Abstracts

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FACTORS CONDITIONING THE NUTRITIONAL RECOVERY (NR) OF MARASMIC INFANTS. N. Chavez, A. Reyes, J. Alvear, Y. Lacassie and R. Uauy*. Institute of Nutrition and Food Technology (INTA), University of Chile, Santiago, Chile.

To evaluate factors conditioning nutritional recovery in marasmus a retrospective analysis of 61 patients admitted to INTA's Metabolic Unit from April 1977 through July 1978 was carried out. Thirty were males and 31 females. Age at admission ranged from 4 to 19 months. Over 90% were 3rd degree malnourished with a mean % weight/age (W/A) of 62 and % weight/height (W/H) of 83. In all subjects the relationship between protein-energy intake (PE), degree of W/A and W/H deficit on admission, presence of concomitant infections and various NR indicators was studied. These indices were mean weekly weight gain, monthly height, head, arm circumferences and arm muscle area increments, number of days required to reach the 1st degree of malnutrition, time necessary to attain normal W/H. Since infection and psychomotor delay could condition PE intake and NR these factors were treated as alternate independent variables. The adequacy of PE intakes to meet elevated requirements in marasmus contributed most to the velocity of NR. The presence of intercurrent infections delayed in a significant way NR. It also determined lower PE intakes during these periods. The mean number of days to reach 1st degree malnutrition and normal W/H was negatively correlated to PE intakes. The degree of W/A and W/H deficits on admission correlated negatively with the speed of NR for the initial weeks suggesting an increased efficiency in PE utilization. This correlation was lost as subjects approached normal W/H. In conclusion, protein-energy intake and the presence of infection are important conditioning factors in NR in severe marasmus. The need to use formulae with increased nutrient density and to enforce strict measures to control infection was established.

2

ULTRASTRUCTURAL CHANGES IN EPITHELIAL CELLS OF THE SMALL INTESTINE OF DOGS AFTER MASSIVE JEJUNO-ILEAL RESECTION.
M. Araya* and I. Read. Institute of Nutrition and Food Technology (INTA), University of Chile, Santiago, Chile, and Children's Medical Research Foundation, University of Sydney, Sydney, NSW, Australia.

Severe marasmic malnutrition often develops in patients subjected to massive gut resection. Light microscopic studies describe hyperplasia of the remnant gut. Ultrastructural changes were unknown and were studied in 27 puppies after 90-95% jejuno-ileal resection, leaving intact the ileocecal valve. Survivors were clinically followed weekly. After 2-3 weeks, 2-3 months, and 6-7 months animals were killed for further morphologic studies. Microvillous length significantly increased six months after the operation from 1 to 3 microns. Other changes were observed as early as 12 days postoperatively and did not experience modifications thereafter. There was an apparent increase of organelles with maintenance of normal structure, especially ribosomes, polysomes, rough endoplasmic reticulum, Golgi apparatus, and lateral membranes. Besides, numerous lipid particles, residual bodies (RB) and autophagosomes (AP) appeared in the cytoplasm. The basement membrane (BM) showed patchy deposits of collagen.

The apparent increase of organelles may or may not be real. In any case, one can speculate that the remaining intestine is basically normal although overloaded. The presence of numerous RB, AP, and the increased amounts of collagen below the BM, similar to that described in marasmic malnutrition, indicate non-specific damage to the mucosa.

3

IRON BIOAVAILABILITY IN A PROTEIN MIXTURE FOR PRESCHOOL CHILDREN. H.Hertrampf, M.Olivares, F.Pizarro, M.Amar and A.Stekel. Institute of Nutrition and Food Technology (INTA), University of Chile, Santiago, Chile.

In Chile, preschool children are given a wheat flour, soybean toasted flour, saccharose mixture supplemented with minerals and vitamins, including ferrous fumarate (FORTESAN). Two batches with different iron content were assayed: Formula "1" and Formula "2" containing 16.5 and 11.6 mg of Fe per 100 g of powder. Iron bioavailability was determined in these formulae with a double isotope technique (Eakins & Brown) in two groups of 8 children each. On day 1, children received 250 ml of 10% reconstituted formula labelled with ^{55}Fe (0.5 µCi/Kg) and on day 2, 50 ml of ferrous ascorbate solution labelled with ^{59}Fe (0.1 µCi/Kg) as a reference dose. Absorption was calculated from the circulating radioactivity on day 15. Formulae "1" and "2" presented similar iron absorption

levels (mixture/ferrous ascorbate ratio = 0.20). Absorption of Formulae 1 and 2 when referred to 30.35% (reference dose absorption of whole group) were 7.37% and 6.88%. Thus, we conclude that with 50 g of mixture per day (500 ml of reconstituted formula) as delivered through the National Program, it would be possible to absorb 0.61 mg/day of iron from Formula 1 and 0.40 mg/day from Formula 2, amounts covering between 40 and 61% of this group's requirements.

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STUDY OF ANTI HA IN CHILDREN. J.Zacarias*. Department of Pediatrics, L. Calvo Mackenna Hospital, University of Chile, Santiago, Chile.

Two groups of fourth Grade school children, belonging to the high and low socio-economic strata respectively were studied. Anti HA frequency was significantly higher in children of the low socio-economic stratus.

Preliminary studies in children of different age groups (infants to school age) revealed that anti HA transferred by the mother disappears after the fourth month of age. Anti HA reappears by the age of 8 months, induced by repeated infections.

In a group of 73 children admitted to the Hospital with acute hepatitis, 90.4% showed positive seroconversion to anti HA, confirming virus A as the etiologic agent. In 9.6% of cases the etiology was a non A-non B virus.

5

EFFECTS OF BROMOERGOCRIPTINE ON GROWTH HORMONE SECRETION IN NORMAL CHILDREN. M.C.Bazan, M.Barontini de G.Moyano, H.Domene, and F.Stefano. CEDIE - ININFA - CONICET - Buenos Aires, Argentina.

Bromoergocriptine (CB 154) is a dopaminergic agonist with alpha-adrenergic blocking properties. It has been shown that in acromegalic patients CB 154 markedly reduces plasma growth hormome (H.G.H.) levels. However, it has been reported that in normal adults it increases H.G.H. plasma levels. To obtain information about the effects of CB154 in a pediatric population we studied 12 patients (ages ranging from 9 to 17 years) whose initial complaint was growth retardation and who were afterwards proven free of endocrine abnormalities. H.G.H. was measured by radioimmunossay in two samples prior to 1.25 mg CB 154 per os and afterwards every 30 minutes for 180 minutes. Plasma glucose was measured in the same samples. Every patient except one showed an increase in H.G.H. levels at 120 minutes, reaching values between 4.8 and 22ng/ml. In some patients H.G.H. levels were still elevated at 180 minutes. The CB 154 non responder had high H.G.H. basal levels (19.0 ng/ml). Plasma glucose did not show any significant changes except in two patients on whom an increase was noted at 90 minutes.

The data show that a single dose of CB 154 is a good stimulus of H.G.H. secretion in a pediatric population.

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TESTOSTERONE CONCENTRATION IN PREPUBERAL AND PUBERAL HUMAN TESTIS. T.Pasqualini, S.Campo, G.Nicolau, E.Pellizari, and M.Rivarola. CEDIE, Children's Hospital of Buenos Aires, Buenos Aires, Argentina.

Four prepuberal, eight puberal and one adult patients were studied. Testosterone (T) was measured in all patients, but dihydrotestosterone and 5α androstan 3$^{\alpha}$, 17$^{\beta}$ -diol could only be measured in 4 of the puberal patients. Tissue steroids were extracted with acetone, purified by solvent partition and chromatography in celite microcolumns and determined by radioimmunoassay. Results were correlated with the puberal development stages and compared with T plasma concentrations and testicular histology. If 1 g of testicular tissue is considered equivalent to 1 ml of plasma, T testicular concentrations were at least 100 times higher than in plasma. Mean testicular T in prepuberal patients was 38 ng/g. A sharp increase to levels higher than the adult was observed in patients who were at Tanner's state II. After stage III, these puberal values were similar to the adult (510 ng/g). Intratesticular/plasma ratios for T were similar in prepuberal, puberal and adult patients except in state II, when it seems to be higher. 5 reduced androgen levels were at least 10 times lower than T levels. Intratesticular T sudden increases contrast with the slow plasma T increase and can be correlated with testicular volume increase which is the first sign of puberal onset.

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TESTICULAR BIOSYNTHESIS IN MALE PSEUDO-HERMAPHRODITISM (MPH). A.Barmach de Niepomnszcze, S.Cigorraga, S.Campo, C.Zapata, M.Stivel and M.A.Rivarola. CEDIE. Childrens Hospital of Buenos Aires, Buenos Aires, Argentina.

Testicular tissue from six patients with MPH was incubated with progesterone $^{3}H(p^{3}H)$ and dehydroepiandrosterone- ^{3}H (DHA-^{3}H) to detect enzymatic deficiencies. B.C. and S.L. both 19 yrs. old, with the syndrome of testicular feminization, were used as controls; M.M. 7 months old, reared as a female, castrated under H.C.G stimulation; J.R., 22 years old, virilized during puberty; J.C., 11 yrs old, at the early stages of puberal development and D.L., 7 yrs old, were the other MPH studied. Testicular tissue homogenates were incubated for 2 hrs at 37^{o} C. After incubation, ^{14}C tracers were added to correct for losses. Steroids were isolated by solvent partition, paper and thin layer silica gel chromatographies and derivative formation. B.C., S.L., M.M., J.R., J.C., and D.L. percentage conversion were respectively as follows: 3--Hydroxydehydrogenase: 24.5, 34.0, 12.0, 33.9, 14.4 and 21.9; 17- hydroxilase: 59.0, 51.0, 19.9, 53.7, 45.1 and 59.9; 17-desmolase: 27.2, 9.5, 19.8, 12.6, 30.0 and 17.8; 17 --hydroxydehydrogenase: 38.4, 12.9,---,20.0, 18.8 and 23.9. None of the patients studied had enzymatic deficiencies which explained the clinical signs and their malformations were probably due to other causes.

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POPULATION SCREENING IN NEWBORNS WITH CONGENITAL HYPOTHYROIDISM. B.J.Schmidt, A.J.Diament, S.Krynski, M.K.Sato and M.S.Shimizu. Dept. of Pediatrics, Paulista School of Medicine, Dept. of Neuropsychiatry, FMUSP, and Rehabilitation Center of APAE, Sao Paulo, Brazil.

The authors present the first results obtained from the populational screening of congenital hypothyroidism in newborns from governmental and private maternities, including babies born at

home and whose delivery was assisted by Health Units. The tetraiodothyronine (T4) blood levels were analyzed in 1,814 newborns and infants with ages ranging from 1 to 120 days. Blood samples were obtained from the heel and impregnated in filter papers already used routinely in the on-going screening Program for Phenylketonuria (PKU)*.

The determination of T4 was done by radio-immunoassay with standard curve in all determination series, varying from 1.0 to 40.0 ug% of tetraiodothyronine. The normal values obtained for this method were 10.2 ug% 4.05 (6.15 - 14.25 ug%).

Of the 1,814 cases analyzed, 156 (8.6%) were under the minimum limits and among these, one patient with congenital hypothyroidism was detected and confirmed by other thyroid function tests (T4; FT4; T3; TSH and TBG).

The importance of this screening programme is pointed out not only for the early detection of cases with hypothyroidism but also of cases of congenital hyperthyroidism. The programme is progressing at a good rate, aiming at significantly enlarging significantly the sample to have a representative incidence of congenital hypothyroidism in the area studied.

*B.J.Schmidt, S.Kryski & A.J.Diament. Mass screening for phenylketonuria (PKU) in S.Paulo. J.Pediat. 91:676, 1977.

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EVALUATION OF PREPUBERAL ENDOCRINE TESTICULAR FUNCTION USING A SINGLE DOSE OF CHORIONIC GONADOTROPHIN. PRELIMINARY RESULTS. A.Cortinez, F.Beas, R.Barrera and D.del Pino. Mother and Child Research Center, School of Medicine, Southern Division, University of Chile and Department of Endocrinology, Paula Jaraquemada Hospital, Santiago, Chile.

When hypogonadism is suspected in prepuberal age it is important to make an early diagnosis to initiate medical and psychological treatment. Seventeen children six months to 13 years of age were studied with a single dose of chorionic gonadotropin (5,000 Units/square meter of body surface). Serum levels of testosterone, FSH and LH were measured by RIA and 17-ketosteroids and pregnanetriol were measured in 24-hour urine collections by the usual chemical methods. The group included healthy children and children with ambiguous genitalia, hypopituitarism, mychrochia, anorchia, microcephaly and patients with Prader Willi and Aarskog syndromes. The results show that this test is useful in the diagnosis of anorchia, microchia and in some genetic syndromes (Prader Willi). In patients with hypopituitarism it may be useful in the recognition of involvement of the gonadotropic axis.

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SOMATOMEDIN B IN UNDERNOURSIHED CHILDREN. N.Setian, M.Armelin, H.Armelin, R.T.Fukui, and A.A.Pupo. Children's Institute, University of Sao Paulo, Sao Paulo, Brasil.

Somatomedin B (SM) activity was measured in seven undernourished children and in ten normal controls using the method of 3H-thymidine incorporation in 12 day-old chick embryos pelvic rudiment cell culture. Albumin and growth hormone (HGH) levels were also measured. The elevated HGH levels observed in the malnourished children were corrected after two weeks of adequate food intake (7.3±1.8 ng/ml). Four undernourished children with albumin levels greater than 3.0 g/100ml had SM activity (1.03±0.06U/ml) indistinguishable ($p < 0.01$) from normal controls (0.92±0.08 U/ml; range: 0.86-1.0 U/ml). Three malnourished children with albumin levels lower than 1.7 g/100ml showed SM activity clearly depressed (0.58, 0.73 and 0.73 u/ml). After two weeks of adequate feeding the low SM and albumin levels returned to the normal range. These findings suggest that a SM activity positive feedback is exerted by albumin levels but is unaffected by HGH levels. According to our data, children with kwashiorkor who have lower albumin levels are more likely to exhibit reduced SM levels than infants with marasmus.

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AN EVALUATION OF SHORT STATURE IN CHILDHOOD. A.Martinez, J.J.Heinrich, and C.Bergada. Division of Endocrinology, Children's Hospital of Buenos Aires, Buenos Aires, Argentina.

Two thousand and twenty one patients consulted the Endocrinology Division of the Children's Hospital in the last year. Of these, 335 (16.6%) were referred for short stature (217 boys, 118 girls). The age of consultation ranged from 5 months to 17.5 years, with the peak between 12 and 14 years. After being examined it was found that 39.1% of cases did not have growth retardation (considering -2 SD as the lowest normal level). 11.1% of the boys and 18% of the girls had pathology that can affect growth. 54.4% of the 217 boys and 72.9% of the girls had true growth retardation. Of this group, 55.9% of the boys and 59.3% of the girls had constitutional delay in growth. The age at which they most frequently consulted was 10 to 15 years. The remaining cases had short stature due to different forms of pathology that justified their delay in growing. The age of consultation of this group was uniform in distribution. Causes of growth retardation were: genetic syndromes: 20 cases; low birth weight 14; hypopituitarism 12; malnutrition 11; corticosteroid therapy 5; hypothyroidism 4; hypogonadotrophic hypogonadism 1; other causes 7. In 13 patients the reason for the growth delay could not be established. Differences between female and male patients were found in hypopituitarism and low birth weight. In those patients without pathology their height correlated well with that of their parents. In conclusion, in all the children who complained of growth retardation only 31% presented pathology which justified the syndrome and 85% of these had a height below -2 SD.

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ADRENO-LEUKODYSTROPHY. ENDOCRINE AND NEUROLOGIC STUDIES. H.Mendilaharzu and J.Grippo. Division of Endocrinology, Children's Hospital of Buenos Aires, Argentina.

Clinical and laboratory data are described in four patients with adreno-leukodystrophy. The age of onset of the disease varied between 3 and 10 years. In three of them the symptoms of adrenal failure preceded the neurologic manifestations, while in the fourth patient the neurologic signs preceded the endocrine manifestation. Computerized-axial tomography was carried out in 3 patients. One showed a process of diffuse demyelination and the remaining two evidences of cortico-subcortical atrophy. The brain biopsy in one patient showed scattered products of sudanophilic degradation. In all of them the endocrine studies showed evidences of primary adrenal failure. The IM ACTH test in the 4 patients showed=urinary 17OHCS

(mg/24hr) basal: 0.6, 3.3, 0.25, 1.65 and post ACTH 0.3, 1.5, 1.75, 2.5, respectively. Normal: basal 2 to 5 mg/24 hr with a post ACTH increment of 3 or more times the basal values. The IV ACTH test in two patients showed=plasma cortisol (ug/100ml) Basal: 5.0, 9.2 and at the end of the infusion 3.2 and 8.0 respectively. Normal response 5 to 15 ug/100ml with an increment of more than 40 ug/ml at the end of the infusion. Plasma ACTH in these two patients was 306 and 390 pg/ml, respectively. Normal 0 to 100 pg/ml. The Addison-Schilder disease is inherited as a sex linked recessive trait. The origin of the simultaneous occurrence of adrenocortical atrophy and a demyelinating disease of the brain remains unexplained. Usually, the endocrine manifestations precede the neurologic picture. However, in one of our patients the neurologic picture preceded the endocrine manifestation.

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HEIGHT GROWTH AND HUMAN LYMPHOCYTE DNA POLYMERASE ACTIVITY NORMAL CONTROLS AND PATIENTS WITH HYPOPITUITARISM. H.G.Jasper. Endocrinology, Children's Hospital, Buenos Aires, Argentina.

Data already published show that in the rat DNA polymerase activity is a good index of proliferative growth of the brain (Develop.Biol. 23: 424, 1970) the kidney (Growth 36:45, 1972), the liver of hypophysectomized animals (Endocrinology 92: 194, 1973) and also of malnourished) animals (J.Nutr. 104: 405,1974). Trying to extend this research to the human being we measured DNA polymerase activity in human lymphocytes from normal controls and hypopituitary patients. Since mean activity in controls between 1 and 17 years of age (n=37) was not significantly different from mean activity in adult controls (n=12) (8.3 vs. 7.2 pmoles/mg protein), both groups were put together (X=8.06 p moles/mg protein). Mean activity in a group of prepubertal patients with hypopituitarism (n=9) was 9.6 p moles/mg protein, not significantly different from controls. However, a direct relationship was found between height velocity and DNA polimerase activity. In a control group (n=18) the correlation factor r was 0.554, p 0.02; in a group of patients with hypopituitarism (n=13) pre and post pubertal, with or without substitutive treatment r was 0.56536, p 0.05. The data show that human lymphocyte DNA polymerase activity is not a good index of the growth retardation due to hypopituitarism, opposing the experimental observations in other tissues; nevertheless the data show a statistically significant direct correlation between height velocity and enzyme activity.

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RESPONSE TO TREATMENT WITH 1-25 DIHYDROXYCHOLECALCIPHEROL IN CHILDREN WITH DIFFERENT TYPES OF RESISTANT RICKETS. M.Eggers, A.Salinas and F.Beas. Servicio de Endocrinologia y Centro de Investigaciones Materno Infantil, Hospital Paula Jaraquemade, Santiago, Chile.

Ten children, carriers of resistant rickets were treated with 1-25 Dihydroxycholecalcipherol, adjusting the dose to the biochemical response. Three of them corresponded to hypocalcemic vitamin D dependent rickets, one was a girl with osseus compromise secondary to chronic renal failure and eight were boys with simple hypophosphemia. A clinical and biochemical evaluation was done once a month and radiological evaluation was performed at the beginning and at three and six months of treatment. An excellent clinical response was observed in Vitamin D dependent rickets with growth rates over the normal. A good biochemical response was obtained except for slightly elevated levels of alkaline phosphatases. A good radiological response was obtained.The patient with chronic renal failure showed good clinical, biochemical and radiological responses.Three patients with simple hypophosphemia showed normal growth rates persisting the low phosphorous levels. Alkaline phosphatase level fell partially. The radiological response in them was slow but acceptable.

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CLINICAL AND CYTOGENETIC CORRELATION IN 7 CASES OF 5p-SYNDROME. C.Barreiro, R.Coco, T.Negrotti, M.Torrado, G.del Rey, J.D.Labarta and A.M.Tello. CEDIE, S.G.M. Hospital de Ninos and FGH. Buenos Aires, Argentina.

The main signs of "Cri du Chat" Syndrome have been attributed to a very small deletion between bands 5p14-5p15, and that phenotype and size of the deletion are not correlated.

Seven cases of 5p-Syndrome were studied: Case 1 (DI):46, XY, del (5) (pter p112); Case II (DM): 46, XY, del (5) (pter p13); Case III (FQ):46, XX, del (5) (pter p13); Case IV(AB):46, XX, del (5) (pter p14); Case V (CG): 46,XX, del (5) (pter p14); Case VI (SV):46, XX, del (5) (pter p14) and Case VII(CG):46, XX, del (5) (pter p15).

The following phenotypic signs were compared: gestational age, birth weight, physical and mental development, craneofacial dysmorphia, characteristic cry, associated malformations (cerebral, ocular, cardiac, renal and skeletal), electroencephalographic anomalies and dermatoglyphic features. Results show that whenever the distal p14 to proximal p15 segment is involved in the 5p-deletion (cases I to VI), the main signs of the syndrome are present. Variability in mental retardation and hypotonia are not related to the length of the deleted segment. Case VII which maintains the p14 band shows the clinical signs of the 5p-Syndrome, although mental retardation is lower and hypotonia is almost totally absent. This case suggests that the principal signs of the Syndrome, excepting perhaps hypotonia, could be assigned to the proximal 5p15 band.

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MALE PSEUDOHERMAPHRODITISM WITH 45 XO/46XY q-MOSAICISM. R.Burrows, C.Izzo, M.Aspillaga, I.Avendano, C.Morizon, S.Muzzo. Institute of Nutrition and Food Technology and Genetics and Urology Department. Calvo Mackenna Hospital. Santiago, Chile.

This report concerns a two month old infant with ambiguous genitalia, product of a normal pregnancy, young, healthy, no consanguineous parent; with a healthy two year old brother. Examination revealed external genitalia with bifid pseudoescrotal-like labia majora, a 2.5 cm. phallus with glands under which there was a membranous zone with 2 small holes. Occasionally, 2 inguinal masses with gonadal characteristic were palpated. Rectal examination detected a 2.5 x 0.2 cm fibrous band, in the middle line. Sex chromatin was negative and kariotype in blood lymphocytes was 45 XO/46 XY q-(Trypsin-Giemsa Stain) X-ray examination with contrast media revealed a urogenital sinus without cervix impression. Exploratory laparatomy found two masses with gonadal aspect, report histologically as normal testicular structures, and two ducts, one of them reported as deferent duct.

Female rearing was decided according to external genitalia and plastic surgery of the clitoris was performed. In a second stage, plastic reparation of external genitalia and extirpation of gonads will be performed in order to avoid malignancy. Possible ways of production of this chromosomal anomaly are discussed.

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DERMATOGLYPHICS IN ASTHMATIC CHILDREN. F. De Los Santos, D. Fonseca, and J.S. Berterreche. Hospital Dr. P. Visca, Catedra de Pediatria and Hospital Filtro (SIRR). Montevideo. URUGUAY.

Digito-palmar dermatoglyphs are studied from: 24 asthmatic children (AS) with asthmatic familiar antecedents (8 males, 16 females), average age 7.5 years old. 38 non-asthmatic adults (C) (20 males, 18 females), average age 31.5 years. Patterns on fingertips, main lines and triradii, interdigital areas, "atd" angle, a-b count in both hands are analyzed. Results: In AS and C the most frequent digital patterns are ulnar loops (U) (48.7 and 59.2 per cent) and whorls (W) (39.6 and 24.7 per cent). The less frequent digital patterns in AS and C are arches (A) (6.6 and 12.6 per cent) and radial loops (R) (5 and 3.4 per cent) respectively. On all AS digits the percentage of W is significantly greater than on those of C., $p < 0.005$. The increase of W in AS is associated with a lower frequency of U, p 0.02, and A, $p < 0.02$, than on those of C. In AS on third digit of one or both hands the relative frequency of W is significantly greater (0.54) than in C (0.15); $p < 0.005$. The differences found related to other features were not significant. The asthmatic children have frequencies of digital patterns different from non-asthmatic controls.

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FANCONI PANCYTOPENIA SYNDROME: SEARCH OF ABNORMALITIES IN OBLIGATORY CARRIERS. Y.Laccasie, B.Curotto, E.Ojeda, and C.Seebach. Genetics Unit., Institute of Nutrition and Food Technology, University of Chile, Santiago, Chile.

A consistent finding in patients with Fanconi Pancytopenia has been a high chromosomal fragility of cultured lymphocytes. This may be related to the increased risk of developing leukemia. Chromosome studies in two sibs with the clinical picture of this disorder were performed. Finding 30 and 60% abnormal chromosomes (fragments, gaps, fractures, rings, discentrics and tri and cuadriradials) confirmed the diagnosis. Malformations and hematological abnormalities in a low percentage of normal relatives have been considered as possible heterozygote manifestations. Both proband's parents, obligatory carriers, were examined and their dermatoglyphs and chromosomes analyzed. History of severe post-operatory bleeding and cervix cancer in the mother, small mouth and eyes with tendency to hypotelorism in the father and some similar dermatoglyphic traits in both parents were the only clinical findings. Chromosomal studies showed 3.6% fragments in the father and 8% fragments and gaps in the mother. The study of sister chromatid exchange with and without u.v. radiation is in progress. The significance of increased chromosome 22 satellites in father and daughter as well as the findings presented will be discussed.

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VENOUS CATHETERIZATION: INFECTION EPIDEMIOLOGICAL STUDY. M.A. Flores and A.C.Manterola. Hospital de Ninos "Ricardo Gutierrez". Buenos Aires, Argentina.

Several epidemiological variables related to local or general infection, ocurred after venous catheterization carried out in the Hospital de Ninos, Buenos Aires, were studied. A total of 224 children (4.2%) among 5328 admitted to the hospital between July, 1977 to June, 1978 were catheterized one or more times during hospitalization, summing up 280 cases. Sixty-seven cases (23.9%) became infected, 29 with local infection, 20 with phlebitis and 18 with general infection. The most frequent germs found in cultures were Klebsiellae (18.8%), Staphylococcus (16.2%) Pseudomonae (13.0%) and Serratia (3.6%). We didn't find any statistical association between infection and age, nutritional status or previous diseases. No differences resulted when the places where the catheterization was done (operating room or near the bed of the patients) were compared. The highest probability of infection was found to be associated with the performing of difficult catheterization, especially when carried out by non-skilled personnel. The longer the period of catheterization the higher appeared the infection rate. The use of Silastic catheters decreases the risk of infection in relation to the use of Polistan. The same occurred when the preventive treatment of wounds was performed with antibiotic ointments.

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DETERMINATION OF IRON IN STOOLS AS A METHOD TO MONITOR CONSUMPTION OF IRON FORTIFIED PRODUCTS IN INFANTS. M.Amar, F.Pizarro, A.Stekel. Instituto de Nutricion and Tecnologia de los Alimentos. University of Chile, Santiago, Chile.

In field trials using iron fortified milk, it became necessary to monitor the intake of the formulas in order to determine acceptability and to make a correct interpretation of their biologic effect. With this objective, iron in stools was determined with a simple technique in three groups of infants: Group I fed with supplemented formula A; Group II with fortified formula B; Group III non-supplemented formula (control). Fortified formulas contained 15 mg of iron/100g powder and the non-fortified formula contained less than 1 mg/100g powder. The rest of the diet was similar. Mean concentration of iron (mg/100g of stools) in Group I was : 28.3±9.1; Group II: 26.5±.8.9; Group III: 8.5±3.2. In Group III, 95.5% of the subjects presented a concentration lower than 15mg of iron/100g of stools. In group I and II a concentration higher than 15mg/100g was present in 97.1 and 94.9% of the subjects respectively. We conclude that iron determination in stools clearly separated the groups being studied. This method permits the elimination from analysis of infants that receive the fortified product but have low concentration of iron in stools indicating, with a high probability, that they are not taking the product.

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A FIELD TRIAL WITH ACIDIFIED MILK FORTIFIED WITH IRON AND ASCORBIC ACID. PRELIMINARY RESULTS. A Stekel, M.Olivares, I. Lopez, F.Pizarro, M.Amar, P.Chadud and S.LLaguno. Institue of Nutrition and Food Technology, University of Chile, Santiago.

Absorption of fortification iron added milk is poor. Compared with non-modified milk absorption

increased 2-3 times in a new acidified milk formula containing 15mg/l iron, as ferrous sulfate, and 100mg/l ascorbic acid. We report preliminary results obtained with this formula in 3 marginal urban communities. Infants spontaneously weaned before 3 months of age were given the fortified or a non-fortified control formula until 15 months of age. A dietary survey and stool analysis for iron are conducted every 15 days. A morbidity survey is carried out weekly. Full clinical and hematological evaluations are performed at 3-9 and 15 months of age. Two hundred and eighty infants entered the study in the fortified group and 278 in the control group. Acceptability of the fortified milk has been excellent with 89% of infants still taking acid milk as the only formula at 15 months of age. At 9 and 15 months there are, highly significant differences (p 0.001) in hematocrit, hemoglobin, serum iron, TIBC, transferrin saturation and FEP. Anemia (hemoglobin 11.0g/dl) exists in 7.5% of the fortified infants at 9 months of age and only in 1.6% at 15 months. In the control group anemia is present in 34.2% and 23.1% of the cases respectively. Fortification of milk with iron and ascorbic acid is a very effective method for preventing iron deficiency in infancy.

Supported by the United Nations University.

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HEMATOLOGICAL EFFECTS OF A LOW-FAT MILK FORTIFIED WITH IRON. A. Stekel, M. Olivares, I. Lopez, L. Alvarez, M. Amar, P. Chadud, G. Castano and F. Pizarro. Institute of Nutrition and Food Technology, Universtiy of Chile, Santiago, Chili.

Healthy term infants were given a low-fat powdered milk fortified with 15mg/100g of iron, as ferrous sulphate, for one year starting at 3 months of age. Controls received non-fortified milk through an ongoing national program. Six hundred and three infants entered the study and 314 could be studied at 15 months. Consumption of the fortified formula was monitored through iron determinations in stools: infants not consuming the formula consistently were eliminated from analysis. Groups had a comparable hemoglobin concentration at 3 months of age. Hemoglobin was higher in the fortified group at 9 months (11.79$\pm$0.94 vs. 11.42$\pm$ 1.07/g/dl, p<.01) and 15 months (12.00$\pm$1.06 vs 11.39$\pm$ 1.20 g/dl, p <.0005) of age. Percent of subjects with anemia (hemoglobin 11.0g/dl) was lower in the fortified group; 14.8% vs. 27.7% of the controls at 9 months and 9.9% vs 34.6% at 15 months. Transferrin saturation was significantly higher in infants receiving fortified milk: 14.2$\pm$8.1 vs. 10.5$\pm$6.2%, p <.005, at 9 months and 14.5$\pm$6.0 vs 12.6$\pm$7.8%, p <.05, at 15 months. Differences in free erythrocyte protoporphyrin were not statistically significant. Although the fortified formula markedly improved iron nutrition, iron deficiency was still high in the group receiving it. This is probably due to the low bioavailability of iron when given with milk.

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INFANT IRON NUTRITION: NORMAL VALUES DEFINITION AND IRON DEFICIENCY PREVALENCE. E. Rios, M. Olivares and A. Stekel. Instituto de Nutricion and Tecnologia de los Alimentos. University of Chile, Santiago, Chile.

The definition of normal iron nutritional values is basic to the study of the prevalence of iron deficiency. Normal values: 1) In 240 infants at 3 months of age who received 150mg of iron dextran IM in the new born period had values as follows: Hemoglobin (Hb) $\bar{x}$ 11.3 g/dl (95% confidence 9.4 - 13.2); Transferrin saturation (Sat.) Md 26.1% (95%: 9.2-50.2); and Free erythrocyte Protoporphyrin (FEP): Md 76 ug/100ml RBC (95%: 35-147). 2) 42 infants at 18 months of age who received previous iron supplements as FeSO4 45mg x day for 75 days had values as follows:

Hb: $\bar{x}$ 12.9 g/dl (95%: 11.1 - 14.7), Sat.: Md 21% (95%: 8.4 -39.5) FEP: Md 58 ug/100 ml RBC (95%: 31 - 109).

The prevalence of iron deficiency by different parameters at 3-9-15 months of age in a medium-low socioeconomic class of Santiago, Chile.

3 months (N:372)

Hb g/dl	<9.5	= 3%
Sat.%	<9	= 8%
FEP ug/100GR	<145	=17%

9 months (N:313)

Hb g/dl	< 11	= 31%
Sat. %	< 9	= 43%
FEP ug/100GR	> 100	= 48%

< 15 months (N:233)

Hb g/dl	< 11	= 31%
Sat. %	< 9	= 38%
FEP ug/100GR	> 100	= 41%

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CELLULAR IMMUNITY IN IRON DEFICIENCY. L.Schlesinger, M.T. Saitua, X.Rubio, E. Marzuca, A.Stekel. Instituto de Nutricion y Tecnologia de los Alimentos, University of Chile, Santiago, Chile.

Clinical observations suggest a higher incidence of infections in iron deficient patients. Other studies have found alterations in the immunologic defense mechanisms in these individuals. We measured the cellular immune response with the PPD skin test, sensitization to Dinitrochlorobenzene (DCNB) and the proliferative capacity of lymphocytes stimulated with phitohemagglutinin (PHA) in two groups of iron deficient infants: 1) iron deficiency anemia (n=10) defined as hemoglobin (Hg) 10.5 gm/dl, transferrin saturation (TS) 8% and free erythrocyte protoporphyrin (FEP) 110 ug/100ml erythrocytes RBC), 2) eight infants with iron deficient erythropoiesis (IDE) defined as Hg 11.0gm/dl, TS 8% and/or FEP 110 ug/100ml RBC. Nineteen infants with Hg 11.5 gm/dl, TS 15% and FEP 70 ug/100ml RBC served as controls. All infants were eutrophic and had a BCG scar. Four of the ten anemic infants (40%), 3/8 with IDE (37%) and 7/18 control (39%) had PPD (+) skin tests. There were also no significant diferences in the proportion of DCNB sensitized infants: 5/8 anemic (62%) 7/8 IDE (87%) and 14/18 controls (78%). The PHA stimulation index (mean $\pm$ SEM) was 78.8 $\pm$ 16.3 in the anemic group, 121 $\pm$ 79.4 in the IDE group and 214.0 $\pm$ 67.8 in the controls. The difference between the anemic and the control group is statistically of borderline significance (0.05 < p <0.06). Results are discussed.

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NUTRITIONAL RECOVERY OF MARASMIC INFANTS. R. Balassa, X. Cassorla, R.Reyes, J. Espinoza, M. Araya, C. Castillo, O. Brunser. Corporacion para la Nutricion Infantil e I.N.T.A. Universidad de Chile, Santiago, Chile.

Closed Nutritional Recovery Centers (N.R.C.) are suitable for countries where moderate numbers of

malnourished infants live in circumscribed areas. Records of 196 infants discharged from three NRC from Santiago were evaluated. 128 were due to socio-economic conditions and fulfilled program requirements. Males predominated (55.5%). All were severely malnourished (below 2 S.D. of the median for age); 43.5% were less than 6 months of age (6m), 37.5% were 6 to 12 months old, and 19% older than 12 months. Weight/height ratio (WHR) was below 90% (according to the Harvard standard) in all infants. On admission children received 71-210 cal and 1.9 - 5.8g of protein/kg/day, subsequently adjusted as necessary. After an average of 192.7 days in the NRC and having suffered 3.9 intercurrent illness, WHR was above 90% in 87% of infants at 6m and in 90.5% in those older than 6 months. Accelerated rates of weight and height increase (Catch Up) were observed in 100% and 59.4% of these children respectively. At the time of discharge all had reached the normal weight/age or mild degrees of malnutrition (weight above 2SD of the median for the median for age). 89.1% of infants reached a WHR of 100% height/age and head circumference showed comparable improvement. At follow-up (up to 18 months in some cases) WHR was 90% in 83% of infants. In conclusion, malnutrition in Chile is severe and appears early in life. A high proportion of infants treated in N.R.C. achieved nutritional recovery which was maintained after discharge.

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EVOLUTION OF PSYCHOMOTOR DEVELOPMENT (DEVELOPMENTAL QUOTIENT AND AREAS), IN SEVERE UNDERNOURISHED INFANTS SUBMITTED TO AN INTEGRAL REHABILITATION. M. Colombo, I. Lopez. Instituto de Nutricion y Tecnologia de los Alimentos, University of Chile and Corporacion para la Nutricion Infantil, Chile.

The objective of this research is to evaluate the psychomotor development of severely undernourished infants hospitalized in closed Nutritional Recovery Centers. A study is made of their Developmental Quotient and four different area: coordination-social-language and motor. With this object, a descriptive analysis of 200 children discharged from these Centers in Santiago is made. Results indicate that infants present a very important delay in their psychomotor development at admission, compromising every area, but the motor area being the most affected. After an integral rehabilitation period, that lasts an average of 180 days, a significant recovery is observed in their developmental quotient ($p<0.001$). As regards the different areas a significant number of children recover in coordination and language but not so in the social and motor areas, being this last one again the most damaged. The follow up of these children after discharge demonstrates that their developmental quotient remains normal or with mild retardation, observing that a significant number of children improve in the social area. The deficit in the motor area appears as irrecoverable (average 180 days after discharge).

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GESTUAL LANGUAGE IN MOTHERS OF MALNOURISHED INFANTS. M.L.Alvarez, F. Wurgaft and H. Wilder. Instituto de Nutricion and Tecnologia de los, Alimentos. University of Chile, Casilla 15138 Santiago, Chile.

The gestual affective language was studied in mothers of malnourished infants. The objective of this study was to detect unknown variables that may be related to malnutrition infants. The hypothesis is that a poor gestual expression with affective connotation of mother could be a factor facilitating the ocurrence of malnutrition in the child. Sample was composed by a group of 20 mothers with severely malnourished infants between 6 and 11 months of age; the control group was 20 mothers with healthy infants of the same age. Both groups belonged to low socioeconomic levels. A socioeconomic survey, a semi structured taped interview, a structured observation (eating act and speaking of her child), and IQ test (Wechsler) were applied to all mothers. It was found that: a) all the mothers had an IQ below the normal, b) the gestual affective languages was significantly more developed in mothers with healthy infants, especially in the eating act, c) mothers with healthy infants had an endoculturization process and intrafamily satisfaction significantly higher than that of the others. It is postulated that there is a correlation between the maternal gestual affective language and the ocurrence of malnutrition in the child. This may be modified through an endoculturization process.

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GROWTH OF INFANTS AND CHILDREN IN RURAL BOLIVIA. A. Bautista, J. Edozien, E. Marquez and E. Zegarra. Maternal Child Department and Soya Utilization Project of the Major University of San Simon, Cochabamba, Bolivia, Nutrition Department of the University of North Carolina in Chapel Hill, USA.

The Soybean Utilization Project carried out a multipurpose nutritional survey to collect essential baseline data with which to develop a strategy for the promotion of soybean consumption among a selected segment of the Bolivian population. The test population consisted of the 100,000 inhabitants of the three provinces of Punata, Esteban Arze and Jordan in the Department of Cochabamba. About half of the population were children under 18 years of age (under 1 years, 3.1%; 12-23 months, 2.1%; 2-5 years, 11.3%; 6-12 years, 21% and 13-17 years, 11.8%. Birth weights of babies born during the first half of 1978 were collected from the records of the main maternity hospital in each of the three provinces. Weight, height, arm circumference and triceps skinfold were measured in a randomly selected 5% stratified sample of the population. Mean values for the obtained data will be presented. The results will also be used to describe the nutritional status of infants and children in the test population according to the following interpretative guidelines:

1) Height for age, weight for age and weight for height were expressed as percentages of the 50th percentile of the growth standards developed by the National Center for Health Statistics (USA), from the Fels and Hanes data.

2) Arm circumference, triceps skinfold and arm muscle were expressed as percentage of the 50th percentile of the norms developed by Frisancho from Ten-State Nutrition Survey Data (USA).The results indicated that babies had a normal average birth weight and experienced a satisfactory rate of growth during the first six months of life. Protein-energy malnutrition as shown by stunting, underweight and low values for triceps skinfold and arm muscle area was a serious problem among infants and children 6-23 months old. The weight for age data indicated that among 6-11 month old infants, 42.9 and 42.9% had first and second degree malnutrition respectively; among 12-17 month-old children, the corresponding malnutrition rates were 19.2 and 53.9% respectively; while the rates in 18-23 month-old children were 33.3 and 33.3% respectively. In summary, about two-thirds of infants and children 6-23 months old had first or second degree protein-energy malnutrition.Children

2 to 12 years old had a slightly better nutritional profile: first degree malnutrition was evident in 37.4% of 2 to 5 year-old children and 27.6% of 6 to 12 year old children while the incidence of second degree malnutrition in these two age groups was 12.3 and 26.8% respectively. This apparent improvement in nutritional status may be due, in part, to a better diet; but may also result from a high mortality rate among the severely malnourished 6 to 23 month-old infants and children. Nevertheless, severe nutritional problems persist among the older children since catch-up growth did not occur and more than 50% of the children were malnourished. Adolescent growth spurt in height was greatly reduced. The cumulative result of the growth deficits which occurred throughout infancy and childhood was to produce adults of short stature with a tendency to overweight, especially among the women. Furthermore, because muscle development was reduced during adolescence, adult males had a greatly reduced muscle mass as indicated by the arm muscle area.

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CLINICAL EVALUATION OF A REFORMULATED CHEMICALLY DEFINED FORMULA DIET. A. Cordano,M.D., W. MacLean, M.D., G. Lopez de Romana, G.G. Graham, M.D. Instituto Investigacion Nutricional, Lima, Peru, Departments of International Health, School of Hygiene and Public Health and Pediatrics, School of Medicine, The Johns Hopkins University, Baltimore, MD and Nutritional Medical Research, Mead Johnson, Evansville, Indiana.

CDD formulas of high osmolality may be responsible for rejection, nausea, vomiting or for increase of recurrent diarrhea and have been implicated as a possible cause of NEC. To minimize risks, Pregestimil^{R} was modified by replacing dextrose with CSS. Casein hydrolysate was reduced to 11% protein calories and amino-acids, cystine, tryrosine and tryptophan were added achieving a better P.E.R. MCT oil was reduced and corn oil increased giving a fat blend of 40% MCT; 60% corn. These changes obviate the potential problems of high osmolality (338 mOsm/kg water), without reducing the therapeutic value of the product. First part ofstudy involved comparison of quality with that of an isocaloric/isoproteic formula containing casein at the critical level of 6.4% protein as calories in 3 infants. N_2 balances proved adequate absorption ($\bar{x}$ 87.3%) and retention ($\bar{x}$ 39%). Fasting plasma free amino-acids on the last day of the test product diet were similar to those seen with milk protein diets at similar protein to calorie ratios. Second part of study involved dietary management of 2 infants with marasmus and 2 with kwashiorkor, with product at normal dilution. Edema cleared on days 7 and 8 in the 2 children with kwashiorkor. Calories were incremented from a $\bar{x}$ of 65 kcal/kg/day during first 10 days to 130-140 in 2-3 weeks. Growth in LT and WT was adequate and no evidence of CHO maldigestion noted. Random studies of stool proved decrease of steatorrhea to normal. In all cases, product was well accepted and tolerated without nausea, vomiting or diarrhea.

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NUTRITIVE VALUE AND ACCEPTABILITY OF BREAD CONTAINING POTATO FLOUR. D. Ballester, E. Yanez, M. Aguayo. Instituto de Nutricion and Tecnologia de los Alimentos. University of Chile, Santiago, Chile.

Bread contributes about 40% of the calorie intake and approximately 35% of the protein in the chilean diet. Surprisingly, the production of wheat in the country is insufficient and important quantities of this cereal must be imported. Potato flour (PF) appears as one of the most promising substitutes of wheat in breadmaking used to save wheat. This work presents the results of the substitution of 2-10% wheat flour by PF in bread. The results of chemical composition, PER in rats and acceptability in humans are presented. Potato flour caused an increase in water absorption from 34.9g% for the control bread to 40.9% for the 10% PF-bread. The protein content decreased from 7.6% to 6.1% for the control and 8% PF-bread respectively. PER value was not modified until 8% PF (0.97 ± 0.2). The acceptability test realized in 73 employees, 81 workers and 69 school children with 8% PF-bread showed similar results to that of control bread. In conclusion, the substitution of 8% of wheat flour by potato flour does not modify the nutritive value of the normal bread; it is highly acceptable to the consumers and would contribute to reduce the wheat imports of the country.

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PREOPERATIVE DIAGNOSIS OF MECKEL'S DIVERTICULUM WITH ABDOMINAL SCINTIGRAPHY. A. Osorio, A. Paez, J.M. Wettstein. Faculty of Medicine, Montevideo, Uruguay.

Twelve children with rectal bleeding suspected to have a Meckel's diverticulum, were evaluated with abdominal scintilography. Barium enema and proctosigmoidoscopy were negative. 99m Technetium-pertechnetate was given intravenously in a dose of 100uCi/kg of body weight. Serial anterior images of the abdomen were obtained at 5, 10, 15, 30, 45 and 60 min. and occasionally up to 3 hours. In two patients the scan demonstrated a focal concentration of the radioactivity in the right lower quadrant of the abdomen and in one patient in the left lower quadrant. At operation, Meckel's diverticulum containing gastric mucosa was found in the 3 patients. No more bleeding ocurred after operation. In 9 patients the scan normal: five were operated and the cause for the rectal bleeding was not found, and four were not operated on and had no further bleeding followed up two years. The value of abdominal scintigraphy with 99mTechnetium-pertechnetate in order to detect Meckel's diverticulum is reported. Whenever the cause of rectal bleeding is unknown abdominal scanning should be considered.

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PHAGOCYTIC CAPACITY OF ALVEOLAR MACROPHAGES (AM) AND POLYMORPHONUCLEAR LEUKOCYTES (PMN) FROM RESPIRATORY TRACT IN CYSTIC FIBROSIS (CF). D.O. Sordelli, C.N. Nacri, R.J. Cassino, M.A. Dillon, M. Kohan, O.H. Pivetta. Centro Nacional de Genetica Medica and Hospital de Ninos de Buenos Aires, Argentina.

Cystic Fibrosis is the most frequent, lethal, genetic disease among Caucasian people, and the most common cause of chronic obstructive pulmonary disease. Its mortality depends almost exclusively on severe and repeated pulmonary infections. Because AM and PNM play a critical role in the prevention of lung infection, we were induced to investigate phagocytic and bactericidal capacities of these cells, as well as the presence of soluble serum factors that might affect cellular antibacterial functions. Bronchial lavages, for diagnostic or therapeutic purposes, were performed in 14 CF children and in 5 children suffering from other non-tuberculous pulmonary illnesses. Total cell number, differential cell number and viability were estimated on samples of crude lavage suspensions. Purified cell samples were obtain-

ed in order to estimate the phagocytic ability and the candidacidal capacity to engulf and kill Candida pseudotropicalis yeasts. (Lehrer RI, Infect Immun 2: 42, 1970). Cytomorphological examination did not show any difference between FQ patients and controls. Phagocytic ability of AM and PMN did not seem to be different between them. Preliminary results suggest no differences in the myeloperoxidase independent candidacidal mechanisms of AM and PNM. No changes of the cell behaviour in vitro were observed when FQ serum was added to the incubation systems. These results suggest similar non-specific phagocytic ability in the free cells of the respiratory tree (AM and PNM) in patients with CF and with other pulmonary diseases.

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SUPPLEMENTARY FEEDING FOR CELIAC. J.Espinoza, E. Guiraldes, O. Danus, D. Ballester, F. Monckeberg. Instituto de Nutricion and Tecnologia de los Alimentos and Sedes Norte and Oriente, Department of Pediatrics, University of Chile.

National food supplementation programs in Chile include a wheat containing protein mixture (Fortesan). Wheat gluten is deletereous for the small intestinal mucosa of celiac disease (C.D.) and therefore a gluten-free protein mixture (PM) was formulated. This P.M. supplies 420 calories, 15-17g of protein, 5g of fat and 70g of carbohydrates per 100g of powder. PER was 2.44 for PM compared to 2.57 for casein. Thirteen cases of C.D. (2 years 5 months to 13 years of age) ingested 500ml per day of a 10% dilution of the new product for 3 to 14 months. All patients had severe small intestinal mucosal damage on the first biopsy. Five patients were started on gluten free diet (GFD) including PM immediately after the first biopsy. The remaining 8 patients started ingesting PM while they had been on the GFD for 4 to 62 months. Serum carotene remained normal during the test period and jejunal biopsies were normal in all patients at the end of the trial. Monthly increases in weight and height were similar to those observed in normal children of the same age. Gluten free PM availability allows CP to be incorporated to national food supplementation programs. In addition, it contributes to improve CP nutritional status and probably helps them to adhere to GFD more strictly.

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PEROXISOMES IN NORMAL AND FLAT (CELIAC) DUODENAL MUCOSA. M. Araya. Institute of Food and Nutrition. University of Chile, Santiago, Chile

Preliminary studies suggested that peroxisomes in normal children's duodenal mucosa had a different appearance and were fewer than in flat celiac mucosa.

Peroxisomes contained in equivalent areas of duodenal mucosa were compared in normal children versus normal adults, and in celiac children versus normal children. In normal tissue the ratio counts in villi: crypts was 2.28:1 in adults and 1.61:1 in children. In flat mucosa, total counts of peroxisomes were significantly smaller than in normal tissue. The ratio counts in villi: crypts was 1:1, i.e., the decrease was due mainly to a decrease of peroxisomes counted in flat surfaces. No apparent morphological differences were found in peroxisomes observed in normal and celiac mucosa. The mean size of the organelles was 0.120nm in normal children, 0.140nm in normal adults and 0.097 nm in celiac children.

The results suggest that epithelial cells from flat surfaces of celiac mucosa contain less catalase than normal villi cells. This might be due to immaturity of these cells, similar to normal crypt cells, or to damage of superficial absorptive cells with secondary loss of catalases.

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EXCHANGEABLE POTASSIUM IN NORMAL AND DEHYDRATED INFANTS WITH DIARRHEA. F.R. Carrazza, J. Kiefer, G. Sperotto, P.A. Costa, L. Silveira and C. Silva. Clinical Research Center of Instituto of Crianca and Laboratorio de Radioisotopos of Hospital das Clinicas, Sao Paulo, Brazil.

In 49 male eutrophic infants, from 1 to 12 months old, 29 normal (Group 1) and 20 dehydrated (Group 2), total exchangeable potassium (K_e) and (K_e/kg of body weight were determined, by the dilution method of ^{42}K. Average serum potassium was higher in Group 1 (4.90±0.4 vs 4.40±0.6mEq/l, $p<0.01$; Average K_e and K_e/kg was higher in Group 1(42.6 6.8 vs 33.1 7.5mEq/kg, $p < 0.01$). No correlation was found between exchangeable potassium with serum levels. Correlations were observed between age and weight, with K_e but not with K_e/kg. The average deficit of exchangeable potassium in dehydrated infants with diarrhea is 9.5mEq/kg, very similar to that reported by Darrow (balance studies). In 10 normal and 10 dehydrated infants a test was made to determine K_e/kg at shorter equilibration times (20, 30, and 40 min). No differences between the groups were observed.

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AMNIOTIC FLUID CORTISOL AND PROLACTIN LEVELS IN RELATIONSHIP WITH FETAL LUNG MATURATION. R. Bustos and G. Giussi. Latin American Center of Perinatology and Human Development (PAHO/WHO) Montevideo, Uruguay.

Clinical observations and experimental studies suggest that glucocorticoids have an important role in the normal process of biochemical development of the fetal lung. It has also been postulated that prolactin has a stimulating action on the secretion of lecithin by type II alveolar cells. Recent studies show a rise in the amniotic fluid cortisol and cord serum prolactin levels with increasing gestational age. Besides, it is very well known that the lecithin/sphingomyelin (L/S) ratio in amniotic fluid increases with gestational age and its determination is one of the best tests for evaluation of fetal lung maturation.

Sixty two amniotic fluid samples from 55 patients were obtained by transabdominal amniocentesis. Phospholipid patterns, cortisol and prolactin levels were measured in the same sample and the results were analyzed. The level of amniotic fluid cortisol increases with gestational age and a similar tendency is observed with L/S ratio. A sharp increment is observed in both parameters at term. Diabetic patients B and C (not vascular) show higher values of cortisol than vascular patients (D,F,R) for the same gestational age. These data disagree with results postulated by others about the effect of chronic fetal distress on fetal lung maturation. A correlation between prolactin levels in amniotic fluid and the L/S ratio has not been found.

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THE VALUE OF BONE SCINTIGRAPHY IN THE EARLY DIAGNOSIS OF OSTEOMYELITIS. A. Osorio, J. Gaudiano, R. Silva and F. Medina. Facultad de Medicina, Montevideo, Uruguay.

Seven children who had signs and symptoms suggestive of bone infection were evaluated with

bone scintigraphy. Roentgenograms were normal. Blood cultures and surgical bone drainage were performed in all patients. Bone scans were obtained with 99m Technetium-pyrophosphate or 113m Indium-EDTMP given intravenously in a dose of 200uCi/kg of body weight. Scans detected areas of increased uptake in every clinically suspicious and radiographically normal zone. Every patient underwent surgical drainage and purulent material was obtained from the areas in which increased uptake of the radiopharmaceutical was shown in the scan. Staphylococcus aureus was cultured in the purulent material. We present the experience in early scintigraphic diagnosis of acute osteomyelitis, in children with signs and symptoms suggestive of bone infection, without bony changes on the roentgenogram. Bone scintigraphy is recommended because early diagnosis of osteomyelitis can increase the probability of complete recovery.

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QUANTITATIVE BACTERIOSCOPY IN THE DIAGNOSIS OF URINARY INFECTIONS IN PEDIATRICS. M.A. Santos, E.N. Nos, B.J. Schmidt, S. Piva. Dept. of Microbiology, Institute of Biomedical Sciences, University of Sao Paulo and Dept. of Pediatrics Faculty Medicine Sorocaba, S. Paulo, Brazil.

The urines of 543 children, 208 males and 335 females, 15 days to 12 years old, were analyzed directly through quantitative bacterioscopy and the results were compared with those of the urine culture and the results were compared with those of the urine culture and the leukocyte count of the same sample. For the quantitative bacterioscopy technique, the area was standardized and the reading of homogenized urine smears gave the quantity of bacteria per ml and their morpho-tinctorial condition, by means of the following formula:

$$N^{o} \text{ of Bacteria} = FM \times \frac{N^{o} \text{ of Counted Bacteria}}{N^{o} \text{ of Counted Fields}} \times 100$$

FM = 4000 (number of microscopic fields per cm2 using 100 x immersion objective and 10 x ocular)

The results of the quantitative bacterioscopy and the urine culture were coincident in 94.99%. The simplicity and rapidity of the method, together with its sensibility and predisposition to give the morpho-tinctorial conditions of the bacteria, justify its use for the routine screening of urinary infections.

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PROTEINURIA SELECTIVITY INDEX IN THE EVOLUTION OF PRIMARY NEPHROTIC SYNDROME. L. Briones, E.Sojo, C. Gallo, M. Zelazko. Hospital de Ninos de Buenos Aires, Argentina.

PSI was determined in 28 children with the nephrotic syndrome by the relation between the clearances of IgG and transferrin. The patients were divided in 3 groups according to their histology. PSI was correlated in each group with response to treatment and evolution 1) MINIMAL CHANGE: 12 patients - 9 had highly selective proteinuria (HSP:PSI below 0.1); 2 had moderately selective proteinuria (MSP: PSI of 0.1 to 0.2), and one had non selective proteinuria (NSP:PSI higher than 0.2), 75% of them had the onset a steroid-responsive, frequently relapsing nephrotic syndrome. 7 of these had HSP and 2 MSP, and their selectivity did not change during their follow-up, 25% had a steroid resistant N.S. at the onset; they changed into steroid responders, changed into resistant and 4 began and continued as steroid-resistant. 3) FOCAL PROLIFERATIVE GLOMERULONEPHRITIS: 3 patients - All of them were steroid-resistant; 2 always had NSP, and in the 3rd the PSI changed from HSP to MSP. We conclude that the PSI is useful in the follow-up of children with the nephrotic syndrome, and that it has a good correlation with histology response to treatment and evolution.

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URETHRAL PRESSURE PROFILE IN PEDIATRICS. E.E. Bottini, E. Quesada, A. Rutty. Urodynamic Laboratory, Hospital de Ninos, Buenos Aires, Argentina.

We described a Urethral Pressure (UP) Profile method slightly modified from Malcom Brown & Lyn Edwards. The striated muscle component (SMC) is specially analyzed. Materia & Method: 83 patients were studied between 15 days of life and 10 years. A K31 catheter with a multiple perforated zone (MPZ) and a flow rate of 5 ml/min was used. The changes introduced were: 1) slight rough MPZ which might stimulate the urethra 2) sterile cover to the catheter longer than the introduced portion to prevent contamination while reintroducing, 3) the position of the MPZ keeps the whole urethra dilated uniformly, thus allowing unharmful reintroduction. The catheter is removed intermittently 1cm ea. sec identifying in a normal urethra all anatomic zones: a) an increase of 20-40 ccH20 in the posterior urethra (PU); b) a sharp increase in the SMC up to 80ccH20; c) the distal urethra shows as the PU with a smooth negative curve.

Study of the SMC: Reintroducing the catheter to localize the SMC, we ask the child to: a) Relax ↑ UP to values of PU b) cough with apnea we observe ↑of UP, c) close the anal sphincter ↑UP, a,b, and c are corticospinal pathways; while d) Initiate micturition with normal inhibition of SMC is bulbospinal and spinospinal pathways. If no neurogenic disturbances are present inability to decrease UP at SMC might suggest an organic stenosis, vice-versa could be the findings in periurethral fibrosis.

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SIDEROSIS IN THE LIVER OF THE NEWBORN. Dr. Ricardo Drut.
Servicio de Anatomia Patologica. Hospital de Ninos de La Plata. 1900. La Plata. Republica Argentina.

In order to obtain information about the degree of liver siderosis andits relationship with other clinical and morphologic data histologic sections of 104 necropsies of newborns were analyzed. Material was fixed in 10% formalin and paraffin embedded. Two sections were stained with hematoxylin-eosin and Gomori method for iron pigment. The age of newborns ranged between 1 hour and 27 days (1 case of 40 days was also included). Gestational age ranged between 24 to 43 weeks. Weight ranged between 400 and 4000 grams. Primary cases of mortality were: hyaline membrane disease, 18 cases; extrinsic perinatal hypoxia, 16 cases; infections, 23 cases, pulmonary hemorrhage, 12 cases; malformation, 12 cases; necrotizing enterocolitis, 11 cases; hemolytic disease of the newborn, 2 cases; other causes, 9 cases. Hepatocellular siderosis was found in 69 cases (66.3%). Siderosis showed a tendency to appear in an inverse relationship to the degree of liver hematopoiesis. Hepatocytes in the periportal area were the first to be loaded with iron pigment. Hepatocytic sidererosis revealed some increase with age. No relationships were noticed between siderosis and gestational age or primary causes or mortality (for example, cases of hyaline

membrane disease showing siderosis grade 4 while others did not reveal positivity for the pigment). Siderosis in Kupffer cells appeared in 16 cases (15.3%), 15 cases concomitantly with hepatocytic siderosis and 1 case isolated. The high frequency of hepatic (hepatocellular) siderosis in newborns might mean it is a "paraphysiologic" component of iron metabolism at this age, very probably related to the hematologic modifications seen at this period.

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SERUM CONCENTRATIONS OF 6 STEROIDS IN CHILDREN WITH MALE PSEUDOHERMAPHRODITISM (MPH). M. Rivarola, M. Stivel, S. Campo, C. Monteagudo and G. Nicolau. Centro de Investigaciones Endocrinologicas. Hospital de Ninos. Buenos Aires. Argentina.

Radioimmunoassay of serum dehydroepiandrosterone (DHA), progesterone (P), 17-hydroxyprogesterone (17-OH-P), androstendione (A), testosterone (T), and dihydrotestosterone (DHT) under corionic gonadotropin stimulation was carried out in 9 children with incomplete masculinization of the external genitalia (ng/100ml).

Patient	Age(y)	DHA	P	17-OH-P	A	T	DHT
G.C.	3 9/12	79	24	57	ND	363	59
F.E.	2	156	62	ND	100	115	160
D.D.	0 6/12	422	ND	210	151	527	230
J.C.	10	460	29	76	200	53	85
C.V.	1 1/12	112	29	165	190	265	180
S.A.	5 2/12	69	24	130	ND	277	69
H.V.	2 1/12	41	ND	167	220	594	300
O.A.	3 4/12	78	23	170	ND	433	160
J.B.	4 6/12	66	140	2000	ND	479	65
J.B.(Basal)		56	82	1050	ND	ND	ND

17,20-desmolase deficiency was established in patient J.B. on the basis of high levels of 17-OH-P, two palpable gonads, negative sex chromatin in buccal smear and 46 XY cariotype.

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14 YEARS EXPERIENCE IN THE TREATMENT AND FOLLOW-UP OF HYPERTHYROIDISM IN CHILDHOOD AND ADOLESCENCE. A. Belgorosky, S. Iorcansky, L. Gruneiro de Papendieck, C. Bergada and M. Cullen. CEDIE. Hospital de Ninos de Buenos Aires, Argentina.

Response to methylmercaptoimidazol (MMI) and 5 months to 14 years follow up were studied in 27 patients (24 girls, 3 boys), aged 3 6/12 to 19 years. All patients were euthyroid after one month on 30-60 ng/day of MMI and 20/27 became hypothyroid after 2 to 3 months along with an increase in the size of their goiters. In all these 20 patients serum T4 was in the hypothyroid range (1.3ug/100 ml, 5.6ug/100ml) except in one who presented a low normal value. In 10/10 TSH was increased (6.5-40uU/ml) showing an early response of the hypothalamo-pituitary-thyroid axis to a decrease in serum T4. Five patients were in remission after 1 to 10 years of treatment and 1 month to 3 1/2 years after therapy was discontinued. Two patients developed hypothyroidism secondary to chronic lymphocitic thyroiditis. Two patients developed intolerance to MMI and received therapeutic doses of ^{131}I, one patient was thyroidectomized and 17/27 are still on treatment. Relapses were observed in 6 patients, 1 to 18 months after therapy was discontinued. It is concluded that MMI treatment is effective, and well tolerated provided it is given for a long time associated with thyroid hormone. On this regimen, patients remain euthyroid and stabilized.

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CHRONIC LYMPHOCITIC THYROIDITIS (CLT): VARIATIONS IN THYROID FUNCTION DURING THE FOLLOW UP. L. Gruneiro, De Papendieck, S. Iorcansky y C. Bergada. CEDIE. Hospital de Ninos, Buenos Aires, Argentina.

Several authors determined the occurrence of CLT as a very frequent cause of goiter in children and adolescents. We diagnosed it with Fisher's criteria (modified), consequently thyroid biopsy has been avoided. In 46 of all the patients, who complained of during the last years, CLT was found. At first admission 41 were clinically euthyroid, 3 hypothyroid and 2 hyperthyroid, nevertheless, after laboratory findings 36 of the former 41 had TSH increased with normal or low T4 levels if they were compensated hypothyroidism or not. In 16 patients, follow-up was carried out and thyroid function could be re-evaluated two to four times in periods from 4 months to 6 years. It was observed that: 2 patients had at the beginning goiter with normal thyroid function (TSH, T4 normals) and they became hypothyroid; 12 were hypothyroid with increased TSH with normal or low T4 levels, 4 of these became euthyroid (with normal TSH and T4 levels), nevertheless, in 3 of them, TSH response was exaggerated (AM)20uU/ml), 2 became hyperthyroid and the remaining persisted hypothyroid (with variation) the 2 remaining hyperthyroid at the beginning became compensated hypothyroid. 8 of 16 patients were treated with Levothyroxine and their clinical course was similar to those non-treated. In conclusion CLT can be found at different stages of thyroid function and the variability of the clinical course is evident during the follow up.