, vomiting in 68.33% , headache in 48.33% and 25% agitation. 7 children presented seizures, 7 photophobia, 6 children ataxia and 5 children had bombed fontanels. 23.3% developed complications during the disease with sepsis in 13.33% of cases, venous sinus thrombosis in 3.33% of cases and hemiparesis in 6.67% of cases. The average hospitalization days was 13.8 days
Conclusions/Learning Points: Great importance should be given to the prevention of acute meningitis, and when prevention fails, a diagnosis should be made as soon as possible and treatment should be started immediately to reduce the likelihood of long-term complications

PV1170 / #420

ANGINA LUDWIG

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Ergena Neziri[1], Laureta Sadedini[1], Mirzana Kapllanaj[2], Georgina Kuli-Lito[3], Greta Haxhi[1], Perparim Shira[1], Albert Lama[1], Marsida Kurti[4], Numila Kuneshka[1]
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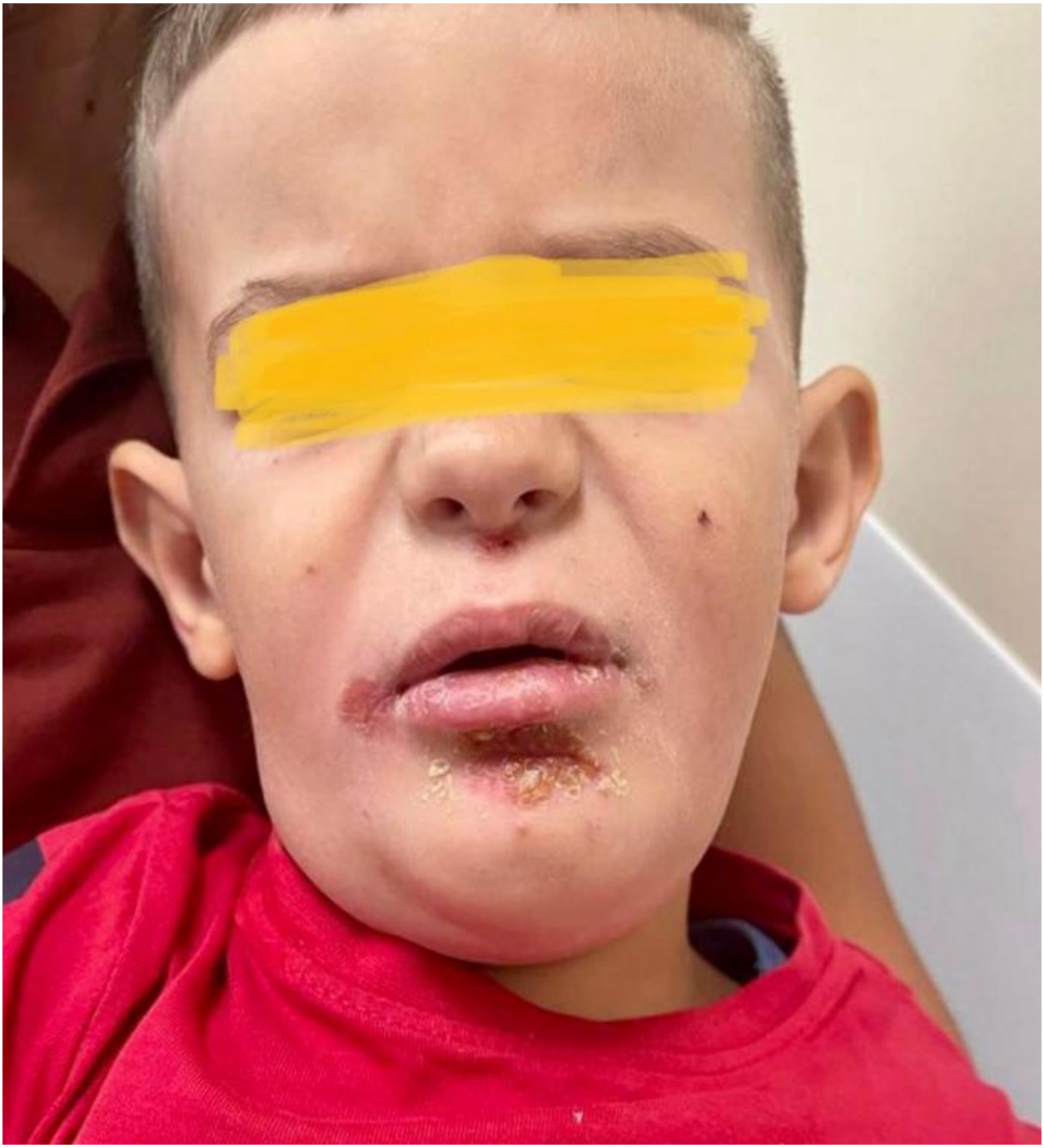
Title of Case: ANGINA LUDWIG
Background: Angina Ludwig is an infection of odontogenic origin,with a rapidly progression affecting the soft tissues of the submandibular,sublingual and submental area.It can cause even the obstruction of the upper airways.
Case Presentation Summary:



5 years old boy presented to the ED with history of fever 39-40 from 4 days,swelling of the submandibular,sublingual and submental regions in 12 hours,trismus,dysphagia,odynophagia,sialorrhea,halitosis,impetigo in perioral region The boy was pale and nourished.High temperature 39.5.In the submandibular region was noted a large bilateral swelling with pain in palpation, redness,difficulties and reduction in opening the mouth,keilitis.His parents refered that the boy has done extraction of the bilateral molar and premolar teeth of the mandibula.Laboratoric findings:WBC 26.7 x 10^3 neutrofil 89%,PCR 45 mg/dl,ERS 35mm/h.Swab of the pus :mixed flora anaerob and aerob(streptococcus,staphylococcus aureus,epidermis,viridans) Neck ultrasound:inflamatory swelling of the subcutan connective tissues,increase vascularization,bilateral submandibular,sublingual limfonodules that suggested for celulits. Neck CT:through both the axial/coronal cuts was noted differentation of the density of soft tissues,likid in the submandibular region, inflammation of the deep

fascial tissues,swelling of the root of the tongue causing upper airways obstruction Treatment:Ceftriaxon 2x 1gr,Clindamicyn 3x 300mg,Metronidazol 3x 210mg.Imediately after the hospitalization he presented stridor,dyspnea and compromentation of the vital parameters SpO2 89-90%.In this condition he was transfered to the PICU,where is done the tracheostomy and the drainage for the decompression of the fascial spaces involved and the evacuation of the suppuration

Learning Points/Discussion: Fast evolution and aggressive power of dissemination assumes character of emergence treatment with an effective drug coverage and early surgical intervention to prevent the swelling of the fascial tissues and the obstruction of the upper airwayse obstruction of the upper airways.It is important the correct identification of the diagnosis based on careful clinical and complementary examination

PV1171 / #422

FEBRILE SEIZURE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

Ergena Neziri[1], Laureta Sadedini[1], Georgina Kuli-Lito[2], Mirzana Kapllanaj[3], Floreta Kurumi[1], Greta Haxhi[1], Marsida Kurti[4], Esmeralda Cuni[4], Numila Kuneshka[1]
[1]Mother Teresa University Hospital Center, Albania, Pediatric Emergency Department, tirana, Albania, [2]Mother Teresa University Hospital Center, Albania, Pediatric Infection Disease Department, tirana, Albania, [3]Mother Teresa University Hospital Center, Albania, Pediatric Onco-hematologic Department, tirana, Albania, [4]Mother Teresa University Hospital Center, Albania, Pediatric Resident, tirana, Albania

Backgrounds: Febrile Seizure are the most common neurological disordes in childhood,very similar to epileptic seizure and more manifested between 5 months -6 years old,especially during infection that do not affect central nervous system.Common factors that influence the first seizure are high fever positive familiar history,febrile seizure in the first and second family generation,delayed psychomotor development,perinatal disease
Methods: Aim of this study is to show the epidemiology of febrile seizure,to analyze the risk factors at the first febrile seizure.We conducted an retrospective study,involving all children with febrile seizure presented to Emergency Department at Tepelena Hospital from 1 January 2021-1 June 2022.Demographic and clinical data were collected,age,gender,time of the first,second,third or more episode,the duration of the attack and the presence of any of the risk factors during the seizure
Results: 120 children from 6 months age–5 years old were collected.72% had only one episode of febrile seizure,16%with two attacks,9%with three attacks,3%with four or more attacks.The age-group most affected 5m-2y 80%,followed by the age group 2y-4y 12% and the age group 4y-6y 8%.Both risk factors were present 35% of cases,55% of cases had only one risk factors mentioned 45% only high fever and 10% positive familiar history,10% had none of the two risk factors mentioned.79% male and 21% female.Average body temperature at the moment of the episode was 38.5.The peak of febrile seizure was during December- April,during winter season.The most common cause were upper and lower respiratory tract infection
Conclusions/Learning Points: Febrile seizures are common childhood illnesses and the great majority resolve spontaneously.They are result of the interplay of genetic and environmental factors,including viral infections.Although benign and requiring minimal management,the prevalence of febrile seizures and the possibility of long-term sequelae make them clinically important presentations in children.

PV1172 / #424

OTITIS MEDIA ACUTE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Acute OM is defined as an infection of the middle ear with acute onset,along with presence of effusion and signs of middle-ear inflammation,such as otalgia and distinct erythema of the tympanic membrane.The presence of middle-ear inflammation can be indicated by any of the following: bulging of the TM,limited or absent mobility of the TM with pneumatic otoscopy,air-fluid level behind the TM,or otorrhea.
Methods: Aim of the study was to show epidemiology of AOM,to analyze the risk factors,management and recurrence.We conducted an retrospective study, involving all children with AOM presented to ED Claud Bernard Hospital from 1 January 2022-31 December 2022.Demographic and clinical data were collected.Diagnosis of AOM meets all 3 following criteria:rapid onset,signs of MEE and signs and symptoms of middle-ear inflammation
Results: 420 children from 6 months age – 5 years old were collected.The age-group most affected 5m-2y(75%),followed by 2y-4y(20%) and the age group 4y-6y (5%).Peak incidence between ages 6 and 11 months.60% otalgia, 25%otalgia and temperature 39°C,15% only temperature at or above 39.5°C. 45% were OMA non-suppurative,35% OMA suppurative,20% OMA Recurrent.The pathogens most frequently associated with AOM are S.Pneumoniae 50%,H.influenzae 25%,M.Catarrhalis 15%,and group A streptococci 10%.The peak of AOM was during December- April, during winter season.60% are spontaneous resolved,40% treated with pain-killer and antibacterial agent
Conclusions/Learning Points: The natural course of acute otitis media is spontaneous resolution.However,the clinician must be aware of the potential complications of acute otitis media and bear in mind that if left untreated,it may rapidly progress with potentially life-threatening consequences.Recurrent episodes of otitis media may be prevented by applying environmental control measures such as decreased exposure to child care centers and secondhand smoking,and the use of prophylaxis antibiotics.Vaccines are known to be effective in preventing acute otitis media.

PV1173 / #2681

IS THE INCIDENCE OF INVASIVE STREPTOCOCCUS PYOGENES INFECTION INCREASING?

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: INVASIVE STREPTOCOCCUS PYOGENES INFECTION
Background: Several European countries such as the UK, has detected an unusual increase in Streptococcus pyogenes invasive(ISP) infectios in children during the autumn and winter of 2022, perhaps related to the increased circulation of respiratory-viruses. Observational and retrospective study carried-out by reviewing computerized medical records of patients<14years-old with a diagnosis of ISP who required admission to the PICU from March- 2022 to March-2023. Demographic data, type of infection,risk factors,clinical presentation,tratment,microbiological data , hospital-stay and evolution were collected.
Case Presentation Summary: A total of 5 cases were collected(4.8/100,000 children/year), representing 2% of admissions to the PICU during this year; The median-age was 60 months (range1-108 months) and most were woman 3/5(60%). None of them presented previous risk-factors. 4 out of 5(80%) patients presented fever as a major sympton, poor general condition, and soft tissue infection (myositis,fascitis necrotizing and cellulitis). The last-one had progressive decreased cervical mobility and odynophagia due to retropharyngeal and mediastinal abscess. 4 out of 5(80%) children required respiratory support with intubation and mechanical ventilation, and 100% required hemodynamic support with inotropics. In 100% cases, SP was isolated in at least one sterile sample. At admission antibiotic-therapy was started with intravenous cefotaxime adding clindamycin when ISP was suspected. Surgery was required in 2 cases(40%). The medium hospital-stay was 8.3±4.72 days although one patient remains hospitalized. One patient presented sequels and none patient died.
Learning Points/Discussion: ISP has been a rare but serious reason for PICU admission. Skin and soft tissue oinfections together with septic shock were the most comon forms of ID. The mortality of our sample was cero despite the serious clinical manifestations.The ongoing supposed increase, combined with the severity warrants awareness among pediatricians, other clinicians, public health and parents.

PV1174 / #1157

MEDICAL ONLINE EDUCATION SIGNIFICANTLY IMPROVES PHYSICIAN KNOWLEDGE REGARDING THE IMPACT OF THE COVID-19 PANDEMIC ON MENINGOCOCCAL DISEASE AND VACCINE UPTAKE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Systemic infection with Neisseria meningitidis can rapidly lead to a serious, life-threatening disease or result in long-term sequelae.[1] The COVID-19 pandemic and containment measures was associated with decreasing incidence and burden of meningococcal disease. However, meningitis vaccine uptake also declined and has not yet returned to pre-COVID-19 levels. As physicians play a critical role in vaccine recommendation and uptake, we assessed whether an online independent medical education activity could improve the knowledge of Paediatricians and Public Health & Preventive Medicine Specialist (PHPMS) on the impact that the pandemic had on meningococcal disease and vaccine uptake
Methods: Educational effect was assessed using a repeated-pairs design with pre-/post-assessment. Three multiple choice questions assessed knowledge, and one question assessed confidence. Statistical tests to assess significance included: Paired samples t-test for overall average number of correct responses and confidence. McNemar's test for individual questions and learning objectives (P <.05). Cohen's d estimated the effect size impact on number of correct responses (<.20 modest, .20-.49 small, .59-.79 moderate, ≥.80 large). Data were collected from 7/26/2022 to 10/14/2022.
Results: From a total audience of 764 physicians, 149 were assessment completers. Overall, there was a significant increase (P<0.0001 for both specialities) with a large impact (paediatricians 0.80; PHPMS 1.1) in paediatrician and PHPMS knowledge gains. Both specialties reported an increase in confidence (paediatrician 66%; PHPMS 69%) with a total average confidence shift of 83% (paediatricians) and 114% (PHPMS), regarding the impact that the COVID-19 pandemic on meningococcal disease and vaccine uptake. Furthermore, both specialties had highly significant knowledge gains concerning carriage rates of Neisseria meningitidis (P <.001).
Conclusions/Learning Points: Online medical education significantly improved physician knowledge and confidence regarding epidemiology of meningococcal disease and vaccine uptake in the current COVID-19 era.

PV1175 / #2590

A CASE OF PULMONARY ASPERGILLOSIS IN A PATIENT WITH SOLID ORGAN TUMOR

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: A Case of Pulmonary Aspergillosis in a Patient with Solid Organ Tumor
Background: Invasive fungal infections originating from Aspergillus are an important cause of mortality and morbidity, especially in immunocompromised individuals such as cancer and transplant patients.
Case Presentation Summary: A 6.5-year-old girl with the diagnosis of medulloblastoma was hospitalized with febrile neutropenia at the 6th month of her treatment. On the 3rd day of the follow-up, her fever regressed, and on the 12th day, acute phase reactant elevation, abdominal pain and distension developed.Abdominal pathology was not detected in the abdominal tomography, but pneumonic infiltration and pleural effusion on the right were detected in the image area. The patient's treatment was gradually expanded upon the fever whose severe neutropenia continued.Voriconazole and amphotericin B were added to treatment because galactomannan and glucan were positive. Repeated lung imaging of the patient with increased galactomannan values was found to be compatible with pulmonary aspergillosis. No aspergillus focus was observed in the cranial imaging.The patient was evaluated in the Pediatric Chest Diseases department, while the follow-up was continued with oral voriconazole. No lesions were detected in bronchoscopy. Follow-up with oral voriconazole continues.
Learning Points/Discussion: Patients with hematological malignancies and bone marrow/solid organ transplant recipients are at risk for invasive pulmonary aspergillosis. In a retrospective single-center study, mortality was found to be 55% in pediatric hemato-oncology patients.When the incidence of underlying disease was examined in a single-center study, the highest recurrent acute myeloid leukemia (28%) and recurrent acute lymphoblastic leukemia (9%) were found in pediatric patients. Invasive aspergillus infection is not expected in our case, since there is no hematological malignancy, no bone marrow/organ transplantation.Pulmonary aspergillosis treatment was started before the disease progressed, response was seen with the increase in neutrophil count.

PV1176 / #443

EPIDEMIOLOGY AND CLINICAL CHARACTERISTICS OF NON-TYPHOID SALMONELLA BACTEREMIA IN KOREA

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: We aimed to describe the epidemiology and clinical characteristics of non-typhoid Salmonella (NTS) bacteremia in Korean children and adults.
Methods: We retrospectively reviewed the medical records of children who were defined as the isolation of NTS from blood cultures in Pusan National University Yangsan Hospital during December 2008 to November 2022.
Results: Overall, 45 patients (17 children and 28 adults) were enrolled. The median age 2 years (range 0-12) and 12 (70.6%) patients were male in children, and the median age 65.5 years (range 31-81) and 20 (71.4%) patients were male in adults. The most common serogroup was serogroup D (47.1%) in children, and serogroup B (39.3%) in adult. The underling diseases were identified in 2 (11.8%) children and 23 (82.1%) adults (P<0.001). All children manifested with fever, but 11 (39.3%) adults manifested with fever (P<0.001). 13 (76.5%) children and 19 (67.9%) adults manifested with symptoms of acute gastroenteritis (P=0.780). Antibiotic susceptibility tests were performed in 14 children and 26 adults. In children, 11 (78.6%) patients were susceptible to ampicillin, 12 (85.7%) to ceftazidime, 12 (85.7%) to ciprofloxacin, 12 (85.7%) to cefotaxime, and 14 (100%) to trimethoprim/sulfamethoxazole (TMP/SMX). In adults, 15 (57.7%) patients were susceptible to ampicillin, 25 (96.2%) to ceftazidime, 22 (84.6%) to ciprofloxacin, 24 (92.3%) to cefotaxime, and 24 (92.3%) to TMP/SMX. There are two adults and two children who were resistant to both ampicillin and cefotaxime. There was no multi-drug resistance. Children were mainly treated with cefotaxime, and adults were mainly treated with cefotaxime or ciprofloxacin. The 30-day mortality rate was 0%.
Conclusions/Learning Points: Most NTS bacteremia have the presenting symptoms of gastroenteritis, and difference in presence of fever between children and adults. Antimicrobial resistance and mortality were low.

PV1177 / #728

LETHALITY ASSOCIATED WITH INVASIVE PNEUMOCOCCAL DISEASE IN A COLOMBIAN PEDIATRIC POPULATION (2017-2022).

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Invasive Pneumococcal Disease(IPD) causes high mortality in children under 5 years. Colombia started administering PCV10 in 2012 and changed to PCV13 in July 2022. Neumocolombia network monitors IPD in pediatric patients throughout the country.
Methods: Case series study in deceased pediatric patients with IPD admitted to 10 hospitals of Bogotá, and 4 hospitals of Cali, 2 of Medellín and 1 of Cartagena in 2017-2022(preliminary data).
Results: 344 cases of IPD, 44(12.7%) deceased. Median age was 19 months (IQR 5 - 35); 29(66%) were younger than 24 months. The average hospital stay was 9.5 days; 43(98%) were admitted to the ICU. 22 cases (50%) presented pneumonia, 8(18%) primary bacteremia, 11(25%) meningitis and 3(6.8%) pneumonia plus meningitis. Case fatality rate was 10,6%(22/207) for pneumonia, 29.7%(11/37) for meningitis, 10.8%(8/74) for bacteremia, 60%(3/5) for meningitis plus pneumonia and 0% for other diagnosis IPD (0/21). 25 isolates(57%) were serotyped, the most frequent serotype was 19A, followed by 23B and 14 (48%, 16% and 8%, respectively), the case fatality rate by serotype were: serotype 10B,15B and 24 F 50%(1/2), serotype 23B 44%(4/9), serotype 8 33%(1/3), serotype 14 20%(2/10), serotype 16 20%(1/5),serotype 6A 12,5%(1/8), serotype 19A 12.1%(12/99) and serotype 3 5,8% (1/17). 15 cases(34%) had decreased susceptibility to penicillin.
Conclusions/Learning Points: Lethality from IPD is higher in children under two years. The highest lethality was found in patients with meningitis plus pneumonia, and the most frequent serotype was 19A and the most lethal serotype were 10B, 15B and 24F. Permanent monitoring of mortality by IPD after the implementation of mass vaccination with PCV is necessary.

PV1178 / #1190

CLINICAL AND ETIOLOGICAL PROFILE OF LIVER ABSCESS IN CHILDREN WITH SPECIAL REFERENCE TO THE OUTCOME

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: CLINICAL AND ETIOLOGICAL PROFILE OF LIVER ABSCESS IN CHILDREN WITH SPECIAL REFERENCE TO THE OUTCOME

Background: In developing countries liver abscess is still major cause of morbidity and no specific predisposing factors have identified. Despite of much known about etiopathogenesis, the gold standard treatment is debatable. Judicious use of different modalities of treatment is important. We aimed to study clinical and epidemiological characteristics with risk factor, microbiological etiology with special reference to outcome and its determinants in patients with liver abscess.

Case Presentation Summary: The mean age of presentation was 5.4 years with M: F ratio of 1:1. Fever was the most common presenting symptom found in 95% patients and hepatomegaly was present in 87.5%. 97.5% patients had anemia, 82.5% had leukocytosis.65% patients were underweight. 80% had single liver abscess and 20% had multiple liver abscesses, with 62.5 % had in right lobe. Blood culture was positive in 7.5% patients with growth of E.coli, Acinetobacter and Gram positive cocci and Pus culture was positive in 10% cases showing Methicillin sensitive staphylococcus aureus in two cases, Klebsiella pneumoniae in one case, E.coli and Staphylococcus aureus both in fourth case. The patients who were managed medically alone had mean duration of symptoms of 15.27 days and mean abscess size of 81.96 cc and those who required surgical intervention had mean duration of symptoms of 11.14 days and mean abscess size of 132.29 cc. 65% patients were managed medically alone and 35% patients underwent surgical intervention. Overall prognosis of liver abscess was better with 97.5 % recovery rate.

Learning Points/Discussion: Identification of children with larger liver abscess and choice of appropriate modality of treatment can have better prognosis and can reduce the morbidity.

PV1179 / #1022

ATYPICAL CASE OF MILLER-FISHER SYNDROME IN A YOUNG MALE PATIENT – CLINICAL CASE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: ATYPICAL CASE OF MILLER-FISHER SYNDROME IN A YOUNG MALE PATIENT – CLINICAL CASE
Background: Although typically associated with the triad ataxia, ophthalmoplegia and areflexia, an acute inflammatory demyelinating disease in children such as Miller-Fisher syndrome, may present with other symptoms, being confused with common infectious diseases. This clinical case is intended to draw attention to the importance of thinking about other diagnostic hypotheses and guide research accordingly.
Case Presentation Summary: 5-year-old boy already in study for a neurodevelopmental impairment (manipulation, social interaction and cognition), was brought to the emergency department with gait imbalance and frequent falls with 3 weeks evolution. No infectious context, fever, trauma, headache, drowsiness, gastrointestinal or genitourinary symptoms. On examination he showed a limping gait, worse on the right, slight shortening of the right lower limb, weakness of the pelvic muscles, absent tendon reflexes, slight imbalance when walking on the toes, inability to stand in one's foot and a dubious finger-nose testing. No fever, appendicular ataxia, ophthalmoplegia, facial weakness, dysarthria or dysphagia was documented. Laboratory tests were normal. Lumbar puncture showed albuminocytologic dissociation (3cells/mm3, protein level 150 mg/dL) and negative culture. Serogical tests for Borrelia, Campylobacter and SARS-CoV-2 were negative. The stimulation electroneuromyography revealed sensory axonal polineuropathy and MRI of the brain and spine revealed intense enhancement of the cauda equine. Admited to the hospital and started therapy with intravenous immunoglobulin and a rehabilitation program. Over time he showed a marked improvement in gait imbalance however maintains absent tendon reflexes.
Learning Points/Discussion: Miller Fisher syndrome is extremely rare in children and constitutes a diagnostic challenge. In atypical cases after investigation of differential diagnoses, the most appropriate treatment should be offered to aim for a clinical improvement. Although rare usually the prognosis is good.

PV1180 / #2479

RESPIRATORY VIRUS SURVEILLANCE IN HOSPITALIZED CHILDREN LESS THAN 2-YEARS OF AGE IN KENEMA, SIERRA LEONE DURING THE COVID-19 PANDEMIC (OCTOBER 2020-OCTOBER 2021).

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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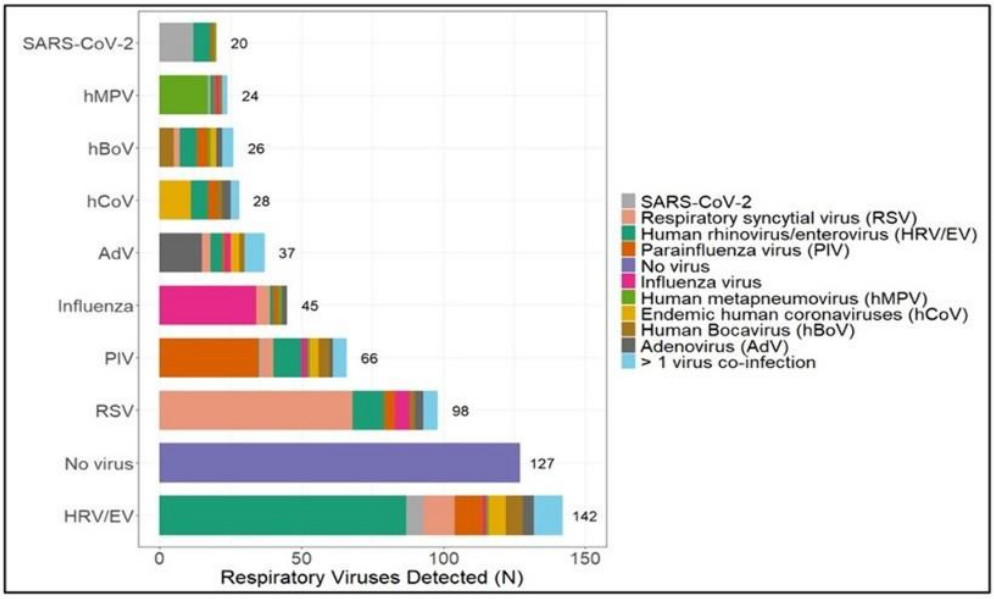
Background: Acute respiratory tract infections (ARI) are a main cause of pediatric morbidity and mortality worldwide. Knowledge about the current causes of viral respiratory infections in low resource settings is limited, especially in COVID-19 era, which has impacted the seasonality of common respiratory pathogens. The aim of this study was to identify the viral pathogens associated with ARI in hospitalized children < 2 years of age in Sierra Leone.
Methods: We conducted a prospective, cohort study of children <24 months of age admitted to the Kenema Government Hospital (KGH) with acute respiratory symptoms between October 2020 to October 2021. Two nasal swabs were collected from each child at admission. Swabs were stored at KGH and then shipped to Vanderbilt University Medical Center for testing. Viral pathogen identification was performed using the NxTAG Respiratory Pathogen Panel + SARS-CoV-2 (Luminex) and real-time PCR assays. Descriptive statistics were used to summarize the pathogens detected.
Results: A total of 502 children were enrolled. 376 (75%) had at least 1 virus detected. The most common virus detected was HRV/EV (28.2%) followed by RSV (19.5%). Influenza and SARS-CoV-2 were identified in 9.2% and 3.9% of children, respectively. 97/376 (25.7%) of patients had more than one virus identified (Figure 1). Of the 213 children with a laboratory confirmed malaria diagnosis, 147 (69%) had a virus identified as well. All children admitted were treated with an antibiotic.

Figure 1: Total number of viral pathogens identified and their associated co-detected viruses



Conclusions/Learning Points: Viral pathogen detection was common, though SAR-CoV-2 was

infrequent. Further studies and laboratory capacity are needed to understand the epidemiology of respiratory viral pathogens in Sierra Leone, including any impact resulting from the ongoing COVID-19 pandemic.

PV1181 / #1009

FLU AND COVID-19, AN INFECTIOUS PROBLEM FOR PRESCHOOL CHILDREN?!

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Respiratory infections are common during the winter season, is the main reason for seeking medical care for children.
Methods: The study was conducted using comparative and statistical analysis of the medical files of the children admitted to an Emergency Hospital from the North of Romania over a period of 14th weeks.
Results: During this winter season, from 1st of October 2022 until 10th of January 2023, in our clinic were admitted 207 children. All children with respiratory symptoms were tested for COVID-19 and influenza by antigen test and polymerase chain reaction. Among 207 children assessed, 16 had SARS-CoV-2 infection, 17 had influenza A and one had Flurona (influenza A and SARS-CoV-2 infection). The ages varied from 21 days to 7 years old, 47% had 0 years (21 days to 12 months). During viral infection, bacterial adherence to epithelium is increased by viral glycoproteins which can lead to an increased risk for bacterial superinfection. Mixed viral-bacterial respiratory infections are relatively common in preschoolers, in our clinic, almost 21% of them had abnormalities at the chest x-ray (with suggestive images for pneumonia and bronchiolitis) which resolved after 1 week with antiviral and antimicrobial treatment. All patients were admitted with one of their parents (all of them presented respiratory symptoms). The evolution was good in all cases, none of them needed to be monitored in the intensive care unit.
Conclusions/Learning Points: All patients with respiratory symptoms, especially preschoolers should be monitored in a medical unit due to the complications that viral infections can include (viral or bacterial pneumonia, sinusitis, otitis, coinfections with bacterial agents). These complications not treated correctly can present a high risk of morbidity and mortality in children.

PV1182 / #475

CHARACTERIZATION OF JAPANESE ENCEPHALITIS VIRUS GENOTYPE V ISOLATES FROM SOUTH KOREA

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Japanese encephalitis (JE) is a prevalent infectious disease with about 67,900 cases annually in 24 countries including the Republic of Korea (ROK). Children are most commonly affected worldwide and therefore children aged 3-4 years are starting to be given the JE vaccine. Since 2010, genotype V (GV) Japanese encephalitis virus (JEV) virus strains have been identified in the ROK but current vaccines are based on genotype III (GIII). Characterization of antigenic and pathologic properties of GV strains are required in order to minimize the risk for possible GV JEV outbreak.
Methods: We sequenced whole genome of two GV JEV isolates, NCCP 43279 and NCCP 43413 which were isolated from human patient and mosquito, respectively, and compared them with GV Muar (Malaysia) and XZ0934 (China) strains. We further characterized virus replication and cell toxicity in vitro and pathogenicity in vivo using a mouse model.
Results: We identified unique sequence substitutions from ROK isolates. ROK isolates exhibited slower growth in vitro and were less virulent in mice compared to GIII Nakayama strain. Importantly, GV strains were antigenically distinct from GIII Nakayama strain.
Conclusions/Learning Points: Our results suggest the need for a novel GV strain-based vaccine. Also, further study is required to reveal the molecular mechanism underlying the different pathogenicity of these strains.

PV1183 / #440

PROGNOSTIC MODEL FOR DETERMINING THE PROBABILITY OF SEVERE RESPIRATORY DISORDERS DEVELOPMENT IN NEWBORNS FROM MOTHERS WITH DIABETES MELLITUS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: The risk of adverse perinatal outcomes in patients with type 1 diabetes mellitus (DM1) is significantly higher compared to the general population of pregnant women. The aim of the study was to develop a predictive model for determining the likelihood of severe respiratory disorders in newborns from mothers with DM1.
Methods: We examined 101 newborns from mothers with DM1 who were born and treated at the RSPC "Mother and Child" in 2018–2021. Group 1 (n=45) included patients with severe respiratory disorders requiring respiratory support at the Neonatal Intensive Care Unit, group 2 (n=56) consisted of comparisons. Both groups were comparable in terms of sex (p=0.373), body weight (3860 (3440−4340) vs 3745 (3450−4000) g, p=0.268), and body length (53 (52−55) vs 53 (52−54) cm, p=0.467). We performed the analysis of 165 mothers' pregnancy and DM course anamnestic factors, anthropometric, clinical, laboratory, instrumental parameters, and newborns' metabolic status indicators. SPSS 26 was used for statistical analysis.
Results: According to the multivariate regression we established that the most significant respiratory disorders predictors were anemia in pregnancy, gestational age, emergency caesarean section, birth body weight Z-score, respiratory failure, hematological parameters (hemoglobin level lower than 202 g/l, immunological reactivity index (IRI) higher than 2.8). We developed a prognostic model for determining the probability of a severe course of respiratory disorders which contained 4 parameters and calculated its' threshold value (0.467). The diagnostic accuracy of the developed model was 84.1% (95% CI 76.2–91.9%).
Conclusions/Learning Points: The accuracy of the severe respiratory disorders in newborn from mothers with DM1 likelihood determining was ensured by the identified ante-, intra-, postnatal clinical and laboratory parameters comprehensive assessment.

PV1184 / #1898

HYPERACUTE CONJUNCTIVITIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: HYPERACUTE CONJUNCTIVITIS
Background: Clinical manifestations of meningococcal disease usually range from transient bacteraemia to fulminant disease. We present a rare manifestation of Neisseria meningitidis infection.
Case Presentation Summary: A previously healthy 16-month-old boy presented to the Emergency Room with bilateral ocular hyperaemia, photophobia, palpebral oedema with marked purulent discharge and irritability for the past 20 hours despite topical treatment. As clinical manifestations were very exuberant, culture of the eye discharge was done and topical treatment changed chloramphenicol. As no improvement was noticed, he was referred to the ophthalmologist 24 hours later and treatment was maintained. On the following day, the culture of the eye discharge was positive for N. meningitidis. Considering the risk of invasive disease (IMD), further investigation was done, showing a normal complete blood count (leucocytes 11700/mL, neutrophils 6720/mL), CRP 0.11 mg/dL, PCT 0,02ng/mL. CSF analysis was also normal and blood and CSF cultures negative. Ceftriaxone was given until negative cultures. Irritability and conjunctivitis improved rapidly with a good clinical outcome. Close contacts received chemoprophylaxis with ciprofloxacin.
Learning Points/Discussion: N. meningitidis is a very rare cause of hyperacute conjunctivitis. Given the possibility of serious complications, systemic antibiotic treatment was given until IMD was ruled out as it seems to significantly reduce its risk. Close contacts antibiotic chemoprophylaxis was given in order to reduce the risk of secondary IMD.

PV1185 / #902

MANAGING LYMPHADENOPATHY IN THE PEDIATRIC EMERGENCY DEPARTMENT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Lymphadenopathy (LA) is defined as an abnormality of one or more lymph nodes. It is a common presentation in childhood, associated with a wide spectrum of diseases including infectious, immunologic and neoplastic disorders. At present, there is no consensus in pediatric literature regarding a diagnostic and therapeutic algorithm, which can increase discrepancies in its management. The aim of this study was to describe the clinical features and outcomes of childhood LA admitted to our hospital.
Methods: Single center, 5-year, retrospective analysis of children and adolescents admitted for LA.
Results: Total of 222 patients, median of 7 years (IQR 3-11), 57.7% male. Head and neck, inguinal, axillary and supraclavicular LA were described in 87.4%, 6.3%, 2.3% and 1.4% of the patients, respectively. Constitutional signs were not reported in 76.1% of the clinical records. Clinical red flags were reported in 38.3% of patients. From those, ultrasonography was performed in 67.1%, laboratory tests in 48.2%, and chest radiography in 18.8%. In patients with LA without red flags, ultrasonography was performed in 35% and laboratory tests in 19.7%. Antibiotic therapy was prescribed in 5.6% of reactive LA without red flags and in 81.8% of adenitis/abscess. A specific diagnosis was achieved in 7.7%. The most common final diagnosis were reactive lymphadenitis (77%) and adenitis/abscess (14.9%). Follow-up evaluations were required in only 31.5% of cases.
Conclusions/Learning Points: LA is a benign condition in the majority of cases and does not require extensive investigation. A systematic approach for decision-making may help in identifying those lesions which require urgent attention. Generally, our study suggests a correct assessment of LA and the need for antibiotics and further investigation.

PV1186 / #495

LYMPHADENOPATHY IN PEDIATRIC INFECTIOUS MONONUCLEOSIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Infectious Mononucleosis is the most common clinical manifestation of Epstein-Barr virus(EBV) infection. It is characterized by fever, sore throat, lymphadenopathy and hepato-splenomegaly. EBV infection is associated with a vigorous humoral and cellular immune response to rapidly proliferating EBV-infected B cells, which results in lymphadenopathy and other signs and symptoms of Infectious Mononucleosis.
Methods: As lymphadenopathy is a clinical sign that defines Infectious Mononucleosis, a study was performed to explore its anatomic location and age distribution in children. In the study were included 107 children aged 0-14years, hospitalized in the Pediatric Infectious Disease Ward of the University Hospital Center "Mother Teresa" in Tirana, Albania, during 2015-2018. Diagnose was made on base of a positive serology test for immunoglobulin M viral capsid antigen.
Results: Lymphadenopathy was found in 81% of cases. 57% of cases presented cervical lymphadenopathy and 24% of cases presented generalized lymphadenopathy. In 11% of cases it was the first presentig symptom. Cervical lymphadenopathy predominated in younger children whereas generalized lymphadenopathy in older children (p=0.001). Generalized lymphadenopathy was strongly associated with hepato-splenomegaly. Absolute lymphocytes number were more elevated in generalized lymphadenopathy than in cervical lymphadenopathy.
Conclusions/Learning Points: Lymph node enlargement both regional and generalized is common in pediatric Infectious Mononucleosis. Cervical lymphadenopathy is more prevalent in younger children whereas generalized lymphadenopathy predominates in older children. Lymphadenopathy is a common clinical finding in childhood and is frequently benign but sometimes raises fears about serious illnesses, so an accurate differential diagnosis should be performed.

PV1187 / #1790

FACIAL NERVE PALSY: DIAGNOSIS AND TREATMENT CHALLENGES IN CHILDREN – CASE REPORT

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Facial nerve palsy: diagnosis and treatment challenges in children – case report
Background: Facial nerve palsy is the most common cranial nerve dysfunction in children and adults, and in children under the age of 10 the incidence it is cited to be less than 3 per 100,000 annually.
Case Presentation Summary: We present the case of an 9 year old boy, with no significant medical history, witch presented in our hospital with headache, vertigo, fever , right lagophthalmos, facial asymmetry. The fever started 3 days prior to the admittance in our hospital. Because otitis media is the most frequent infectious cause of facial nerve paralysis we performed an ENT consult , witch excluded the otitis media. No significant changes were found in the initial blood workup , that is why he was tested for influenza A and B with negative results. Although the patient isn’t from an endemic area for Borrelia, because of the presenting symptoms we decided to test for Borrelia borgdoferi antibodies with positive results, later confirmed with Western Blot test. The herpes simplex antibodies were negative. We established the final diagnosis of: Lyme disease, early disseminated stage with right facial nerve palsy. Treatment with oral Cefuroxime was initiated for 21 days , in association with a short course of oral Prednison. We refrained from administering acyclovir until the test for herpes simplex antibodies came.
Learning Points/Discussion: Conclusion: Lyme disease in children is a rare occurrence in our country and although we didn’t identify the moment of the thick bite, Borrelia must be taken in consideration as a cause of facial nerve palsy.

PV1188 / #911

CELLULITIS COMPLICATED BY NON-NECROTIZING FASCIITIS IN A CHILD CO-INFECTED WITH INFLUENZA VIRUS: A LIFE-THREATENING COMBINATION

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: CELLULITIS COMPLICATED BY NON-NECROTIZING FASCIITIS IN A CHILD CO-INFECTED WITH INFLUENZA VIRUS: A LIFE-THREATENING COMBINATION
Background: Skin and soft tissue infections represent a broad spectrum of disease processes, ranging from mild to fulminant, widespread necrosis, and systemic toxicity with high morbidity and mortality. Co-infection with the influenza virus has been linked to a worse prognosis.
Case Presentation Summary: A previously healthy two-year-old child was evaluated at ER for fever and respiratory symptoms. A papule on the umbilical region was observed during the physical examination, with diffuse, poorly demarcated skin erythema and edema of the abdomen, inguinal region and trunk. Soft-tissue US confirmed the diagnosis of diffuse cellulitis, and a nasopharyngeal swab tested positive for Influenza A (H3N2). The lab test showed leukocytosis, increased inflammatory markers, hepatic and muscle enzymes, hypoalbuminemia and hyponatremia. Blood cultures and skin swabs turn back negative. Despite one-week treatment with ceftriaxone and clindamycin, after initial improvement his clinical condition worsened with high fever, severe fatigue and underfeeding. A further increase in leukocytes and inflammatory markers (CRP and PCT) and new onset thrombocytosis was noted. MRI of the abdomen showed circumferential fasciitis of the abdomen without necrosis. A surgical approach was excluded. Hence, antimicrobial therapy escalation with piperacillin-tazobactam and linezolid was decided upon. Furthermore, due to a lack of clinical improvement after 48 hours, non-specific IVIGs were administered (1 gr/kg/die for two days) with rapid clinical response and restitutio ad integrum in the following week.
Learning Points/Discussion: Despite the negative culture, the clinical picture was highly suggestive of group A streptococcus with an influenza virus superinfection. This case highlights the importance of early recognition of possible complications and supports the early use of IVIGs in non-surgical patients who respond poorly to antibiotic treatment.

PV1189 / #2274

DOES EPSTEIN-BARR VIRUS INFECTION ASSOCIATED WITH CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA? A SYSTEMATIC REVIEW AND META-ANALYSIS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Backgrounds: Acute lymphoblastic leukaemia (ALL) is the most common type of leukaemia in childhood. Epstein-Barr virus (EBV) is a herpes virus that causes infectious mononucleosis. Studies have shown that children with ALL are more likely to have been infected with EBV in the past. The exact mechanism by which EBV infection increases the risk of ALL is not fully understood. This study aims to determine the association between EBV infection and childhood ALL.
Methods: A systematic search was conducted in multiple databases (Pubmed, Science Direct, Google Scholar) for publications until December 31st 2022. Random-effects meta-analyses were used to calculate pooled odds ratios (ORs) with 95% confidence intervals (CIs). The study selection process was carried out under PRISMA 2020 guidelines based on several eligibility criteria. The quality of the included study was further assessed using The Newcastle-ottawa Scale (NOS) for case control study. Funnel plot was used to assess the risk-of-bias for outcome studies.
Results: 5,982 literatures were retrieved, 1,025 were excluded due to duplication, 4,365 were due to inappropriate title and abstract, 24 unavailable full-text studies, and 568 with inappropriate method and outcome. Finally, 14 case control studies were included in this study involving 1,628 children with ALL. EBV infection is not associated with childhood ALL (p=0.28). The combined OR on ALL for EBV infection is 1.36 (95% CI: 0.77, 2.39; $I^2 = 72\%$). The studies were classified as good quality. The funnel plot showed that the studies spread quite dissymmetrical, therefore there is a possibility for publication bias.
Conclusions/Learning Points: Overall result depicted that there is no association between EBV infection and childhood ALL. Nevertheless, 4 studies suggests that EBV infection can significantly be a risk factor for the development of ALL in children.

PV1190 / #1068

NECROTIZING FASCIITIS CAUSED BY AN UNUSUAL ORGANISM AFTER SNAKE BITE

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: NECROTIZING FASCIITIS CAUSED BY AN UNUSUAL ORGANISM AFTER SNAKE BITE
Background: Snake bite is a public health issue in many countries. Secondary bacterial infections occur infrequently. Here, we describe a case of severe, life-threatening soft tissue infection caused by an unusual organism after snakebite.
Case Presentation Summary: A 12 years old boy was referred to emergency department at Angkor hospital for children due to progressive left arm swelling after bitten by an unknown snake while catching fishes. His wound was cleaned at a nearby hospital. After two days, the wound became swollen and progress rapidly to his upper arm. He was brought back to the same hospital where he got admitted for 11 days. On arrival, his temperature was 35.7 C, heart rate 108beats/mn, respiratory rate 36/mn, and saturation O2 100% room air. Physical examination revealed a swollen, painful and pale left arm. He underwent fasciotomy and surgical debridement on the same day. Given the serious condition and history of prolonged hospital stay, vancomycin and meropenem were started. All three samples taken during the operation grew Edwardseilla tarda. The patient's condition improved after second operation and antibiotics were switch to ampicillin when sensitivity profile of the organism available. The patient was discharged after 10 days with oral amoxicillin for another 7days. On follow up at two weeks after discharge, the patient remained well and the wound was completely healed.
Learning Points/Discussion: Gastrointestinal disease is the most common reported infection caused by Edwardseilla tarda while extra-gastrointestinal disease is rare but with significant mortality rate. Microbiology laboratory is crucial and help us saved many doses of vancomycin and meropenem thus reducing cost, toxicity and resistance. Multi-disciplinary teams including medical, surgical, microbiology team improved the patient's outcome.

PV1191 / #1141

QUANTIFYING THE COSTS OF HOSPITAL ADMISSIONS FOR FAMILIES OF CHILDREN ATTENDING THE EMERGENCY DEPARTMENT FOR FEBRILE ILLNESS IN THE NORTH EAST OF ENGLAND

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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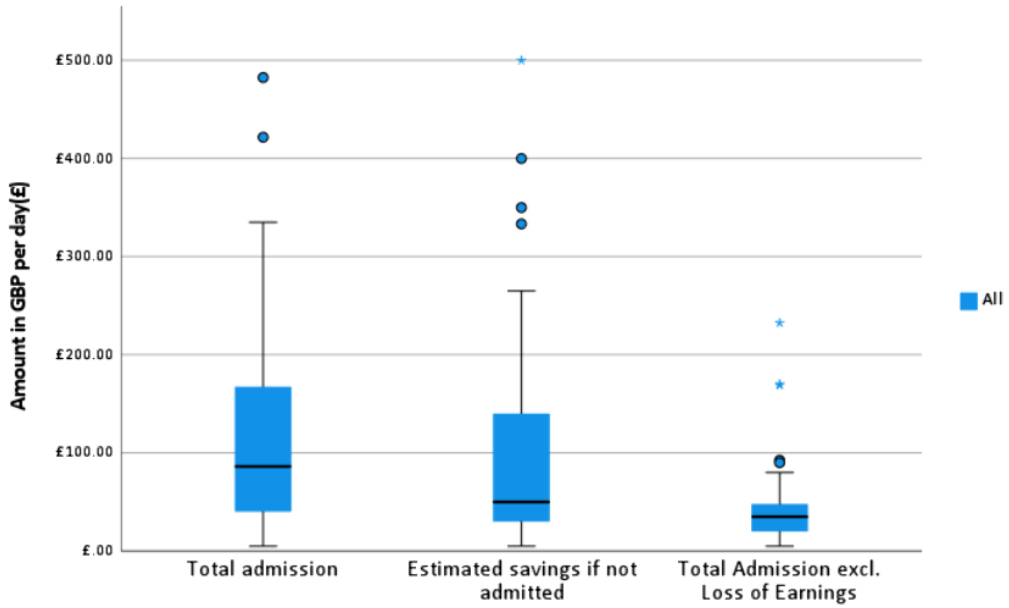
Backgrounds: Fever in children is a common reason to attend the emergency department (ED), and for hospitalisation pending microbiological diagnostics. The burden of financial and emotional costs of these admissions for families are not well studied. In the current cost of living crisis this burden is becoming increasingly important, especially in the North East of England, an area with relatively high levels of social deprivation.
Methods: A single-centre study between June and October 2022, utilising a structured questionnaire assessing financial and emotional costs of admissions to hospital for febrile illness via ED. Financial costs including travel, food, child care, loss of earnings and miscellaneous costs were estimated. Emotional costs were measured using the PHQ-4 and STAI-6 depression and anxiety questionnaires.
Results: 55 families of patients aged median 6.5 years (IQR 2-11 years) completed the questionnaire. 52 (94.5%) stated they had extra costs due to being in hospital. Most common costs were made for Travel and Food (N=49, 89.1% for either). Median costs per day were £85.25 (IQR £38.75-£168.25), or, adjusted for loss of income, median £35.00 (£19.70-£48.93) (Figure 1). Parents estimated they could save median £50.00 (IQR £27.50-£140) per day, if their child could have been safely discharged from ED. 47.3% of parents (N=26) experienced moderate to severe anxiety, secondary to their child's admission



Conclusions/Learning Points: Significant costs are incurred for parents of children attending hospital, with costs mainly made for travel and food. A large proportion of costs is due to loss of earnings. High levels of parental anxiety are not uncommon. As the cost-of-living crisis deepens, it is a task for health care providers to identify how to support those families most in need, and reduce these burdens.

PV1192 / #1894

VAGINITIS CAUSED BY CORYNEBACTERIUM AMYCOLATUM IN A PREPUBESCENT GIRL

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Vaginitis Caused by Corynebacterium amycolatum in a Prepubescent Girl
Background: Vulvovaginitis is the most common gynecological symptom in prepubescent girls. Most cases have nonspecific causes and require only reassurance and improved perineal hygiene. Corynebacterium spp. are part of the normal flora of the skin and mucous membranes. However, Corynebacterium amycolatum (C.amycolatum) is increasingly being recognized as a significant pathogen with multidrug resistance to commonly used antibiotics. It has been implicated in endocarditis, sepsis, wounds, and urinary tract and respiratory tract infections, especially in immunocompromised patients. Its true clinical significance as an opportunistic pathogen has probably remained underestimated. Treating infections caused by C. amycolatum is challenging because infections are usually multidrug resistant.
Case Presentation Summary: A 9-year-old female virgin arrived at our hospital presenting with vaginal itching and frequent urination lasting for approximately 2 weeks. Although the patient had received repeated treatments such as potassium permanganate solution for the bath, her symptoms continued. The physical examination revealed an intact hymen with vulvitis with no visible vaginal discharge. Urinalysis was negative. A vaginal sample for microbiological culture was collected. The culture was positive for C. amycolatum resistant to penicillin, erythromycin, and clindamycin. Treatment was started with oral trimethoprim-sulfamethoxazole for 7 days. In a subsequent review, the resolution of the symptoms was verified. To the best of our knowledge, this is the first case report from Spain of C. amycolatum vaginitis in a prepubescent girl.
Learning Points/Discussion: Vulvovaginitis in prepubescent girls is most commonly attributed to poor hygiene or non-specific irritants; however, in some patients, recurrent or atypical vulvovaginitis is primarily caused by bacterial pathogens. In particular, Corynebacterium amycolatum is increasingly being recognized as an important pathogen with multidrug resistance to commonly used antibiotics.

PV1193 / #1920

FACKLAMIA HOMINIS URINARY TRACT INFECTION IN A PEDIATRIC PATIENT. AN UNDERRECOGNIZED PATHOGEN?

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Facklamia hominis urinary tract infection in a pediatric patient. An underrecognized Pathogen?
Background: Facklamia species are a rarely reported etiology of clinical infection with few cases described in literature. Facklamia spp have been implicated in invasive infections, causing a range of illnesses such as sepsis, bacteremia, abscesses, peritonitis, meningitis, endocarditis, genitourinary infection, chorioamnionitis, and prosthetic joint infection. Its potential resistance to β-lactams may have significant clinical treatment implications. Only 2 cases of Facklamia infection in children have been reported. We add a case in which it was a likely contributor to a case of urinary tract infection (UTI).
Case Presentation Summary: Our first case is a 4-year-old girl, evaluated in the pediatric emergency room for fever without a source of up to 40ºC of 24 hours of evolution. He did not present voiding symptoms or other symptoms. He had presented a case of UTI due to E. coli the previous year, with no other history of interest. A mid-micturition urine study was performed with positivity for leukocytes, initiating empirical antibiotic therapy with cefixime. A positive urine culture (10,000-100,000 CFU) was received for multi sensitive F. hominis. He presented a good evolution, with the disappearance of the fever on the fourth day of treatment, which he received for 5 days.
Learning Points/Discussion: Facklamia spp are organisms whose true virulence and pathogenesis are poorly understood. They may cause infection in a susceptible host, but clarifying the risk factors has proven to be difficult based on the scarcity of literature. Due to challenges in its identification, the true burden of disease may be underrecognized. This case illustrates the requirement to standardize identification and treatment of care to avoid treatment failure and antimicrobial resistance, given its potential resistance to β-lactams.

PV1194 / #2205

ACTINOTIGNUM SCHAALII AND GENITAL ULCERS IN A MALE CHILD

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: ACTINOTIGNUM SCHAALII AND GENITAL ULCERS IN A MALE CHILD
Background: The diagnosis of genital ulcers in children is of particular importance, as they can be an indication of pathologies that are either non-infectious or infectious, and in some cases may be associated with sexual abuse. Actinotignum schaalii (A. schaalii) is a gram-positive, facultative anaerobic bacillus that resides in the urogenital mucocutaneous epithelium. Its true clinical significance has probably continued to be underestimated due to the difficulty of isolating it in routine cultures. We present the first case to be described in the literature of genital ulcers associated with isolation of this microorganism.
Case Presentation Summary: The patient was a seven-year-old boy who presented with ulcers on the glans and balanopreputial region that had appeared 24 h earlier, without fever, history of trauma or recent use of new medications. The patient had been previously diagnosed with primary nocturnal enuresis and daytime wetting. During the examination, an ulcer of 4 mm was found on the glans and another of similar size, mirroring the first. The rest of the physical examination was normal. Blood test was normal. In the microbiological study, A. schaalii was identified using MALDI-TOF. The antibiotic sensitivity study showed: ampicillin, clindamycin and tetracycline sensitive, and metronidazole resistant. Urine culture and serology test were negative. Treatment was administered orally with amoxicillin, with a favourable clinical course.
Learning Points/Discussion: Although globally the most common cause of genital lesions is herpes simplex virus infection, in children and non-sexually-active adolescents, other non-infectious and infectious aetiologies should be considered. Opportunistic microorganisms such as A. schaalii must be taken into account in the differential diagnosis of genital ulcers, in particular, when there is prolonged exposure to moisture in the genital area.

PV1195 / #951

EXTENSIVELY DRUG-RESISTANT SHIGELLA SONNEI INFECTION IN CHILDREN. A PEDIATRIC EMERGING THREAT? REPORT OF TWO CASES.

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Extensively drug-resistant Shigella sonnei infection in children. A pediatric emerging threat? Report of two cases.
Background: Shigella sonnei (S. sonnei) is an emerging pathogen globally. Shigella infections is increasingly being associated with sexual transmission among men who have sex with men (MSM). Recently, the ECDC warned about the increase in extensively drug resistant (XDR) S. sonnei infections in MSM in Europe and the UK. We present two pediatric cases of XDR S. sonnei infections that to our knowledge are the first pediatric cases reported in Spain.
Case Presentation Summary: A previously healthy 4-year-old female patient presents to the emergency department with a febril seizure.She presented diarrhea and emesis; absence of a rigid abdomen and without focal neurologic symptoms. Laboratory test: CRP: 168 mg/L. PCT: 7.53 ng/mL. She was admitted and treatment with cefotaxime was started. S. sonnei was isolated from stool sample. It was resistant to ampicillin, cefotaxime, and trimethoprim-sulfamethoxazole and only susceptible to amoxicillin-clavulanate and carbapenems. She completed treatment with oral amoxicillin-clavulanate for 5 days with favourable evolution. The second case was detected in another 4-year-old girl, from the same healthcare centre. She had presented a fever of up to 39.5ºC for 24 hours, along with watery diarrheal stools for a week. S. sonnei was isolated in stool culture with the same antibiotic resistance profile, including resistance to levofloxacin. Symptoms had resolved by the time bacterial culture results were available.
Learning Points/Discussion: The majority of Shigella infections are self-limited but severe cases can be fatal if left untreated. The raise of this XDR S. sonnei in children should be a major concern for clinicians. It is necessary to strengthen the epidemiological surveillance of this infection in Europe, regarding the transmission, microbiological characterization and antimicrobial resistance.

PV1196 / #1655

CASES OF ACUTE HEPATITIS OF UNKNOWN ORIGIN IN TEENAGERS

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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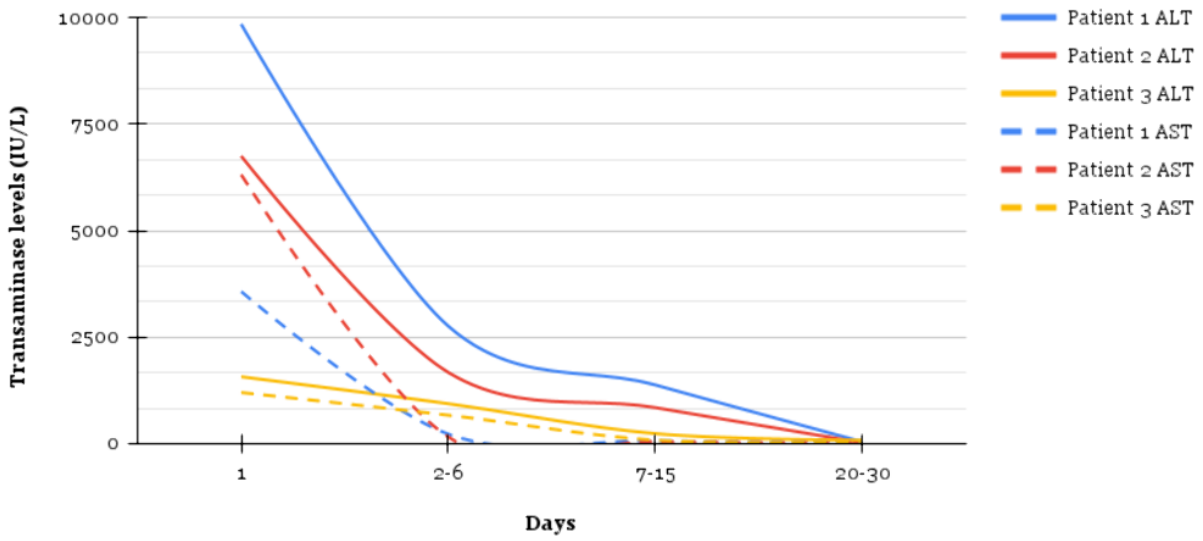
Title of Case: Cases of acute hepatitis of unknown origin in teenagers
Background: In April 2022 Centers for Disease Control and Prevention released an alert about acute hepatitis of unknown origin (AHUO) in children. The first cases were reported in Alabama and involved children aged one through six, previously healthy. Then other cases were detected in Europe, especially in the United Kingdom.
Case Presentation Summary: Since the alert, we have carried out an increased vigilance for similar cases of AHUO in the Department of Pediatric Infectious Diseases in Wrocław, Poland. From February 2022 until September 2022 three children with AHUO were identified in our clinic. Differently than in the previous reports, our patients were all adolescent girls, aged fourteen through sixteen years old. All of them were previously healthy. In each case, a rapid onset of the disease with very high transaminases (Figure 1) but sustained liver function was observed. Two of these girls had episodes of intensive vomiting shortly preceding hepatitis diagnosis and the third one had a jaundice as a leading sign. Except for hypertransaminasemia, in two of these cases procalcitonin concentration was very high, while CRP - low. LDH activity was elevated as well. There were no prominent features of cholestasis. Broad differential diagnosis didn't reveal any cause for acute hepatitis, except for positive ANA results in two of these girls. No other laboratory features of autoimmune hepatitis were found, however. Two girls were treated symptomatically and one was treated with glucocorticosteroids in tempered doses for two weeks.



Learning Points/Discussion: In all cases, quick improvement was observed and transaminases came back to normal values in less than a month.

PV1197 / #841

ENDOCARDITIS CASE SERIES IN A TERTIARY LEVEL CHILDREN'S HOSPITAL IN THE UNITED KINGDOM

E-Posters Viewing
E-POSTER VIEWING: AS16. OTHERS

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Title of Case: Endocarditis case series in a tertiary level children's hospiral in the United Kingdom
Background: Endocarditis in children is a rare disease in the developed world, but it is associated with significant morbidity and mortality. Following the admission and death of a previously well 8-year-old girl and another case within a week, we performed a 10-year retrospective analysis of children with infective endocarditis in a tertiary children`s hospital in London, UK to check whether the trend of presentations with this diagnosis has been increasing.
Case Presentation Summary: Data was pulled using the electronic patient records and analyzed in Excel. 14 unique patients were identified, 50% male, 57% White. Median age was 4.9 years (IQR 1.1-8.5). 36% had congenital heart disease. All patients had an echocardiogram performed, and one patient had MRI of the heart. 66% (9/14) had a positive blood culture, 4 S.aureus and one each S.sanguinis, E.faecium, S.marcescens, C.koseri and C.parapsilosis. The patients were treated with intravenous antibiotics that were in line with current recommendations. Three patients (21%) did not survive to hospital discharge. Of the patients with an underlying cardiac condition, 40% died, and of those without a cardiac condition, 11% died. One patient who passed away had a severe immunodeficiency syndrome and acquired IE as a complication of a haemorrhagic chicken pox infection. The trend of admissions has been decreasing in the past 10 years.
Learning Points/Discussion: The ten-year case series in the study hospital fortunately did not show an increase in prevalence of paediatric IE cases. However the mortality in our cohort remains high despite appropriate therapy, probably due to a higher than average rate of background conditions.