ABSTRACTS BOOK
LIVRE DES RESUMES

27th World Congress of the International Union of Angiology
15ème Congrès de la Société Française de Médecine Vasculaire

Lyon, France, 5-8 October 2016
Lyon, France, 5-8 Octobre 2016

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16:30-18:00 FORUM 5

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08:30-10:00 FORUM 5

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11:00-12:00 AMPHITHEATRE

Heparin Centennial Symposium: A Century of Scientific Fascination and Clinical Implementation - Part II
L'Héparine a 100 ans ! Un siècle de Fascination Scientifique et de Développement Clinique (2ème partie)

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14:00-15:30 AMPHITHEATRE CORDELIERS

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ORAL FREE PAPERS / COMMUNICATIONS LIBRES ORALES

Mercredi 5 Octobre 2016 - *Wednesday, October 5th, 2016*

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Session Communications libres UIA UIA 01 – Maladie artérielle : étiologie, prevention

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IUA Abstracts Session 02: Chronic venous disease: Varicose Veins
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IUA Abstracts Session 03: Arterial Disease: Treatment, interventions
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IUA Abstracts Session 04: Venous ThromboEmbolic Disease
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Jeudi 6 Octobre 2016 - Thursday October 6th, 2016

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Vendredi 7 Octobre 2016 – Friday, October 7th, 2016

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SFMV free papers Session 2: VTE, venous and lymphatic diseases

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Session 3 de Communications libres SFMV : Explorations et innovations
SFMV free papers Session 3: Explorations and innovations

11:00-12:30 BELLECOUR 1

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Session Communications libres UIA UIA 06 : Vascularite et divers

14:00-15:30 BELLECOUR 1

IUA abstracts Session 07: Cardiovascular : Ulcers and Lymphedema
Session Communications libres UIA IUA 07: Maladies cardiovasculaires: Ulcères, lymphoedème

14:00-15:30 TETE D'OR 2

UIA Abstracts session 08 : Arterial Disease : Explorations
Session Communications libres UIA IUA 08: Artériopathie: Explorations fonctionnelles

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SFMV e-posters discussion session 1

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Session commentée UIA 2 de e-posters

E-posters SFMV

Pathologie artérielle périphérique

Maladie thrombo-embolique veineuse

Plaies chroniques d'origine vasculaire

IUA E-posters

Peripheral Arterial Disease

Venous Thromboembolism

Chronic venous disorders

ABSTRACTS
INVITED LECTURE / *INTERVENANTS*

Mercredi 5 Octobre 2016 / *Wednesday, October 6th, 2016*

08:30-10:30 AMPHITHEATRE CORDELIERS

La face cachée de la MTEV
The hidden face of Venous ThromboEmbolic Disease (VTED)

Durée de traitement de la MTEV : au-delà de CHEST 2016.

Francis COUTURAUD
Département de médecine interne et pneumologie, EA3878 (GETBO), CIC-INSERM1412, CHU de Brest

La détermination de la durée optimale de traitement anticoagulant de la maladie veineuse thrombo-embolique (MVTE) est une des étapes clefs de sa prise en charge. Malgré la réalisation de travaux récents, incluant notamment les essais d'extension de traitement avec les anticoagulants oraux directs (AOD), les recommandations de l'ACCP 2016 n'ont pas significativement évolué, tant en termes de contenu qu'en termes de grade. Certes, un certain nombre de certitudes sont confirmées: (1) un traitement minimal de 3 mois pour toute embolie pulmonaire (EP) ou thrombose veineuse profonde (TVP) proximale ; (2) la primauté des données cliniques sur les données biologiques ou morphologiques pour appréhender le risque de récidive; (3) un traitement de 3 mois (grade 1A) en cas de MVTE provoquée (chirurgie, grossesse, oestrogènes); (4) un traitement non limité (sans programmation de date d'arrêt de traitement) chez les patients à haut risque de récidive, en particulier en cas de MVTE non provoquée. Toutefois, s'agissant de cette dernière recommandation, dont le grade n'a pas été modifié (2B), de nombreuses limites doivent être rapportées.
Une des premières limites est la confusion induite par la fluctuation de la définition des facteurs de risque dits « provoquants », différente sur les 4 consensus publiés en 16 ans. La deuxième limite est l'absence de distinction entre les EP et TVP, alors que le pronostic de ces deux entités diffère en termes de mortalité spécifique, susceptible d'influencer la durée de traitement. La troisième limite demeure la difficulté à identifier, au sein même des patients ayant une MVTE non provoquée, des phénotypes à très haut risque de récidive chez qui le traitement doit être formellement poursuivi et des phénotypes à faible risque chez qui le traitement ne doit pas être prolongé. Les Ddimères seuls n'ont pas un pouvoir discriminant suffisant et les scores cliniques de prédiction de récidive n'ont pas été validés. Quatrièmement, aucun score prédictif du risque hémorragique spécifique de la MVTE n'a été élaboré ce qui rend difficile l'estimation individuelle du bénéfice risque d'un traitement prolongé. Enfin, les essais d'extension de traitement anticoagulant avec les AOD n'apportent pas de preuve directe qu'un AOD à demi-dose serait aussi efficace et plus sûr qu'une dose pleine.

Mots clés : maladie veineuse thrombo-embolique, durée de l'anticoagulation

Embolie pulmonaire découverte fortuitement.

Guy MEYER
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La découverte d'une embolie pulmonaire (EP) sur un scanner thoracique injecté réalisé pour une autre raison que la suspicion clinique d'EP n'est pas exceptionnelle. Des signes cliniques évocateurs d'EP sont découverts rétrospectivement dans plus de la moitié des cas si bien qu'on ne peut les assimiler à des EP asymptomatiques. Si elles sont plus souvent distales, des EP proximales, siégeant dans les artères tronculaires ou lobaires sont parfois découvertes fortuitement. Nos connaissances reposent pour le moment sur des études rétrospectives. Onze de ces études rassemblant 926 malades ont été colligées récemment. Les résultats de cette analyse suggèrent que les EP découvertes fortuitement ont le même potentiel de récidive que celles qui sont découvertes sur un scanner demandé en raison d'une suspicion clinique et ceci semble rester vrai pour les EP sous-segmentaires dont le potentiel de récidive ne semble pas plus faible que celui des EP plus proximales en présence d'un cancer. Bien que fragiles, ces données suggèrent donc de traiter les EP découvertes fortuitement selon le schéma thérapeutique habituel. La découverte de ce type d'EP étant le plus souvent faite chez des patients atteints de cancer, le risque hémorragique, plus élevé dans ce contexte, doit également être pris en compte dans la décision. Une cohorte internationale prospective est en cours de constitution pour confirmer ces premières données.

Mots clés : embolie pulmonaire; cancer

14:00-16:00 FORUM 5

IUA Vice-Presidents Session / *Session des Vice-Présidents UIA*

Progress of the Asian PAD Workshop

Hiroshi SHIGEMATSU, MD, Ph D.
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PAD incidence and prevalence has been growing at an alarming rate in Asia in recent years and diabetes mellitus (DM) is one of the most critical factors in its onset. Screening patients with DM for early PAD diagnosis is critical to identify those at high risk for progressive cardiac and cerebral pathogenesis. The control of DM is important to prevent the spectra of increasing burden of PAD. We had started the Asian PAD workshop focusing on diabetes mellitus. The discussants were from Korea, China, Taiwan, Thailand, Indonesia, Vietnam, Malaysia, Philippines and Japan. The first meeting was held in Jeju Island, South Korea, in 2009 and 7 meeting has been held since then. Prevalence, awareness and treatment approaches for PAD in patients with diabetes were discussed in the 1st meeting. This round of the workshop focused on the early diagnostic approaches and management of PAD, particularly those PAD patients with diabetes mellitus and chronic kidney disease (CKD). Discussion was also carried out focusing on diabetic complications in PAD patients.
The proportion of diabetic patients amongst PAD patients grows annually. The prevalence of the disease currently exceeds 40% in Japan, and other Asian countries have a similar

prevalence. This increase of diabetic prevalence clearly contributes to the rise in the incidence of PAD. As it takes more than 10 years of diabetic history before the onset of PAD, we are faced with the spectra of increasing burden of PAD throughout Asia. In addition, renal dysfunction is one of the most critical comorbidity for the PAD patients with diabetes. Early PAD diagnosis also serves as a crucial "window" for other early stage diagnoses of possible cardiac and cerebral pathogenesis.

14:00-16:00 BELLECOUR

Peripheral Arterial Disease in Europe
L'artériopathie des membres inférieurs (AMI) en Europe

PAD Epidemiology in Europe

Dan OLINIC (R), Jean Claude WAUTRECHT (B), Patricia FITZGERALD (IRL), Katalin FARGAS (H), Zsolt PECSVARADY (H), Bahara FAZELI (IRN), Mariella CATALANO (I)
VAS(Vascular Independent Research and Education-European Organization) vas@unimi.it

VAS symposium on PAD will cover various aspects of disease epidemiology, prevention, cost and intervention related to Europe as well as concrete actions taken by VAS(www.vas-int.net) with a large international collaboration, in terms of education, awareness and research on PAD ("No more Vascular Amputation Project"). PAD importance is related to its expression of systemic atherosclerosis and relation to cardiac and cerebro-vascular diseases that severely alter patient (pt) prognosis. PAD diagnosis is underestimated, due to a large prevalence of asymptomatic and atypically symptomatic pts, beyond typical claudicant pts. Clinical examination will always be supported by distal pressure and anckle-brachial index (ABPM) measurements. Traditional risk factors for atherosclerosis are associated with PAD: tabacco, hypertension, dyslipidemia, diabetes, obesity, metabolic syndrome. PAD prevalence increase with age (from 13% below 50 years to above 20% beyond 65 years), may be higher is men than in women, is higher in blacks (as compared to Caucasians), in poor economic status, less educated and separated individuals. Across Europe, national prevalence of PAD ranges from 7% to 28%. In average, it is reported that PAD prevalence in subjects above 65 years old is around 20%, with 17 million PAD subjects across Europe. Critical limb ischemia (CLI), the most severe form of PAD, associated with trophic changes, has a prevalence of 500-1000 cases/ 1 million inhabitants, or 1-3% of PAD pts. There will be a need for amputation of5-20 cases/ 1 million inhabitants. PAD individuals have a 50% prevalence of coronary artery disease and a 20% prevalence of cerebro-vascular diseases, that both influence pts prognosis, in terms of high mortality and morbidity rates. Diagnosis of PAD may lead to the ability of improving pts prognosis, through prevention of advanced stages and of associated atherosclerotic diseases. Costs related to PAD are huge mainly due to the approach in more advanced stages due to the need of expensive therapies (with poor results), in-hospital treatment, wound care and support after amputation, without even taking into account loss of working ability. Early PAD diagnosis and prevention are mandatory, with need for awareness campaigns (see "PAD&Vascular European Days") and risk factors management. With life expectancy increasing and diabetes becoming more prevalent, with better management and survival after coronary and cerebral diseases, allowing PAD manifestation, and despite an expected decrease in smoking prevalence, there is an expectation towards a decrease of symptomatic, but an increase in asymptomatic PAD disease.

Peripheral Arterial Disease~ European Awareness days

P. FITZGERALD (IRL)[1], K. FARKAS (H)[2], M. KOZAK[3] (SLO), G. MARAKOMICHELAKIS (GR)[4], M. SPRYNGER (B)[5]
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VAS-Vascular-Independent Research and Education –European Organisation- (www.vas-int.net)

VAS in conjunction with European Local Societies promots a yearly Public awareness campaign specifically targeted towards Peripheral arterial disease (PAD).
The aim is to achieve greater public awareness of the signs and symptoms of PAD, in an attempt to stimulate earlier diagnosis. This, in association with easily available, easily understood, PAD specific Patient Education Information would hopefully lead to improved life style choices and ultimately decrease the devastating late consequences of the disease.
We report after the third year of the campaign.

European Biobank

Bahare FAZELI (1), Anderzej SZUBA (2), Oguz KARAHAN (3)
(1) Mashhad University of Medical Sciences, Mashhad, Iran
(2) Wroclaw Medical University, Wroclaw, Poland
(3) Medical School of Dicle University, Turkey

With the development of personalized medicine, biobanks are becoming more and more attractive. The European Biobank on Vascular Diseases (EBVD), a part of the *BBMRI network*, aims to create a European biobank of blood samples (as the main sample of biobanking), plasma and/or paraffin blocks of tissue samples (as preferable samples of biobanking) from a large number of patients with peripheral vascular diseases (PVD). For some vascular diseases that are not prevalent in Europe, such as Buerger's disease, the EBVD collaborates with countries outside Europe where such diseases occur. Due to the difficulties associated with sending biological samples for some countries, "local biobanking" was suggested as a way of collating samples with filling online questionnaire in and accessing to a large number of biological samples and related information from patients of different races. For data harmonization, a unique protocol for sample collection and storing is proposed to the joint local biobanks. Besides EBVD, the VAS images bank is now under construction for gathering a large number of educational images and related educational notes.

14:00-16:00 GRATTE CIEL 1-2

Session organized by the Mediterranean League of Angiology and Vascular Surgery
Session de la Ligue Méditerranéenne d'Angiologie et de Chirurgie Vasculaire

Metabolic diseases: to which extent can the mediterranean diet reverse them?

NOVO S, SUCATO V
Chair and Division of Cardiology, Centre for the Early Diagnosis of Preclinical and Multifocal Atherosclerosis, Reference Regional Centre for the Diagnosis and Care of Heart Failure, Department for Promoting Health, University Hospital "Paolo Giaccone" of Palermo, Italy

In recent years, it has focused attention on the role of lifestyle changes in reducing cardiovascular risk; especially attention has focused on the effects of Mediterranean diet in reducing cardiovascular risk. The Mediterranean diet is the typical diet of the Mediterranean populations. However, over the course of several scientific investigations that have taken place since the World War II to today, it became increasingly clear that the term diet (from the greek díaisa, diaita, "way of life") indicate Mediterranean is really a lifestyle precise, rather than a simple way of feeding and combine the food at the table. Its origins are lost in the mists of time, but his theory dates back to the mid-twentieth century, at the hands of the American physiologist Ancel Keys, who first described the benefits. This diet is characterized by widespread consumption of plant foods, such as fruits, vegetables and legumes, the use of unrefined flour, fresh fish, extra virgin olive oil as the main source of fat and a moderate consumption of wine with meals. Meat, dairy products and eggs are eaten with moderation instead. Recently the United Nations Educational, Scientific and Cultural Organization (UNESCO) have listed the MedDiet on Intangible Cultural Heritage of Humanity.
Several studies provide evidence supporting a beneficial effect from the traditional Mediterranean diet (MedDiet) on the risk of type 2 diabetes mellitus and metabolic syndrome (MetS). A recent meta-analysis of prospective cohort studies showed that greater adherence to the MedDiet was associated with a significant reduction in the risk of diabetes. The MedDiet has also been found to be beneficial in the prevention of gestational diabetes. Four large prospective studies have observed inverse associations between the MedDiet and MetS or its components. Results from the PREDIMED trial (Estruk R. et al. 2013) showed that participants assigned to the MedDiet had a significant 30% reduction in the risk of type 2 diabetes mellitus and that it promoted the reversion of MetS and its components, hyperglycemia and central obesity. In addition, five RCTs showed the beneficial effects of the MedDiet compared with other dietary patterns on glycemic control in patients with type 2 diabetes mellitus. A recent meta-analysis of RCTs revealed that, compared with a variety of control diets, the MedDiet was associated with beneficial effects on all MetS components.
Bioactive components of the MedDiet synergize to affect various metabolic pathways, leading to a reduced cardiometabolic disease risk. The abundance of healthy, nutrient-dense foods that make up the plant-based MedDiet predicts its bioactivity and potential to beneficially influence metabolic pathways that lead to MetS and type 2 diabetes mellitus, as well as other chronic conditions. Several epidemiologic and clinical trial evidence supports the role of the MedDiet on the prevention and management of type 2 diabetes mellitus and MetS.
An Italian study of Ciccarone et al showed that in patients with type 2 diabetes mellitus the MedDiet had a protective role against PAD; the use of olive oil reduced the risk of PAD whereas the use of saturated fat increased the risk of PAD even in those patients who were regularly consuming olive oil.
In a recent study, Klonizakis et al showed that vascular function might benefit in patients that effect a long-term exercise and MedDiet intervention, even in older (55 + 4 years) healthy people.
One of the most important risk factor for development of PAD are MetS. In our study we reported that in the subgroup of patients with MetS, the prevalence of subclinical atherosclerosis, defined as increased IMT (IMT > 0.90 mm), was significantly higher than in participants without MetS; participants with

MetS had a significantly higher prevalence of vascular disease in a 20- year follow-up (49%) than participants without MetS (29%) ($P < 0.01$).
A study by Gorter et al. showed that in patients with a recent diagnosis of clinical manifestation of atherosclerosis (46%), especially in PAD patients (58%), metabolic syndrome, according to the ATP III criteria, is highly prevalent.
Numerous studies show the effectiveness of the Mediterranean diet in the prevention of the development of MetS especially in young patients.
In eight cross-sectional and four prospective studies were included in a meta-analysis, accounting for a total of 33,847 individuals and 6342 cases of MetS, high adherence to the Mediterranean diet was associated with a low risk of MetS (RR: 0.81, 95%CI: 0.71, 0.92). Regarding individual components of the MetS, the inverse associations were significant for waist circumference, blood pressure and low HDL-C levels. In conclusion, adoption of a Mediterranean dietary pattern was associated with lower risk of the MetS and it can be proposed for the primary prevention of the MetS (Godos J. et al. 2016).
Finally, a meta-analysis published in 2008 showed that the adherence to MedDiet reduced of 9% total mortality and of 9% of mortality for CVD (Sofi F. et al 2008).

Can the erectile dysfunction be considered as an initial sign of atherosclerosis?

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Erectile dysfunction (ED) or impotence is a condition that consistently affects ability to achieve or maintain an erection. Erectile dysfunction is the disease with high prevalence, nearly one half of men older than 40 years report some degree of ED. There are several contributing factors for ED, which include psychological factors and different diseases: diabetes, neurological and nerve disorders, drugs and atherosclerosis. Epidemiological evidence suggests a clear link between ED and factors for cardiovascular disease. Hypertension, smoking, dyslipidemia, diabetes and obesity stand out, being present in approximately 90° of ED cases. Conversely, men with ED are more likely to have risk factors, particularly hypertension and hypeglicemia. Further, ED is frequently accompanied by coronary heart disease (CHD). In subjects at risk for atherosclerotic cardiovascular complications, ED is usually vasculogenic etiology and may result from impairment of endothelial dependent and independent smoth muscle relaxation or penile artery occlusion. Because of small diameter, cavernusal arteries are prone to occlusion. Dysfunctional endothelium caused by reduced nitric oxide bioavilabiltity is corner stone of pathophysiology of ED. As a consequence, *p*hosphodiesterase type 5 degrades faster and the reduced quantities of cycling - 3, 5 guanosine monophosphate which has negative impact on vasodilation and sustaining an erection.
The studies confirmed close relationship between ED and coronary artery disease. ED was shown to be correlated with coronary plaque burden and extent of CAD. ED is useful marker of the presence of and CAD decreased penile peak systolic velocity (less than 35 cm/s) showed 100% specificity for predicting ischemic heart disease. ED was also strong independent predictor of CAD as assessed by nuclear stress testing. Further ED was shown to be related to markers of preclinical atherosclerosis: calcium score, intima-media thickness and aortic stiffness. As penile arteries are much smaller than coronary arteries, they suffer obstruction earlier than the coronary arteries, and the ED is usually symptomatic before coronary event. It was shown that erectile function abnormalities became evident prior to manifestation of CAD by a mean time interval of 2-3 years. This time window is of paramount importance, since it provides the opportunity to reveal occult CAD and to aggressively treat cardiovascular risk factors to prevent development of coronary events. Men with ED have up to 2-4 times increased risk for acute myocardial infarction. Subjects with moderate or severe ED have 65% increased relative risk for developing CAD within 10 years.

Therefore, ED is an indicator of vascular health and represents opportunity for prevention of cardiovascular disease and should be a part of cardiovascular risk assessment. Diagnosis of ED calls for engagement of patients in beneficial life style and aggressive risk factors reduction strategies.

Critical Limb Ischaemia (CLI): open or endovascular surgical approach?

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According to the 2d Consensus European Document, CLI is characterized (1) by rest pain requiring regular analgesia, (2) by the presence of ulceration or gangrene, while (3) the ankle systolic pressure is less than 50mmHg in non-diabetic patients or 30mmHg in diabetic patients. Several studies demonstrated that one year after the initial diagnosis of CLI, only 56% of patients were alive with two viable legs, 26% had a major amputation and 18% had died. CLI patients are in need of a multidisciplinary approach which implies the involvement of various disciplines under the supervision of a vascular surgeon, who is the only one that can deal with the treatment of any complication. TASC is another classification for CLI (Transatlantic Inter Society consensus) published in 2000 and reconsidered in 2007; this classification aims to define the indications for open and endovascular surgical treatment on the basis of the site and extent of the lesions. However, if we take into account the evolution of technology and the expanding endovascular skill level, an endovascular initial attempt could be considered in all lesions (TASC A to D), prior to any open surgery. The first endovascular step was performed in 1977 with the introduction of balloon angioplasty by Andreas Gruntzig. The second step occurred ten years later with the introduction of metal stents. Ten years after, a third step was obtained with the use of drug eluting stents in order to avoid early re-stenosis. Drug-eluting stents showed superiority to bare metal stents in the sense that several multicentre studies (RESILIENT, VIBRANT and VIPER), showed with them more durable results in the superficial femoral region. Furthermore, drug-eluting balloons represent a novel option in treating re-stenosis; THUNDER, PACFIER, as well as the LEVANT 1 and LEVANT 2 trials are now in progress with promising results using drug-eluting balloons in areas where stents cannot be successfully applied. According to consensus documents an open reconstructive procedure in patients with CLI should be undertaken when endovascular surgery is unsuccessful but there is still a 25% chance of saving the limb for a period of one year. Does Europe utilize a unique code of management in CLI? Europe was the cradle of Vascular and Endovascular Surgery. A retrograde analysis showed that In the 80's and 90's there was an antagonism between the two entities in the way of handling vascular problems: The North and West Europe being in favor of endovascular than of open surgery in comparison to East and South Europe. This discrepancy gradually relaxes as Technology is propelling Endovascular Surgery to the level it stands today and still remains a matter of learning curve to be equalized. Graft patency is important to be confirmed always at the end of the operation, while recurring CLI results mainly from a thrombotic occlusion of the graft. In such cases it is vital to initiate treatment with thrombolysis followed by correction of the underlying pathology. Nowadays, stem cells mobilization stimulates angiogenesis in hopeless cases of CLI. Amputation as a primary treatment option in such cases is decided when there is (1) no run off below the femoral artery (2) when tissue loss involves the heal and (3) there is severe rest pain. Below-Knee amputation is the operation of choice whereas above knee amputation leads to a poorer degree of rehabilitation.

16:30-18:00 AMPHITHEATRE

Endovascular treatments in Venous ThromboEmbolic Disease: State of the Art
Traitements interventionnels dans la MTEV : situation actuelle

Endovascular treatment of obstructive DVT sequelae.

F THONY, C MENEZ, G PERNOD, P CARPENTIER, M RODIERE
Imagerie Médicale, CHU Grenoble, France

Introduction. Les séquelles obstructives des thromboses veineuses profondes des membres inférieurs sont fréquentes et estimées à 55% dans les suites d'une thrombose veineuse iliaque (données étude randomisée Cavent). Ce syndrome post-thrombotique atteint une population jeune (fréquemment des femmes en situation de post-partum) entrainant des séquelles très invalidantes à long terme et qui représentent pour la société un coup élevé lié au traitement médical ainsi qu'aux journées de travail perdues. Le traitement endovasculaire de ces lésions post-thrombotique est devenu le traitement de référence en raison de taux élevés de perméabilité immédiate et à long terme, et d'un risque thérapeutique très faible. Ce traitement endovasculaire a pour but de lever le syndrome obstructif et d'améliorer l'insuffisance valvulaire en diminuant la pression intraveineuse.

Indications du traitement. Les recommandations de l'AHA (American Heart Association) publiées en 2014 ainsi que celles de l'ESVS (European Society of Vascular Surgery) publiées en 2015 recommandent ce traitement pour des patients ayant une occlusion iliaque ou cave inférieure cliniquement sévèrement symptomatique.
Ceci sous-entend des patients ayant une évolution vers des ulcères ou une impotence fonctionnelle majeure. A ces indications, il faut à notre avis, ajouter tous les patients jeunes ayant une symptomatologie résiduelle après thrombose veineuse des membres inférieurs et demandeurs d'une amélioration clinique. En effet, chez ces patients, si la symptomatologie est moins importante, l'efficacité du traitement l'est plus, ainsi que l'amélioration clinique, au prix d'un risque thérapeutique extrêmement faible.
Enfin, il faut ajouter à ces indications les patients non symptomatiques mais pour lesquels un abord veineux est nécessaire (traitement cardiologique chez des patients aux antécédents de thrombose veineuse iatrogène dans l'enfance).

Evaluation pré-thérapeutique des patients. Les patients candidats à un traitement endovasculaire doivent avoir une évaluation et une quantification précise de leur symptomatologie clinique. Pour cela il est important d'utiliser des questionnaires de quantification du syndrome post-thrombotique (Score de Villalta), des questionnaires de qualité de vie orientés sur la pathologie veineuse (questionnaire Civiq ou VCS).
La mesure du diamètre des membres lésés ainsi qu'une épreuve de marche sur tapis roulant peuvent aussi compléter cette évaluation.
Le bilan pré-opératoire comportera une étude morphologique des séquelles de thrombose veineuse et une étude fonctionnelle hémodynamique. L'étude morphologique est effectuée par echodoppler, éventuellement phlébographie, mais surtout dans notre expérience par phléboscanner. Ce dernier donne une cartographie très précise des séquelles veineuses et des possibilités de recanalisation, en particulier en permettant de quantifier la sévérité des lésions veineuses séquellaires à l'étage fémoral. Nous utilisons dans notre pratique une classification des séquelles en trois grades selon le nombre et la qualité des axes veineux principaux au niveau de la cuisse. La phlébographie ou la phlébo-IRM peuvent être aussi utilisées mais l'apport diagnostique est inférieur à celui d'un phléboscanner.
L'echodoppler veineux des membres inférieurs permet d'évaluer l'extension aux différents segments des séquellaires atrétiques veineuses, de rechercher des synéchies intraveineuses hémodynamiquement

obstructives sur des veines d'apparence normale et de rechercher une insuffisance valvulaire profonde associée.

Physiopathologie de l'obstruction veineuse. La thrombose intraveineuse évolue à long terme en fonction de trois mécanismes de réparation : la fibrose, la rétraction fibreuse et la reperméabilisation veineuse. La prédominance de l'un de ces trois mécanismes physiopathologiques explique les séquelles observées : fibrose dure (difficile à franchir), rétraction veineuse complète (mais il persiste toujours une lumière virtuelle), veine d'aspect feuilleté (correspondant à une rétraction modérée avec de multiples chenaux de reperméation), veine de calibre normal mais avec des séquelles veineuses résiduelles.

Technique du traitement endovasculaire. Lorsque la veine fémorale commune est libre, l'abord pourra être fémoral homolatéral. Dans le cas contraire, l'abord jugulaire est préférable à un abord poplité ou fémoral controlatéral. Dans les lésions complexes, l'abord peut être double ou triple.
Les lésions veineuses sont recanalisées au guide. Du matériel spécifique de recanalisation peut être utilisé dans les lésions très fibreuses. Il s'agit d'une recanalisation souvent longue. Le trajet veineux est dilaté progressivement puis équipé d'endoprothèses. Les endoprothèses les plus fréquemment utilisées sont actuellement en Nitinol. Elles doivent avoir une force d'expansion radiale importante à l'étage iliaque et cave inférieur, une souplesse plus grande à l'étage sous crural afin de ne pas léser la veine et de s'adapter au mouvement de celle-ci. En fin de recanalisation, la veine doit avoir un calibre régulier, le flux dans les stents doit être élevé avec un lavage rapide du produit de contraste. Les cotes latérales de dérivation doivent disparaitre.
Après l'intervention, le patient bénéficie d'un traitement anticoagulant au minimum de trois mois, un traitement antiagrégant plaquettaire complémentaire pendant un mois, contention veineuse par chaussette pendant six mois. La reprise de la marche doit être immédiate, dans le cas contraire, une compression pneumatique intermittente est mise en place pour la première nuit.

Résultats cliniques. Dans la revue de la littérature de Siegers en 2015, les taux de perméabilité varient selon les séries de 32% à 99% pour la perméabilité primaire et de 66% à 96% pour la perméabilité secondaire. Cette variabilité des résultats tient à de multiples paramètres mais principalement à l'étendue des lésions.
Dans notre expérience, la perméabilité est fortement corrélée en cas de lésion iliaque isolée. La perméabilité secondaire est de 100% au terme du suivi en cas de séquelles de TVP au niveau de la cuisse nulles ou minimes (grade 0-1) ; elle est de 90% en cas de séquelles sévères (grade 2) et de 63% en cas de séquelles majeures (grade 3).
L'amélioration clinique est au mieux appréciée par le score Civiq. L'amélioration ou gain proportionnel est en moyenne de 60% au terme du suivi. 72% ont une amélioration ≥50%, 19% pas d'amélioration ou <50%, 9% une aggravation. L'aggravation clinique n'est pas liée à l'échec de perméabilité. L'amélioration clinique est liée à la perméabilité du segment recanalisé, à une insuffisance valvulaire associée (19% des patients ayant un gain ≥90% ont une IVC associée versus 55% pour les gains ≤0%). L'amélioration clinique n'est pas liée au grade des séquelles veineuses de cuisse.

Conclusion. Le traitement endovasculaire des séquelles veineuses des membres inférieurs est un traitement très efficace et pérenne en cours de développement et d'évaluation. Il nécessite un bilan pré-opératoire très précis par écho-doppler et phléboscanner.
Les résultats en terme de perméabilité sont excellents pour les lésions sus-crurales, fonction de la gravité des séquelles pour les lésions étendues en sous-crural.
Le résultat clinique est bon, dépendant, de la perméabilité du segment recanalisé, de la présence d'une insuffisance valvulaire associée ou non mais il n'est pas lié à la sévérité des séquelles sous-crurales.

Mots-clefs : Post-thrombotic Syndrome, Endovascular treatment

Balloon pulmonary angioplasty: an additional treatment option to improve the status of patients with chronic thromboembolic pulmonary hypertension.

Hélène BOUVAIST
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In chronic thromboembolic pulmonary hypertension (CTEPH), stenoses or obstructions of the pulmonary arteries due to organized thrombi can cause an elevation in pulmonary artery resistance, which in turn can result in pulmonary hypertension and progressive right heart failure. CTEPH can be cured surgically by pulmonary endarterectomy (PEA); however, patients deemed unsuitable for PEA due to distal lesion, advanced age, or comorbidities have a poor prognosis and limited treatment options. Recently, an alternative interventional strategy of balloon pulmonary angioplasty (BPA) reduces pulmonary artery hypertension in patients with CTEPH. Risk/ benefit inbalance appear to be safe in experimented center. BPA can treat the lesions from lobar to subsegmental pulmonary arteries, improving functional and hemodynamic status for inoperable patients. This review highlights this recent progress.

Keywords: thrombosis, pulmonary hypertension, angioplasty, lung injury, BPA, CTEPH.

16:30-18:00 FORUM 5

La prise de décision partagée en médecine vasculaire
Shared Decision in Vascular Medicine

Prise de décision médicale partagée en France : état des lieux et mise en oeuvre du programme.

Nora MOUMJID
1-Université Claude Bernard Lyon 1;
2- HESPER EA 425 ;
3- Centre Léon Bérard, Lyon ;
4 -Cancer Contribution ;
5- Gustave Roussy - Cancer Campus, Villejuif

Background. Le groupe de réflexion et d'action francophone FREeDOM (French group for Shared Decision Making [SDM]) est né en 2014 du constat de l'écart entre, d'une part, l'avancée de la réflexion et des pratiques dans de nombreux pays anglo-saxons (USA, Australie, Europe du Nord), mais aussi francophones (Canada, Suisse), la demande croissante des patients et plus largement des citoyens, et d'autre part la très faible diffusion des pratiques de SDM en France. L'international environmental scan publié en 2012 par Légaré et al. confirme l'insuffisance des programmes français de formation des professionnels de santé, alors même qu'il s'agit d'un préalable indispensable à la compréhension et à l'application de la prise de décision médicale partagée.

Méthodes. Le groupe FREeDOM rassemble patients et associations de patients, professionnels de santé (médicaux et paramédicaux, hospitaliers et de ville), chercheurs en Sciences Humaines Economiques et Sociales (SHES), représentants d'instances officielles, communicants. Ses intérêts portent sur plusieurs pathologies chroniques (cancer, maladies rénales, diabète, maladies inflammatoires de l'intestin, asthme, pathologies cardiovasculaires, psychiatriques…),

ceci à toutes les étapes du parcours de soin : 1. prévention ; 2. diagnostic et décisionsthérapeutiques ; 3. suivi et observance… Sur chacune de ces phases sont discutées des actions possibles en faveur de projets centrés SDM, au niveau de l'organisation des soins, des programmes de formation et des dispositifs d'information et communication à destination des professionnels et des usagers.

Résultats. Un état des lieux des travaux de recherche en France et au niveau international sera présenté avec un focus sur les formations proposées. Celles-ci visent à développer les connaissances et la culture des professionnels de santé, tant hospitaliers que de ville, en utilisant les corpus de SDM déjà existants à l'étranger (cours en ligne et présentiels, jeux de rôle etc.) et en les adaptant, si nécessaire, au langage et aux modèles de soins français. Elles portent à la fois sur la formation initiale des professionnels (heures de cours au sein des cursus universitaires), sur le Développement Professionnel Continu (DPC) et sur la formation des Patients Ressources. Les formats DPC s'articulent en modules de formation ponctuels (une ou 2 journées) et Diplôme(s) d'Université. En fonction du type de modules, les formations seront assurées par des professionnels de santé ou de SHES ayant développé des compétences particulières en matière de SDM, patients-experts et représentants d'associations de patients, membres d'instances de décision nationales ou régionales, etc. Chaque module associera formation théorique (rationnel, principes éthiques, réglementaires, organisationnels…), mises en situations, jeux de rôles et évaluations.

Conclusions et perspectives. La diffusion large et concrète des processus de prise de décision médicale partagée en France passe par une nécessaire appropriation et acculturation par les professionnels de santé. C'est la raison pour laquelle la constitution du groupe FREeDOM constitue un levier important au niveau francophone visant à favoriser le développement de la formation dans ce domaine. Les réflexions et actions du groupe seront mises à disposition sur un site internet dédié.

Mots clés : prise de décision partagée ; préférences

La prise de décision partagée : une pratique en diabétologie

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En médecine en général et en endocrinologie en particulier, en dehors des situations aiguës, il y a peu de circonstances dans lesquelles les cliniciens peuvent prédire avec précision ce qui est le mieux pour leurs patients. En conséquence, les patients et les soignants doivent souvent prendre des décisions comportant des incertitudes. Le travail que les patients et les soignants font ensemble pour répondre à ces situations et pour engager un dialogue délibératif sur les options de traitement raisonnables est souvent appelé prise de décision partagée. La prise de décision partagée est une approche centrée sur le patient au cours de laquelle les soignants partagent des informations sur avantages, inconvénients et contraintes des différentes options raisonnables de diagnostic et de traitement et au cours de laquelle les patients expliquent ce qui compte pour eux, compte tenu de leurs valeurs particulières, de leurs préférences et de

leur contexte personnel. Au-delà de l'argument éthique qui suffit à lui seul à promouvoir cette approche, il existe de bonnes preuves en faveur de son efficacité. En dehors du diabète, les exemples d'études concernant cette approche sont rares en endocrinologie où les opportunités d'application ne manquent pourtant pas.

Mots clés : décision médicale partagée, relation soignant-patient,

16:30-18:00 BELLECOUR

Cancer Associated Thrombosis (CAT) : Realities, Actualities and Perspectives
Thrombose associée au cancer (TAC) : réalités, actualités et perspectives

Cancer and Thrombosis: an intimate and dynamic relation

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The close association between malignant disease and thrombosis is well known and was first described more than a century ago by Trousseau, a French doctor who first observed that unexplained episodes of migratory thrombophlebitis in patients with gastrointestinal symptoms may indicate an underlying, undiagnosed tumor. Subsequent post-mortem studies showed an increased incidence of thromboembolic disease in cancer. On the other hand, we know today that venous thromboembolism (VTE) may be indeed the first manifestation of an occult malignancy in an otherwise healthy individual, anticipating the clinical detection of tumor by months or even years.

Cancer patients commonly present with abnormalities in laboratory coagulation tests, indicating an ongoing subclinical hypercoagulable condition. The results of laboratory tests demonstrate that a process of fibrin formation and removal parallels the development of malignancy, which is of particular interest since fibrin and other clotting products are of importance for both thrombogenesis and tumor progression.

Many factors can increase the thrombotic risk in cancer patients, including classical thrombotic risk factors such as immobility, age, surgery, and risk factors peculiar of cancer such as advanced disease stage, and cancer therapies. In addition, tumor cell-specific prothrombotic properties and the subsequent host cell inflammatory response dramatically enhance the risk for thrombosis in these patients. Cancer cells produce and release procoagulant and fibrinolytic proteins, as well as inflammatory cytokines. In addition, they are capable of directly adhering to host cells (i.e. endothelial cells, monocytes, platelets, and neutrophils), thereby stimulating additional prothrombotic properties of the host effector cells. Notably, most of these mechanisms, in addition to favoring thrombosis, can also promote tumor growth and metastasis.

Recently, molecular studies demonstrate that oncogenes responsible for neoplastic transformation drive the programs for hemostatic protein expression in cancer tissues, which translates into overt symptomatic coagulopathy in vivo. The tumor-shed microparticles are also regulated by oncogenic events and contribute to the hypercoagulable state. Finally, the changes of stromal cells of the tumor 'niche' induced by tissue factor (TF) shed new light on the hemostasis and cancer interaction.

Prevention of CAT: a challenge for the personalized medicine

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Cancer is a leading cause of venous thromboembolism (VTE) and vice versa. Pulmonary embolism is the second cause of death in cancer patients. Tumor progression is associated with coagulation activation. The pathogenesis of thrombosis during cancer is particularly complex stemming from multiple connections of this disease with both systems of inflammation and hemostasis. The risk of VTE depends on cancer type and the stage of the disease, the anticancer treatments and the time since cancer diagnosis as well as on the presence of patient-related risk factors (i.e. age, obesity, previous history of VTE, underlying diseases…). The presence of other precipitating factors and the duration of the exposure to them are also key elements in the assessment of such a thrombotic risk. It is therefore important to identify all the VTE risk factors to identify patients at high vascular risk and to determine the period during which this risk is significantly increased. The integration of biomarkers of hypercoagulability in proposed risk assessment models for VTE will improve their capacity to identify patients eligible for pharmacological thromboprophylaxis. In this review, we report the current status of knowledge on the connection between cancer and hypercoagulability, the numerous risk factors for VTE must be identified in cancer patients and the best methodology to build a more accurate assessment of this vascular risk in such a complex medical context.

Jeudi 6 Octobre 2016 - *Thursday October 6, 2016*

08:30-10:30 AMPHITHEATRE CORDELIERS

Approche multifactorielle des ulcères de jambe
Multifactorial approach of leg ulcer

Ulcère de jambe : Données épidémiologiques et médico-économiques.

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L'épidémiologie des ulcères de jambe (UJ) est imparfaitement connue en France, mais plusieurs études épidémiologiques ou socio-économiques, de qualité variable, sont disponibles dans le Nord de l'Europe et aux USA.
La prévalence des UJ ouverts varie entre 0,045 à 0,7% dans la population générale (1,2) sans réelle tendance à la diminution, avec une nette prédominance féminine (60-75%). La prévalence augmente constamment avec l'âge, quel que soit le sexe, jusqu'à atteindre 2 à 4% dans la population de plus de 65 ans. La moyenne d'âge a augmenté et est autour de 75 ans. Le taux de récurrence et la durée d'évolution restent élevés, particulièrement pour les UJ d'origine veineuse par rapport aux autres étiologies.. Selon les études, 24 à 54% des UJ évoluent depuis plus de 1 an. Dans une étude récente anglaise, les patients présentant un UJ étaient significativement plus isolés, plus dépendants et de niveau social plus bas que des patients comparables en âge et en sexe, sans UJ. L'index de masse corporelle est significativement plus élevé chez les sujets porteurs d'UJ d'origine veineuse que dans la population générale ou dans la population de patients atteints de plaies d'autres origines dans plusieurs études, avec environ 1/3 des patients obèses. Les patients avec des UJ veineux ont une survie identique à la population générale.
La part respective des causes des UJ se modifie avec une tendance dans les différentes études à la diminution des causes veineuses exclusives (47,5-55%, contre 60 à 80% antérieurement) au profit des causes artérielles (environ 15%) ou mixtes (17,5-25%). Les causes rares ou multiples représentent 10 à 20% des UJ.
Le coût et l'impact social des UJ restent très élevés : 10 000 euros/an/patient dans une étude récente allemande, durées d'arrêt de travail plus importantes que dans une population appariée sans UJ aux USA. En Suède, le coût annuel du traitement des UJ a été estimé à 1,5% du budget de la santé (coût total), ce qui est la fourchette estimée également pour le coût de la pathologie aux USA. En France, Les actes et les soins représentaient un peu moins de la moitié du coût, et les médicaments y compris les soins locaux le tiers.

Les facteurs étiologiques majeurs : des données scientifiques à la pratique.

Philippe LEGER
Centre de Cicatrisation, Clinique Pasteur Toulouse, France

De multiples étiologies sont responsables de troubles trophiques des membres inférieurs et des pieds. Les ulcères vasculaires sont les plus fréquents avec les ulcères veineux, artériel et plus rarement microcirculatoire. Les ulcères non vasculaire sont plus rares avec le pyoderma gangrenosum, le cancer cutanée, les escarres, les infections, les causes médicamenteuses, certaines maladies disimmunitaires ou hématologiques, et enfin la pathomimie. Il est facile d'établir cette description mais en pratique il est rare d'avoir une cause unique responsable de l'ulcère. De plus d'autres facteurs participent au retard de cicatrisation : la dénutrition, certains médicaments, l'infection local, un diabète… Il faut donc toujours rechercher toutes les causes participantes à la genèse de l'ulcère et au retard de cicatrisation. Une fois déterminées le traitement de chaque facteur est mise en place selon les recommandations.

Nous proposons une aide à la réflexion en utilisant 7 questions qui sont à se poser devant chaque ulcère intégrant les causes et les facteurs de retard de cicatrisation : 1- Y a t'il une participation artériel, 2- Y a t'il une hyperpression veineuse, 3- Ya t'un problème d'appui, 4-Y ' a t'il une infection, 5- Y a t'il des facteurs associés (Diabète, médicaments..), 6- Y a t'il un problème nutritionnel, 7- Y a t'il un aspect atypique (Cancer, Pathomimie, Angiodermite, pyoderma gangrenosum, maladie dermatologique…)

Mots clés : Ulcères, étiologies

Parcours de soins : Centre de plaies.

Damien BARCAT
Coordinateur du centre de cicatrisation multidisciplinaire de l'Hôpital de Libourne

La prise en charge des plaies chroniques pose de multiples problèmes. Problèmes de santé publique : prévalence élevée, incidence en augmentation, morbidité importante, coût élevé.

Problèmes cliniques : délais de prise en charge longs, hétérogénéité des pratiques, intervention de multiples spécialités, hospitalisations fréquentes, morbidité et mortalité importantes.
Pour répondre à cela, des structures spécialisées, multidisciplinaires, ont été mises en place, dans les pays anglosaxons et dans certains pays européens. Les expériences les plus abouties concernent les problèmes de pieds diabétiques, mais certains centres se sont organisés pour les ulcères vasculaires. Ces structures existent en France mais elles ne sont pas clairement identifiées, ont des organisations, des fonctionnements, des financements très hétérogènes. Il n'existe pas de cahier des charges spécifique. Leurs résultats ne sont pas évalués.

Nous envisagerons ici pourquoi ces centres de cicatrisation doivent se développer, quels seraient leurs objectifs, quelles organisations sont envisageables. Nous aborderons la question de leur financement, à une époque où la T2A impose de dépenser pour être rentable. A terme, le but devrait être de pouvoir proposer aux tutelles une base de reconnaissance et de validation de ces structures médicalement efficaces.

Infirmière experte

Patricia BOCQUET
Centre de diagnostic et traitement des plaies chroniques- Hôpital Bagatelle - Talence

De par sa définition l'infirmière experte a des connaissances théoriques et pratiques approfondies dans un domaine précis.
En cicatrisation, elle intervient dans l'évaluation globale des retards de cicatrisation (étiologie, facteurs de retard, pronostic) et dans la mise en place d'un projet thérapeutique, ainsi que dans le suivi du patient.
Elle dispense son savoir - faire dans l'encadrement des équipes soignantes. Dans notre établissement, elle intervient à la demande des différentes équipes hospitalières, des HAD, des infirmiers libéraux ainsi que lors des formations auprès des IFSI (module optionnel) et dans la formation continue des infirmiers.

Parcours de soins : Synthèse du parcours de soins.

Sylvie MEAUME
Service de Gériatrie Plaies et Cicatrisation, APHP Hôpital Rothschild, Paris

A la mesure de l'enjeu de santé public que représentent les plaies chroniques en France et fort des expériences menées depuis plus de 20 ans en France par quelques pionniers, la Cnamts en association avec la SFFPC a débuté en décembre 2015 la phase expérimentale d'un programme d'accompagnement du retour à domicile (PRADO) "plaies chroniques". L'équipe médicale de l'établissement de santé où se trouve hospitalisé le patient décide si le patient est éligible. Un conseiller de l'assurance maladie propose au patient, en vue de sa sortie, de lui organiser de premiers rendez-vous avec des professionnels de santé libéraux de son choix. Le "parcours de soins recommandé" comprend, dans la semaine suivant la sortie, une consultation avec le médecin traitant et une visite de l'infirmier, puis une visite "bilan" avec le médecin traitant au cours du deuxième mois. Le suivi au titre du programme peut durer jusqu'à six mois. L'organisation d'un "recours optimisé à l'expertise" pour "tous les patients qui le nécessitent" est intégré à ce PRADO. Des experts, principalement hospitaliers, ont été identifiés. En fonction du type de plaie et de critères d'évolution défavorable ou de gravité, l'équipe hospitalière peut décider de faire intervenir l'expert dès la sortie de l'établissement. Si ce n'est pas le cas, le médecin traitant et l'infirmier libéral pourront aussi le solliciter ultérieurement. Des outils d'aide à la prise en charge et de diffusion des bonnes pratiques ont été conçus, dématérialisés et validés par la HAS : application mobile "E-mémo plaies chroniques". Une formation en "elearning" sera proposée par la SFFPC. Des outils d'éducation pour chaque type de plaie ont également été développés pour les patients et les aidants. A terme, la Cnamts envisage l'inclusion de 200.000 patients / an et une réduction de 10% des durées de cicatrisation les plus longues. Si les résultats sont atteints, des économies de l'ordre de 100 millions d'euros par an sur les seuls soins de ville sont espérés. L'intégration à ces programmes de la télémédecine, l'articulation avec les projets PRADO « personnes âgées », des projets d'éducation thérapeutiques, ont un objectif identique à celui que nous poursuivons depuis de nombreuses années pour nos patients au travers d'actions universitaire (Diplôme universitaire Plaies et Cicatrisations) ou de formation continue (www.cicatrisations2017.org).

Place du médecin vasculaire dans la prise en charge des patients porteurs d'ulcères de jambe.

Christine JURUS
Clinique du Tonkin, Villeurbanne

Le vieillissement de la population, l'incidence sans cesse croissante des facteurs de risque vasculaire notamment le diabète induisent une élévation constante des patients porteurs de plaies chroniques, c'est à dire sans cicatrisation audelà de 6 semaines malgré des soins bien conduits.
Le développement de centres de cicatrisation prenant en charge des plaies s'adapte à ce besoin de la population, mais la composition des équipes n'est pas toujours homogène. Pourtant la place du médecin vasculaire est au coeur de la prise en charge de ces patients : avant tout acteur du diagnostic, le médecin vasculaire à l'issue d'une exploration fonctionnelle complète analysant aussi bien l'hémodynamique artérielle que veineuse (profonde et superficielle), va permettre d'affirmer l'étiologie dominante de la plaie dans plus de 90% des cas, à l'instar de la répartition des plaies vasculaires dans la genèse des ulcères.
A l'issue de ce bilan pourront donc être envisagées des propositions thérapeutiques orientées, spécifiques à chaque patient, en fonction des anomalies vasculaires constatées.
Au-delà de son rôle essentiel dans le bilan étiologique, le médecin vasculaire possède également une parfaite compétence thérapeutique, avec de multiples possibilités de prise en charge efficace, pour les étiologies veineuses superficielles notamment.
De par sa contribution à la fois diagnostique et thérapeutique, le médecin vasculaire est un acteur majeur dans la prise en charge des patients porteurs de plaies chroniques, et doit être formé à cette pathologie.
Au sein de centres de cicatrisation identifiés, le médecin vasculaire compétent ne travaillera pas seul, mais sera idéalement entouré d'une équipe pluri-disciplinaire, afin d'optimiser la gestion de ces patients.

08:30-10:30 BELLECOUR

Treatment of carotid disease in 2016
Traitement de la maladie carotidienne en 2016

Characterization of the high risk asymptomatic carotid stenosis.

F. BECKER[1], J.M. BAUD[2]
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For a few years the debate on asymptomatic carotid stenosis has been rather controversial due to the power of the modern BMT (Best Medical Therapy) which may make the early diagnosis of asymptomatic carotid stenosis and the prophylactic carotid surgery obsolete. Sometimes the provocative sentence of Naylor et al (EJVES 2009 Jun) "Who benefits most from intervention for asymptomatic carotid stenosis: patients or professionals?" seems realistic.
An intermediate way is to look for low risk or for high risk asymptomatic severe carotid stenosis. The extracranial and transcranial Doppler maybe the first line toolbox to do that

through the assessment of the downstream hemodynamical repercussion of the carotid stenosis on the MCA and the circle of Willis and through the assessment of its thrombo-embolic risk.
The hemodynamical risk is assessed via the comparative measurement of the arterial flow of both CCAs, of the Doppler signal of both MCAs and of the cerebral vasomotor reactivity (VCR) of both MCA territories. The association of decrease in the ipsilateral CCA resistive index (IVi), of increase of the ipsilateral CCA flow, of increase of the inclination time of the MCA signal, and of abolition of the VCR of the ipsilateral MCA means that the compensation of the drop in pressure is mainly due to downstream vasodilation and that the collateral pathway is insufficient.
The thrombo-embolic risk is assessed via the gray-scale imaging of the echostructure (GSM) of the stenosis and the search for high intensity transitory signals (HITS) using twice transcranial holter recordings of the MCA for at least one hour. Echolucent, echolucent and heterogenous carotid stenosis associated with the presence of HITS detection in the ipsilateral MCA is the mark of carotid stenosis at high thrombo-embolic risk. Contrast-enhanced ultrasound imaging of the carotid stenosis may be a complementary tool to confirm the diagnosis of unstable or vulnerable lesion.
Of course, this approach is time-consuming but, in 2016, it seems clear that the sole consideration of the narrowing percentage is not enough for decision-making in front of an asymptomatic severe carotid stenosis.

Carotid stenosis = Extracranial carotid artery stenosis (carotid artery bifurcation)

Key-words: asymptomatic carotid artery stenosis, risk stratification

08:30-10:30 TETE D'OR 2

Session IDE 1ère partie : « Les ulcères vasculaires »

Vascular Nurses Plenary Session 1

ULCERES VASCULAIRES / *VASCULAR UCERS*

Les plaies vasculaires : description et prise en charge.

Azeddine ADDALA
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La gestion des plaies est un véritable problème de santé publique tant par son coût, que par sa prise en charge clinique : l'anamnèse, la description de la plaie ; sa nature, sa localisation anatomique, sa taille, l'aspect des berges, de la zone péri-lésionnelle, le lit, la présence et le type de sécrétions, sa date d'apparition, son évolutivité, et les douleurs associées…
Ces connaissances permettent d'adopter un langage et un savoir- faire communs ; gage d'une harmonisation des bonnes pratiques, d'une collaboration productive de tous les acteurs de soins (médicaux et paramédicaux) hospitaliers et libéraux.
Le respect de tous ces critères aboutit au raccourcissement du délai de cicatrisation, donc l'amélioration de la qualité de vie, de prise en charge des patients porteurs de plaie(s) et de son coût.

Prise en charge de la douleur (ischémie, douleurs neuropathiques, avant, pendant les soins, les plaies).

Florence TIBERGHIEN-CHATELAIN
CETD, CHU Jean Minjoz, Bd Fleming, Besançon

La prise en charge de la douleur en médecine vasculaire nécessite avant tout de connaître le mécanisme physiopathologique sous-jacent : s'agit-il d'une douleur neuropathique ? S'agit-il d'une douleur nociceptive ? Existe-t-il une douleur morale ?
Les trois mécanismes peuvent être intriqués comme par exemple dans les douleurs d'athérosclérose évoluée des membres inférieurs.
Une fois les mécanismes identifiés grâce à une simple analyse sémiologique et aux outils de dépistage des douleurs neuropathiques (DN4), il est important ensuite de connaître les molécules à notre disposition pour traiter ces différents types de douleurs.
Les douleurs nociceptives feront appel aux antinociceptifs : antalgiques de palier I non opioïdes, de palier II : opioïdes faibles de palier III opioïdes forts.
La pharmaco-dynamie et la pharmacocinétique sont à connaître.
Pour les douleurs nociceptives, nous avons à notre disposition des molécules d'action normale, d'action rapide ou à libération prolongée.
Les douleurs neuropathiques seront traitées par des antiépileptiques et les antidépresseurs ainsi que les traitements locaux en l'absence de lésions cutanées.
Les douleurs provoquées par les soins sont également à prendre en compte et seront soulagées par des médicaments dont les délais d'action sont variables et doivent être connus. Le mélange protoxyde d'azote oxygène est très utile dans cette indication.
L'analgésie par bloc nerveux périphérique ou mise en place d'un cathéter péri nerveux afin d'obtenir une antalgie des zones douloureuses sont des techniques prometteuses en voie de développement.
Enfin, toutes les techniques non médicamenteuses sont très utiles dont l'hypnoanalgésie très adaptée au douleur provoquée par les soins.

Session Infirmier(e)s 2ème partie
Vascular Nurses Plenary Session 2

Plaies : gestion de la détersion et des exsudats.

Sophie BLAISE
Clinique de Médecine Vasculaire Centre Hospitalier et Universitaire de Grenoble, France

La détersion mécanique d'une hyperkératose recouvrant une ulcération, d'un fond nécrotique ou fibrineux est une des recommandations de la prise en charge des ulcères chroniques et ce, quelque soit la localisation de l'ulcère. Pourtant, certaines études rapportent que jusqu'à 30% des praticiens pensent que le débridement n'a pas d'effet sur la cicatrisation. La détersion doit néanmoins respecter les tissus « nobles » et les ischémies sèches ainsi que s'adapter au contexte. La connaissance ou non d'une participation artérielle à l'ulcère peut inciter une certaine vigilance à la détersion. Le nettoyage de la plaie peut déjà participer à l'acte de détersion

(douche) et la stratégie globale du maintien de la plaie en milieu humide est également favorable à la détersion. Différentes techniques de détersion sont possibles. Les mécaniques sont à privilégier : bistouri, curette ou ciseaux. D'autres techniques peuvent être associées ou de recours : détersion enzymatique, osmotique, biologique (larvothérapie). Certaines sont encore débattues du fait du manque de preuves scientifiques : thérapie à pression négative avec instillation ou électrothérapie. Des tableaux cliniques particuliers tels que la présence de calcifications importantes au sein de la plaie peuvent faire recourir à des thérapeutiques d'exception. Une détersion efficace ne peut dans tous les cas être réalisée sans un contrôle optimal de la douleur, qui doit être abordée dès l'abord du patient et avant même le déballage du pansement.
Dans les exsudats, l'étiologie de l'ulcère est sans doute le facteur le plus important. Comme dans toute prise en charge de plaie, il convient donc de bien avoir optimisé la prise en charge étiologique (traitement radical d'une insuffisance veineuse, renforcement d'une compression personnalisée etc…). Les pansements sont dans ce domaine très nombreux mais leur prescription doit être judicieusement posée car il est rappelé que les associations de plusieurs pansements absorbants sont interdites par la HAS.

Mots clés : plaie, détersion, exsudats

08:30-10:00 GRATTE CIEL 1-2

Best Papers of the ESVM 2016 Meeting
Les meilleures communications du congrès ESVM 2016

Residual cardiovascular risk in peripheral artery disease: exploring the role of albumin-creatinine excretion rate (ACR) in a prospective study

S. MASTROIANNO, M.A.PACILLI, G. DI STOLFO, A.F. MIMMO, A. FACCIORUSSO, T. SANTORO, A. RUSSO,R. FANELLI, M. IMPAGLIATELLI
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Background. Atherosclerosis is the main cause of morbidity and mortality in the Western World. Despite adequate addressing of known cardiovascular risk factors, by optimization of drug therapy and lifestyle modification, remains the need to quantify the residual risk in patients with known cardiovascular disease. Several studies have been conducted to find markers to help identify patients who could benefit from a more aggressive drug treatment. To date, markers of microvascular dysfunction such as *albumin-creatinine excretion rate* (ACR) were assessed to stratify risk in primary prevention.

Objective. The aim of this study was to examine whether ACR may be useful for evaluating residual risk in patients affected by peripheral arterial disease.

Methods. We evaluated ACR in 264 patients (207 M, 57 F, aged 71.6 ± 7.5) affected by peripherical artery disease (PAD) defined as carotid occlusion or severe stenosis (reduction of the vessel lumen greater than 50%) and/or lower limb ischemia II or III stadium Leriche-

Fontaine. The exclusion criteria were represented by not critical carotid atheroma, asymptomatic arterial disease (I stadium Leriche-Fontaine), gangrene of the lower limbs (IV stadium Leriche-Fontaine) and presence of cancer with an expectation life less than six months. We divided population in two groups, Lower and Higher group, according to ACR median.

Results. Mean ACR value was 15.8 (0.106 - 414.6), while median was 2.014. Patients were followed for approximately 33 ± 11 months. During follow-up were recorded major events, defined as myocardial infarction, cerebral ischemia, myocardial and/or peripheral revascularization and death.
In our population we observed 64 major cardiovascular events: 23 in the Lower ACR group and 41 in the Higher ACR group. Hazard ratio for cardiovascular events calculated by Cox proporzional analysis adjusted for the observed significative difference was 1,715 (CI 95% 1,002 to 2,936, p = 0.049).

Conclusions. This observational study demonstrated that high ACR levels are predictive of cardiovascular events in patients affected by advanced PAD and it may be useful for evaluating residual cardiovascular risk.

Effects of training on reticulated reactive platelets and erytrocyte fragments in patients with peripheral atherosclerosis.

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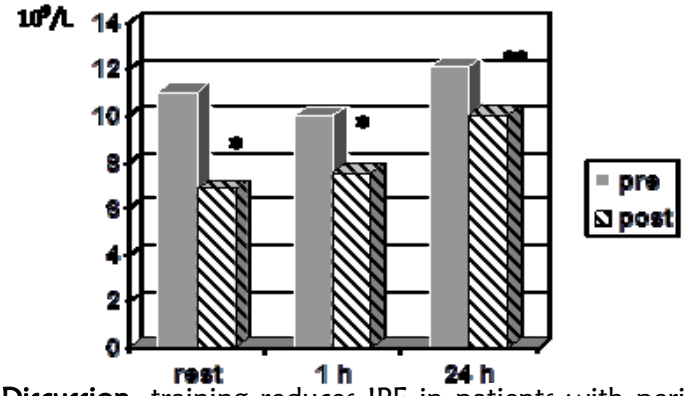
Department of Medicine, Division of Angiology, . [1] Chemical-Clinical and Hematological Analysis Laboratory. – University of Verona

Background. Training is a documented effective treatment in patients affected from peripheral arterial disease (PAD). Platelet activation plays a pivotal role in atherosclerosis progression and cardiovascular events. Reticulated platelets (IPF) reflects activity of bone marrow, recently they have been associated to cardiovascular complications and atherosclerosis with unstable conditions (e.g. acute coronary syndrome). Presence of a width blood red cell distribution is considered recently as a prognostic factor for coronary artery disease, a high RDW value depends greatly on presence of red blood cells fragmentation (FRC); this parameter may depend on different conditions such as inflammation, and oxidation and is connected with different risk factors such as hypertension and diabetes. Few data can be found for patients with peripheral arterial disease on training. We aimed to evaluate the effects of aerobic training on IPF and FRC at rest and after maximal walking exercise before and after training.

Methods and Results. we enrolled 12 patients with intermittent claudication. They were submitted to a 15 days aerobic training period (cycling and treadmill exercise under maximal walking capacity). IPF, MPV, PLT count and FRC were analyzed at rest, 1 hour after maximal treadmill test and after 24 hours, these evaluations were performed at the beginning and at the end of the training period. The Lab parameters were analyzed with impedentiometry, fluorimetry (oxazyne) and optical methods (Sysmex Xn-1000, Sysmex Corporation, Kobe, Japan). Walking distance was measured with treadmill (3,2 km/h, 2-10% slope), maximal test was prolonged to the maximal tolerated claudication pain.

Platelets count was within normal range (216,9 ± 40 10^9/l) and did not changed throughout the study; also MPV was unchanged (11,6±1,9 vs 11.45±0,8 fl) before and after the training ; plateletcrit was slightly reduced (0,246±0,061 vs 0,282 ±0,018 %). IPF count (figure) slightly changed during maximal stress at the beginning of training with increase after 24 hours; after training the count decreased significantly (*p<0,05) at rest and 1 hour after, while it increased significantly after 24 hours (** p<0,05 vs rest ad vs 24 h-pre) but less than before training.



FRC decreased after triaining (0,381±0,121 vs 0,542±0,220 %; p<0,05), maximal test slightly increased FRC after 1 hour, no significant change after 24 hours.
At the end of training, absolute walking distance increased (450±180 vs 250±108 m; p<0,05).

Discussion. training reduces IPF in patients with peripheral arterial disease, IPF increase after acute maximal test and this phenomenon can be attenuated by training. We also observed a reduction in FRC. Presence of FRC in these patients may be caused by mechanical forces throughout a large surface of atherosclerotic plaques fragmenting red cells, ischemia reperfusion in claudication is another mechanism that can elicit formation of FRC and in addition high oxidative stress may contribute. IPF are associated with an increase platelets activity and a higher turnover; in this pathology both these condition can be found associated with oxidative stress, inflammation and endothelial dysfunction. Training improves oxidation, inflammation and endothelium function with favorable effects on platelets activation and turnover, furthermore these parameters may influence also FRC count.

Conclusion. training in PAD patients reduces IPF and FRC with potential improvement in risk profile for atherosclerosis progression and reduction of cardiovascular events.

References:

1. *Cesari F, Marcucci R, Gori AM, et al . Reticulated platelets predict cardiovascular death in acute coronary syndrome patients. Thrombosis and Haemostasis 2013; 109: 846-853.*
2. *Hoffmann JJ . Reticulated platelets: analytical aspects and clinical utility. Clin Chem Lab. 2014; 52: 1107-17.*
3. *Bujak K, Wasilewski J, Osadnik T, et al. Prognostic role of red blood cell distribution width in coronary artery disease: a review of the pathophysiology. Disease Markers 2015, vol 1 ; 1-12.*

Hedgehog signaling in Human Brain Arteriovenous Malformations

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Introduction. Hedgehog (HH) proteins are morphogens with an important role in angiogenesis and vascular development. In this study, we investigated the expression of the HH signaling pathway in human AVMs. We also evaluated the hypothesis that an angiogenic growth that displays the characteristic features of AVMs may be obtained by activating the HH signaling.

Methods. The expression of the HH pathway was analyzed in ten specimens of human AVMs and ten specimens of human normal brain by real-time RT-PCR and immunostaining. The possibility to induce the growth of an arteriovenous angiogenic process by activating the HH pathway was tested in ephrinB2-lacZ mice, which carry the lacZ reporter gene under the control of the promoter of the ephrinB2 gene, which is specifically expressed in arteries but not in veins. Pellets containing SHH were implanted into the cornea of these mice and the resulting angiogenic process was studied.

Results. Among the various components of the HH pathway, the HH inhibitory protein HHIP was significantly and constantly down-regulated in all human brain AVM specimens, compared to controls. Immunofluorescence revealed SHH expression on endothelium of AVMs, while no positive staining for SHH was observed in the endothelium of normal brain. Likewise, Gli-1 - the major transcription factor of the HH pathway - was expressed in the endothelium of brain AVMs but not in the endothelium of normal brain. When pellets containing SHH were implanted into the cornea of ephrinB2-lacZ mice, the resulting angiogenic process was characterized by the growth of both arterial and venous vessels, interconnected by complex sets of arteriovenous shunts without an interposed capillary bed, as seen in AVMs in humans.

Conclusions. This is the first demonstration of the activation of the HH pathway in human AVMs.

Vascular remodelling in hypertensives with well controlled BP values.

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Introduction. In hypertensive subjects an excess prevalence of intimal thickening and atherosclerotic lesions was reported. The aim of the study was to evaluate the impact of well controlled blood pressure (BP) levels on structural and functional properties of arteries in hypertensive subjects.

Methods. We studied 80 patients who had been kept either on pharmacological treatment (55 of 80) or on lifestyle modification (25 of 80 patients) for at least 12 months (mean 38 months) to maintain target BP. Follow-up visit were scheduled every 6 month. Office BP was taken three times by the same doctor at the time of the study. We assessed the B-mode ultrasound of mean carotid intima-media thickness (mean-IMT) and maximum IMT (M-MAX) in each carotid artery segment (common, bulb, internal), bilaterally. Endothelial function was evaluated by post-occlusion flow mediated dilation (FMD) of the brachial artery using high-sensitivity ultrasonography. Moreover, arterial elastic properties were evaluated by assessing carotid distensibility (DC) and compliance (CC). Forty normotensive subjects paired for age and sex served as controls.
Results. In the hypertensives, BP levels were well controlled (office BP: 131/79 mmHg). Compared to controls, significantly higher BP levels, BMI, and waist were present in hypertensives (BP 131/79 *vs* 118/75 mmHg, BMI 26.2 *vs* 24.6 Kg/m^2, waist 95 *vs* 87 cm), whereas age and metabolic parameters were similar (age 49 vs 52 years, total cholesterol 5.19 *vs* 5.37 mmol/l, HDL-c 1.38 *vs* 1.33 mmol/l, triglycerides 1.21 *vs* 1.40 mmol/l, glycaemia 4.97 *vs* 4.91). In hypertensives, the IMT (mean-IMT 0.65 mm, M-MAX 0.79 mm) was significantly higher than in controls (mean-IMT 0.60 mm, M-MAX 0.70 mm). FMD was impaired in hypertensives (5.7%) compared to controls (9.2%). IMT parameters correlated only to age, while LDL-cholesterol was the only factor related to FMD. There was no relationship of IMT parameters and FMD with BP levels. Compared to controls, arterial elasticity was significantly impaired in hypertensives (DC 25.6 *vs* 52.4 10^{-3}/kPa, and CC 0.97 *vs* 1.40 mm^2/kPa).
Conclusions. In hypertensives with long term well controlled BP, the pro-atherogenic remodelling is still present respect normotensive controls. Structural impairment (IMT) is mainly dependent upon age, while functional impairment (FMD) is related to cholesterol levels. Moreover, carotid elasticity was impaired in hypertensives. The "pseudo-normalization" of the BP levels is not sufficient to eliminate the hypertensive status that contributes to functional and structural impairment.

11:00-12:30 AMPHITHEATRE

Revascularisations extremes
Extreme Revascularizations

Les critères d'ischémie critique en 2016.

Joël CONSTANS
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Le terme d'ischémie critique chronique des membres inférieurs (ICCMI) a été introduit pour désigner un état d'ischémie permanente des tissus des membres où le pronostic local est engagé. Le tableau clinique de l'ICCMI peut être très évocateur (douleur de decubitus ou nécrose d'orteil) mais parfois beaucoup moins (ulcère de jambe malléolaire chez un artériopathe, douleur atypique de type neuropathique….). Les critères d'ICCMI ont évolué depuis 30 ans, mais la partie clinique de la définition a peu varié : douleur distale du pied

depuis au moins 15 jours, non soulagée par les antalgiques de grade II de l'OMS, trouble trophique attribuable à l'artériopathie. Pour avoir une certitude du caractère attribuable, la nécessité d'une confirmation hémodynamique de l'ischémie est apparue rapidement. Celle-ci peut être obtenue par la pression de cheville (Pc), la pression systolique d'orteil (PSO) ou la pression transcutanée en oxygène (TcPO2). L'intérêt de la Pc a été mis en cause en raison d'une surestimation très fréquente chez les diabétiques [1].
Les définitions hémodynamiques de l'ICCMI ont évolué depuis le consensus européen de 1991:
Pc<50 mm Hg ou PSO<30 mm Hg ou TcPO2<10 mm Hg.
Les deux consensus TASC ont fait évoluer cette définition vers (TASC II):
Pc<50-70 mm Hg, PSO<50 mm Hg ou TcPO2<30 mm Hg.

Le problème de cette évolution est que les données établies en utilisant les critères du consensus de 1991 pour le pronostic ne sont pas transposables en aux critères TASC II. Nous avons pu montrer que les patients qui remplissent les critères de TASC II mais pas du consensus européen ont 2 fois moins de risques d'être amputés que ceux qui répondent aux 2 [2].

En 2016, il faut être conscient de la diversité des critères utilisés, il faut surtout considérer que la gravité de l'état d'ischémie critique n'est pas la même en fonction des critères utilisés. La HAS avait tenté d'intégrer les différents concepts en établissant 2 stades différents : l'ischémie permanente et l'ischémie critique.

1 *Becker F, Robert-Ebbadi H, Ricco JB et al, Definitions, epidemiology, clinical presentation and prognosis. Eur J Vasc Endovasc Surg 2011, 42 S 2, S4-12,*
2 *Vircoulon M, Boulon C, Desormais I et al. Comparison of one-year prognosis of patients classified as chronic critical lower limb ischaemia according to TASC II or European consensus definition in the COPART cohort. Vasa* 2015, 44, 220-8.

Intérêt de la revascularisation de l'angiosome pour la cicatrisation des troubles trophiques artériels chez les patients ayant un pontage fémoro-péronier. Étude avec analyse de propension.

Jean-Baptiste RICCO, Mauro GARGIULO
Université de Poitiers et l'Université de Bologne

Objectif. Le but de l'étude était de connaître chez les patients artéritiques ayant un trouble trophique (TT), les résultats des pontages fémoro-péroniers en fonction de la localisation du TT par rapport aux angiosomes péroniers, de la qualité du lit d'aval (branches de l'artère péronière) et de la perméabilité de l'arcade plantaire.

Méthodes. Nous avons mené, de 2004 à 2014, une étude rétrospective à partir d'une base de données opérationnelle maintenue à jour quotidiennement dans deux centres universitaires européens. Nous avons inclus tous les patients qui avaient eu un pontage péronier et un TT du pied. Dans tous ces cas, l'artère péronière était la seule artère jambière perméable. Les TT ont été classés en fonction de l'échelle de WiFI. L'infection était présente dans 56% des TT.

Tous les patients avaient eu une angiographie préopératoire associée à cartographie des veines saphènes. Les critères de jugement principaux étaient le sauvetage du membre et le temps nécessaire pour obtenir la cicatrisation des TT. Les résultats ont été calculés en utilisant la méthode de Kaplan-Meier. Une étude multivariée avec calcul du score de propension a ensuite été réalisée pour comparer le taux de sauvetage de membre et la cicatrisation des TT en tenant compte des covariables pertinentes en analyse univariée.

Résultats. De Janvier 2004 à Octobre 2014, 133 pontages péroniers ont été réalisés chez 120 patients (âge moyen 74,7 ± 9 ans) ayant une ischémie sévère des membres et un TT du pied. La durée médiane de séjour était de 13 jours [IQR: 8-19 jours]. À trois ans, le taux de sauvetage des membres chez des patients ayant une revascularisation directe de l'angiosome péronier contenant le TT était de 68,5 ± 6,8% contre 70,6 ± 5,6% chez les patients ayant un TT situé en dehors des angiosomes péroniers (p = 0,42), sans différence significative entre les deux groupes. À trois ans, le taux de sauvetage des membres chez des patients ayant deux branches péronières perméables était de 76,9 ± 6% contre 66,7 ± 5,9% chez les patients n'ayant qu'une branche péronière perméable (p = 0,01) avec une amélioration significative de la cicatrisation des TT.
À trois ans, le taux de sauvetage des membres chez des patients ayant une arcade plantaire perméable était de 80,9 ± 6% contre 56,4 ± 7,0% chez les patients n'ayant pas d'arcade plantaire perméable (p = 0,01) avec également une
amélioration significative de la cicatrisation des TT. La survie globale était de 65 ± 12% à 3 ans. Dans cette série, seuls 74 patients avaient un TT couvert par l'angiosome péronier (56%). En analyse multivariée avec score de propension, la perméabilité des deux branches péronières et la perméabilité de l'arcade plantaire étaient les seules covariables associées à la cicatrisation des TT (OR: 2,7, IC95%, 1.7- 8.9).

Conclusions. Nos résultats suggèrent que chez les patients artéritiques ayant un pontage fémoro-péronier, la perméabilité des deux branches de l'artère péronière et de l'arcade plantaire sont les éléments essentiels pour obtenir la cicatrisation des TT, cela quel que soit l'angiosome dont dépend le TT. La revascularisation directe de l'angiosome dont dépendait le TT n'était possible que chez la moitié des patients et n'avait pas amélioré de façon significative le taux de sauvetage de membre et la cicatrisation des TT.

Revascularisations extrêmes
06/10/2016 Amphithéâtre Cordeliers

Utility of Direct Angiosome Revascularization and Runoff Scores in Predicting Limb Salvage in Patients Undergoing Peroneal Bypass for Tissue Loss. A Propensity Analysis.

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University of Poitiers and University of Bologna

Objective.
We compared direct revascularization (DR) vs. Indirect revascularization (IR) according to pedal angiosomes and runoff score of the peroneal branches (anterior perforating and lateral calcaneal branches) using a propensity score analysis.

Methods. *We conducted a retrospective review of a prospectively maintained operative database in two European university centers from 2004 to 2014. We included only patients who had a bypass to the peroneal artery with a foot or ankle wound to identify the primary angiosome. Wounds were classified according to the WiFI scale. Infection was present in 56% of wounds with a similar rate between peroneal and other foot angiosomes.*
All patients had a pre-bypass angiogram and preoperative vein mapping performed. Limbs that required minor amputation but healed were considered successful limb salvage.
Time to complete wound healing, limb salvage, major amputation-free survival were calculated using the Kaplan-Meier method with comparison using the log-rank test. Multivariate method with propensity analysis was used to compare limb salvage and wound healing according to patient characteristics, graft material, peroneal runoff and DR or IR.

Results. *From January 2004 through October 2014, 133 peroneal bypasses were performed in 120 patients (mean age 74.7±9 years) with severe limb ischemia and foot wound. Median length of stay was 13 days [IQR: 8-19 days]. Limb salvage at 3-year in patients with DR was 68.5±6.8% compared to 70.6±5.6% in patients with IR (p = 0.42) with no significant difference in wound healing. Limb salvage at 3-year in patients with two peroneal branches open was 76.9±6% vs. 66.7±5.9% in patients with one branch open (p = 0.01) with a significant improvement in wound healing.*
Limb salvage at 3-year in patients with an open pedal arch was 80.9±6% vs. 56.4±7.0% in patients with one branch open (p = 0.01) with also a significant improvement in wound healing. Overall survival was 65±12% at 2-year. Only 74 wounds (56%) could be assigned to a single peroneal angiosome. In multivariate analysis with matched propensity score, patency of both peroneal branches and plantar arch were significant predictor for wound healing (OR: 2.7, 95%CI, 1.7-8.9) but not angiosome direct revascularization.

Conclusions.
Our results suggest that patency of both peroneal branches and plantar arch provide better wound healing irrespective of the wound primary angiosome. Direct revascularization to wound angiosomes by a peroneal bypass was possible in only half of the patients with tissue loss and did not improve wound healing significantly.

Endovasculaire extrême.

Eric DUCASSE
Service de chirurgie vasculaire Hôpital Pellegrin, CHU de Bordeaux

L'ischémie critique chronique est l'une des plus fréquentes complications des patients diabétiques, avec 25% de pied diabétique, faisant du diabète l'un des plus importants facteurs de risque d'amputation. Ces patients présentent des lésions extensives à type d'occlusion total chronique avec des calcifications majeures multi-étagées : 5% en sus-inguinal, 55% au niveau de l'artère fémorale superficielle et/ou poplitée, 93% sous le genou et 71% sous la cheville. Ainsi, 77% des patients présentent des lésions de 2 ou 3 artères de jambe et 50% de 2 ou 3 artères du pied avec un lit d'aval très grêle. Un geste de revascularisation permettant la

restauration d'un flux direct dans le pied est par conséquent beaucoup plus difficile et l'approche endovasculaire a permis de diminuer significativement la morbi-mortalité comparée aux pontages distaux. De nombreuses techniques de recanalisation ont été développées : endoluminale, subintimale, rétrograde («loop» technique, trans-collatérale, ponction percutanée rétrograde).
Cependant, les taux d'échec de revascularisation s'élèvent encore à 20% lorsque les artères du pied sont occluses. Aussi, de nouvelles techniques endovasculaires extrêmes ont été proposées, telles que les ponctions antérogrades trans-métatarsienne, de l'arche plantaire ou de l'artère pédieuse. Les phénomènes de resténose précoce après angioplastie ont pu être améliorés par l'utilisation de ballons actifs enduits de —limus et de stents sertis sur ballon ou auto-expansibles en cas de dissection limitant le flux ou de «recoil», augmentant ainsi les taux de sauvetage de membre. Par ailleurs, des stents actifs ont été proposés et permettent une diminution des taux de réintervention et de resténose intra-stent dans les lésions courtes. De plus, la préparation des vaisseaux et notamment l'athérectomie laser permet d'augmenter les taux de succès technique et diminue les taux de resténose dans les lésions calcifiées, les occlusions totales chroniques et les resténoses par hyperplasie myo-intimale. Ces approches endovasculaires extrêmes sont des techniques d'intérêt dans le traitement des lésions jambières et du pied. Cependant, elles doivent être réalisées uniquement en cas de risque d'amputation élevé (classification WIfi) et dans les cas les plus difficiles, n'ayant pas bénéficié d'une perfusion suffisante dans le pied par les techniques habituelles.

Mots clés : ischémie critique chronique, revascularisation endovasculaire

Place des allogreffes

Augustin PIRVU
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Background. Despite the recent developpement of endovascular techniques, the bypass surgery is still the gold standard. The aim of this study was to compare the results of different techniques observed in limb salvage surgery used for infrainguinal revascularisation.

Results. Vascular allografts have been reconsidered in the treatment of critical limb ischaemia when vein material is absent, because of the disappointing results with artificial grafts.
It is no statistical diference in limb salvage using arterial or venous allografts bypass in infra genicular revascularisation (70-80% at 5 years) despite of different patency rates reports(20-43%). At 1 year, the limb salvage rate is the same for the surgery and the transluminal angioplasty but the costs is less in endovascular procedures (BASIL study 2005).
Is is no difference betwen stenting and simpleangioplasty in infragenicular localization (Expand study 2015). It is no proved benefice in infragenicular angioplasty with drug coated balloons (metaanalysis 2016). Vascular allografts bypass leads to an acceptable limb salvage rate but poor patency rates.

Conclusion. During limb salvage surgery, the vascular reconstruction using the criopreserved arterial allograftshould be kept in mind especialy in absence of a long sphenous vein graft. It is no signifiant difference in limb salvage rate between the different revascularisation techniques.

11:00-12:30 FORUM 5

Guidelines of the European Society for Vascular Medicine
*Reco*mmandations de la Société Européenne de Médecine Vasculaire

DVT clinical care pathway project

A. VISONÀ,* R. PESAVENTO°

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Integrated Care Pathways (ICPs) come under the umbrella of a set of tools known as "structured care methodologies", tools that formalise known patterns of care processes, thus adding predictability and providing the transfer of knowledge. Research protocols, guidelines, algorithms and the problem oriented medical record are all examples of structured care methodologies. What makes these initiatives effective is their development, implementation and dissemination. An ICP determines locally agreed, multidisciplinary practice based on guidelines and evidences, where available, for a specific patient group. It forms all or part of the clinical record, documents the care given and facilities the evaluation of outcomes for continuous quality improvement. An ICP describes a process within health and social care, which maps out a predefined set of activities and records care delivered and the variations between planned and actual care. Governments promote ICPs because of their multidisciplinary-flexible working, patient centredness, quality management, risk reduction, vision of integrated disease management and care system across care episodes and sectors, evidence and guidelines based, which means to get guidelines into use. Health professionals keen on ICPs because they are considered tools for joined-up working, check-list reminder-basic decision support, simple shared record and record of variance enabling audit.
The scientific societies should be involved in ICPs modelling, thus promoting overall management of evidences from guidelines to ICPs, supporting and servicing their members. Moreover, ICPs promote educational function, mediating role with government agencies and Local Health Systems.

The European Society for Vascular Medicine (ESVM), after having faced with the drafting of guidelines, proposes this tool to disseminate guidelines. The ICP for Deep Venous Thrombosis (DVT) is aimed to spread the application of authoritative guidelines used daily, to promote their application in the real world and daily work, to anticipate care in an appropriate time frame, written and agreed by a multidisciplinary team. A flow chart for the management of DVT will be proposed to the members of ESVM with the aim of improving the treatment of DVT and to emphasize the importance of the vascular physician in taking care of patients with DVT, which is more and more considered a chronic disease with relapses. ESVM will promote also a survey on the spread of ICPs, by three simple questions sent to all the members: How common is the adoption of ICPs in your hospital/local health system?

How is your daily practice influenced by the presence of shared ICPs? Would you consider useful that your scientific society give you its support to develop ICPs to be offered in your hospital/local health system?

References
1. Innovations in Care, Welsh Assembly government, 2003.
2. Integrated Care Pathways. A guide to good practice. Ed. By Nicola Davis, 2005

11:00-12:30 BELLECOUR

Innovations in the treatment of varicose veins
Innovations dans le traitement des varices

Latin American guidelines on therapeutics for the venous pathology, chronic venous insufficiency.

Roberto SIMKIN, Marcelo Dandolo, Carlos Simkin, Jorge Ulloa, Jorge H, Ulloa, Pedro Komlos et al
Buenos Aires, Brazil

This is the realization of a project I have been thinking about and whose need I have believed in for more than three years.
The reasons are based on the rapid change of concepts we have witnessed over the last years, both in the field of diagnosis and in that of therapeutics.
These guidelines are aimed at being a manual for frequent consultation for the doctor under formation and a practical update text for specialists.
Thus, the information provided in these guidelines is the result of the effort from the participants as co-authors of the project, to whom I show my most sincere gratitude and humble admiration.
In this first edition, we will focus on Venous Chronic Insufficiency (VCI). To achieve this goal, we the authors have based ourselves on the bibliography published in English, mainly on those works which gather the features of randomized clinical trials (RCTs), though special attention has been paid to works of Latin American origin and authorship, since the main aim of this work is to contribute with viable and sensible guidelines according to our socio-economic problematics.
The work methodology is eminently practical, resulting in a reader-friendly consultation manual.
The chapters include brief introductions regarding historical reviews, comments on anatomy, histology, embryology, hemodynamics, physiopathology, etiology;
another section includes all topics regarding semiology, clinic and diagnosis, which expand on this point.
Finally, the core part, which according to our objectives is the therapeutics, is developed in the same chapter.The tactics, techniques and results are stated in the therapeutics.

At the end of each chapter, if applicable, tables with a level of evidence supported by randomized clinical trials, observational studies and patients' series are shown.
It is specifically stated that these guidelines do not intend to be a dogma; they should be used jointly with the experience of the treating professional and the own preferences that the patient suffering from the pathology may have.
The result and the complete guidelines going to be publisch in a future.
1-Guyatt G, Gutterman D, Baumann MH, et al.
Grading strength of recommendations and quality of evidence in clinical practice guidelines: report from an American College of Chest Physicians task force. Chest 2006; 129:174–81.

Grade of recommendation / Description	Benefit vs Risk	Methodological Quality of Supporting Evidence	Implications
1A / Strong recommendation high-quality evidencd	Benefits clearly outweigh risks	RCTs without important innovations or overwhelming evidence from observational studies	Strong recommendations, can apply to most patients in most circumstances without reservation
1B / Strong recommendation, moderate quality evidence	Benefits clearly outweigh risks	RCTs with important limitations (inconsistent results, methodological flaws, or imprecise) or exceptionally strong evidence from observation studies	Strong recommendations, can apply to most patients in most circumstances without reservation
1C / Strong recommendation, low quality evidence	Benefits clearly outweigh risks	Observational studies or case series	Strong recommendations, but may change when higher quality evidence becomes available
2A / Weak recommendation, high-quality evidence	Benefits closely balanced with risks	RCTs without important limitations or overwhelming evidence from observational studies	Weak recommendations, best action may differ depending on circumstances, or patients' or societal values
2B / Weak recommendation, moderate-quality evidence	Benefits closely balanced with risks	RCTs without important limitations (inconsistent results, methodological flaws, or imprecise) or exceptionally strong evidence from observational studies	Weak recommendations, best action may differ depending on circumstances, or patients' or societal values
2C / Weak recommendation, low-quality evidence	Uncertainty in the estimates of benefits, risks and burdens, which may be closely balanced	Observational studies or case series	Very weak recommendations, other alternatives may be equally reasonable

10 tricks and tips for performing the best sclerotherapy of varicose veins

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At a time when we are discussing with such enthusiasm the emergence and use of a wide range of innovative methods in the treatment of lower limb varicose veins , the author stresses the present importance of conventional chemical sclerotherapy in the treatment of telangiectasia and reticular veins of the lower limbs.

It is a secular method, but not an old-fashioned treatment . Simple to implement and affordable to the general population, it requires, however, suitable learning, with a rather laborious curve.
The author also highlights the need to continue observing closely this simple and effective method, which is available to angiologists in any medical workplace.

In this sense, the author presents 10 TIPS and TRICKS which are important to learn this technique as well as its best and safest performance.

Klippel Trenaunay syndrome: treatment with endovenous laser. Long term results with the regional segmentary skeletization technique.

Roberto SIMKIN, Carlos SIMKIN
Faculty of Medicine of Buenos Aires, Brazil

The authors present their experience in the treatment of the troncular varicose veins, and in 1 case distal and diffuse arteriovenous fistulae with laser.
We used in the 3 cases endoluminal laser 980nm, with fiber from 200 to 600nm,.and in 8 cases the laser 1470 and the fiber from 200.nm
All the cases were guided by intraoperatory U.S., also we performed a pre-operatory arteriography of the lower limbs. An scanogram of both lengths showing the differences between the ill leg, that contains the diffuse angiomatosis, the pigmentary nevus and the different measure and length of that leg.
All the cases were classified by the Simkin classification of the KTS.
In pure KTS, diffuse and Mixed, the exception was the case with arteriovenous fistulae, that cases were englobed in this classification as a mixed KTS (arterial and vein component).
In the cases that the patient presents a diffuse pattern of micro arteriovenous fistulae, we usually performed a pre-operatory arteriography and we used to practice the regional segmentary skeletization technique, which performed the divorce into the arterial and the deep vein venous systems.
The first case that we performed endovenous laser in the long saphenous veins bilaterally was primitivally operated using the regional segmentary.

Skeletisation Technique in 1987.We performed the arteriography 18 years later and we could observe a recurrence of a diffuse micro-arteriovenous fistulae pattern in the infrapopliteal distal branches in the internal tight of the affected leg. After the endovenous laser during the immediate post-operatory control we observed that the pre-operatory pattern disappeared, so we conclude that the endovenous laser in the treatment of the KTS helps to close and treat the diffuse microarteriovenous fistulae.
Pattern, also we observed after many years follow up,that the different measure and length of that legs doesn´t exist anymore, comparing with the 1987 measures.The 2nd case that we performed endovenous laser was in the great saphenous veins, and also in the pelvic veins (15 years after we did the regional segmentary skeletisation technique.
The 3rd case was performed in the short saphenous veins, perforators and collateral veins of the tight and on the leg endovenous laser associated with microsurgery and AFL (advance fluorence technologies) for the angioma located in the legs, with good results.

Conclusions. Long term results of the "Regional segmentary skeletization" technique were presented (15-24 years) with good results,and with 3 cm or less difference between the other leg in the preoperatory.
When we do the arteriography during the post-operatory controls appears the secondary av fistulaes that demonstrates the persistence of secondary varicoses veins, the recurrence in those cases in about 30 % of the cases.

11:00-12:30 GRATTE CIEL 1-2

Vascular Diseases in the Middle East
Maladies vasculaires au Moyen-Orient

Pelvic congestion syndrome managment in orient

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1 Damascus University Hospital, Syria
2 Arabe Endovascular Group

Aim. Pelvic Congestion Syndrome (PCS) is un overlooked and under diagnosed common gynecologic and vascular pathology and a major cause of women's invalidism and both sex postsurgical varices recurrence. Few epidemiological studies have been carried out due to false perception that it is not really a major problem. Some studies in USA & Europe showed that one–third of all women will experience some chronic pelvic pain during their lifetimes; PCS presents 25–30 % of all consultation in gynecology. Pathologies, anatomy, clinical aspects, imagery (echo–Doppler, MRI, contrast CT and Laparoscopy) our treatment methods (medical, surgical and endovascular including our own sclerotherapy method) are summarized. The aim of this cross sectional and multicentric study was to evaluate the prevalence of PCS in genital activity aged Syrian women; how to approach this problem considering the oriental mentality and the sensibility to inquire about such somehow sex related subject.

Methods. The study was carried out through 22 Primary Health Care (PHC) centers, in three main Syrian departments : Damascus, Latakia (the cost), Dairelzor (eastern desert). Every other Syrian women visiting the selected PHC centers during one month, for any reason, aged 18 – 48 years was eligible for the study. All doctors (mostly females) participated in the study in the 3 departments were trained by the same trainer; filling the questionnaire, performing full clinical examination.

Results. Only 2023 (out of 3544 recruited) participants were included (the others excluded for inadequate cooperation or missing data). Global Results; 47 % of participants complain of some clinical aspects of PCS; only 22 % of suffering women have ever consulted; very rarely PCS diagnosis was established.

Conclusion. Higher prevalence of PCS in Syrian female population than in Western countries maybe due to High number of pregnancies in Syria and to the style of life. Difficulties to approach PVC with young Syrian women due to traditional taboos. Gynecologists often wrongly attribute PVC symptoms to some psychical or local neural ambiguous reasons.

Study of Clinical course and natural History of Tromboangeitis Obliterans (Buerger's Disease)

Mohammad-Hadi Saeed MODAGHEGH
Mashhad, Iran

Background. Buergers disease is an inflammatory - occlusive vascular disease of limbs that usually initiates in young low socio-economic smoker males. Limb ischemia usually have episodes of exacerbations and remissions. The most important risk factor is tobacco use. The patient during exacerbation phase experience severe rest pain and occasionally painful digital ulcer with delayed healing that occasionally lead to minor or major amputation.
Method. In a prospective study evaluated 68 patients with TAO. All episodes, risk factors and interventions depicted in a curve for each patient. Similar curves classified in one group and each group divided to subgroups on the basis of more similarity of curves. Evaluated the impact of risk factors and therapeutic options in exacerbation and remission phases.
Results. Clinical course curves of 68 patients divided to 3 major patterns:

- Group 1: repeated episodes.
- Group 2: single episode.
- Group 3: severe episode/ or episodes

Risk factors except tobacco abstinence and treatment options except major amputation have no impact in clinical course of TAO.
Conclusion. It seems that clinical course of TAO is predictable on the basis of specific patterns. Clinical course of TAO is near to natural course because risk factors and various treatment modalities have no impact on clinical course of the disease.

Keywords : Thromboangiitis obliterans (TAO) ,natural course , clinical course.

14:00-16:00 AMPHITHEATRE

Gestes vasculaires échoguidés
Ultrasound Guided Vascular Procedures

Angioplastie échoguidée des accès vasculaires d'hémodialyse.

Fabrice ABBADIE
(1) Unité de médecine vasculaire, centre hospitalier de Vichy.
(2) Service de maladies métaboliques et dialyse, centre hospitalier de Vichy.

But. Etudier la faisabilité et la sécurité des angioplasties de la veine de dialyse sous guidage échographique.
Secondairement, il s'agissait de collecter prospectivement les paramètres morphologiques et hémodynamiques pendant l'angioplastie trans-luminale (ATL) de fistule artério-veineuse (FAV) de dialyse sous guidage échographique pour décrire leur évolution entre avant et immédiatement en fin de geste, à 1 mois et à 3 mois.

Matériel et méthode. Du 1er janvier 2015 au 1er juillet 2016 ont été collectées prospectivement les données de toutes les ATL successives pratiquées au centre hospitalier de Vichy. Etaient exclues les tentatives de recanalisation, ATL de sauvetage et les ATL portant exclusivement sur le versant artériel.

Résultats. 78 angioplasties ont été pratiquées sur 50 patients âgés en moyenne de 72.9 ans (36-93 ans). Il y avait 27 (54%) radio-céphaliques, 2 (4%) ulno-basilique, 13 (26%) brachio-céphalique, 5 (10%) brachio-basilique et 3 (6%) pontages brachio-axillaires. Le taux de franchissement des sténoses sous écho était de 100%. Les complications ont été : 38 (50%) hématomes de paroi, 2 (2.6%) thromboses complètes de la veine ayant nécessité une désobstruction immédiate, 1 (1.3%) rupture, 2 (2.6%) spasmes artériels et 1 (1.3%) thrombose d'artère radiale immédiatement désobstruée avec succès. L'ensemble des paramètres morphologiques : diamètre endoluminal, pourcentage de réduction par rapport à un diamètre de référence, diamètre de l'anastomose et hémodynamiques : pic de vélocité systolique (PSV) et vitesse télédiastolique (VTD) sur le site de la sténose, ratio de PSV avec l'amont de la sténose et sur l'artère brachiale : débit moyenné, PSV, VTD et index de résistance, ont connu une amélioration significative en comparant avant traitement et immédiatement après. Cette amélioration se maintient à 1 mois et à 3 mois. Seul le diamètre de référence hors ectasie n'a pas significativement varié.

Conclusion. Le guidage échographique permet de réaliser la totalité de la procédure d'angioplastie de la veine de dialyse avec une sécurité tout à fait comparable à celle de la procédure sous rayons X. Les paramètres tant morphologiques qu'hémodynamiques changent immédiatement lors de ce geste. D'autres études permettront de définir si certains d'entre eux sont prédictifs d'une bonne efficacité du geste.

Mots clés : abord vasculaire de dialyse, angioplastie échoguidée.

14:00-15:30 FORUM 5

Mulltidisciplinary Vascular Centers
Centres vasculaires multidisciplinaires

Multidisciplinary Vascular Centers: the concept and its application

Fabrizio BENEDETTI VALENTINI
IUA European Commission for Accreditation of Vascular Centers

The theoretical bases for the organisation of multidisciplinary Vascular Centers (VCs) were laid down when the Section of Vascular Surgery (SVS) of the Union Européenne des Médecins Spécialistes (UEMS) in Dublin, sept 3rd 2003, formed a "Working Group (WG) on VCs" in collaboration with the International Union of Angiology (IUA), which at that time was involved particularly for the "medical perspectives" of the problem. The main purpose of such WGVCs was to develop and define guidelines (GLs) for the formation of VCs devoted to the multidisciplinary care of vascular patients. Those GLs would help health institutions and authorities throughout the European Union (EU), and possibly beyond it, to establish VCs. It was a long way to go !

A VC was defined as a *"Dedicated center where patients with vascular diseases can receive high quality medical, endovascular and open surgical treatment by appropriate experts working as a coordinated team".* No single specialty center for any vascular care can be defined, operated and promoted as a real authentic VC. The functions of a VC encompass "*a range of qualified angiological, radiological and surgical services, vascular consulting services including vascular laboratory, 24 h / 365 d service for emergency and cooperation with primary care physicians".*

The preliminary draft of the document was first approved by the Council of the SVS-UEMS in Helsinki, sept 15th 2005, but then a Joint Committee (JC) with the IUA was formed on an equal basis of represention either by societies and by medical and surgical specialty. The final approval of such JCVCs was reached in Athens, june 24th 2008, and a writing group started its job which led to publication in *Int Angiology 2009; 28: 347-352.* The Management Council of the IUA in Buenos Aires, apr 21st 2010, decided to become practically operative and formed an independent [IUA] "European Commission for the Accreditation of Vascular Centers" with the mandate to elaborate all the procedures needed for the certification of multidisciplinary VCs according to the GLs published in Int Angiology 2009. Therefore the "*main criteria*" were established along those GLs, the "*rules of procedure*" were laid down, to be followed also by the Administrative Secretariat, an "*application form*" was suggested for convenience of the applying centers, and a meticulous "*check list*" was composed in order to help the Commissioners and make the judgement as uniform, unbiased and fair as possible.

The "*key components and features*" of a VC are:

1) Expertise and facilities for Vascular Medicine, Endovascular Treatment and Open Vascular Surgery;
2) Diagnostics and Therapy 24h - 7 days a week;
3) Appropriate case load;
4) Accredited Vascular Laboratory;

5) Quality assessment.
"Essential facilities" are:
1) Dedicated vascular ward;
2) Fully equipped ITU/HDU;
3) Appropriate short stay - Day cases facility;
4) Dedicated outpatient clinic run by a coordinated vascular team;
5) Vascular Laboratory [all sort of non invasive vascular investigations is requested];
6) Endovascular unit;
7) Vascular surgical theatre [hybrid radiosurgical room is desirable].

Finally a VC needs a series of specialized services (CT, MR, Cardiology, Diabetology etc) so that it must be located in a University or national or regional major General Hospital.

Multidisciplinary Vascular Centres: the Vascular Medicine perspective

A. VISONÀ
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Multidisciplinary Centres for the treatment of vascular diseases have been proposed in response to rapid advancement in diagnosis and treatment, changing epidemiology, and different political and economic conditions. The term of Vascular Centre (VC) started to appear in the literature in the mid 90s. In 2006 certification of Vascular Centres, a project of the German Society of Vascular Surgery,
Radiology and Angiology, revealed an unexpected high resonance and the pivotal role of the Angiologist /Vascular Physician.
In 2009, the Guidelines for the organization of VCs in Europe have been published, signed by Joint Committee for Vascular Centres of the International Union of Angiology (IUA) and the Section and Board of Vascular Surgery of the Union Européenne des Medecins Specialistes (SBVS-UEMS).
Again, the epidemiological data and practical observations emphasize the justification of a multidisciplinary approach in the management of the patients with vascular disease: the majority of patients referred to a VC requires medical rather than surgical treatment; 20% of the population over 60 years have peripheral arterial disease and, of those, 5% suffer from claudication and 1-2% are at risk of progression to amputation; 3% of the male population over 65 years has an aneurysm of the abdominal aorta and, if a screening is performed, the prevalence rises to 7%; 40% of strokes arise as a result of carotid lesions; 30% of the population will develop varicous veins, and chronic venous ulcers are seen in 1.2% of the population over 60 years of age. Last but not least, pulmonary embolism represents the 3rd cause of cardiovascular death, and patients with a first episode of unprovoked venous thromboembolism have a high risk of recurrence after discontinuation of anticoagulant therapy, configuring DVT as a chronic disease with relapses. Therefore, availability of an

Angiologist/Vascular physician is needed in a VC, defined as a dedicated centre where patients with vascular disease can receive high quality medical, endovascular and open surgical treatment by appropriate experts working as a coordinated team. The key components and features for a VC are: expertise and facilities for vascular medicine, open surgery and endovascular therapy; diagnostics and therapies 24 h - 7 days a week; appropriate case load; accredited vascular laboratory; quality assessment. Nowadays, it is highly desirable that a multidisciplinary team with a thorough understanding of vascular diseases takes charge of vascular patients. It is crucial to set some points: it does not matter who performs diagnostic or endovascular treatments, providing she/he has the necessary expertise. To better define who is in charge of the patients, clinical pathways, agreed guidelines and audit of outcomes are needed. A joint and primary role of the vascular physician is also essential for research and training.

References

1. *Eckstein HH, Niedermeier HP, Noppeney T, Umscheid T, Wenk H, Imig H. Certification of vascular centers - a project of the German Society for Vascular Surgery. Eur J Vasc Endovasc Surg. 2006 Sep;32(3):279-85.*
2. *Joint Committee for Vascular Centres of International Union of Angiology (IUA); Section and Board of Vascular Surgery of Union Européenne des Médecins Spécialistes (SBVS-UEMS), Benedetti-Valentini F, Diamantopoulos E, Antignani PL, Bastounis E, Carpentier P, Fernandes e Fernandes J, Nicolaides A, Bergqvist D, Cairols M, Liapis CD, Nevelsteen A, Van Bockel JH. Guidelines for the organisation of vascular centres in Europe. Part I. Int Angiol. 2009 Oct;28(5):347-52.*
3. *Benedetti-Valentini F. The IUA program of accreditation of vascular centers has just taken off: multidisciplinary cares are the best way to manage the vascular patients. Int Angiol. 2014 Jun;33(3):299.*

Multidisciplinary Vascular Centers: the Vascular Surgery perspective

S. ACOSTA, A. GOTTSÄTER
Vascular Centre, Skåne University Hospital, Malmö, Sweden

The Vascular Centre in Malmö, Sweden, is a tertiary referral centre, which has a long-standing experience in collaboration across specialties composed by vascular surgeons, vascular physicians and interventional radiologists. While the vascular surgeons have become increasingly familiar with imaging and interventional radiology and have taken over some of the work previously performed by interventional radiologists, the vascular physicians have been most important for secondary preventive measures and preoperative evaluation from a medical perspective. The vascular physician is the expert in coagulation, anticoagulation, and antihypertensive medication and is consulted in a wide range of diseases such as aortic dissections and renovascular hypertension. In the integrated ward, typical vascular surgery patients are usually mixed with medically treated patients with acute aortic, type B, dissections and complicated venous thromboembolism. The clinic has several multidisciplinary rounds each week to facilitate decisions and better patient care: The carotid artery stenosis round involves a vascular surgeon, a neurologist, and a vascular physician. The diabetic foot round

involves a vascular surgeon and a diabetologist. The access round for dialysis care involves a vascular surgeon and a nephrologist. In addition, there is a vascular malformation round each month which involves an interventional radiologist, a vascular physician, and a plastic surgeon. The clinic has a firm belief in this way of multidisciplinary approaches for better care, teaching of medical students, and in terms of research, important progress will more likely occur at the borders between two specialties rather than within each specialty. Numerous doctoral theses from this Vascular Centre affiliated with Lund University have been of multidisciplinary nature, and supervised by both a vascular surgeon and a vascular physician.

14:00-15:00 BELLECOUR

Complex Chronic Limb Edema: A Practical Approach

OEdème complexe chronique de jambe : une approche pratique

Chronic oedema : LIMPRINT

Christine MOFFATT
School of Health Sciences, University of Nottingham, United Kingdom

Despite the complex issues associated with the management of Lymphoedema there is a paucity of evidence describing the prevalence and incidence of the problem throughout the world using standard methodologies. Until recently most research had focussed exclusively on breast cancer related lymphoedema and other cancers. However over the last 10 years there has been a growing recognition that chronic oedema is a much wider, heterogeneous population and that broader public health definitions should be defined to capture the extent of the problem. The definition of chronic oedema present for more than 3 months has been used to capture the diverse aetiologies associated with the formation of chronic oedema, these include the following; primary lymphoedema due to lymphatic dysplasia ; secondary causes including cancer treatment or invasive tumour, venous disease, trauma, immobility, obesity and filariasis in endemic areas such as India and Africa. There is considerable morbidity associated with the condition

LIMPRINT is an international, multi-site project to determine the prevalence and functional impact of lymphoedema/chronic oedema in the adult population of member countries of the International Lymphoedema Framework.

The LIMPRINT study forms an important part of the guiding principles of the International Lymphoedema Framework (ILF). The ILF is a UK charity and its aim is to improve the management of chronic oedema and related disorders worldwide through the sharing of expertise and resources, and by supporting individual countries to develop a long-term strategy for the care and management of chronic oedema. The ILF comprises member countries that subscribe to the ideals of the ILF and have developed their own independent National Lymphoedema Framework (NLF). A NLF is a partnership of stakeholders within a given country who are dedicated to improving chronic oedema care.

A fundamental aim of the ILF is to support countries in the development of data to establish the size of the problem of chronic oedema. Such data are essential in supporting the introduction of evidence-based practice and reimbursement of lymphedema care. LIMPRINT is an international epidemiological research study that aims to provide an opportunity to not only gather data that will benefit individual chronic oedema services, and the countries in

which these services are located, but will also enable an international perspective by using a single central on-line database. The acronym LIMPRINT stands for **L**ymphoedema **IM**pact and **PR**evalence – **INT**ernational and is representative of the aim of the study, which is to determine the impact and prevalence of chronic oedema at a national and international level. LIMPRINT is a two-phase project. Phase 1 took place between June 2013 and June 2014, and was concerned with the preparation necessary to undertake the epidemiological research. Phase two involves the international roll out of the programme involving 7 countries and multiple sites and will close in January 2017. Interim results will be shared during this presentation.

Phase 1 was a five-stage process and involved the construction of the on-line database using Clindex, an electronic data capture and clinical trial software. Phase 1 also focussed on using case studies (which had been reviewed by an international expert panel) to test the research instruments that will be used in Phase 2. The programme has been developed to allow for population based studies and facility based studies. This is necessary as many countries are not logistically able to undertake population studies due to the organisation of their health care. Patients with chronic oedema will be identified using a 'case ascertainment' method in which data are captured using one standard questionnaire (Core Tool). The functional impact of chronic oedema will be assessed using a number of module tools each of which captures data that will illuminate the effects of chronic oedema on the individual, these include:

- Demographics and disability.
- Quality of life.
- Details of swelling.
- Wounds.
- Cancer.

Limprint has been used this year to describe the profile of patients within a large UK Lymphoedema service with over 3200 patients. It has also been used to undertake a population based study in Copenhagen where patients were sought from all clinical areas coming in contact with patients and included a clinical assessment of all patients within the two hospitals serving the area. The results from this will be shared during this presentation. Plans for an international role out of the programme are underway over 2015 .

16:30-18:00 FORUM 5

Délégation de tâches en médecine vasculaire
Delegation of tasks in Vascular Medicine

Quelles tâches cliniques, organisationnelles, techniques déléguer en médecine vasculaire.

Georges LEFTHERIOTIS, S. HENNI, M CHAUPITRE, P ABRAHAM
Laboratoire Explorations Fonctionnelles Vasculaires, CHU Angers, Angers

Compte-tenu des contraintes budgétaires, démographiques et de la demande de soin, la délégation de tâche est devenue une préoccupation évidente dans un grand nombre de spécialités médicales en France, en particulier la médecine vasculaire. Dans un certain nombre de pays d'Europe et hors Europe, un certain nombre d'actes pratiqués en médecine vasculaire

font déjà l'objet d'une délégation ou d'un partage de compétence entre différents secteurs professionnels de Santé. En France, la compétence du médecin vasculaire a été définie au fil du temps selon des critères acquis en fonction des avancées techniques et médicales. La réalisation d'actes techniques élaborés, comme l'échodoppler, sont réalisés et interprétés par les médecins vasculaires, alors que dans d'autres disciplines (ex : radiologie) et d'autres pays, la partie technique de l'acte, est dissociée de l'acte intellectuel d'interprétation. Cette situation impacte bien entendu le modèle technique et économique lié à la notion de délégation de l'acte. La limite est donc encore floue entre ce qui reviendrait à un acte exercé par une catégorie professionnelle plutôt qu'une autre.

L'objet de cet exposé sera de faire le point sur les différents scénarios possibles dans ce domaine.

Conditions de formation nécessaires aux délégations de tâches. Organisations d'équipes et délégations de tâches.

Christian BOISSIER
Service de Médecine Vasculaire & Thérapeutique CHU de St-Etienne

La « délégation d'actes techniques » dans une unité d'explorations vasculaires, nécessite de définir au préalable les critères de sélection des personnels concernés, les modalités de formation, de validation, d'exercice et de contrôle de qualité de la délégation.
Nous avons opté en ce qui nous concerne pour une formation longue effectuée au cours de deux années universitaires et focalisées sur toutes les explorations fonctionnelles ainsi que sur l'échographie de dépistage des lésions vasculaires.
Nous avons souhaité que cet enseignement soit officiel et reconnu par un diplôme d'université « Diplôme d'Assistant d'Explorations Vasculaires », où ne peuvent s'inscrire que des infirmières ou des manipulateurs électroradiologistes ayant au moins 5 ans d'expérience dans un service de pathologie vasculaire et travaillant sous l'autorité d'un Médecin Vasculaire. Le règlement de ce diplôme mentionne spécifiquement que la délégation des actes enseignés, ne peut être faite que par un Médecin Vasculaire. Tous les candidats qui ne remplissaient pas ces conditions n'ont pas été autorisés à s'inscrire à cette formation. La formation pratique a été réalisée totalement ou partiellement dans le service de Médecine Vasculaire & Thérapeutique de notre CHU et pour partie dans un autre centre universitaire agrée. La validation des examens théoriques et pratiques a été faite par un jury composé exclusivement de médecins vasculaires du CHU coordinateur (ST Etienne). Les conditions de formation imposant deux fois huit mois de présence à temps plein dédiée à cette activité n'ont permis de former qu'un nombre très restreint de personnes mais qui toutes ont obtenu un niveau de connaissance suffisant.
Une unité fonctionnelle de dépistage des lésions vasculaires chez les patients diabétiques a été ouverte dans le service à l'issue de la période de formation et, en accord avec nos confrères diabétologues, confiée aux infirmières titulaires de ce DU, sous la responsabilité d'un médecin vasculaire qui juge la qualité et la cohérence de toutes les données avant de valider ces examens. Des contrôles aléatoires des examens pratiqués, nous permettent de nous assurer de la pertinence des données recueillies.
La délégation d'actes techniques nous apparaît utile et sûre, elle nécessite cependant une vigilance permanente et un apprentissage aussi bien pour ces nouveaux « assistants d'explorations vasculaires » que pour le médecin vasculaire qui va déléguer certaines taches, les

superviser et en assumer l'entière responsabilité. Cette délégation ne peut et ne doit en aucun cas échapper au contrôle des Médecins Vasculaires qui ne sont et ne peuvent être que les seuls spécialistes à pouvoir déléguer les examens vasculaires.

Délégation d'actes techniques : retour d'expérience

Claude REINHOLD
Centre Hospitalier Altkirch (Haut Rhin)

Infirmière depuis 1981, j'ai intégré le service d'explorations fonctionnelles du Centre Hospitalier Altkirch en 2002, service dans lequel je travaille sous l'autorité de Médecins Vasculaires pour les explorations relevant de pathologies vasculaires.
Les infirmières ont comme mission en plus de l'accueil et l'installation des patients de recueillir les données administratives et médicales et de réaliser des examens simples qu'elles ont en général, appris « sur le tas ».
L'existence du Diplôme d'Université d'Assistant d'explorations vasculaires, pouvait m'ouvrir d'autres perspectives tout en restant dans la même structure.
Pour s'inscrire à une telle formation il faut cependant au préalable être conscient des conséquences que cela va entraîner :

- Pour l'institution dans laquelle je travaille :
  - * Financement de la formation sur le volet formation continue
    - Droits d'inscription
    - Maintient du salaire (deux fois huit mois de stage)
- Pour le service dans lequel je travaille
  - * Absence d'une infirmière temps plein pendant toute la formation
- A titre personnel
  - * Trouver un logement étudiant pendant les périodes de stage
  - * Pendant deux ans ne revoir sa famille que les week-ends
  - * Laisser ses collègues travailler avec une personne de moins
  - * S'intégrer dans une nouvelle équipe

Avec l'aide de ma hiérarchie et le soutien de mes collègues et des médecins vasculaires du service, j'ai pu m'inscrire et suivre cette formation.
Même si la durée de celle-ci est longue, elle est nécessaire pour acquérir et maitriser les techniques d'explorations hémodynamiques et échographiques vasculaires. Les échanges que j'ai pu avoir avec d'autres candidates, m'incitent à plaider pour une formation en immersion totale pour l'intégralité des stages comme j'ai pu en bénéficier.
Cette mesure est difficile à obtenir mais semble être le garant d'une progression rapide, et évite que l'activité quotidienne laissée à une infirmière dans son service, empiète sur le temps de sa formation. Le retour dans mon service me permet aujourd'hui, sous la responsabilité des médecins vasculaires, de participer activement aux explorations de dépistage. Nous attendons une reconnaissance de ce type de délégation pour nous investir davantage dans un rôle d'assistante d'explorations vasculaires au côté et sous l'autorité des médecins vasculaires.

16:30-18:00 BELLECOUR

Vascular Diseases. Particularities in Women

Maladies vasculaires : particularités chez la femme

Aortic and peripheral arterial surgery in women

N. DELLA SCHIAVA(1), A. MILLON(1), A. LONG(2)
(1) Vascular and endovascular surgery department, LYON, France
(2) Vascular medical department, LYON, France

Background and objectives : There is an abundant literature focused on the influence of gender on peripheral arterial disease. It might have some differences in outcomes in women but it remains controversial. The aim of this review of literature is to determinate if these differences exist and to know if peripheral arterial surgery guidelines in women must be different from men.

Methods : A systematic review of literature from 2010 to 2016 were performed with the following keywords : "peripheral arterial disease", "aortic aneurysm(AA) AND surgery", "carotid stenosis (CS) AND surgery", "lower extremity arterial occlusive disease (LEAOD)", AND women OR gender.

Results : We analyzed 40 studies. None of them included only female. In women, peripheral arterial disease were underdiagnosed and undertreated. Surgery was done at older age with more comorbidities and a more advanced disease. Outcomes were less favorable at short term. For AA, indications were the same as in men but it is discussed to treat at smaller diameter because of smaller diameter when rupture occurs. Evolution was more aggressive with higher rate of rupture and higher mortality. More complications were associated with surgical repair, for open and endovascular techniques. Women were less suitable for endovascular techniques because of unsuitable aortoiliac anatomy. At long term, the rates of complications and reinterventions were similar but survival was shorter. For CS, benefit of surgery was lower than in men for asymptomatic patients, but surgery was better than medical treatment for symptomatic patients. Surgical outcomes seemed to be less favorable, with higher risk of cerebrovascular event and death at short-term. Carotid endarterectomy seemed to be better than carotid stenting. Differences in plaque morphology, smaller diameter of vessels and higher embolic risk were valuable explanations. For LEAOD, poorer surgical outcomes were also reported, with higher revascularizations failures and higher rate of amputation. Smaller arterial diameter was the most common explanation. Endovascular treatment was nevertheless feasible and effective.

Conclusion : Differences in surgical outcomes exist in women compared to men for aortic, carotid and lower limb arterial occlusive disease. However, there are no specific guidelines for women. Recommendations related to gender seem to be necessary but this imply news studies of high level of scientific proof, specifically targeted at women.

Vascular acrosyndromes

Pavel POREDOS, MMateja Kaja JEŽOVNIK
University Medical Centre Ljubljana & University of Ljubljana Medical Faculty, Ljubljana, Slovenia

Acral circulatory disorders are characterized by a distal involvement (usually fingers) and a vasomotor pathogenesis, which may in later stages lead to morphological changes of the affected vessels. Vascular acrosyndromes may be paroxysmal and can be induced by certain factors. Instigators, such as cold or emotional distress in Raynaud's syndrome, whitening of fingers induced by cold or erythromelalgia, erythematous to violaceous colour of the fingertips, which occurs on exposure to heat. Permanent or semi-permanent are acrocyanosis, chilblains, and spontaneous haematoma of the fingers. Repetitive trauma, like in hypothenar and thenar hammer syndrome, may produce aneurysmal dilatation, mural thrombi, distal embolic events, or complete arterial occlusion. The worst cases can lead to digital ischaemia or necrosis. Acrosyndromes, particularly primary Raynaud's is frequent disorder particularly in young women.
A focused history and clinical examination can help identify most vascular abnormalities. Capillaroscopy, complete blood count, rheumatological assay, and imaging modalities are useful for distinguishing between primary and secondary disorders. For the digital ischaemia and purpuric or livedoid lesions, screening for arterial or thrombotic disease is necessary.
Primary Raynaud is a benign disease which predominantly affects younger women and is transient without serious sequelae, but it may also be secondary to underlying conditions, such as autoimmune diseases and vasculitis. Erythromelalgia is often associated with myeloproliferative syndrome. Acrocyanosis is an acrosyndrome frequently found among adolescent particularly young women. Treatment is based on lifestyle modification and mainly preventive: protection against the provoking factor, like smoking cessation, avoiding cold or heat, avoiding the use of vibrating tools and limiting repeated hand actions. Drug treatment is effective in less than 50% of treated patients and only helps to reduce the severity and frequency of attacks.

Vendredi 7 Octobre - *Friday October 7th*

08:30-10:40 AMPHITHEATRE

Heparin Centennial Symposium: A Century of Scientific Fascination and Clinical Implementation - Part I

L'Héparine a 100 ans ! Un siècle de Fascination Scientifique et de Développement Clinique (1ère partie)

Introduction and Welcome on Behalf of Loyola University

Margared Ellen CALLAHAN
Niehoff School of Nursing , Loyola University Chicago, Maywood, USA

Dear Professor Carpentier and ladies and gentlemen.

Heparin with major indications.

It is indeed an honor and pleasure for me to welcome you all on behalf of the Loyola University Chicago Health Science Division and the scientific committee of the International Union of Angiology to this special celebration to recognize 100 years since the discovery of the universal anti-coagulant heparin. This life saving drug has been used clinically for over 75 years and has been crucial in the surgical and medical management of thrombosis, open heart surgery, vascular interventions and hemodialysis. Despite dramatic developments in anticoagulant therapies, heparins have remained to be the standard of care for these indications.

Loyola University Chicago Medical Center.

Over the past 50 years, Loyola University Chicago faculty have developed integrated bench to bedside projects which have played important roles in the optimization of the use of unfractionated heparin in open heart surgery and coronary angioplasty, in the introduction of low molecular weight heparins, and in the stepwise basic and clinical development of synthetic heparin pentasaccharide. Our faculty have also interacted with national and international centers of excellence in conducting bench to bedside research on heparin and related drugs. Collectively, over 1,000 publications and several books have resulted from this dedicated research program. In addition, post graduates programs to train scientist and clinicians have been established. We are thankful to our international colleagues who have worked with our faculty, some of whom are present today in this symposium.

Interactive research between academia, industry and clinicians

During the 100 years since its discovery, heparin has continually provided scientific and clinical challenges which required integrated teamwork between clinicians and scientists, academia and industry, international collaboration and the recognition of the need for multi-disciplinary approaches to learn from the knowledge gained from this complex drug. Not only is heparin a crucial anti-coagulant, but the understanding of heparin's interaction with blood and vascular system has laid the foundation of modern hemostasis and thrombosis.

IUA logo and accomplishments.

The International Union of Angiology, has provided an open platform to discuss advances in the area of anti-coagulation. The inclusion of the heparin centennial symposium as a major program is in recognition of the recent accomplishments and significant developments in this field. We are grateful to Professor Carpentier, President of the 27th International Congress for his vision and support for including topics related to the advances in anti-coagulation, in particular heparins. The speakers of this symposium are pioneers who have devoted their lifetimes to advancing and enhancing the use of heparin and related drugs for the treatment of thrombosis. I would like to especially thank all of our speakers in this symposium for their lifelong dedication in enhancing the knowledge and developing clinical and educational programs.

Heparin to pentasaccharide, recognition of Choay Laboratories.

Loyola University Chicago and the International Union of Angiology have a long tradition of working together in developing academic and research programs, some of which have been facilitated by our colleagues in the pharmaceutical industry. The evolution of heparin, low molecular weight heparins, heparinoids, synthetic and bio-engineered heparins as life-saving drugs, would have not been possible without a close collaboration with pharmaceutical industry. The stepwise development from heparin to pentasaccharide led by the French pharmaceutical team at Choay Laboratories is a testimony of collaboration between academia, industry and professional organizations. Such industrial collaboration will play a key role in the future advancement of this area.

I would like to thank the IUA and SFMV and the program committee for organizing this congress in the beautiful city of Lyon. I also wish to thank all of the attendees and participants and do hope that this symposium will not only provide an update on the advances in heparin's clinical usage and scientific research but, will provide a platform to openly exchange ideas and for networking with colleagues. Finally, on behalf of Loyola University Chicago, Health Science Division I would like to extend a cordial invitation to all of you to come to Chicago to participate in the Heparin Centennial Symposium at our newly opened Center for Translational Research and Education. This center will enhance our integrated bench to bedside programs and will provide us an opportunity to foster international collaborations.

I wish all of you a wonderful stay in this beautiful city and look forward to welcoming you to our University in Chicago in October 2016.

Thank you.

Heparin Centennial: A Century of Clinical and Scientific Progress.

FAREED J.
Loyola University Medical Center, Dept. of Pathology, Maywood, USA

The year 2016 marks one hundred years since the discovery of the universally used anticoagulant drug heparin. Over this period of time heparin has remained one of the most challenging and rewarding drugs for scientists and clinicians. Despite the development of numerous synthetic and biotechnology based anticoagulant drugs, heparin and its derivatives have remained the standards of care for thrombotic and cardiovascular indications. The chemistry, biology and clinical behavior of this drug is intriguing and has fascinated both the scientific and clinical communities for many decades.

The scientific quest on heparin began in 1916 when a medical student, Jay McLean accidentally discovered anticoagulant activity in a dog liver extract. The discovery or finding was not in accordance with what his assignment called for. For this reason his then mentor, William Howell, was displeased with him for some time, only to later follow his work to rediscover the anticoagulant activity in dog liver. The history of heparin is very well documented highlighting the interesting interactions between McLean and Howell. Even today, there is controversy regarding the credit for the discovery of heparin. McLean was a medical student at Johns Hopkins when he made the discovery that dog liver homogenates contain lipid soluble substances which had anticoagulant properties. Soon after this finding, McLean left Johns Hopkins and another student by the name of Holt also found an anticoagulant substance in aqueous extracts of dog liver. After Holt's findings, Howell took an interest in this project and called the anticoagulant substance Heparin (from the Greek word for liver). Several years later, Howell and his group presented their findings at the American Physiological Society meeting. In 1926 Howell presented further refinement of the process to extract the anticoagulant substance from liver extracts. Until this time the credit for the discovery of heparin has been debated. While it is difficult to establish who really discovered heparin, McLean is generally credited as the discoverer of heparin. McLean's work in Howell's laboratory changed the focus of research towards anticoagulants. The clinical use of heparin began in the late 1920s. The initial batches of heparin, when used clinically, produce side effects such as nausea, vomiting and headache. This prompted further purification of this agent by various groups. The American pharmaceutical group Hynson, Westcott and Dunning produced commercial amounts of heparin. Several investigators in other countries started working to further refine heparin production. This work was pioneered by the Canadian group led by Charles Best, then Chair of the Physiology department at the University of Toronto and was carried out at the Toronto (Canada) based Connaught Laboratories. The group developed methods to extract heparin from bovine liver and later from bovine lungs. This work led to the development of commercial grade heparin for clinical use.

The introduction of heparin as an anticoagulant attracted many chemists and biologists to further study this agent. In 1929 a Swedish scientist, Erik Jorpes, visited the department of Physiology in Toronto to work with Dr. Best. He became interested in the study of heparin and upon returning to Sweden initiated a major program. The composition of heparin was

rather complex and difficult to investigate. It became a challenge to many people. Jorpes also prompted clinicians to use this drug. A Swedish surgeon Crafoord was the first to use it clinically in 1938. The use of heparin was expanded at the Banting Institute in Canada when Gordon Murray used heparin in the first surgical indication. Simultaneously, Canadian physiologist Louis Jacques identified heparin to be a carbohydrate like substance. Several international scientists worked with the Canadian and Swedish groups to understand the chemistry and biology of heparin. These included groups at the University of Chicago and in Brazil. Carl Dietrich from São Paolo, who was working with Jacques, separated heparin into its components and eventually characterized these components. The Chicago group also separated heparin on chromatographic columns to show its components. The stock yards in Chicago provided a rather large source of hog mucosa to be used as raw material for heparin production. Industry became very interested in producing heparin from various sources. The Swedish and the French later developed methods to fractionate heparin based on molecular weight. This led to the development of Low Molecular Weight Heparins, a class of drugs which has revolutionized the management of venous thrombosis.
The fractionation and characterization of these various components of heparin resulted in the identification of small molecular weight chains called oligosaccharides. This led to the development of synthetic pentasaccharides, one of which is now used clinically. The development of heparin as an anticoagulant was a landmark project which not only provided an anticoagulant for clinical use, but also was a major platform to understand pathogenesis and treatment of thrombotic disorders. The foundations for the understanding of current concepts of hemostasis and thrombosis are developed on the basis of our understanding of the physiologic modulation by heparin and related drugs. Currently the heparins are also isolated from other mammalian sources including sheep (ovine) and cow (bovine) tissues. Furthermore, the concept of blended heparins has also emerged. Beside synthetic approaches, biosynthetic and hybrid approaches to produce heparin and heparin-related drugs are currently pursued. The development in the understanding and clinical utility of heparin and heparin related drugs will continue for some time. Although considered to be an old drug, the advances in cellular and molecular sciences will continue to provide us newer information on this universal anticoagulant to improve its production, to refine the drug products and to identify additional indications. Thus heparin, low molecular weight heparins, and synthetic or biosynthetic oligosaccharides will continue to impact the management of thrombotic and vascular disorders for years to come.

The Pleotropic Effects of Heparins. Clinical Relevance.

Ludovic DROUET
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The world of anticoagulation is recently changing with access for prescription of new types of anticoagulant molecules: the DOACs targeted at only one key coagulation factor, synthetic by nature, acting orally with an onset of action as rapid as parenteral drugs. They are aimed at

replacing vitamin K antagonists in most indications but also parenteral heparins in some indications. Heparins should survive to this concurrence since they have pleiotropic effects without any concurrence due to their unique glycanic nature. It has to be considered that part of the activities of heparins (and perhaps some of their adverse effects) are related to their glycanic nature. Only 20% of the glycanic chains of heparin bear a specific saccharidic sequence (the best known is a pentasacharid but it is not unique). These sequences bind specifically and potentiate the natural inhibitor antithrombin and as such are responsible of the anti IIa and anti Xa activities of heparins chains. Considering that only 20% of the chains bear these anti Xa and anti IIa activities that implies that 80% of the material administered during an heparin treatment is not taken into consideration even if it has multiple effects.
The specific effects of the chains glycaniques can participate to the global therapeutic effect of heparins but also can participate to some adverse effects of the preparations of heparin. These effects of glycanes have a potential specificity for each commercial preparation of heparins and in particular LMWH compared with the UFH and among LMWH themselves since the glycanic chains are differently modified and selected in each of these preparations..
If the anticoagulant (anti Xa and anti IIa) effects of heparins can be potentially replaced by the new anticoagulants : the glycanic effects of the heparins chains cannot be replaced by the synthetic molecules not being of glycanic structure: that is often presented for the DOACs as the absence of risk of heparin-induced thrombocytopenia but that is also true for all the positive effects of glycanic chains which participate in the global clinical efficiency of heparins preparations which are not present for the DOACs. Theses glycanic positive effects are: effects on surfaces, anti-inflammatory effects, antineoplastic and antimetastatic effects, additional antithrombotic properties (not dependent on the antithrombin), effect on the endothelial dysfunction. All these pleiotropic effects of the heparins which are in fact the effects of the glycanic nature of the heparin preparations will be the object of this presentation. This has additional implications in the era of the generic and the biosimilar drugs. Biosimilar of heparins are only available abroad and are in the ultimate phases of registration in Europe. For assessment of their bio-similarity, only the “classical” anticoagulant characteristic, cofactor of the antithrombin (anti IIa and anti Xa effects) is considered but all the glycanic effects potentially positive as well as also responsible for adverse effects are not considered.
Keywords : Heparin, UFH, LMWH, glycans,

From unfractionated heparins to Low Molecular Weight Heparins and the evolution of synthetic heparins

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Unfractionated heparin has been characterized to be a multi-component mixture of polysaccharidic chains which vary in molecular weight from 1 to 60 kDa. These oligo- and

poly-saccharidic chains contain 3 to >100 hexose units. Beside molecular heterogeneity, these components exhibit functional heterogeneity in terms of their interactions with cells and proteins. Fractionation of heparin has resulted in the isolation of high, medium, and low molecular weight components with defined biological activities. The low molecular weight heparins (LMWHs) became an intense focus of drug development, and to this day LMWHs continue to be used as standard of care for prophylaxis and treatment of venous thrombotic disorders. Additional fractionation methods of heparin, including ion exchange chromatography and affinity chromatography, have also provided components with differential pharmacologic profiles. The discovery of the heparin binding protein, antithrombin (AT), led to the isolation of high AT affinity heparin fractions. The most active fractions were found to contain a unique region containing AT binding consensus sequences. In the late 1970's the Choay group (Paris) isolated high AT affinity octa- and hexa-saccharides from the lower molecular weight fractions of heparin.[1,2] With the collaboration of the Ronzoni group (Milan) the structure of the AT binding consensus sequence was identified as being composed of an irregular region of three saccharide units containing a glucosamine 3-O sulfated and N-sulfated, and a 6-O sulfated glucosamine, with the regular disaccharide region containing an important N-sulfated glucosamine.[3] Each saccharide was determined to be a functional unit in the binding to AT, such that the sequence and composition of the individual units was critical to produce high affinity binding. The presence of the 3-O sulfated glucosamine, however, was determined to be essential for the high affinity binding to AT to mediate the amplification of the inhibition of Factor (F) Xa and FIIa (thrombin).[4] Once the structure of this oligosaccharide was established, a considerable effort was made by the French group to produce this pentasaccharide via the synthetic route. These efforts resulted in the successful synthesis of the pentasaccharide with sole anti-FXa activity. The concept that sole anti-FXa activity was sufficient to mediate the antithrombotic effects *in vivo* was validated in animal models by the Loyola group.[5,6] This eventually led to the step-wise development of the synthetic pentasaccharide currently marketed as fondaparinux (Arixtra®), which is now widely used in the management of thrombotic cardiovascular disorders, and also as an alternate anticoagulant in the management of patients with heparin-induced thrombocytopenia (HIT). Several generic versions of Arixtra have now become available. Beside the chemical synthesis route, chemo-enzymatic methods have been employed utilizing bacterial membrane saccharides such as the K-5 derivatives. Molecular modifications of these oligosaccharides have resulted in the development of agents with longer half-lives, differential affinity to proteins, and thus new therapeutic agents for the management of cancer, auto-immune disorders and neurological disorders. It is noteworthy that the components of heparin have multiple unique consensus sequences with specific affinities to cellular sites and plasma proteins. The identification of such consensus sequences will continue to provide therapeutic targets for a wide variety of diseases in years to come.

[1] Choay J, Lormeau JC, Petitou M. Anti-Xa active heparin oligosaccharides. Thromb Res 1980;18:573-578.
[2] Choay J, Lormeau JC, Petitou M, Sinay P, Fareed J. Structural studies on a biologically active hexasaccharide obtained from heparin. Ann NY Acad Sci 1981;370:644-649.
[3] Choay J, Petitou M, Lormeau JC, Sinay P, Casu B, Gatti G. Structure-activity relationship in heparin: A synthetic pentasaccharide with high affinity for antithrombin III and eliciting high anti-factor Xa activity. Biochem Biophys Res Commun 1983;116:492-499.

[4] *Walenga JM, Petitou M, Samama M, Fareed J, Choay J. Importance of a 3-0 sulfate group in a heparin pentasaccharide for antithrombotic activity. Thromb Res 1988;52:553-563.*
[5] *Walenga J, Fareed J, Petitou M, Samama M, Lormeau JC, Choay J. Intravenous antithrombotic activity of a synthetic heparin pentasaccharide in a human serum induced stasis thrombosis model. Thromb Res 1986;43:243-248.*
[6] *Walenga JM, Jeske WP, Bara L, Samama MM, Fareed J. State-of-the-art article. Biochemical and pharmacologic rationale for the development of a heparin pentasaccharide. Thromb Res 1997;86(1):1-36.*

Heparins: from pharmacokinetic properties to clinical practice

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Due to the heterogeneity of heparins composition, their plasma concentrations cannot be easily assessed. So the heparins pharmacokinetic (PK) is indirectly assessed by using their pharmacodynamics properties: anti-factor IIa activity (aIIa) or anti-factor Xa activity (aXa).

Reducing the mean molecular weight of the heparin compositions, firstly induces a modification of the ratio aXa / aIIa respectively equal to - 1 for unfractionated heparin (UFH), 2 to 4 for low-molecular weight heparin (LMWH) and 20 for ultra-low-molecular weight heparin (UMWH). However these modifications do not interfere strongly with the benefit to risk ratio.

Secondly this reduction results in a modification of the elimination pathways with a predominent cellular elimination for UFH whereas LMWH and UMWH are almost entirely renally excreted. Once again this PK phenomenon has no real impact in clinical practice regarding the associated bleeding risk in case of renal insufficiency.

This reduction results in a slightly prolongation of he half-life of elimination allowing a once daily subcutaneous injection with LMWH with a similar benefit to risk ration compared to continuous perfusion of UFH, especially for VTE treatment.

Finally, the molecular weight reduction results in a diminution of the PK variability especially at therapeutic dose. For UFH, the PK inter-and intra-individual variability is sufficiently high to require a frequent dose adjustment to PK parameters. There is still a debate to use either aXa or aIIa (indirectly assessed by the activated Partial Thrombin Time) for this drug monitoring. Compared to UFH, the PK variability of LMWH is reduced and the 2 main factors of variability are the bodyweight and the renal function. So by using dose adjusted to bodyweight in routine practice, there is no need for biological drug monitoring. A similar LMWH dose adjustment to renal function has been validated in case of severe renal insufficiency for acute coronary syndrome. Compared to UFH, this dose adjustment results in an apparent benefit regarding the bleeding risk in this indication.

A continuous process of research regarding the PK properties of heparins has permitted an optimization of the dose regimen of these compounds resulting in an improvement of their benefit to risk ratio.

Glycosaminoglycans and Beyond

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Determination of the non-vitamin K antagonist direct acting oral anticoagulants (DOACs) may be required in patients with acute medical conditions. These methods should give results rapidly within minutes, should be easy to perform, specific and sensitive. Using plasma samples chromogenic assays can be made to be specific for the two types of NOAC (factor Xa and thrombin inhibitors), and in addition the coagulation methods hemoclot and ecarin clotting time specific for the DOAC dabigatran. DOACs are excreted rapidly into urine up to 50% or even 80%. Normal urine does not contain plasma proteins and therefore DOACs are not bound to specific surfaces. Therefore, nanoparticles may substitute the role of proteins in plasma as new and artificial surfaces for the determination of DOACs in urine. In such scenario the reaction partners for DOACs have to be bound to the nanoparticles using specific techniques. We have developed and patented such techniques, which gives results within 10 min and are characterized by a colour change from negative to positive in the absence or presence of DOAC in urine. The colours can be read by naked eye. We have reported the results of sensitivity, sensitivity, accuracy, negative and positive predictive values for the determination of rivaroxaban, apixaban, and dabigatran from urine samples of patients on therapy with DOACs for this test system. We now have modified this test system to a dipstick system with different nanoparticles as carrier for the reagents. The reaction is rapid and naked eye reading can identify colours. Sensitivity, specificity and the other statistical parameters of the qualitative method are above 95%. Quantitative read out of the results may be preferred in specific medical situations and may be required for approval reasons of the assays. Therefore, several bedside readers are currently checked for fulfilling the required criteria for objective reading. The specific clinical situation for a rapid determination to help and accelerate clinical therapeutic decision making are patients in any emergency situation with and without bleeding or thrombotic complication, before an acute or even planned surgical intervention, and before administration of an antidote for DOACs.

The Development of Low Molecular Weight Heparins and Their Impact on VTE.

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Treatment of venous thromboembolism (VTE) plays a key role in routine patient care since acute and late sequelae may significantly impact the morbidity and mortality of hospitalized and non hospitalized patients. The standard anticoagulant regimen for VTE is the simultaneous initiation of heparin (either unfractionated or low-molecular weight) and an oral vitamin K antagonist. This concept of VTE treatment has been described in 1960 by Barritt and Jordan

who were the first to show that intravenous heparin given in combination with an oral vitamin K antagonist reduced death and recurrence of VTE compared with no anticoagulant therapy (2). Since then, several clinical landmark trials have significantly influenced the anticoagulant therapy of VTE (3,4) although the concept of overlapping therapy with heparin or a heparin derivative has remained unchanged up to now.

Further refinements of initial treatment with heparin have been achieved by the results of early studies which reported a higher risk for recurrence in patients with activated partial thromboplastin time (aPTT) less than 1.5 times the control value than in patients with aPTT greater than 1.5 times the control value (10). The importance of achieving a therapeutic aPTT within the first 48 hours has subsequently been called into question by the results of further trials (1).

The introduction of low molecular weight heparins (LMWH) in 1980s has revolutionized the early treatment of VTE by simplifying dosing and administration. Capitalizing on the fact that laboratory monitoring was not needed, two randomized studies demonstrated in the early 1990s that in patients with deep vein thrombosis, subcutaneous LMWH administered out-of-hospital without laboratory monitoring is as effective and safe as continuous aPTT-controlled heparin given in hospital (6,8). In the meantime, the pentasaccharide fondaparinux has also become available for initial treatment of VTE.

The question of optimal duration of oral anticoagulation with vitamin K antagonists had been debated for many years until several trials in 1990s provided evidence on a decrease of VTE recurrence by prolonging secondary prevention with vitamin K antagonists although it was also shown that the benefits of long-term treatment were offset by an increase of major bleeding (9,11). It was also recognized that patients with idiopathic VTE are at higher risk for recurrence than those with thrombosis secondary to transient risk factors.

Further advances in the treatment of VTE have been achieved recently by replacing warfarin with LMWH for long-term treatment of cancer patients with thromboembolic complications (7,9). Thus, LMWHs have become an essential measure in initial treatment of VTE and secondary prevention in patients at higher risk of recurrence.

References

1. *Anand S, Ginsberg JS, Kearon C, et al. The relation between the activated partial thromboplastin time response and recurrence in patients with venous thrombosis treated with continuous intravenous heparin. Arch Intern Med. 1996;156:1677-81*
2. *Barritt DW, Jordan SC. Anticoagulant drugs in the treatment of pulmonary embolism. A controlled trial. Lancet 1960; 1:1309-12*
3. *Gallus A, Jackaman J, Tillett J, et al. Safety and efficacy of warfarin started early after submassive venous thrombosis or pulmonary embolism. Lancet. 1986;2:1293-6*
4. *Hull RD, Raskob GE, Rosenbloom D, et al. Heparin for 5 days as compared with 10 days in the initial treatment of proximal venous thrombosis. N Engl J Med. 1990;322:1260-4*

5. *Kearon C, Gent M, Hirsh J, et al. A comparison of three months of anticoagulation with extended anticoagulation for a first episode of idiopathic venous thromboembolism. N Engl J Med. 1999;340:901-7*
6. *Koopman MM, Prandoni P, Piovella F, et al. Treatment of venous thrombosis with intravenous unfractionated heparin administered in the hospital as compared with subcutaneous low-molecular-weight heparin administered at home. The Tasman Study Group. N Engl J Med. 1996;334:682-7*
7. *Lee AY, Levine MN, Baker RI, et al.. Low-molecular-weight heparin versus a coumarin for the prevention of recurrent venous thromboembolism in patients with cancer. N Engl J Med. 2003 Jul 10;349(2):146-53*
8. *Levine M, Gent M, Hirsh J, et al. A comparison of low-molecular-weight heparin administered primarily at home with unfractionated heparin administered in the hospital for proximal deep-vein thrombosis. N Engl J Med. 1996;334:677-81*
9. *Meyer G, Marjanovic Z, Valcke J, et al. Comparison of low-molecular-weight heparin and warfarin for the secondary prevention of venous thromboembolism in patients with cancer: a randomized controlled study. Arch Intern Med. 2002;162:1729-35*
10. *Raschke RA, Reilly BM, Guidry JR, et al. The weight-based heparin dosing nomogram compared with a "standard care" nomogram. A randomized controlled trial. Ann Intern Med. 1993;119:874-81*
11. *Schulman S, Rhedin AS, Lindmarker P, et al. A comparison of six weeks with six months of oral anticoagulant therapy after a first episode of venous thromboembolism.*

VTE Prevention with Heparin and other Glycosaminoglycans in Major Orthopedic Surgery - A Personal Journey

Alexander G G TURPIE
McMaster University, Hamilton ON, Canada

My first job after qualifying in Medicine in 1962 was as a House Surgeon in Orthopaedics at the Glasgow Royal infirmary. My morning duties included drawing bloods, doing blood pressures and checking for phlebitis as it was recognized that pulmonary embolism was a major cause of death in young trauma victims. In 1968, Sir John Charnley stated that venous thromboembolism (VTE) was the most common post-operative complication following hip surgery and the single largest cause of death. In the early 1970's V V Kakkar demonstrated that low doses of unfractionated heparin reduced post-operative VTE in surgical patients and in 1975 showed that it prevented fatal post-operative pulmonary embolism. Since then numerous studies have confirmed the benefit of low dose heparin for VTE prophylaxis in a variety of clinical settings. In 1970, I joined the Thrombosis Programme at McMaster University, Hamilton, Canada under the direction of J Hirsh. The programme included basic scientists and clinicians dedicated to the study of diagnosis, prevention and treatment of thrombosis.

In 1986, we published the results of one of the first clinical trials of Low Molecular Weight Heparin(LMWH) for the prevention of VTE in orthopaedic patients. This 100 patient study spawned numerous trials of LMWH across the spectrum of thrombosis which today remains the standard treatment for many thrombotic disorders including treatment of VTE and acute coronary syndromes (ACS).

An Heparin Story: From Serendipity to Rationality

Pierre WILLAIME
Paris, France

During the 1950s heparin was, in France, of limited use because of possible side effects (pyrogens). Three manufacturers shared the French market ; Choay was the smallest. These were also years of great progress in surgery.

Serenpidity Phase

The 1960s saw three demands from physicians who were unhappy with their professional experience : Pr. C. Dubost (1959), a cardiologist surgeon, Dr. C. Raby (1965), a Colonel and head of the Army Blood Transfusion Centers, Pr. V.V. Kakkar (1969) an abdominal surgeon ? The very same sequence each time : " *I have a problem ; I also have a possible solution ; Would Choay help ?* " . The response had been yes three times.
Two consequences : For one, a very significant growth of the heparin franchise for Choay. But also two very different approches of heparinotherapy : one, C. Raby, medical, curative, personalized, high dose, long term, the second, V.V. Kakkar, surgical, preventive, standadized, low dose, short term.

Rationality Phase

This situtation lead Jean Choay, the Scientific Manager, to consider heparin as a research project. And it is in this perspective that he went to the Philadelphia ISTH meeting in 1977. He returned with the decision to initiate two research projects, both with a view to offer an improved heparin more focused on antiXa acticity, with less side effects and longer hal-life.
One project would be to fractionate heparin to a smaller active molecule. The second project was to take the bet that such active molecule could be small enough to be synthetized.
Jean Choay reorganized the in-house competence and decided to establish close partnerships with different accademic institutions in domains Choay had no competence. (P. Sinay – Orléans Uty –for sugar synthesis ; J. Fareed –Loyola – for pharmacology and B. Casu – G. Ronzoni – for structural studies) Progress moved fast : 1980 first fraction clinical trials by Pr. Kakkar ; 1981 first article on heparin structure, 1983 Choay obtains both a natural hexa and a synthetic penta…. March 1985 Choay is given the first LMWH AMM; the second AMM, for Lovenox, comes in April 1987. Arixtra, the synthetic penta, was introduced only in 2002.
LMWHs have grown very significantly, and growth seems still present. Clinical trials are numerous. Heparins are still drawing attention and interest.

08:30-10:00 FORUM 5

Comment s'approprier et appliquer les recommandations internationales ?
How to apply and contextualize international guidelines ?

Critères de l'ACR de la maladie de Takayasu : Position de la SAMEV.

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La maladie de Takayasu (M.T) est une vascularite qui touche les vaisseaux de gros et moyen calibre et dont l'étiologie n'est pas encore bien connue.
Elle touche principalement l'aorte et ses principales branches (carotides, sous clavières, vertébrales, coronaires, rénales, iliaques) et les artères pulmonaires. C'est une maladie qui évolue en 2 phases : une phase systémique inflammatoire et une phase scléreuse responsable des manifestations ischémiques. Ces deux phases peuvent coexister.
Si la phase scléreuse ou occlusive est bruyante, marquée par des signes ischémiques variables selon le degré sténose, le territoire touché et le développement d'une circulation de suppléance, la phase systémique ou pré-occlusive n'est que très rarement retrouvée, souvent de façon rétrospective à l'interrogatoire. Elle est marquée par des signes généraux, des arthralgies, une asthénie, des myalgies, des douleurs sur les trajets artériels notamment au niveau du cou (carotidodynie).
Malgré cette richesse clinique, la MT ne bénéficie pas de critères diagnostiques performants. Ceux d'Ishikawa proposés en 1988, apparaissent trop restrictifs, excluant les patients âgés de plus de 40 ans au début de la maladie et ne prenant en compte les lésions de l'aorte abdominale que si elles respectent les artères iliaques, alors que ces dernières sont atteintes dans 11 à 30% des cas.
Sharma, en 1996, a introduit des modifications aux critères d'Ishikawa améliorant ainsi leur sensibilité notamment dans des populations de patients où les lésions de l'aorte abdominale prédominent.

L'American College of Rheumatology (ACR) a défini, en 1990, des critères diagnostiques à partir de symptômes les plus fréquemment rencontrés chez 63 patients nord- américains. Parmi les 6 critères retenus, 5 sont liés à une atteinte des artères sous-clavières : claudication d'un membre, diminution d'un pouls huméral, différence de plus de 10 mmHg entre les deux pressions humérales, souffle sur les artères sous-clavières ou sur l'aorte, aspect artériographique de rétrécissement ou d'occlusion de l'aorte et de ses branches principales, tant aux membres supérieurs qu'aux membres inférieurs.

Ces critères nous semblent très peu spécifiques de la MT car pouvant être en rapport avec diverses pathologies au potentiel sténosant au niveau des artères sous-clavières. Par ailleurs, tous les critères diagnostiques proposés dans la MT utilisent l'artériographie comme moyen de référence. Ils ne prennent pas en compte l'apport de l'échographie doppler, occultant de ce fait la phase systémique de la maladie. Le diagnostic précoce de la MT et celui de sa poussée, est cependant un challenge de taille pour le clinicien ; il pourrait permettre d'améliorer le pronostic fonctionnel et vital par un traitement médical institué précocement.

Nous pensons que l'échographie doppler vasculaire, examen non invasif, est en train de bouleverser l'approche diagnostique et le suivi du patient porteur d'une MT. Il est très sensible et spécifique notamment sur les lésions des troncs supra-aortiques et de l'aorte abdominale. L'épaississement circonférentiel observé à l'échographie est souvent non retrouvé à l'angioscanner.

Aussi, nous oeuvrons pour la pratique systématique de l'échographie doppler à la recherche d'un épaississement inflammatoire de la paroi vasculaire des troncs supra-aortiques, de l'aorte abdominale et ses branches, évocateur d'une MT devant des signes systémiques inflammatoires (fièvre, arthralgies....) inexpliqués, notamment chez l'enfant et l'adulte jeune quelque soit le sexe.

Mots clés : maladie de Takayasu, critères diagnostiques

Recommandations du traitement de la MTEV au cours de la Maladie de Behcet : gestion au quotidien.

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La maladie de Behçet (MB) est une affection systémique dont l'étiopathogénie est en grande partie non connue. Elle est caractérisée par un grand polymorphisme clinique avec une fréquence particulière des manifestations dermatologiques. Les autres atteintes sont essentiellement oculaires, rhumatologiques, vasculaires et neurologiques.
L'atteinte vasculaire, rapportée en 1946 par Adamantiades moins de dix ans après la première description de la maladie, est dite « angio-Behçet » ou « vasculo-Behçet ». Elle s'observe chez 20 à 35% des patients et est particulière par ses aspects épidémiologiques et cliniques. En effet, elle est surtout observée chez des hommes jeunes sans facteurs de risque thrombotiques ou

cardiovasculaires. Tous les vaisseaux, quel que soient leur type (artériels ou veineux), leur taille ou leur localisation peuvent être touchés. Ces atteintes s'associent volontiers entre elles, avec des manifestations vasculaires multifocales. Elle peut être accompagnée d'une fièvre et d'un syndrome biologique inflammatoire qui sont plutôt rares au cours de la MB.
L'atteinte veineuse recouvre 80 à 90% des atteintes vasculaires, elle est en moyenne observée chez un tiers des patients. Les thromboses veineuses profondes des membres inférieurs restent les plus fréquentes et représentent 60 à 70 % des localisations veineuses de la maladie. Cependant l'atteinte des gros troncs veineux y est classique et particulièrement grave (veines caves, veines hépatiques, sinus cérébraux..).
L'atteinte artérielle est plus rare (2 et 7% des cas de MB) et a un pronostic assez sombre. Les lésions artérielles peuvent toucher tous les territoires et sont volontiers plurifocales. Elles ont une expression clinique variable selon le vaisseau touché et le type d'atteinte (thromboses, sténoses ou anévrismes).
L'atteinte vasculaire est la principale atteinte pouvant engager le pronostic vital ; elle justifie ainsi une prise en charge thérapeutique spécifique, rapide et agressive.

Le volet thérapeutique inflammatoire est primordial et seul garant de l'amélioration du pronostic. Le traitement anticoagulant est encore discuté, d'aucun intérêt pour certain auteurs, voir dangereux pour d'autres.
Nous discuterons à la lumière des données de la littérature récentes de ces aspects et controverses.

Mots clés : Maladie de Behçet. Atteinte vasculaire.

Recommandations pour le diabète.

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Dans le domaine de la diabétologie, les recommandations internationales notamment américaines et européennes s'adressent à des populations spécifiques qui n'ont pas les mêmes caractéristiques sociales et économiques que la population tunisienne.
En pratique quotidienne, on s'appuie le plus souvent sur ces recommandations qui se basent sur « l'evidence based medecine » en les adaptant à la situation socio-économique de chaque patient.

Dans notre pays, les recommandations internationales sont appliquées dans la prise en charge des diabétiques de type 2 en première ligne. En deuxième ligne, les recommandations internationales ne sont pas intégralement adoptées puisque la prescription des sulfamides occupe la première place car les glitazones, les analogues du GLP1 et les inhibiteurs du SGLT2 ne sont pas commercialisés en Tunisie et les inhibiteurs des DPP4 sont couteux et non remboursés. Cette dernière classe est réservée à des diabétiques en surpoids ou obèses dont l'HbA1c est inférieure à 8,5% et qui ont les moyens financiers pour acheter ces molécules.

En troisième ligne, c'est l'insulinothérapie qui est le plus souvent prescrite. La majorité des patients reçoivent l'insuline humaine, les analogues de l'insuline sont indiqués et remboursés dans des situations bien précises.

Les recommandations internationales restent notre référence pour la prise en charge des diabétiques, leur adaptation à nos conditions locales est nécessaire.

Mots clés : diabète de type 2, recommandations

Prévention de la maladie veineuse thromboembolique chez le patient médical.

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Les recommandations internationales pour la prévention de la maladie thromboembolique constituent des lignes directives pour une meilleure prise en charge. Les variations ethniques et géographiques des facteurs de risque de la thrombose veineuse font que les mesures de

prévention peuvent être trop faibles pour certaines populations ou trop agressives pour d'autres populations.

La maladie thromboembolique survenant après un long voyage en avion est sous-estimée et souvent mal prévenue. Le risque de thrombose veineuse est triplé, augmente de 18 % avec chaque deux heures de vol et devient significatif après 5000 km ou 12 heures de vol. Il varie de 1,8 % à 5 % et augmente avec l'âge, l'obésité, l'histoire de thrombose, la contraception, la chirurgie récente et la thrombophilie, retrouvée chez 72 % des patients. La population Libanaise présente un taux de mutation génétique pro-thrombotique élevé par rapport à la population mondiale (14,4 % pour le facteur V Leiden comparé à 1 % en Asie et en Afrique et 2 % à 5 % en Europe et aux Etats Unis , 50 % pour le MTHFR C 677 T comparé à 16 % en Indonésie et 40 % en France et 74,14 % pour le MTHFR A 1298 C comparé 17,9 % au Mexique et 33,9 % en Italie , 3,6 % pour le facteur II comparé à 1 % à 2 % , moyenne de la population mondiale. Ceci majore le risque de thrombose veineuse après un trajet en avion dans la population Libanaise et nécessite un traitement préventif plus efficace. Contrairement aux recommandations mondiales, nous suggérons la mise de bas de contention pour les Libanais, surtout les personnes âgées, devant faire un long voyage. Pour les Libanais à haut risque de thrombose veineuse, une anti-coagulation préventive est fortement conseillée.

L'évaluation du risque génétique et acquis de la thrombose veineuse est essentielle pour déterminer le besoin de prophylaxie dans les situations à haut risque. La prophylaxie devrait être adaptée pour s'accommoder au risque de chaque population. Dans les pays où le risque de thrombose veineuse est important, des mesures de prévention plus agressives devraient être appliquées.

Mots clés : Maladie thromboembolique, prévention.

Artériopathie chronique oblitérante en Roumanie.

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Université de Médecine et Pharmacie, Cluj-Napoca, Roumanie

L'arthériopathie chronique oblitérante (ACOMI) a une prévalence élevée en Roumanie, plus importance que dans l'Europe occidentale, du fait que les facteurs de risque pour l'athérosclérose est accrue en Europe orientale. Le diagnostic de l'ACOMI se fait surtout chez les patients symptomatiques et surtout dans les stades avancés, en ischémie critique. Il y a un manque de diagnostic précoce, en stade asymptomatique, du fait de l'absence d'un réseau de médecine vasculaire et de la sous-utilisation des mesures Doppler de l'indice de pression, en

médecine de famille. Le réseau cardiologique et celui des chirurgiens vasculaires sont trop souvent impliqués dans le diagnostic, souvent tardif, de l'ACOMI. Le diagnostic non-invasif de l'ACOMI se fait au niveau des cardiologues formés en échographie vasculaire. Au stade d'ischémie critique, les explorations sont maintenant plus largement disponibles, avec une augmentation des centres d'angiographie. L'intervention sur les facteurs de risque de l'ACOMI se fait de mieux en mieux, surtout au niveau de l'HTA et des dyslipidémies, moins au niveau du tabac ou du diabète. Pour le stade II de l'ACOMI, les agents vasoactifs sont disponibles,

mais sous-utilisés. Pour l'ischémie critique, les techniques de revascularisation sont encore sous-utilisés, aussi bien en angioplastie et chirurgie vasculaire, limités surtout aux centres universitaires, même qu'une augmentation récente du nombre de procédures est observée.

Une attention de plus en plus importante est portée à la pathologie artérielle périphérique, lors des congrès, les guides internationaux sont connus et un effort est en cours pour améliorer leur application, même que les moyens financiers
sont encore insuffisants.

Confrontation des recommandations dans la prise en charge de l'IVC.

Anne TISSOT
Clinique du Tonkin, Villeurbanne

La maladie variqueuse ou insuffisance veineuse superficielle est décrite depuis HIPPOCRATES (430-377) et, jusqu'à récemment, outre la prise en charge médicale (compression +/- veinotoniques), les méthodes chirurgicales se réduisaient à la crossectomie, stripping et phlébectomie.
L'apparition des traitements endoveineux chimiques (sclérothérapie mousse, Glue) et thermiques (radiofréquence et laser, vapeur..) a induit une modification des recommandations nationales et internationales.
Les différents pays se les approprient différemment en éditant ou non leurs propres recommandations (à noter une « vétusté » des recommandations françaises HAS de 2008)
Pour cela, ils prennent en compte non seulement des critères scientifiques mais aussi économiques et démographiques.
Cet exposé propose une brève analyse de ces recommandations et des critères qui expliquent les différentes prises en charges.

Mots clés : insuffisance veineuse superficielle, recommandations

08:30-10:00 **BELLECOUR 2-3**

Multifocal Atherosclerosis and Cardiovascular Outcome
Athérosclérose multifocale et pronostic cardiovasculaire

Correlation between carotid atherosclerosis and coronary artery disease : a prospective study on 1067 patients

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Background and aim. Several studies have shown that the risk of cardiovascular events is higher in subjects with ultrasound evidence of subclinical carotid atherosclerosis. The aim of our study was to evaluate the association of carotid atherosclerosis evaluated by Doppler

ultrasound with the severity of coronary artery disease (CAD) in patients with typical chest pain undergoing diagnostic coronary angiography during hospitalization.

Methods. We studied prospectively 1067 patients admitted to our Cardiology Unit for chest pain that underwent coronary angiography. According to ESC Guidelines on CV prevention we considered carotid arteries as normal if intima-media thickening was < 0,9 mm, with intima media thickness if > 0.9 and < 1,5 mm, with plaque when protrusion into the arterial lumen was > 1,5 mm. During the coronary angiography we considered one, two or three vessel disease if coronary vessels had stenosis > 50%.

Results. Carotid ultrasound examination showed an 81% prevalence of asymptomatic carotid plaques, whereas coronary angiography showed that only 12% of patients had normal coronary arteries. The detection of carotid plaque was predominantly associated with the presence of angiographically diseased coronary arteries (72,8%, p=0,001). Particularly, the presence of a carotid plaque with a diameter > 2,5 mm (p < 0,0001) was associated with a higher prevalence of coronary artery disease. Dimensions of carotid plaques were significantly correlated with the complexity of coronary artery disease calculated by Syntax score (p < 0,0001). Moreover bilateral carotid atherosclerosis was associated with coronary atherosclerosis too (p < 0,0001). Besides the detection of carotid atherosclerosis was strongly correlated with the coronary artery disease itself (overall p=0,006).

Conclusions. Given the significant statistical correlation between the presence of carotid atherosclerosis and the severity of coronary artery disease (in terms of number of involved vessels), we believe that the evaluation of Doppler ultrasound of carotid arteries might provide to the clinician additional information about the global cardiovascular risk of the patients with typical chest pain and negative markers of acute coronary syndrome. Moreover, the presence of carotid atherosclerotic plaque may be predictive of coronary atherosclerosis and its severity.

Ankle brachial index and the prediction of future events

D. L. CLEMENT
University Hospital, Ghent, Belgium

Measurement of the ankle brachial index (ABI) has been recognised as an easy tool in the diagnosis of peripheral artery disease in the lower limbs (PAD). It is totally non-invasive , quite easy to perform especially by nurses and trained technicians. Still, there remains a need for intensive training and it requests some time to perform; the latter can best be solved by doing it outside of a busy consultation room. The technique has a very good specificity and an acceptable sensitivity. There are means to improve on it but most of these take more time than what normally is given during the consultation.
One of the most important information ABI has brought to clinicians and scientists alike, is its correlation to events. ABI has given numerical value on the well-known figures of clinical presentation of PAD and the risk to develop events. Remarkably, ABI can estimate prognosis

over and above the Framingham Score and models to include it in the regular scoring tables have been proposed.
The most confusing factor in ABI measurement is the presence of artery stiffening. Best known clinical examples of this is to be found in diabetes and kidney disease. Recording toe brachial pressure index is the solution in such cases but it takes more time and longer adaptation of the patients.
Recently other correlations have been proposed like in heart failure, in estimation of plaque area, in the context of genetics and others.
Still, the most attractive aspect of the technique remains the very good correlation between ABI and long term cardiovascular events.

Key-words: Ankle brachial index; non-invasive techniques

08:30-10:30 GRATTE CIEL 1-2

Best Papers Session: Chinese Chapter of the IUA
Session des meilleures présentations au Chapitre Chinois de l'UIA

Application of serum SorLA in predicting intimal hyperplasia after carotid endarterectomy operation

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3 Department of Vascular Surgery, Beijing Tsinghua Changgong Hospital, Beijing, China

Objective. To explore the relationship between serum sorting protein related receptor containing the LDLR (low density lipoprotein receptor) class A (SorLA) and intimal hyperplasia after carotid endarterectomy (CEA) operation.

Methods. Seventy-nine patients received CEA through Sept, 2013 within Mar, 2015 were included in a retrospective analysis. The serum SorLA before operation was tested by ELISA method. All the 79 patients received regular follow-up to define intimal hyperplasia of target lesions post operation. According to the follow-up data, the patients were divided into severe intimal hyperplasia group and non-intimal hyperplasia group, serum SorLA concentration were calculated using t-test and ROC curve to determine the predicting value of serum SorLA on restenosis after CEA.

Results. Patients in severe intimal hyperplasia group had a higher serum SorLA level than patients in non-intimal hyperplasia group (1.648 + 0.246ng/ml .vs. 1.278 + 0.281ng/ml, P < 0.001). When choosing 1.44ng/ml as the cut-off value of serum SorLA, the predicting value had a sensitivity of 90% and specificity of 73.5%.

Conclusion. Serum SorLA was significantly correlated with intimal hyperplasia after CEA operation. Serum SorLA=1.44ng/ml can be used as the best predicting index of postoperative

intimal hyperplasia. This cut-off value is more suitable to exclude patients with high risk of intimal hyperplasia

Key words : *SorLA, Atherosclerosis*
Conflicts of interests : We declare that we have no conflict of interest.

Endovascular Treatment of Juxtarenal Leriche Syndrome: Case Reports

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Juxtarenal abdominal aortic occlusion belongs to infrequent cases of Leriche Syndrome. The standard surgical treatment is abdominal aortobifemoral bypass, whereas endovascular treatment is rarely reported until very recently. Two cases of juxtarenal Leriche syndrome were treated endovascularly and minimally invasively in Dept. of Vascular Surgery, 2nd Affiliated Hospital of Harbin Medical University, in 2015.

The first case was a 57 years old male smoker with over-10-year of claudication on both legs which was aggravated during the past year (Rutherford category 3). CTA showed infrarenal occlusion of abdominal aorta as well as bilateral common iliac occlusion and ABI on admission was 0.45-0.50 on right side and 0.60-0.61 on left side. The patient had history of gastric operation, ileus, venous thromboembolism with vena caval filter implantation. Arterial thrombosis was suspected preoperatively and confirmed at both infrarenal abdominal aorta and bilateral iliac arteries through arteriography. Catheter-directed thrombolysis (CDT) was conducted on right iliac artery by 500, 000 units urokinase infusing during and after the first endovascular procedure, and on the left side by infusing of another 500, 000 units urokinase during and after the second CDT procedure on the day after the first endovascular intervention. During the third time endovascular procedure the lesions were finally recanalized through ballooning and kissing stenting; two bare stents were simultaneously implanted immediately beneath the opening of the lowest renal artery bridging the infrarenal aorta and bilateral iliac arteries. The symptoms markedly relieved after these procedures and ABI elevated to 0.76-0.86 bilaterally.

The second case was a 73 years old female with over-5-year claudication on both legs which was aggravated during the past two months with rest pain and gangrene on left fourth toe (Rutherford category 6). Abdominal aorta was shown discontinuous from lowest renal artery to the bilateral external iliac artery on preoperative CTA. And the ABI was 0.14-0.22 bilaterally. On the first attempt a CDT catheter was retained in left iliac artery and the infrarenal aorta after ballooning, and 900,000 units of urokinase was delivered through the catheter thereafter but minor effect was received after this procedure. The patient underwent an embolectomy operation under DSA afterward, and a kissing stent technique was used to solve the occlusion with two long bare stents proximally aligned to the distal edge of the lowest renal arterial orifice. The patient regained bilateral femoral pulses and marked pain remission was achieved immediately after this procedure.

All procedures for both cases were performed under local anesthesia. No cerebral, gastrointestinal or puncture site bleeding was recorded. Although the opening of renal arteries was involved in ballooning or stenting of the juxtarenal lesion, no renal perfusion compromise was witnessed during or after the aortic stenting in neither of the two cases. Without laparotomy, the combination of endovascular techniques like PTA or stenting or CDT with minimally invasive open surgery tremendously reduced the trauma of the whole therapy. The utilization of this combination in the above two cases indicate the feasibility of a possibly alternative apart from open surgical bypasses to treat juxtarenal Leriche syndrome. Further study of more cases is still needed to reveal the pros and cons in the future.

Key words : *Juxtarenal Leriche Syndrome, Endovascular Treatment*
Conflicts of interests : none

11:00-12:00 AMPHITHEATRE

Heparin Centennial Symposium: A Century of Scientific Fascination and Clinical Implementation - Part II

L'Héparine a 100 ans ! Un siècle de Fascination Scientifique et de Développement Clinique (2ème partie)

VTE Treatment with Heparin and Other Glycosaminoglycans

RD. HULL
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The discovery of heparin:

- Heparin, one of the oldest drugs still in widespread clinical use, is a naturally occurring glycosaminoglycan whose main function is to inhibit the coagulation of blood.
- It was discovered almost a century ago and took many years to move from the laboratory to the bedside.

Bringing heparin to the bedside/the distribution of credit:

In 1963, a plaque was unveiled in Johns Hopkins to commemorate the 'major contribution [of McLean] to the discovery of heparin in 1916 in collaboration with Professor William Henry Howell'.

Treatment Objectives:

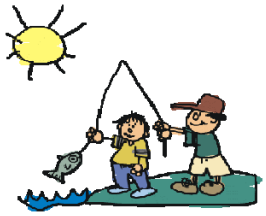
- Prevent death and disability from PE, pulmonary hypertension and peripheral venous disease
- Prevent recurrence of VTE and development of postthrombotic syndrome

Need for Drug Dose Monitoring an Achilles' heel:

- Several studies suggest that when using UFH for initial treatment of DVT the rapid achievement of an activated partial thromboplastin time within the therapeutic range (2.0-3.0 times the control) within 24 hours will reduce the rate of recurrent DVT.
- VKA treatment should be adjusted to maintain the INR between 2.0 and 3.0 (target INR 2.5).
- Taken from several studies showing the risk of bleeding in relation to different INR ranges

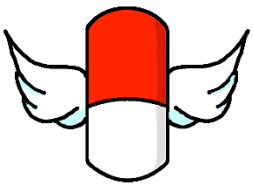
Regulatory affairs approval of Low-Molecular-Weight Heparin (LMWH) therapy has made IV heparin therapy obsolete in the most patients.

Subcutaneous LMWH therapy allows outpatient therapy in the majority of the patients with deep vein thrombosis or sub-massive PE.



LMWH is associated with a lower frequency of thrombocytopenia.

Recommendations for Treating VTE:



- Initial treatment is with intravenous UFH, LMWH, or fondaparinux for at least 5 days, discontinued when the stable INR is in the therapeutic range.
- Patients with cancer history or are pregnant would recommend LMWH as initial treatment as an alternative to VKA therapy.

Antithrombotic Therapy for VTE Disease in 2016:

- For VTE without cancer, dabigatran, rivaroxaban, apixaban, or edoxaban is suggested over VKA therapy. VKA therapy is suggested over LMWH.
  - Moderate quality, weak evidence
- For VTE with cancer, LMWH is suggested over VKA, dabigatran, rivaroxaban, apixaban, or edoxaban.
  - Moderate quality, weak evidence
- For VTE treated with anticoagulants, an inferior vena cava filter is not recommended.
  - Moderate quality, strong evidence

Low-Molecular-Weight Heparin Treatment:

- Long-term LMWH is equally as effective as standard therapy for patients without cancer, but more effective for patients with cancer.
    - Lower incidence of recurrent VTE for LMWH than VKA groups
    - Lower incidence of major bleeding for patients
- Better recanalization in LMWH groups than standard treatment.

The Rationale for Management of VTE in Cancer with Heparins. Current and Future Perspectives.

Samuel Zachary GOLDHABER
Harvard Medical School, Thrombosis Research Group, Boston, USA

Pulmonary embolism causes up to 180,000 deaths per year in the United States alone. The incidence of both pulmonary embolism and deep vein thrombosis is increasing. Anticoagulation is the foundation of venous thromboembolism (VTE) treatment. Parenteral anticoagulants include unfractionated heparin, low molecular weight heparin, fondaparinux, and direct thrombin inhibitors. The heparins are particularly useful for patients who require advanced therapy such as thrombolysis or embolectomy. They are also useful as the initial 5-day treatment for patients who will be switched to dabigatran or to edoxaban. For cancer patients with VTE, consensus remains that low molecular weight heparin as monotherapy is the consensus anticoagulation strategy. VTE is mostly a chronic inflammatory illness with a high recurrence rate if anticoagulation is discontinued after a short course of therapy. The glycosaminoglyan, sulodexide, reduces recurrent VTE by more than 50% compared to placebo after an initial 3-12 month course of anticoagulation. In a pivotal trial, sulodexide had no major bleeding complications.

11:00-12:30 FORUM 5

Chronic venous insufficiency : different view points ?

Insuffisance veineuse chronique : points de vue différents ?

Unusual etiology of recurrent varicose leg ulcer

Georges TABET
Hotel Dieu de France, Beirut, Lebanon

A seventy year old patient was suffering from recurrent venous leg ulcer for the past 30 years despite repetitive venous surgeries and conservative treatment.
On the latest explorations he was found to have a traumatic popliteal arterio-venous fistula resulting from a penetrating injury 40 years ago. Endovascular repair was not possible because of size discrepancies between the inflow and runoff arteries. Open surgery was therefore performed.
A review of the literature is also presented.

Minimally-invasive procedure for pelvic leak points in women

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Pelvic leak points (PLP) may be responsible for vulvar, perineal and lower limb varicose veins, especially in women during and/or after pregnancy. Among all the surgical procedures

performed according to the CHIVA strategy the pelvic escape point treated until February 2016 were 305, representing the 7.2% of all the escape point treated both in female and male. Up today perineal or lower limb scleroterapy and venous pelvic embolization are so far the most frequent therapeutic options. We now know, thanks to Claude Franceschi studies, that at least 6 well defined anatomical PLP exist for each side, and the ecoduplex identification is possible as well as the preoperative B-mode marking and surgical treatment. The accurate anatomical and hemodynamic assessment of these points, the perineal (PP), inguinal (IP) and clitoral points (CP) and their surgical treatment under local anesthetics is a new therapeutic option. In this exposition I'm going to present the results of 274 surgical PLP treatment. The experience achieved shows the possibility of a peripheral parietal miniinvasive surgical therapy to treat reflux of pelvic origin responsible of varicose veins of the lower limbs in absence of pelvic congestion syndrome, and even suggests that pelvic varicose embolization prior to PLP reflux ablation is not necessary. The accurate ultrasound assessment as well as a minimally invasive surgical technique (ambulatory patient, local anesthesia, non-absorbable suture of vein stumps and fascias) seems to be the key for satisfactory outcomes

11:00-12:30 GRATTE CIEL 1-2

What do we need for a better perspective on vascular field?

More data, more education and more efficiency in the management.

Data on worldwide epidemiology of peripheral arterial disease

Gerry FOWKES

Centre for Population Health Sciences, University of Edinburg, Edinburgh, UK

The worldwide epidemiology of cardiovascular disease is changing rapidly. Peripheral artery disease (PAD) is no exception. A systematic review of studies of the prevalence of PAD, defined as an ankle brachial index (ABI) <= 0.9, has shown that the prevalence in low and middle income countries increases with age, as noted in high income countries, and may be slightly higher in women than men. The ageing of the population and adoption of western lifestyles is resulting in a large burden of PAD in low and middle income countries with the greatest number of cases in the South Asian and Western Pacific regions. However there is a lack of data on the epidemiology of PAD in individual countries throughout the world. In contrast to other cardiovascular diseases, mortality statistics on PAD are not useful proxy measures of prevalence because most patients with PAD do not die from the disease per se. Furthermore, questionnaire surveys of claudication are not feasible in many countries because

most of the questionnaires have not been validated in different cultures. The paucity of data on PAD means that its importance in many settings may be unrecognised so that PAD is not included in cardiovascular prevention programmes and health services planning. The limited data to date from low and middle income countries suggest that the prevalence is slightly lower in China than in high income countries and that PAD is emerging in sub-Saharan Africa. Almost no data is available from India which is the second most populous country in the world. Continuing ageing and population growth, along with projected trends in cigarette smoking and diabetes, indicate an increasing worldwide burden of PAD for many years to come. Many more national studies of PAD will be required to provide data for the adequate monitoring of the disease in future.

Peripheral arterial disease prevalence and characteristics. Data of the "ÉRV" Study.

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Background. Determination of asymptomatic organ damage is an important part of cardiovascular risk stratification, therefore it has a great impact on the treatment of hypertension. Epidemiological data have shown that patients with clinical and preclinical stages of peripheral arterial disease (PAD) have high risk of cardiovascular mortality. PAD can be diagnosed with a simple, noninvasive method, the measurement of the ankle-brachial index (ABI). Abnormal ABI is accepted as a marker of cardiovascular risk that predicts adverse cardiovascular outcomes.

Purpose. Determination of PAD prevalence in a hypertensive cohort population and the assessment of cardiovascular risk in the follow-up period that associated with abnormal ABI.

Methods. The Hungarian ERV program is a large-scale, multicenter, observational study with a cross-sectional and a longitudinal part. The first period of the study was conducted from April 2007 to September 2008 in 55 hypertension outpatient clinics in Hungary and the prospective phase was ended in April 2014. In all patients ABI was measured and cardiovascular outcomes were collected in a 5 years follow-up period.

Results. In the 21892 enrolled hypertensive patients (50-75 years of age), the prevalence of PAD (ABI ≤ 0.9) was 14.4 %. In 9.4% of the subjects high ABI (>1.3) was measured.
Among these hypertensive subjects the five years cumulative death ratio in both gender was twice as high in PAD patients compared to those without PAD (17.4% vs 7.4% in men, $p<0,001$; 9.8% vs 4.2% in women, $p<0,001$). The cumulative death ratio was significantly higher in patients with high ABI, as well. The relative risk of cumulative death was higher in

case of low ABI compared to patients with normal ABI values both in men (RR:2.32; p<0.001) and women (RR:2.32; p<0.001).
The presence of low ABI was a stronger predictor of death, than the presence of diabetes. In the different SCORE risk groups, the presence of an ABI ≤ 0.9 doubled the mortality during the observational period.

Conclusion. Low ABI is a strong predictor of mortality in hypertensive patients, therefore it should be screened in hypertensives aged 50 years and over.

Epidemiology of the non-traumatic lower limb major amputee population. Characteristics and outcomes on population level. Data of the «HUNVASCDATA» project.

Endre KOLOSSVARY
Budapest, Hungary

Lower limb major amputations represent an ultimate option for saving life of patients affected advanced vascular disease. Major amputees are underrepresented in prospective observational trials therefore research that uses health care administrative data is a promising method to gain an insight about this frail population. The HUNVASCDATA project aimed at analyzing the characteristics and outcomes of the major amputees on a whole population level. In the observational period of 2004-2014, close to 48.000 major amputations were identified that affected 39.600 patients. This population was characterized by the identification of vascular events (AMI, Stroke), vascular procedures (lower limb/carotid/coronary revascularizations) and chronic comorbidity (expressed by Elixhauser index and score). As for the incidence of major amputations, no change was observed between 2004-2012 resulting in a value of $42.3/10^5$. More than half of the cases was associated with diabetes. Primary amputation rate was over 70%. We detected remarkable regional variation in incidence. The population showed high short-term mortality that reached 20% in 30 days. In long-term this value is 41% at the first year, 65% at the third year and mortality at the fifth year reaches 82%.
Additionally, to the presentation of the Hungarian data on major amputations, in a broader perspective we highlight the potential pitfalls in course of epidemiological analysis of amputation data. Incidence and mortality data are highly influenced by the population demographic structure and comorbidity. All these characteristics should be considered as confounders, consequently we have to strive for handling this by stratification and standardization procedures. This approach would be essential for a meaningful comparison. We lack a uniform definition set for case detection that deeply influences the results of calculations.
Although lower limb major amputation is widely considered as a health care service indicator, actionability, the capability of the health care system to influence the level of it stays behind in comparison to other vascular events. In our view, amputation risk represents a life-time risk and not directly related to revascularization. Based on this notion, multidisciplinary preventive measures are recommended.

14:00-15:30 AMPHITHEATRE CORDELIERS

Exploration vasculaire du patient atteint du phénomène de Raynaud
Evaluation of patients with Raynaud's phenomenon

Qui doit être exploré : définition actuelle du phénomène de Raynaud

Jean Claude WAUTRECHT
Service de Pathologie Vasculaire, Hôpital ERASME, ULB, 1070 Bruxelles, Belgique

Depuis la thèse de Maurice Raynaud en 1862, la définition du phénomène de Raynaud (PR) reste sujette à débats de même que la question de savoir qui explorer.

Définitions. Au fur et à mesure du temps, les experts sont progressivement arrivés à un consensus sur la définition du PR : on en revient à la description initiale de Maurice Raynaud, réservant ce terme à des épisodes ischémiques des extrémités induits par le froid, se manifestant par des modifications de couleur réversibles. Le PR est dès lors le terme général décrivant une situation de vasospasme digital produisant un blanchissement temporaire. Parfois, dépendant des circonstances et de la durée du vasospasme, on peut observer un bleuissement plus ou moins important. A la levée du vasospasme, on peut observer une érythrose plus ou moins prononcée correspondant à une hyperhémie réactionnelle. Il convient de noter que divers autres symptômes, même si certains d'entre eux sont fréquemment associés à un PR, ne participent pas à la définition : ulcérations digitales, livedo, acrocyanose… Les termes « Maladie de Raynaud » (MR) et « Syndrome de Raynaud » (SR) ont encore compliqué les choses. La MR est bénigne et, en réalité, n'est pas vraiment une maladie : sa définition est qu'il s'agit d'un PR Iaire dans la mesure où aucune anomalie sous-jacente ne peut être mise en évidence. Le SR, par opposition, est un PR IIaire dans la mesure où le bilan complémentaire trouvera une ou des anomalies sous-jacentes responsables des symptômes. Il y a de très nombreuses causes (ou du moins associations) dont l'une des plus classiques est la sclérodermie. Afin d'harmoniser la terminologie, il est dès lors proposé actuellement de parler de PR Iaire ou de PR IIaire, et d'éviter les termes MR et SR.

Qui explorer ?

La réponse n'est pas simple car la fréquence du PR Iaire est relativement importante, en particulier chez les femmes jeunes, mais il est évidemment primordial de repérer les PR IIaires. L'anamnèse et l'examen clinique (en insistant sur le test d'Allen, la mesure de la TA aux 2 bras, la présence éventuelle de télangiectasies …) sont essentiels pour tenter de discerner qui doit bénéficier d'un bilan complémentaire. De toute manière, lorsqu'un patient présente un vrai PR, un bilan minimal s'impose. Celui-ci devrait idéalement comprendre une capillaroscopie, la recherche d'anticorps antinucléaires, une numérisation sanguine, une VS et/ou une CRP. Le dosage de la TSH et une tigette urinaire pourraient être utiles. Lors de l'élaboration de ce bilan minimal, il est toujours important de prendre en compte le rapport coût/bénéfice attendu.

Mots clés : Phénomène de Raynaud. Définition.

Valeur et limites de l'examen clinique dans l'enquête diagnostique.

Pascal PRIOLLET
Service de médecine vasculaire - Groupe hospitalier Paris St Joseph, Paris

Les causes des phénomènes de Raynaud (PR) sont variées mais très inégalement réparties. L'enquête diagnostique doit permettre d'assurer précocement le diagnostic de sclérodermie et de rechercher des pathologies loco-régionales dont la méconnaissance pourrait conduire à l'aggravation irréversible des lésions vasculaires. L'examen clinique est la base de l'enquête étiologique car s'il ne permet pas toujours d'identifier formellement la cause du PR encore permet-il d'éliminer un PR primitif et de justifier la poursuite des examens. Ainsi, un PR apparu tardivement et d'emblée sévère, l'atteinte fréquente des pouces, le caractère asymétrique voir strictement unilatéral du trouble vasomoteur et plus encore l'existence de troubles trophiques digitaux ne laissent aucun doute quant à un PR secondaire. Les PR professionnels liés à l'utilisation d'engins vibrants ou percutants et le syndrome du marteau hypothénar sont dépistés par l'interrogatoire. Il en va de même de la recherche d'une étiologie médicamenteuse comme la prise de bétabloquants y compris en collyre. Finalement la principale limite de l'examen clinique concerne le diagnostic précoce de la sclérodermie systémique puisqu'au cours de cette connectivite, le PR peut initialement prendre l'aspect d'une authentique maladie de Raynaud. L'examen s'attache à la recherche d'anomalies discrètes mais pouvant orienter : infiltration cutanée, télangiectasies de la main mais aussi du visage ou des lèvres, cicatrices de petits troubles trophiques pulpaires. Plus rarement à ce stade, une atteinte viscérale est dépistée par l'existence d'un syndrome sec, d'un reflux gastro-oesophagien ou d'une dyspnée révélatrice d'une atteinte interstitielle. Le délai moyen entre l'apparition du PR et le diagnostic évident de sclérodermie étant de 10 ans, la capillaroscopie doit obligatoirement compléter l'examen clinique puisqu'elle est capable de détecter les sclérodermies débutantes avant la clinique seule. On lui associera la recherche d'anticorps antinucléaires.
Finalement, l'enquête diagnostique aura permis d'authentifier le diagnostic de PR primaire et de dépister les PR secondaires ou suspects de le devenir et ce par des moyens simples, applicables à un grand nombre de patients puisque la prévalence du PR est en France de l'ordre de 5 %.

Mots clés : Raynaud. Sclérodermie.

SCLEROCAP

Joël CONSTANS
Service de médecine vasculaire, Hôpital Saint-André, 33075 Bordeaux

La capillaroscopie péri-unguéale a été largement validée pour diagnostiquer une connectivite, essentiellement une sclérodermie systémique, à un stade précoce chez un sujet qui présente un phénomène de Raynaud. Cette indication reste la seule documentée par des preuves indiscutables.

La capillaroscopie pourrait aussi être utilisée pour prédire l'évolution chez un sclérodermique connu. Pour cela deux classifications ont été proposées : celle de H. Maricq en 2 classes (paysages lent et actif) et celle de M. Cutolo en 3 classes (précoce, actif, tardif). Il a été montré pour ces 2 classifications une corrélation entre le paysage observé et la gravité de la sclérodermie. Il n'existe toutefois pas d'étude de cohorte prospective montrant qu'un paysage capillaroscopique observé à un moment est associé à un risque accru de complications de la maladie. L'étude SCLEROCAP a été conçue dans ce but. Il s'agit d'une étude prospective multicentrique française basée sur l'utilisation de la capillaroscopie à large champ qui a permis d'inclure 373 patients qui seront suivis 3 ans. Les résultats seront disponibles fin 2018.
Très peu d'études de reproductibilité existent pour la capillaroscopie péri-unguéale. Celles-ci suggèrent que la reproductibilité est satisfaisante pour le diagnostic de paysage sclérodermique. Pour la classification pronostique de Cutolo en revanche, cette reproductibilité est moyenne pour V. Smith (kappa 0,50) [1]. Parmi les patients de l'étude SCLEROCAP une étude de reproductibilité a été effectuée pour les classifications de Maricq et Cutolo. Celle-ci a comporté une étude de variabilité enter 2 observateurs sur 100 patients, entre 6 observateurs sur 30 patients. Une courbe d'apprentissage a aussi été établie sur 30 patients pour 3 observateurs classant les images à 3 reprises avec 2 réunions d'étude des discordances. Enfin une étude de la variabilité intra-observateur a été effectuée par 2 opérateurs sur 100 patients étudiés à 2 reprises.
Les données définitives de ces études de reproductibilité dans le cadre de SCLEROCAP seront disponibles début septembre et présentées lors du congrès.

1 V Smith, C Pizzorni, F De Keyser et al. Reliability of the qualitative and semi-quantitative nailfold videocapillaroscopy assessment in a systemic sclerosis cohort. A two-centre study. Ann Rheum Dis 2010,69, 1092-96

Pressions artérielles digitales : méthodologie et valeur diagnostique.

Sophie BLAISE
Clinique de Médecine Vasculaire Centre Hospitalier et Universitaire de Grenoble, France

La mesure des pressions artérielles systoliques digitales consiste à utiliser un moyen non invasif pour enregistrer d'une façon indirecte la pression artérielle systolique des artères digitales des mains. Différents dispositifs permettent de la mesurer avec des modalités, précisions et reproductibilités variables. Les méthodes sont extrapôlées des techniques des mesures des pressions d'orteils. Un manchon de taille adaptée est placé au niveau de la 2ème phalange du doigt exploré. Avant de gonfler le manchon, la pulpe du doigt est comprimée et vidée. Une pression supra systolique est appliquée par compression du brassard puis ce dernier est dégonflé lentement. La pression dans le manchon et le signal sont enregistrés. Lorsque la pression dans le manchon devient égale à la pression suprasystolique, un signal est enregistré par différentes techniques. Les techniques de recueil du signal considérées comme étant les plus reproductibles sont celles réalisées avec la pléthysmographie à jauge de contrainte et avec le laserdoppler.
D'autres techniques de recueils existent comme la capillaroscopie, la photopléthysmographie (plutôt considérée comme une technique de débrouillage avec un manque de sensibilité pour

les pressions inférieures à 50 mm Hg) ou le doppler à ultrasons (signal non discriminant pour des pressions inférieures à 50 mm Hg).
Outre les reproductibilités variables selon les techniques de recueil du signal, la méthodologie est influencée par les conditions d'examen. Le patient doit être allongé depuis au moins 15 minutes dans une pièce à température ambiante stable. L'utilisation d'une couverture chauffante à 38°C semble être non systématique selon les équipes. Le résultat est la moyenne des médianes sur 3 mesures. La pression humérale est réalisée de manière concomitante. Peu d'éléments existent dans la littérature concernant la validation des pressions digitales, tant dans la méthodologie, que pour les valeurs seuils ou les taux de reproductibilités selon les techniques de recueil.
Elles sont surtout utilisées comme tests physiologiques associées à des tests au froid (pour distinguer les phénomènes de Raynaud primaire ou secondaire). Elles sont également utilisées comme test diagnostique (artériopathie du membre supérieur, vol ischémique lors d'une fistule artério-veineuse) voire pronostique. Aucun critère de valeurs seuils n'est validé dans la littérature tant dans les critères diagnostiques que pronostiques.
La mesure des pressions digitales est un examen simple à utiliser et totalement non invasif. Son interprétation est par contre délicate et sa méthodologie incomplètement validée. Il en résulte une absence de validation des valeurs seuils d'interprétation. Des études complémentaires doivent être faites pour l'utiliser comme outil diagnostique voire pronostique.

Mots clés : microcirculation, pression digitale

Intérêt de l'échooppler palmaire et digital.

Marc-Antoine PISTORIUS
Unité de Médecine Vasculaire, CHU Hôtel-Dieu, 44000 Nantes

Les enquêtes de pratique réalisées nous montrent qu'en présence d'un patient consultant pour un phénomène de Raynaud, l'examen par échographie-doppler des artères du membre supérieur est réalisé de première intention. Or celui-ci s'arrête généralement au niveau de l'avant-bras, négligeant l'apport d'une évaluation artérielle des mains.

Rappelons que l'examen par échographie-doppler artériel systématique n'est pas recommandé en présence d'un patient consultant pour un phénomène de Raynaud bilatéral ayant un examen clinique vasculaire du membre supérieur normal. L'examen clinique, avec notamment la réalisation d'une manoeuvre d'Allen, occupe une place de 1er ordre dans la démarche étiologique. L'évolution des techniques échographiques permet d'explorer les artères des membres en distalité, de façon de plus en plus performante. On pourra ainsi aisément reconnaître des pathologies des pédicules artériels de la main, radial au plus volontiers ulnaire, pouvant être révélée par un phénomène de Raynaud. Elle permet également d'explorer les arcades palmaires à la recherche de lésions spécifiques et, compte tenu de l'évolution actuelle des sondes hautes fréquences, d'explorer les artères digitales. L'examen reconnaît cependant une certaine limite en extrême distalité et la confirmation d'une artériopathie digitale nécessitera alors le recours à d'autres explorations spécifiques de la microcirculation (laser Doppler, pulse-pléthysmographie, avec des tests spécifiques).

Mots clés : Phénomène de Raynaud, échodoppler.

14:00-15:30 BELLECOUR 2-3

Superficial Vein Thrombosis
Thrombose veineuse superficielle

Superficial vein thrombosis. Heparin: when and why.

Evi KALODIKI
Josef Pflug Vascular Lab, Ealing Hospital, Imperial College & West London
Vascular & Interventional Centre & Thrombosis & Haemostasis Lab, Loyola University, Maywood, IL.

Following superficial vein thrombosis (SVT) anticoagulants are given in order to prevent propagation of the thrombus, decrease the duration and severity of the acute symptoms and reduce the risk of associated deep venous thrombosis (DVT) and/or venous thromboembolism (VTE). Heparin is a pleiotropic drug that has anticoagulant and anti-inflammatory effects.

The 2007 American College of Chest Physicians (ACCP) guidelines, suggested intermediate doses of unfractionated heparin (UFH) or low molecular weight heparins (LMWH) for at least 4 weeks for spontaneous SVT (Grade 2B). In 2007 the Cochrane SVT analysis on 24 trials (n=2469 participants), stated that LMWHs reduced the incidence of the extension or recurrence of SVT by about 70% vs placebo.
The 2010 Calisto randomised controlled trial (RCT) showed that prophylactic sc fondaparinux, 2.5 mg daily for 45 days was associated with a significant reduction in symptomatic VTE, SVT extension and SVT recurrence with comparable rates of major bleeding vs placebo. This was adopted by the ACCP, Cochrane reviewers and the IUA/IUIP/CEVF and Vasculab consensus statement, because of the large number of patients (n=3002) and the robust study design.

The 2012 Cochrane review states that LMWHs vs placebo appear to reduce the extension or recurrence of SVT, or both, whereas the available data did not show any significant effect on VTE. In 2013 they added 4 more studies (n=941 patients), reviewing 30 studies involving 6462 participants. Heparin was administered in 16 combinations for the treatment of SVT in the studies examined. In particular LMWH was compared to placebo in various prophylactic, therapeutic or intermediate doses from 10 to 30-days treatment. Also fixed vs weight-adjusted LMWH and combination(s) with other treatments like saphenofemoral disconnection, nonsteroidal anti-inflammatory drugs (NSAIDs), acemetacin, elastic compression stockings (ECS) or bandages, heparin spray gel, high vs low-dose UFH, calcium heparin and defibrotide.

They concluded that final recommendations cannot be drawn for LMWH because many of the studies were small, of poor quality and heterogeneous in design, and their outcomes, thereby, precluding a meta-analysis.
The RIETE registry though it includes SVT has not published their data on SVT yet. A registry on SVT based on the "SEAP" classification, an initiative of the Scientific Committee of the IUA, may define categories of SVT that would benefit from Heparin.

14:00-15:30 GRATTE CIEL 1-2

Compliance in compression therapy. Its importance and how to improve it
Observance dans le traitement de compression: importance et commentl'améliorer

Difficulties of donning stockings reduce patient's compliance

Claude LUDER, Jürg HAFNER
Department of Dermatology, University Hospital Zurich, Switzerland

Forty per cent of patients with chronic venous insufficiency do not comply with compression therapy. An important reason for non-compliance are difficulties in donning. We investigated whether the use of eight different donning devices and a novel compression kit of a stocking and three superimposed leggings could facilitate donning. Our results show significant increases in donning success for some donning aids and the novel compression kit. We conclude that supplying a suitable compression system adjusted to a patient's specific needs can overcome physical limitations that hamper compliance.

16:00-17:30 AMPHITHEATRE

Révolution numérique et médecine vasculaire
Digital revolution and e-vascular health

Introduction

F. BECKER (1), M. DADON (2)
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(2) Centre d'Explorations Vasculaires, 7, rue Chalgrin, 75116 Paris, France

Les grandes évolutions techniques qui bouleversent nos comportements ont souvent en commun qu'on n'a rien vu venir ou presque, parce que le développement s'est fait dans le secret militaire ou industriel, parce que les pionniers ont été discrets ou calomniés, parce que ça a été considéré comme élucubrations. Autre point commun, une fois le train lancé on n'entend pas ceux qui discutent les dérives possibles.

Pour nombre de professionnels de santé le terme e-santé apparaît comme un oxymoron (accolage de deux termes contradictoires). En 2016 nous sommes inondés d'articles sur la e-Santé, les objets connectés, le big-data … Quelques-uns sont en pointe (dont des associations de patients, les grandes compagnies d'assurance, mais peu de médecins dans les congrès e-santé), beaucoup craignent pour l'avenir de la Médecine, d'autres restent étranger à cette effervescence.

Pourtant l'intelligence artificielle a commencé à se développer avant la 2nde guerre mondiale, les objets médicaux connectés apparaissaient dans la série TV Star Trek en 1966, le premier système-expert en médecine date de 1972 (logiciel Mycin), le verbe googleize est apparu dans le New England en nov.2005, les objets connectés qui nous impressionnent aujourd'hui dans le domaine de la santé sont banaux dans d'autres domaines, les grandes biobanks et les bases de données des grandes compagnies d'assurance préfiguraient le bigdata …

Qu'on le veuille ou non une révolution est en marche, la question n'est pas d'accord / pas d'accord, la question est de savoir si l'on subit ou si l'on s'implique. Les très grandes revues sont en train de mettre en place des rubriques ad hoc, l'AHA publie ce mois un Scientific Statement sur les applications pour les soins cardiovasculaires urgents, …

A travers cette séance nous souhaitons faire réfléchir sur cette révolution numérique en médecine, à laquelle la médecine vasculaire n'échappera pas!

Place du médecin à l'heure du BIG DATA.

Mehdi BENCHOUFI
Mehdi Benchoufi, CCA service d'Epidémiologie Clinique Hôpital Hôtel-Dieu

Le Big Data est annoncé comme un bouleversement transformant une médecine fondée sur des hypothèses consolidées par des preuves en une médecine dont l'intuition des hypothèses serait déduite des données de façon algorithmique.

Le volume, la diversité et la capacité de traitement des données sont aujourd'hui inédits. Dans un monde hyperconnecté, numérisé, les internautes, les objets connectés, dont le nombre devrait dépasser plusieurs dizaines de milliards d'ici 2020, émettent un flux incessant de données, dans lesquelles nous pouvons voir, au moins en puissance, autant de données utiles à la médecine.

Mais apprécié strictement sous l'angle de la masse, le Big Data dégage des perspectives enthousiasmantes sans être autre chose qu'un passage à l'échelle, remarquable de potentiel sans que l'on puisse y voir une nouveauté de nature qualitative. En revanche, ce qui semble être décisif, c'est la faculté des machines à apprendre, notamment via des techniques dites de Machine Learning, et ainsi à acquérir des facultés prédictives et peut-être un jour cognitives.

Or, la qualité de cet apprentissage est tout à fait volume-réquérant, notamment au travers d'une technique particulièrement puissante dite de Deep Learning, fondée sur l'utilisation de réseaux de neurones, qui augure d'usages médicaux spectaculaires et dont nous évoquerons quelques aspects. Il n'est dès lors plus interdit d'imaginer que la formulation même des hypothèses que nous évoquions plus haut puissent être bientôt accessibles à des machines, augmentant singulièrement la capacité d'analyse de la médecine, annonçant la mutations de ses modèles de connaissance, lesquels supposent de penser avec application la relation étroite que médecins et machines nourrie aux Big Data vont être amenées à nouer.

Nous illustrerons notre propos d'exemples qui témoignent aussi bien de ressources nouvelles et prometteuses pour la médecine, que de la limite d'approches dont il faut encore consolider les méthodes.

Au total, ces changements sont de nature paradigmatique, de nouveaux cadres méthodologiques doivent être pensés et la formation des médecins adaptée selon.

Révolution numérique et perspectives dans l'organisation des soins.

Olivier VERAN
Service de Neurologie, CHU Grenoble, Grenoble

La France est-elle au niveau en matière de numérique en santé ?
--> Excellent niveau en recherche fondamentale et cinique, bon transfert technologique, mais gros soucis: faible niveau de la commande publique, et complexité de l'accès au marché pour les entreprises du secteur. La France prend du retard: parler de la télémédecine comme d'une innovation devrait prêter à sourire, et pourtant...

Dans quels secteurs du soin le numérique a t-il sa place ?
--> Le numérique irrigue 40% des emplois industriels en France en seulement 20 ans. En médecine, il intervient en prévention, en éducation thérapeutique, à l'étape du diagnostic, du traitement (médecine prédictive et personnalisée).
Nous pouvons évoluer vers une forme de médecine algorythmique, surtout du fait de l'introduction de la génétique et des modèles thérapeutiques basés sur des tests compagnons.

Quel modèle de financement pour le numérique en santé dans nos établissements?
--> Il faut un plan Hôpital 2017 qui mobilise le plan d'investissement d'avenir 3 (PIA3) afin de financer l'innovation technologique dans nos établissements de santé, notamment sur l'axe numérique. IL faut également définir des tarifs pour les actes liés aux nouvelles technologies, et mieux prédire l'évolution des pratiques sous l'effet du progrès médical (ex: TAVI et lits de cardio). Il faut aussi un modèle de financement stable et lisible pour sanctuariser les équipements technologiques couteux, pour éviter que tout cet argent n'aille simplement boucher les trous dans les budgets hospitaliers. Le message: investir un euro dans le numérique aujourd'hui, c'est faire 2, 3 ou même 10 euros d'économie demain.

Le numérique a t-il vocation à remplacer demain le médecin, allons nous vers une ubérisation de la médecine?
--> L'ubérisation est un risque (ex en radiologie), mais je crois qu'en définitive la plus value du médecin résidera demain dans sa capacité de transgresser, c'est à dire de s'appuyer sur sa pratique et ses connaissances propres pour ne pas suivre à la lettre protocoles et EBM, quand il le jugera nécessaire. Attention également à la relation médecin/malade

16:00-17:30 BELLECOUR 2-3

Vascular Effects of Cannabis
Les troubles vasculaires du Cannabis

Vascular pharmacology of cannabis

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Cannabis and related compounds (natural, endogenous and synthetic analogues) produce vasorelaxation in resistance and conduit arteries. Several and different mechanisms have been proposed to explain this effect of cannabinoids in the distinct vascular territories. Research on the vascular effects of cannabinoids suggests that the magnitude of the vasorelaxation and the mechanisms involved are not identical in all vascular beds with one or two mechanisms predominating. Either extracellular or intracellular mechanisms are involved. With regard to the former, the stimulation of cannabinoid CB1, CB2 or nonCB1/nonCB2 cannabinoid receptors and the stimulation of vanilloid receptors, transient potential vanilloid receptors, on perivascular nerve endings with the subsequent release of the vasodilator neurotransmitter calcitonin gene-related peptide have been described. With regard to the latter, the main mechanisms implicated include nitric oxide release, metabolism to vasoactive arachidonic metabolites or prostanoid analogues, or endothelium derived hyperpolarising factor release.
The knowledge of the complex vascular pharmacology of cannabinoids is crucial to identify new therapeutic targets and to understand the consequences of stimulate or blockade cannabinoid system in the vascular territory.

Cannabis: a study which hurts the heart

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Introduction. As emphasized by the World Health Organization (WHO), cannabis use represents a risky behavior as it may lead to many adverse effects, and in particular, cardiovascular effects. The objective was to examine the published evidence on the cardiac risk related to the use of cannabis-based products, by performing a systematic review of recent literature.

Methods. A systematic review of articles published between 2011/01/01 and 2016/05/31 was performed in accordance with the PRISMA statement. All articles presenting data on humans exposed to cannabis-derived products and suffering from any pathology or anomaly affecting the heart, without any distinction on age, gender or nationality, were eligible for inclusion. The inclusion process was based on a defined search algorithm and was performed in a blinded standardized manner.

Results. Overall, 826 articles were found in the literature search, 66 of which corresponded to cardiac complications and remained after performing the inclusion procedure. These were 47 case reports, 16 observational studies, and 3 clinical trials. A total of 60 individuals was the subject for case reports. They were aged 28 as a mean (± 12.7 years), and more frequently men (88.3%) than women (11.7%). Included case reports mainly corresponded to myocardial infarctions, although other cardiac diseases were also reported. Data provided by observational studies suggested an increased risk of cannabis-related myocardial infarctions.

Discussion and conclusion. A significant risk for the cardiovascular condition of users of cannabis-based product is suggested in the scientific literature. Currently this evidence is weaker for myocardial infarctions and other cardiac diseases than for ischemic strokes. However, from a medical point of view, and as far as the cardiovascular health is concerned, the extensive use of cannabis-based products should be seen as a worrying and increasing concern.

Key words: Cannabis, cardiac disease, systematic review

Buerger's disease : who is the culprit ? Tobacco or cannabis?

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Buerger's disease (BD) is a peripheral occlusive arterial disease (POAD) of unknown origin in the young, occurring almost exclusively in smokers.

Tobacco is a key stone of BD. All the clinical scoring systems for BD use tobacco as a major point. Several papers show that ongoing tobacco consumption is associated with a worse prognosis. However tobacco stopping is especially difficult in these young patients with difficult psychological and social conditions. The ADDICTAO study should soon bring new informations on this subject.

Cannabis consumption has been reported since the early 60's in young people with severe BD like POAD in Morocco. Ongoing cannabis consumption was associated with worsening arterial disease. The APJ case control study has shown that young people with BD have an heavier cannabis consumption than young controls but also than young patients with atheromatous POAD despite no difference in tobacco consumption [1].

Little is known about vascular toxicity of cannabis and its main metabolite, tetra-hydro-cannabinol (THC) but cannabis has been identified as a risk factor for stroke and acute coronary syndrome. A toxic component of tobacco cigarettes such as arsenic has been proposed. It seems likely that toxic substances might be involved in cannabis as tobacco but limited data exist so far.

The mechanism of BD is still unknown but tobacco is considered as the main aetiological factor to be identified. More recently data have shown that cannabis is also associated to the risk of BD.

1 AM Berard, A Bedel, R LE Trequesser et al. Novel Risk Factors for Premature Peripheral Arterial Occlusive Disease in Non-Diabetic Patients: A Case- Control Study. Plos One 2013, 8, e37882.

Samedi 8 Octobre - *Saturday October 8th*

08:30-10:00 BELLECOUR

Sport-induced vascular diseases
Sport et maladies vasculaires

Arterial kinking in the Iliac arteries

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Kinking of the Iliac arteries is first described by Chevalier in 1986 (1). He supposed kinking could be the underlying mechanism resulting in endofibrotic arterial narrowing in athletes.

Schep et al hypothized that kinking also on its own, could lead to flow limitations. He and his team developed and validated diagnostic tests to visualize kinking. Magnetic resonance in a flexed hip position proved most effective to visualise kinking in the common Iliac artery. In 48% of athletes with flow liitations in the Iliac arteries such kinking was demonstrated (2,5,6). Echo Doppler with flexed hip, psoas contraction and post exercise proved most reliable to demonstrate kinking in the external Iliac artery. In 39% of the patients such kinking was demonstrated (3,4,5). A cycling test with ankle pressurements after exercise in a flexed hip position was developed and validated as a diagnostic test (4-5). In selected patients, in whom flow limitation was mainly caused by kinking with only minimal intravascular lesions, it proved possible to treat the flow limitations surgically with an iliac artery release operation. This operation yielded a satisfactory result in 20 of 23 athletes (91%) that were operated upon (7).

Despite this evidence kinking and its treatment is still under discussion as a cause for flow limitatations. A recent Delphi procedure among specialists in this area of medicine demonstrated that even 75 % of experts did not believe that arterial kinking on its own could be sufficient to cause flow limitation in selected athletes!
As a consequence there are two groups of experts diagnosing and treating this disease. Both groups use different diagnostic tests with different diagnostic tresholds. The group of experts who are convinced that kinking may lead to flow limitation have an extra challenge since they are confronted with patients in more early stages of the disease.
In the lecture we will demonstrate this diagnostic challenge by patient cases also using new potentially more sensitive diagnostic techniques like pedal force measurement during cycling and Near Infra Red Spectroscopy.

1 *Chevalier JM, Enon B, Walder J, Barral X, Pillet J, Megret A, et al. Endofibrosis of the external iliac artery in bicycle racers: an unrecognized pathological state. Ann Vasc Surg. 1986;1(3):297-303.*

2 *Schep G, Kaandorp DW, Bender MHM et al. Magnetic resonance angiography used to detect kinking in the iliac arteries in endurance athletes with claudication Physiol Meas 2001; 22: 475-487*
3 *Schep G, Bender MHM, Schmikli SL et al. Color Doppler used to detect kinking and intravascular lesions in the iliac arteries in endurance athletes with claudication. European Journal of Ultrasound 2001; 14: 129-140*
4 *Schep G, Bender MHM, Schmikli SL et al. Recognising vascular causes of leg complaints in endurance athletes. Part 2 The value of patient history, physical examination, cycling exercise test and echo-Doppler examination Int J sportsmed 2002; 23: 322-328*
5 *Schep G, Schmikli SL, Bender MHM et al. Recognising vascular causes of leg complaints in endurance athletes. Part 1 Validation of a decision algorithm Int J sportsmed 2002; 23: 313-321*
6 *Schep G, Kaandorp DW, Bender MHM et al. Excessive length of iliac arteries in athletes with flow limitations measured by magnetic resonance angiography. Med Sc Sports and Exerc 2002; 34: 385-393*
7 *Schep G, Bender MHM, Tempel van de G et al. Detection and treatment of claudication due to functional iliac obstruction in top endurance athletes: a prospective study Lancet 2002; 359: 466-473*
8 *INSITE collaborators, Diagnosis and management of Iliac artery endofibrosis: results of a Delphi consensus study. Eur J Vasc Endovasc Surg (2016) -,1e9*

08:30-10:00 GRATTE CIEL 1-2

News in Non Invasive CerebroVascular Investigation
Nouveautés dans l'exploration non invasive cérébro-vasculaire

Vertebro-basilar insufficiency and non invasive evaluation of vertebral artery disease

G. ARDITA
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The vertebrobasilar system is a vascular network providing blood to the posterior cerebral hemispheres. Vertebrobasilar insufficiency (VBI) symptoms are highly variable and difficult to quantify ranging from vertigo, dizziness, visual changes to syncope or drop attacks. VBI diagnosis constitutes a challenge as VBI and several non-ischemic vestibular disorders share the previous described symptoms. Impaired hemodynamic due to blood flow reduction or thromboembolism are the main causes of VBI. Atherosclerosis commonly affects Vertebral arteries (VA) and basilar artery (BA). Vertebral and basilar arteries (VBA) stenosis are associated with an high risk of recurrent posterior TIA or stroke. One fifth of posterior circulation ischemic strokes depends on vertebral atherosclerotic stenosis with artery-to-artery embolism being the likely mechanism. Both morphological and hemodynamic non-invasive evaluation of vertebrobasilar system may help to establish the diagnosis. Various studies support contrast-enhanced (CE) magnetic resonance (MR) angiography and CT angiography being exams with the highest sensitivity and specificity to detect 50% stenosis or more. CE-HR-MR imaging selects atherosclerotic vulnerable plaques by a better evaluation of the

intracranial arterial wall including BA. In contrast, ultrasounds have low sensitivity and could miss many vertebral stenosis. Recently color-coded duplex scanning (CDS) showed high sensitivity and specificity for proximal VA stenosis when stenotic peak systolic velocity cut-off ≥ 1.35m/s or peak systolic velocity ratio cut-off ≥ 2.2 were considered. Transcranial doppler (TCD) and Transcranial color-coded duplex scanning (TCDS) are non-invasive methods to study the intracranial VBA. TCD demonstrated high specificity but low sensitivity (63%) in detecting intracranial VBA stenosis or occlusion in patients with stroke. Intracranial stenosis/occlusion sensitivity or specificity up to 100% was reported by TCDS, mostly when CE-TCDS is employed. CE-TCDS reverse distal basilar artery flow evidence highlights a proximal BA occlusion before MR or CT angiography. Suboccipital-TCD microembolic signals (MES) monitoring can supply additional information about lesion patterns on diffusion-weighted MR imaging in patients with posterior small subcortical lesions. Authors found meaningfull higher prevalence of intracranial VBA stenosis in BA-MES-positive patients when compared to BA-MES-negative ones, suggesting BA TCD MES monitoring may aid in selecting VBA vulnerable plaques. VBI diagnosis due to Subclavian Steal Phenomenon is uneasy. A bidirectional flow in the extracranial vertebral artery doesn't always account for a subclavian steal. Often TCD evaluation of VBA only finds compensatory increase of the avarage flow. In contrast, postischemic hyperemia could show BA retrograde toward the probe flow aiding diagnosis of true VBI.

Plaque imaging to decide on optimal treatment of carotid stenosis

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Carotid artery stenosis is a well-established risk factor of ischemic stroke, contributing to up to 10%-20% of strokes or transient ischemic attacks. Many clinical trials over the last 20 years have used measurements of carotid artery stenosis as a means to risk stratify patients. Imaging features such as intraplaque haemorrhages (IPH), plaque ulceration, plaque neovascularisation, fibrous cap thickness, and presence of a lipid-rich necrotic core (LRNC) could play a role as risk predictors of cerebrovascular events. Advances in imaging techniques have made direct imaging and assessment of these features possible and so it is now possible to define how vulnerable the plaque is to rupture, resulting in ischemic stroke.

A connection between echogenicity and histopathologic features has been studied and reported in literature: intraplaque haemorrhage and lipids make a plaque hypo echoic and heterogeneous while a fibrous plaque appears to be hyper echoic and homogeneous. Recently, studies have shown good sensitivity and specificity of ultrasound for detection of unstable carotid plaques. In particular contrast-enhanced ultrasound (CEUS) allows the identification of carotid plaque neovessels and it appears a suitable approach for the identification of high risk plaques. Finally carotid plaque morphology and surface area are both good predictors not only of stroke, but also of myocardial infarction, and cardiovascular death.

In light of these studies and their clinical correlations, follow-up and treatment of patients with carotid stenosis should be based not only on the degree of stenosis but also on the plaque morphology, and further studies are needed for standardization of ultrasound plaque morphology evaluation in relation to prognosis.

Imaging of cervical artery dissection

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Cervical artery dissection (CeAD) is rare, with an estimated annual incidence of 5 cases per 100,000 in the general population, but it is an important and one of the most common causes of ischemic stroke in young patients (i.e., age 20-50 years) without traditional vascular risk factors. Cases can occur shortly after trauma. However, spontaneous dissection is common and is associated with many genetic, acquired and anatomical risk factors. Cervical arterial dissection occurs when the intimal wall of an artery is damaged as a result of trauma or defect: as blood fills the layers of the arterial wall, thrombosis which can lead to stroke, pseudoaneurysm, vessel occlusion, and stroke may occur. If intracranial vessels are involved dissections may result in subarachnoid hemorrhage. Cervical artery dissections involving multiple neck arteries are frequent, accounting for 13% to 28% of overall. Symptoms are present in about 50% of patients with CeAD and have the properly clinical expression related to the affected vessel (carotid, vertebral etc) but sometimes symptoms are minimal or absent. Stroke related to CeAD typically occur in the first 2 weeks after the dissection and the risk of stroke falls drammatically beyond that time point. Patients with CeAD tend to have a good spontaneous prognosis: in general, patients with CAD have resolution and healing of the blood vessel on follow-up imaging 6 months after diagnosis. Although the dissected vessel usually has complete recanalization, residual stenosis or occlusions however may persist: even in those who do not recanalize, the risk of stroke recurrence remains very low (about 3%) as like as in patients with complete resolution. One of the complications of CeAD is the development of a pseudo-aneurysm that tends to persist on repeat imaging while the risk of rupture is around 1% and typically occurs in intracranial arteries causing subarachnoid hemorrhage. CeAD should be detected early to avoid complications and prevent long-term disability.

CeAD incidence has increased over time largely because of improvements in and increasing availability of noninvasive imaging. CeAD can be detected on ultrasound, computed tomography angiography, MRI, magnetic resonance angiography, and conventional catheter-based digital subtraction angiography; the same methods are useful for follow-up and sometimes (ie angiography) for endovascolar treatment. US with color Doppler is globally accepted as the first-line imaging modality for diagnosing CeAD, This non-invasive, high-resolution imaging technique is readily available and inexpensive. With proper skill, trnascranial Doppler and Contrast Enhanced Ultrasound (CEUS) may be useful too, both at the onset and for follow up.

Multisection computed tomographic (CT) angiography can provide high-resolution and highcontrast images of the arterial lumen and wall; at the same time it allows to get informatios about possible ischemic or hemorrhagic lesions.
Dissections of the craniocervical arteries can be assessed with Magnetic Resonance (MRI) using cross-sectional images and angiographic techniques with and without contrast material injection. Cross-sectional images can provide direct visualization of the intramural hematoma. As like as CT scan, MRI may give information about cerebral parenchima too. Digital subtraction angiography DSA) is not always definitive in the diagnosis of dissection because the thickness and configuration of the arterial wall are not appreciable. Nevertheless, it has been commonly regarded as the gold standard diagnostic procedure mostly for patognomonic signs like as the string sign, a double lumen or the presence of intimal flap. Ofcourse, to achieve an accurate diagnosis of craniocervical artery dissection, it is important to be familiar with its pathologic features (intimal tear, intramural hematoma, and dissecting aneurysm).

Bibliography

1. *Provenzale JM, Morgenlander JC, Gress D. Spontaneous vertebral dissection: clinical, conventional angiographic, CT, and MR findings. J Comput Assist Tomogr 1996;20(2):185–193.*
2. *Benninger DH, Caso V, Baumgartner RW. Ultrasound assessment of cervical artery dissection.Front Neurol Neurosci 2005;20:87–101.*
3. *Benninger DH, Georgiadis D, Gandjour J, Baumgartner RW. Accuracy of color duplex ultrasound diagnosis of spontaneous carotid dissection causing ischemia. Stroke 2006;37(2):377–381.*
4. *Truwit CL. CT angiography versus MR angiography in the evaluation of acute neurovascular disease. Radiology 2007;245(2):362–366; discussion 366.*
5. *Lell MM, Anders K, Uder M, et al. New techniques in CT angiography. RadioGraphics 2006;26(spec issue):S45–S62.*
6. *Rodallec MH, Marteau V, Gerber S, Desmottes L, Zins M. Craniocervical Arterial Dissection: Spectrum of Imaging Findings and Differential Diagnosis. RadioGraphics Volume 28 Number 6. October Special Issue 2008*
7. *Shea K, Stahmer S, Catotid and vertebral arterial dissection in the emergency department. Emergency Medicine Practice, April 2012, vol14, number 4*
8. *Blum CA, Yaghi S. Cervical Artery Dissection: A Review of the Epidemiology, Pathophysiology, Treatment, and Outcome Arch Neurosci. 2015 October ; 2(4)*

10:30-12:30 FORUM 5

Session Recommandations
Guidelines session of the SFMV

La réadaptation des artéritiques.

Dominique JANODY
Polyclinique Les Bleuets - Reims

La réadaptation cardiaque est bien connue avec des techniques validées et des résultats prouvés. Chez les patients porteurs d'artériopathie chronique des membres inférieurs, les techniques de réadaptation vasculaire sont moins bien connues mais font partie du traitement. Les objectifs sont multiples : le réentraînement musculaire qui permet d'améliorer la vasodilatation périphérique objectivée par la réponse à l'ischémie provoquée avec augmentation de la compliance artérielle, l'augmentation de la production mitochondriale musculaire d'ATP comme chez le sujet sain, l'augmentation de la proportion de fibres I et IIA et le développement de la circulation collatérale. Elle améliore les performances métaboliques et la perfusion musculaire au cours de l'effort comme chez le coronarien et l'insuffisant cardiaque avec une augmentation en moyenne de 20 à 30 % du pic de VO2 et une amélioration du seuil ventilatoire expliquant une amélioration de la tolérance à l'effort et le recul du seuil de dyspnée et de fatigue. L'éducation thérapeutique associée au réentrainement permet au patient de comprendre ses facteurs de risque et de fixer ses objectifs. En particulier en cas de diabète, de dyslipémie, d'hypertension artérielle, de surcharge pondérale, d'addiction. Une prise en charge psychologique est également indispensable pour pérenniser l'amélioration. Avant la prise en charge une évaluation générale des facteurs de risque et des pathologies associées est effectuée avec en particulier la recherche d'une cardiopathie sous-jacente comme une ischémie silencieuse. Les indications sont très larges et son intérêt est majeur dans l'artériopathie de stade II ou après une prise en charge chirurgicale dans le cadre d'une prévention secondaire en insistant sur l'éducation. Le programme comprend des séances de renforcement musculaire, de travail sur ergomètre en privilégiant le tapis roulant et la balnéothérapie. La réadaptation des artéritiques fait partie intégrante du traitement avec des effets bénéfiques démontrés à tous les stades. Cette prise en charge contribue à la réduction des coûts de santé avec une diminution des hospitalisations, des gestes de revascularisation, des arrêts de travail.

10:30-12:30 BELLECOUR

Which varicose veins lead to venous ulceration (C6) ?
Quelles veines variqueuses entraînent un ulcère veineux

The haemodynamic approach.

André VAN RIJ
University of Otago Dunedin, New Zealand

Venous hypertension is a given factor in the development of venous ulcers. Reflux and obstruction contribute to this.This paper looks at other factors that influence the haemodynamic response and the probability of developing venous ulcers.

Duplex ultrasound: characteristics of disease severity, beyond 'reflux'

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In patients with varicose veins and more advanced stages of chronic venous disease (CVD), duplex ultrasound (DUS) of the superficial venous system mainly aims at detecting reflux in the saphenous trunks and tributaries, as well as at the saphenofemoral and-popliteal junction (SFJ and SPJ). In the superficial veins, reflux is defined as reversed flow during more than 0.5 s. Whereas 'reflux' is a qualitative criterion, only distinguishing between 'reflux' and 'no reflux', this does not seem to be sufficient for estimating the real severity of the disease and it would be interesting to have some additional DUS parameters to guide our management strategy in patients with CVD.

First, attempts have been made to better quantify reflux, trying to understand the haemodynamic impact of this reflux. Whereas duration of reflux is not related to clinical severity, peak reflux velocity (PRV) and mean reflux velocity appeared to be significantly higher in limbs with C4-C6 versus limbs with C2-C3 clinical class. Various results have been obtained by investigating refluxing volume in view of clinical severity and hence it seems less reliable than PRV. Whether the 'recirculation index', a recently described parameter looking at the ratio of 'displaced reflux volume / displaced antegrade flow', is of clinical interest should be further investigated.

Second, investigation of the venous anatomy and morphology of the refluxing veins has gained importance. This evolution is running parallel with a growing insight in the pathophysiology of superficial venous incompetence, where changes in the vein wall seem to play a key role in the development of CVD. Logically the diameter of the refluxing vein should be measured, preferably in a standardized fashion. In general, the larger the diameter, the more advanced is the disease. Larger diameters are seen in combination with reflux from the terminal valve of the SFJ or SPJ and correlate well with the 'C' class of the CEAP classification (larger diameter, higher 'C') and increased venous filling index at

plethysmography. Postural diameter change (PDC), expressed as the percentage of diameter change when changing from standing to lying position, may be another parameter to evaluate disease severity. It reflects the elasticity of the vein wall. Preliminary data showed a trend towards lower PDC with more advanced stages of CVD. The presence of one, or more focal dilatations of the saphenous trunk may be another indicator for disease severity. Finally, with sufficiently high definition ultrasound, it is possible to study the thickness of the vein wall and the presence of phlebosclerosis, which again may indicate a tendency to more severe CVD.

Conclusion. Duplex ultrasound definitely offers more possibilities than just looking at the presence or absence of reflux in superficial veins. This should be further investigated to increase our understanding of CVD and refine selection criteria for treating patients with CVD, targeting those with the largest risk for deterioration of the disease.

Other anatomical factors: microvenules and perforators

André VAN RIJ
University of Otago Dunedin, New Zealand

Much attention has been given to the prediction of venous ulcer factors associated with reflux in the major superficial veins and the changes in the capillary microcirculation. The role of microvenules which link these has been neglected. This paper describes the microvenular changes that occur in the lower leg in the presence and in the absence of varicose veins. The concept of incompetent 'boundary' microvalves as a factor predisposing to venous ulcer will be presented along with in vivo imaging.

What can we learn from ultrasound of the skin

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Currently, ultrasonography (US) is used only to designate the location and pattern of venous lesions. In turn, modern echotomographs allow a good representation of the skin morphology. In legs with venous disorders, besides to refine the evaluation of skin lesion, US may reveal changes not highlighted by clinical examination.
In the apparently normal skin of C2 legs, US may reveal edema of the dermis as well as cutaneous and subcutaneous infiltration, both suggestive for inflammatory phenomena of the venous wall and/or of the surrounding tissues. These changes are more frequent in legs with severe varicose veins and correlate to heavier symptoms. In varicose legs with lipodermatosclerosis (C4b),US may reveal skin changes that are to be possibly considered pre-ulcerative lesions (dermal edema and subcutaneous rarefaction).
Further studies are needed:

- to explain the pathogenesis of the skin changes demonstrated by US.
- to evaluate the prognostic significance of these US findings.
- to evaluate if US may precociously identify those C2 legs that are more prone to develop skin changes and ulcers.

10:30-12:00 CRATTE CIEL 1-2

Exercize Vascular Investigations in Claudication
Explorations vasculaires dans la claudication

Exercise and Vascular Investigations in Claudication. Near Infrared Spectroscopy (NIRS)

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Among the technological instruments supporting diagnosis and severity assessment of patients with Peripheral Vascular Disease (PVD), Near InfraRed Spectroscopy (NIRS) represents a promising tool. The injection of NIR light in the in human body tissues and the analysis of the residual light signal detected by the receiver probe, allows the measurement of relative changes in oxy-haemoglobin and deoxy-haemoglobin concentration in localized regions of tissue perfused by arterioles, venules and capillaries.
The objective assessment of changes of regional skeletal muscle blood flow and oxygenation allows studying the mismatch between oxygen delivery and demand in muscle tissue in PVD patients, useful for the diagnosis and severity evaluation of the disease. In absence of a gold standard, different parameters correlated to the clinical status can be collected by NIRS, including muscle oxygen consumption, blood flow, tissue post-hypoxia resaturation times or rates or area under curve of oxygenated and differential hemoglobin under standardized conditions.
NIRS is a noninvasive technology, suitable for dynamic measurements not disturbing muscle performance during motor tasks. It is relatively inexpensive, simple and easy to learn. These traits make the NIRS technique potentially useful in a vascular laboratory testing for monitoring oxygen availability and utilization by the tissues, however its clinical utilization needs to be confirmed and validated.

Post-Stress and Rest MRI

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The diagnosis of peripheral arterial disease can be established with virtual certainty based on patient history, clinical symptoms and noninvasive tests like the ankle-brachial index. Consequently, imaging of the peripheral vascular tree is only preserved for patients being considered for invasive therapy with the aim to localize arterial lesions and to plan the intervention. Of the clinically available non-invasive imaging techniques, Magnetic Resonance Imaging (MRI) is the most versatile, as it can assess the morphology and function of the vascular tree including deep vascularization, cover a large anatomic field of view, and obtain macro- as well as microvascular properties.

At the macrovascular level, information on the position and degree of the lesion (stenosis) can be retrieved, the extent and trajectory of collaterals can be depicted, and also the blood flow through large conduit arteries can be quantified.
At the microvascular level, MRI can be used to measure end-organ (e.g. muscle) perfusion utilizing dynamic contrast-enhanced (DCE) MRI, as well as tissue oxygenation using dynamic blood oxygen level-dependent (BOLD) MRI. DCE MRI is able to determine regional perfusion in skeletal muscle tissue. By dynamically recording enhancement of muscle tissue during injection of contrast medium and measuring the signal in the arteries supplying those muscles, quantitative information on the microvascularization can be obtained. BOLD MRI is a non-contrast enhanced functional MRI technique to measure perfusion. The BOLD phenomenon is based on local susceptibility changes due to changes in blood oxygenation.
This versatility makes MRI an ideal imaging techniques also for the follow-up of treatment of vascular disease to determine the early signs of vascular responses and also the biological response mechanism. For successful application, the imaging techniques need to be easily available and reproducible. In this presentation we will evaluate the use of various MRI techniques in peripheral arterial disease for its reproducibility, optimal settings for measurement of collaterals, flow, and perfusion, the use of contrast media, functional characterisation of disease severity relative to the ankle-brachial index and treatment monitoring of supervised exercise therapy in rest and stressed (hyperemic) conditions.

14:00-16:00 BELLECOUR

Evaluation of CVD Patients: from CEAP to Symptoms
Evaluation des patients cardiovasculaires: de la CEAP aux symptômes

Do venous symptoms tell it all ?

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Introduction. Although symptoms are one of the main concern for patients consulting for venous disease, they don't provide in many cases valuable information for identifying precisely venous disease.

Methods. A research was made in the articles quoting venous symptoms as key word for Identify the information provided by venous symptoms on venous disease type.

Results. Information provided by symptoms have been listed in 2 groups :
Venous symptoms that provide few or false information on patient status

- Leg symptoms are not pathognomonic of venous disease except venous claudication. In other words, the symptoms listed as venous symptoms may have a non- venous cause.
- Authentic venous disease can be asymptomatic.
- Absence of venous signs and normal routine investigations do not eliminate presence of genuine venous symptoms.

- There is a weak correlation between symptom intensity and severity of the venous disease. For example, large varices may be asymptomatic, conversely small and limited varices should be painful.
- Secondary symptoms as disquiet, malaise, insomnia, ill-being, etc. may be related to venous disease, but relationship is sometimes difficult to identify.
- There is a weak correlation between symptom intensity and instrumental investigations information. Frequently patients presenting VV have the same duplex anomalies, but report different symptoms or the same one with more or less intensity
- Some patients after their successful operative treatment assessed by Duplex scan and APG that are satisfactory, state they are not improved in terms of symptoms
- Some patients are improved in terms of symptoms by any kind of treatment, that is placebo effect.
- Perception of symptoms by the patient: they are unique, personally-felt experience. These feelings are variously expressed and with differing intensity, and they may mean many different things to different patients. (SYM VEIN article part II) Consequently, symptoms do not provide valuable information on symptom severity
- Symptoms do not allow to make a diagnosis either on venous system affected or physio pathologic disorder: reflux, obstruction or their combination.

Conversely venous symptoms provide sometimes valuable information to the physicians

- Patient complaints orient physician to possible venous disorders.
- When venous cause is established, importance of symptoms as reported by the patients is an indication for treating them actively after a careful analysis.
- According to such and such symptoms dedicated venous instrumental investigations should be undertaken. For example, in presence of venous claudication a treadmill exercise is indicated as first step.
- Symptoms particularly pain worsening may be a sign of venous disease evolution or aggravation.

The SYM Vein consensus. This document has been established by 23 participants from 14 countries after 2 years of discussion.
Perrin M, Eklöf B, van Rij A, Labropoulos N, Michael Vasquez M, Nicolaides A et al. Venous symptoms: the SYM Vein Consensus statement. International Angiology, 2016;35(4):374-98.

Conclusion. SYM Vein Consensus statement has really helped me to build this presentation, but many points have not yet been clarified/
Pathophysiology of C0s patient?
Poor result in terms of symptoms after successful varices treatment assessed by DS?
What is the psychological profile of patients affected by secondary symptoms?
etc., etc.

Venous Symptoms: What are they and How Can We Be Sure?

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Venous symptoms are diverse, elusive and difficult to evaluate. Their place in determining the severity of chronic venous insufficiency and in deciding the therapeutic necessity or option is not clear. This paper presents the insights of the SYM Vein Consensus of the European Venous Forum to assist in understanding the limitations of symptoms and how to apply them in decision making in the treatment of the patient with CVD.

14:00-16:00 TETE D'OR 1-2

Rehabilitation and Balneotherapy of the Vascular Patient
Rééducation et balnéothérapie du patient vasculaire

Thermal dispersion of fingers, and its amelioration by CO2 bathing.

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Objective. To see thermal dispersion among fingers in connective tissue diseases (CTD) patients, and to elucidate whether it is ameliorated by CO2 bathing.

Patients and methods. CTD patients with suspected peripheral circulation disturbance were included. Nailfold temperatures of 10 fingers were measured from before to 30 min. after CO2 bathing, by thermography (Infraeye®, Nihonkoden, Japan). Bathing was hands immersion into 42ºC water containing 1000 ppm CO2 (Carbothera Onpar® MitsubishRayonCleansui, Japan) for 10 minutes. To evaluate thermal dispersion, coefficient of variation (CV, standard deviation/mean of 5 fingers; in this study, average of left and right) was adopted.

Results. Forty-seven (45 females and 2 males) patients aged 59.5±18.4 were included, among whom 32 had Raynaud phenomenon. At the baseline prior to bathing, mean nailfold temperature was 30.8ºC and mean CV was 0.029. After bathing, they changed to 35.3 (0')−32.6 (3')−32.6 (5')−32.5 (10')−32.4 (15')−32.4 (20')−32.1 (30')ºC, and to 0.004−0.006−0.007−0.011−0.013−0.013−0.014, in the same order. CV differed from patient to patient most widely at prior to bathing (0.004∼0.099), and the difference was reduced most at just after bathing (data not shown). Between temperature and CV, negative correlation was at every measure; a slope of approximate straight line was largest at prior to bathing and smallest at just after bathing.

Discussion. A substantial thermal dispersion among fingers would be a striking feature in CTD patients with peripheral circulation problem. Mean CV of 0.029 seemed clearly larger than

that of normal controls shown in a report (Intern Med 55: 461-466, 2016). The major concern of this study was whether CO2 bathing could ameliorate the dispersion. After CO2 bathing, nailfold temperature elevated by 4.5ºC, and still sustained higher throughout the measure. Most remarkable was the CV decrease. Although narrowed CV gradually re-widened, it still kept smaller than half of the baseline value till the last measure. Uneven vascular remodeling between fingers could be suspected as an underlying pathophysiology which might cause temperature dispersion at baseline. Even in such a case, functional vasodilatation of severely involved vasculature might take a place, showing amelioration of temperature dispersion. CO2 might have a unique effect.

Conclusion. CTD patients with suspected vascular impairment showed temperature dispersion among fingers. The dispersion was ameliorated by warm CO2 bathing.

Key words: *CO2, Thermography*
COI: none related to this study.

14:00-16:00 GRATTE CIEL 1-2

Bioengineering and Vessels
Bio-ingénierie dans les maladies vasculaires

Blood flow and clot formation in type B aortic dissection

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Aortic dissection is a major aortic disease which compromises blood perfusion in the entire body. It is caused by the formation of a tear in the inner layer of the aortic wall, which allows splitting of the wall layers, leading to the formation of a false lumen. Type B dissections are treated either medically or through thoracic endovascular stent repair (TEVAR). However, there is currently no reliable method to identify which group of patients would benefit from early intervention, and even the groups that undergo early stenting are not guaranteed disease free survival because the clinical results of TEVAR are also unpredictable. Partial false lumen thrombosis has been identified as a significant predictor for late complications, whereas complete false lumen thrombosis has been associated with improved outcomes. Therefore, it would be a significant advantage if we could predict whether and to what extent blood clots would form in the false lumen based on patient-specific information.

We have developed a novel computational model which is capable of predicting false lumen thrombosis in aortic dissection (Menichini and Xu, 2016). In this model, thrombus formation and growth are predicted through the evaluation of hemodynamic parameters and flow patterns. The model has been applied to patient-specific cases representing different treatment methods and outcomes; these include medically treated patients with no thrombus or partial thrombosis, and TEVAR patients with partial or complete thrombosis. Comparisons of

predicted thrombus formation and growth with follow-up CT scans show a good agreement, demonstrating the feasibility and validity of the model for patient-specific applications. The long term objective of this work is to identify key risk factors for maintenance of false lumen patency and predictors of false lumen thrombosis, in order to optimize treatment strategies for individual patients.

References
Menichini C, Xu XY. Mathematical modelling of thrombus formation in idealised models of aortic dissection. J Math Biol. 2016 March. Doi 10.1007/s00285-016-0986-4.

Nanoparticles and development of an assay to determine DOACs in urine

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The effect of glycosaminoglycans on the blood coagulation system depends on its affinity to bind to antithrombin and results in inhibition of the activity of many serine proteases involved in this process. The non-anticoagulant actions of glycosaminoglycans are independent of the antithrombin binding site and play a major role in their biological activity. The analyses of the interactions of glycosaminoglycans with coagulation proteases as well as with non-anticoagulant proteins are currently improved by very specialized analytical methods. The synthesis of oligosaccharides of original and modified heparin-like products improves the understanding of specific interactions with proteins. The ultimate goal of these investigations is the development of defined glycosaminoglycans for treatment of non-thrombotic diseases.

Biophotonics for the assessment of the microcirculation

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Cardiovascular Disease (CVD) is the main cause of death worldwide. The negative impact of CVD is due in part to the lack of optimal tools for preclinical detection of risk. Traditional risk factors are often absent in patients, thus research is exploring novel markers of risk such as oxidative stress and endothelial dysfunction. These molecular, cell and tissue events affect the microcirculation earlier than the structural changes in blood vessels and CVD clinical manifestations, and are highly related with coronary dysfunction. The peripheral skin is suitable for the non-invasive study of the natural auto-fluorescence of oxidative stress markers, and the microcirculation. Therefore this may be a powerful and simple method to detect these novel predictors of risk, and allow the application of the preventive measures required to reduce the incidence of CVD. Accordingly, combining a variety of non-invasive tissue optics techniques to establish novel preclinical markers of CVD risk, detectable from the peripheral skin, may prove to be useful in the assessment of CVD risk.

ABSTRACTS
ORAL FREE PAPERS / COMMUNICATIONS LIBRES ORALES

Mercredi 5 Octobre – *Wednesday, October 5th*

14:00-16:00 TETE D'OR 2

IUA oral free paper session 1 : Arterial disease : Etiology, prevention
Session 1 de communications orales UIA : Maladie artérielle : Etiologie, prévention

Do the effects of secondary prevention of cardiovascular events in PAD patients differ from coronary artery disease ?

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Atherosclerosis is considered a generalized disease. Similar or identical etiopathogenetic mechanisms and risk factors are involved in various atherosclerotic diseases, and the positive effects of preventive measures on atherogenesis in different parts of the arterial system were shown.
However, until know, great emphasis has been placed on the aggressive pharmacological management of coronary artery disease (CHD), while less attention has been devoted to the management of peripheral arterial disease (PAD), despite its significant morbidity and mortality. Data on the efficacy of preventive measures in PAD patients have mostly been gained from subgroup analyses from studies devoted primarily to the management of coronary patients. These data have shown that treatment of risk factors for atherosclerosis with drugs can reduce cardiovascular events also in patients with PAD. However, the effects of some preventive procedures in PAD patients differ from coronary patients. Aspirin as a basic antiplatelet drug has been shown to be less effective in PAD patients than in coronary patients. The latest Antithrombotic Trialists´ Collaboration (ATC) meta-analysis demonstrates no benefit of aspirin in reducing cardiovascular events in PAD. Statins reduce cardiovascular events in all three of the most frequently presented cardiovascular diseases, including PAD to a comparable extent. Recent studies indicate that in PAD patients, in addition to a reduction in cardiovascular events, statins may have some hemodynamic effects. They prolong walking distance and improve quality of life. Similarly, angiotensin enzyme inhibitors are also effective in the prevention of cardiovascular events in coronary, cerebrovascular, as well as PAD patients and show positive effects on the walking capacity of patients with intermittent claudication. In PAD patients, the treatment of hypertension and diabetes also effectively prevents cardiovascular morbidity and mortality. As PAD patients are at a highest risk of cardiovascular complications, the risk factors of atherosclerosis should be treated intensively in this group of patients. Most of the preventive measures, including the drugs used for prevention of CHD, are also effective in PAD patients.

Key words : *Peripheral arterial disease, Secondary prevention*
Conflicts of interests : No conflict

Drugs exposure in young patient population: cardiovascular risk factors and type of cardiovascular disease: a retrospective study on 202 patients with control

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Aims. The drugs use is increasing in French population. However, the cardiovascular risk factors remain difficult to evaluate in patients with drugs exposure. The primary objective of this study was to analyze the difference in cardiovascular risk factor (CVRF) among patients with cardiovascular disease (CVD) exposed or not to drugs. Secondarily for each group the type of arterial disease will be determined.

Methods. This is a retrospectively cas-control study. Between 2004 and 2014, all patients who presented a CVD in the CHU of Nantes before age of 45 years were included in the present analysis. Patients with drug exposure (group A) and patients with only a tobacco exposure (control group = group B) were compared. The Addict patients will be matched one for two for age, gender and use of tobacco.

Results. Overall, 202 patients were included, 68 in the group A and 134 in the group B. The average of CVRF was significantly lower in the group A compared to the group B (1.37 ± 0.7 vs. 2.55 ± 1, $p < 0.0001$; respectively). The prevalence of strokes [25 (18.7 %) vs. 22 (32.4 %), $p=0.014$], peripherals vascular diseases (PVD) [15 (22.1 %) vs. 11 (8.2 %), $p=0.0002$] was higher among patients with drug exposure compared to the control group. In addition, it is interesting to note that vasospastic stroke was fund only in the group A [2 (9.1 %) vs 0, $p=0.03$]. The PVD atheroma was more prevalent in the patient with alcohol exposure compared to patients without [8 (36.4 %) vs. 11 (8.2 %), $p<0.05$)], while the cannabis appears in favor for stroke [2 (28.6 %) vs. 0, $p=0.03$)] and acute coronary syndrome [1 (25%) vs. 0, $p=0.04$] . Finally, among the different type of drug exposure no significant difference in arterial territories was highlighted.

Conclusion. The drugs exposition promotes vascular disease with a quicker and diffuse evolution. The vasopastic aspect remains more frequent in population with chronic drug exposure. In light of these data exposure to drugs should be taking in consideration as an independent cardiovascular risk factor.

Key words : *cardiovascular risk factor, Drugs*

Vascular calcification induced by oral anticoagulation: preliminary results from the VICTORIA study.

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Rational. Long term oral anticoagulant treatment (> 12 month) is mainly indicated for atrial fibrillation, prosthetic valves and conditions with high risk for recurrent or deep venous thrombosis. Several cross-sectional and epidemiological studies have pointed out a link between the use of vitamin K antagonists and enhanced coronary and peripheral artery calcifications. Since vascular calcification is an independent risk factor for cardiovascular morbi-mortality, these results questioned a potential deleterious effect on the peripheral vasculature mainly for the long-term use of non-vitamin K antagonists anticoagulants. We present preliminary data from the VICTORIA study (Vascular CalcIfiCation and sTiffness Induced by ORal anticoagulation), a multicentric phase 4 longitudinal, randomized, prospective and comparative study to compare the impact of the anti-Xa inhibitor rivaroxaban (Rx) to vitamin K antagonists (VKA) on the arterial calcification.

Material and methods. Patients aged > 18 years, with a creatinin clearance > 30 ml/min, normal hepatic function and treated for an atrial fibrillation (CHAD-VASC score > 1) or a thrombo-embolic disease with a treatment duration ≥ 12 months were included. Oral VKA (target INR: 2-3) or Rx (20mg or 15mg/day) were administered according to the actual recommendations. Coronary (CAC) and lower limb artery (LLAC) Agatston calcification scores were determined from CT-scan performed at the onset of treatment (T0) and 12 month later (M12). The trial is registered #NCT02161965.

Results. Twenty-seven patients (69±14yrs, 25 men) completed the full study. Compared to T0, CAC values increased at M12 for VKA (p=0.049) but not for Rx (p=0.121) while LLAC increased for Rx (p=0.001) and less for VKA (p=0.07). There were no differences between the changes in CAC from T0 with VKA (0 ± 69%) versus Rx (6±39%, p=0.463). and the changes in LLAC between VKA (59±89%) and Rx (33±52%, p=0.795).

Conclusion. Both CAC and LLAC increased moderately after 12 months of VKA and Rx, independently of the treatment, but with different impact on the coronary and peripheral arteries.

Acknowledgments: Gruson E. & Segond C. (Bayer HealthCare SAS), Mrs Cochard C. & Marechal Girault S. for their technical assistance, the clinical research and data management centre of CHU Angers.

Key words : *calcification, oral anticoagulation*
Conflicts of interests : None

Do drugs interact together in cardiovascular prevention? A meta-analysis of powerful of factorial randomize controlled trials.

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Objective.

Four major drugs classes (antihypertensive drugs, antiplatelet agents, lipid lowering drugs or antidiabetic agents) prevent efficiently cardiovascular diseases.
They are frequently combined for the patient's treatment. Whether these treatments interact together on was never evaluated. We explored interactions between drugs in terms of cardiovascular risks reduction.

Design and Methods.

We analyzed powerful randomized controlled trials included in previous meta-analyses and presenting results according to co-prescriptions, published up to November 2015 and assessing one of the four major drug classes. We explored the changes of drug effects according to the cross-exposure to other drug classes. When unavailable, other classes drugs exposure was assimilated to the risk factor as hypertension or diabetes. Comparisons of major coronary event or major vascular event between treatment sub-groups were expressed by the pooled Relative Risks (RRs) with 95% Confidence Intervals (CIs). We explored the heterogeneity between co-prescription subgroups to measure the interaction. We took $p > 0.10$ and $I^2 > 50\%$ to consider a significant interaction. When no interaction was observed, we illustrated to what extent potentially significant interaction could be eliminated, through analyzing RRs ratio with their 95% CIs.

Results.
Eighteen trials with a total of 164 947 intention to-treat participants were analyzed with an average duration of follow-up of 3.6 years. The relative risks associated with these treatments ranged from 0.72 [0.69-0.76] to 0.80 [0.76-0.84], all were statistically significant. We did not observe any interaction between the co-prescription and the diabetes or hypertensive status. The lack of significant interaction did not eliminate all possibility of such treatment modification. However, our results allowed eliminating treatment changes above 50 % of the relative benefit for all interactions, and above 20% for the benefit of statin in hypertension.

Conclusion.
We observed a lack of significant interaction between the impact of statins, antihypertensive drugs, antidiabetic drugs and aspirin on hypertension or diabetes status on one hand, and their co-prescription on the other hand. We could eliminate treatment changes in relative benefit terms above 50%.

Key words : *Drug, interact, cardiovascualar prevention, meta-a, Randomize controlled trials*

Prevalence of peripheral arterial disease in HIV-infected patients.

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Context. The antiretroviral therapy protocols have allowed the HIV-related mortality and disease burden to decreaseand enable long-term survival of HIV-infected patients even though they are at increased risk for cardiovasculars risk and morbimortality. Previous studies have shown that the prevalence of cardiovascular risk factors is generally higher in the HIV-infected patients compared with the general population. The prevalence of peripheral arterial disease (PAD) in HIV-infected patients is unknown. Previous studies have reported 0.90% to 20%. Our main objective was to determine the prevalence of PAD in HIV patients in BURUNDI with the Ankle-brachial index (ABI). The secondary objective was to determine the prevalence of symptomatic PAD.

Materials and Methods. A cross-sectional study was conducted among 300 HIV- infected patients in four HIV centers in Bujumbura capital. The inclusion criteria were age ≥ 40, HIV-infection and oral consent. PAD was diagnosed by ABI ≤0.9, and symptomatic PAD with the Edinburgh questionnaire.

Results. The prevalence of peripheral arterial disease was 17.33 % (CI 95%: 13,22-22,10). The mean age was 49.55±7.08 years. Symptomatic PAD according to the Edinbourgh questionnaire was observed in 0.66% (CI 95%:0,08-2,38). On multivariate analysis, factors associated with PAD were hypertension (OR= 2.42; 95% CI: 1,10–5.80; p=0.04), and stage IV of HIV infection (OR=4.92, 95% CI:1.19–20.36; p=0.03).

Conclusion. This is the first study to be done on a large HIV population in Africa, reporting high PAD prevalence in HIV-infected patients. Our results underline the need for better PAD screening in HIV-infected patients and points out the utmost importance of appropriate diagnostic tools in Sub-Saharan Africa.

Key words : *PAD, HIV, Sub-Saharan Africa, Burundi*

Association between eicosapentaenoic acid-arachidonic acid ratio and aging in patients with peripheral artery disease.

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Backgrounds. Recently, eicosapentaenoic acid (EPA), a family of ω-3 polyunsaturated fatty acids (PUFA), has been established as a newly recognized risk factor for atherosclerotic diseases, including cerebrovascular disease, coronary artery disease and PAD. In this study, we hypothesized that reduced plasma EPA underlies the development of PAD in middle-aged individuals, and investigated the association between EPA and aging in patients with PAD.

Materials and methods. Patients who were referred to Tokyo Medical University Hospital for examinations of PAD were consecutively selected in this study. The criteria for inclusion were patients with intermittent claudication and abnormal ankle-brachial pressure index (ABI<0.9). Baseline characteristics, including age, sex, body mass index (BMI), current smoking, hypertension (HT), dyslipidemia, DM, history of cerebrovascular disease (CVD), history of ischemic heart disease (IHD), and end-stage renal failure on hemodialysis (HD) were investigated using medical records.
Biochemical and immunological parameters, including, total protein (TP), serum creatinine (Cr), total cholesterol (TC), triglyceride (TG), high-density lipoprotein (HDL-C), low-density lipoprotein (LDL-C), Hemoglobin A1C (HbA1c), and high-sensitivity C-reactive protein (hsCRP). The levels of EPA, docosahexaenoic acid (DHA), and arachidonic acid (AA) were measured using a gas-liquid chromatograph.

Results. A total of 120 patients were included in this study. These patients were divided into 2 groups, patients aged ≥ 65 years (n=97) and patients aged < 65 years (n=23). There were

no differences in the incidence of female sex, BMI, HT, DM, CVD, IHD, and HD, while the incidence of current smoking was significantly higher in patients aged < 65 years than patients aged ≥ 65 years (p=0.03). In laboratory investigations, EPA/AA and DHA/AA were significantly lower in patients aged < 65 years than patients aged ≥ 65 years (0.30 ± 0.21 vs. 0.49 ± 0.33, p=0.001 and 0.69 ± 0.28 vs. 0.91 ± 0.37, p=0.003, respectively, while TC, TG, HDL, LDL and hsCRP showed no significant intergroup differences.
Multivariate logistic regression analyses identified independent risk factors for patients aged < 65 years, and current smoking [OR 2.66 (95%CI, 1.02-6.97), p=0.046] and low EPA/AA [OR 0.05 (95%CI 0-0.52), p=0.012] were found to be a significant risk factor in patients aged < 65 years.

Conclusions. Reduced EPA/AA and current smoking are significantly associated with age difference in patients with PAD. EPA take and smoking cessation may prevent development of PAD in middle-aged patients.

Key words : *Peripheral Artery Disease, Eicosapentanoeic Acid*
Conflicts of interests : No conflict of interest

Absence of gender differences for Cyp3A4 & drug response in cardiovascular prevention.

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Introduction.
Background.

- Women and men differ across a wide variety of morphological, physiological, pathological, behavioral and social characteristics.
- Cardiovascular disease is one of the most important cause for mortality.
- CYP P450 3A4, involved in the metabolism of about 50% of current used drugs, is considered as the most important isoenzyme; its activity has been described as 20 to 50% higher in women vs. men.

Objective. To investigate the differences in drug response between female and male taking common preventive cardiovascular medications metabolized by CYP 3A4 (calcium channel blockers (CCBs), antiarrhythmic agents, antianginal agents and renin-angiotensin system (RAS) inhibitors).

Method. Eligible trials were identified by search on www.trialresultscenter.org, clinicaltrials.gov, Medline Pubmed and Cochrane review database (from 1966 through May 2016) with no language restriction. All randomized controlled trials (RCTs) comparing effect

of CCBs or antiarrhythmic agents or antianginal agents or RAS inhibitors vs. placebo or control in adult patients were selected. Data extraction and analyses were performed in two subgroups: female and male. We considered the following endpoints: total mortality, arrhythmic/sudden death, hospital admission, recurrence of atrial fibrillation, intolerance/side effects or the composite endpoint (cardiovascular death or admission to hospital for myocardial infarction or worsening heart failure or non-fatal myocardial infarction). Drug response in each gender subgroup was expressed by the pooled Relative Risks (RRs) and comparisons between them were analyzed through RR ratios (RRRs), all at 95% Confidence Intervals (CIs). We carried out the overall meta-analysis and other sub-meta-analyses according to (i) P450 3A4 substrate/inhibitor agents and (ii) study outcomes.

Results. Twenty four studies (70 013 patients, 18 605 females and 51 408 males) were included, assessing these four groups of drug: antianginals (ivabradine, ranolazine), antiarrhythmic (amiodarone, dronedarone, dofetilide), CCBs (amlodipine), RAS inhibitor (aliskirene). Overall analysis exploiting all drugs in all outcomes suggested no significant differences in the two gender subgroups: RRtotal/Female=0.86 (95% CI 0.81-0.91, p=0.0027, I2=61.4%) vs. RRtotal/Male= 0.92 (95% CI 0.89-0.95, p=0.0004, I2=67.7%) giving log RRRtotal (Female/Male) = -0.02 (95% CI, -0.10-0.05, p=0.5019), with probable absence of heterogeneity (I2=0%, p=0.6101).
Sub-analyses according to molecule types (CYP3A4 substrate or inhibitor agents, no inducers in our data) resulted in no significant difference between women and men for substrates: RRsubstrate/Female=0.96 (95% CI 0.88-1.04) vs. RRsubstrate/Male= 0.96 (95% CI 0.91-1.00) giving logRRRsubstrate(female/male)=0.00 (95% CI, -0.10-0.10, I2=0%, p=0.6177), as well as for inhibitors : RRinhibitor/Female=0.78 (95% CI 0.72-0.85, I2=0%) vs. RRinhibitor/Male= 0.85 (95% CI 0.79-0.90, I2=72.7%) giving logRRRinhibitor(female/male)=-0.05 (95% CI, -0.16-0.06, I2=5.7%, p=0.3742). Sub-analyses for specific drug groups & their outcomes also showed similar results between women and men.

Conclusion.

Our findings suggest that there is no significant difference between female and male in drug response for these four groups of drugs metabolized via Cytochrome P450 CYP3A4. Further interactions and related factors should be investigated to better elucidate the relation between drug response and gender.

Key words : *drug response, gender*
Conflicts of interests : None

How admission to a vascular surgery department improves medical treatment in patients with lower extremity peripheral arterial disease.

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Objectives. All patients with lower extremity peripheral arterial disease (LE-PAD) should benefit from recommended pharmacologic therapies including antiplatelet agents, angiotensin converting enzyme (ACE) inhibitors or Angiotensin receptor blockers (ARBs), and HMG-CoA-reductase inhibitors (statins). In the present study, this triple therapy was defined as the best medical treatment. This study was designed to determine the number of patients who received best medical treatment at admission and at discharge from a vascular surgery department. We also examined the number of patients who received suboptimal medical treatment and every pharmacologic class separately. Finally, we investigated whether there were differences in prescribing rates according to patient characteristics and cardiovascular history, clinical grade of LE-PAD and the type of surgery practiced.

Design. This study is a retrospective chart analysis of 140 consecutive patients admitted to the vascular surgery department of our University Hospital, between January 1 and June 30, 2013. To be included, patients required a vascular surgery for PAD with atherosclerosis.

Materials and Methods. Data from guideline-recommended classes of medications (antiplatelet agents, ACE, ARBs and statins) at the time of admission and discharge were collected and compared.
Results. Best medical treatment was prescribed in 44% patients prior to hospital admission and in 50% at discharge (p=0,10). Prior to hospital admission, 84% of patients had antiplatelet therapy compared to 96% at discharge (p=0,0004) ; 73% had a statin, compared to 83% at discharge (p=0,001) ; 64% had an ACE inhibitor or ARB, compared to 63% at the time of discharge (p=1).
The proportion of patients receiving best medical treatment at admission and discharge increased in case of coronary artery disease (p=0,004). There was no difference in prescriptions of the best or suboptimal treatment at admission and discharge according to the severity of LE-PAD or type of revascularization.

Conclusions. Admission to a vascular department significantly increased the rate of prescription of antiplatelet and statin therapy, but no significant improvement was achieved for the prescription of the best medical treatment and suboptimal treatment.

Key words : *peripheral arterial disease, medical treatment*

Upper extremities subclinical peripheral arterial disease in patients with chronic kidney disease in predialysis stage-a pilot study.

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Objectives. This study was designed to determine the prevalence and related risk factors of different types of upper extremities subclinical peripheral arterial disease (PAD): occlusive disease (PAOD) and medial arterial calcification (MAC) in patients with end-stage chronic kidney disease (CKD).

Background. Combination of lower extremities PAD and CKD is a well known condition, however there are few published data on the prevalence and severity of different types of upper extremities PAD in asymptomatic patients with CKD in predialysis stage. Recent pathphysiological studies show that MAC is not a passive and degenerative but a dynamic process which change arterial elasticity and share many features with embrionic bone formation. It contributes to increased cardiovascular (CV) risk in this population. The association of MAC and arteriovenous fistula (AVF), postoperative stenosis or non maturation in patients with CKD is not completely understood. Gray-scale ultrasound is a sensitive method for assessment and scoring the magnitude of MAC. Duplex Doppler is a non-invasive method for evaluation of the pattern of distribuition and severity of upper extrmities PAOD.

Study design. Cross-sectional pilot study.

Methods. Prevalence of upper extremities MAC and PAOD was investigated in 41 asymptomatic patient with CKD and 18 participants with normal kidney function, using gray-scale B-mode ultrasound and duplex Doppler, according to the Vascular Laboratory Protocol. MAC was categorized as none, moderate and severe. PAOD was categorized as none, hamodinamically significant stenosis and occlusion.

Results. Mild to severe MAC in brachial, ulnar and radial arteries was significantly more prevalent in CKD group (P=0.015), while the prevalence of PAOD was not signifacntly different between two groups (P=0.381). Patients in CKD group were somewhat younger and more often female (P=0.038 and 0.081, respectively). Smoking was significantly less prevalent in CKD than in control group (P=0.038). Hypertension was significantly more prevalent in CKD group (0.034). Prevalence of diabetes mellitus was notably higher in CKD than in control group, but the difference was not statistically signficant (0.064).

Conclusion. Ultrasound screening for different forms of upper extremities subclinical PAD in patients with CKD will contribute to the understanding of currently unexplained possible role of MAC in the mechanism of limited vascular dilatation and failure of AVF to mature. Vascular assessment of upper limb PAOD may identify individuals with increased risk of cardiovascular diseases in whom secondary prevention measures may be considered.

Key words : *Upper Extremities Pripheral Arterial Disease, Vascular Calcification*
Conflicts of interests : No conflict of interest.

Association of erectile dysfunction and coronary artery disease: Prevalence, clinical presentation and extent of coronary vessel involvement by SYNTAX score in coronary artery disease patients undergoing coronary angiography at a tertiary hospital in Cebu.

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Background. Erectile dysfunction (ED) is implicated in the pathogenesis of coronary artery disease (CAD) involving atherosclerosis and endothelial dysfunction. These common pathways have led to theories that ED may be a marker of CAD severity and a marker for its early onset. This study aimed to determine the association of ED and CAD: its prevalence, clinical presentation and severity of CAD by SYNTAX scoring among CAD patients undergoing coronary angiography.

Methods. This was a prospective, cross-sectional study done in a tertiary hospital with cardiology special units in Cebu City, Philippines involving all Filipino male patients suspected to have CAD with indications to undergo coronary angiography and ED as evaluated by the International Index of Erectile Function (IIEF) from October 2014 to September 2015.

Results. There were 160 patients included with a mean of 57.23 years. Eighty-two percent had ED with a mean IIEF score of 15.15 and distributed as mild to moderate (31.7%), mild ED (21.7%), moderate ED (17.4%), and severe ED (11.8%). Most patients presenting with SIHD and ACS-NSTEMI had severe ED, moderate ED and mild to moderate ED. ED was significantly associated with obstructive CAD ($p=0.001$) and correlated directly with the number of vessels involved ($p<0.01$) and inversely related to SYNTAX score ($p<0.001$). ED symptoms were noted to precede CAD diagnosis by 4.9 to 5.9 years.

Conclusion. In conclusion, there is a high prevalence of ED among CAD patients and its existence was significantly associated with obstructive CAD varying directly with extent and number of vessel involvement. There is a signficant inverse relationship with severity of ED and SYNTAX scores. The existence of ED was present in all subsets of CAD patients, regardless of presentation on admission and preceded CAD symptoms and diagnosis by 4.9-5.9 years.

Key words : *Erectile dysfunction, Coronary artery disease*

Correlation of brachial flow-mediated vasodilatation and extent of coronary vessel involvement by SYNTAX score among coronary artery disease patients with erectile dysfunction undergoing coronary angiography at a tertiary hospital in Cebu City, Philippine.

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Background. Erectile dysfunction (ED) is strongly associated with coronary artery disease (CAD) and its underlying endothelial dysfunction, and that ED may indicate CAD severity. The use of non-invasive evaluation through brachial artery flow-mediated vasodilatation (FMD) will allow for early diagnosis of CAD and may act as surrogates for coronary angiography. This study aimed to determine the correlation of brachial artery flow-mediated vasodilatation with the extent of coronary vessel involvement by SYNTAX score in patients with ED undergoing coronary angiogram for CAD at a tertiary hospital in Cebu City, Philippines.

Methods. This was a prospective, cross-sectional study done in a tertiary hospital with cardiac specialty units in Cebu City Philippines involving all Filipino male patients suspected to have CAD and underwent coronary angiography from October 2014 to September 2015. ED was diagnosed using the International Index of Erectile Function (IIEF) questionnaire.

Results. There were 160 patients included with a mean age of 57.23 years and eighty-two percent had ED symptoms with a mean IIEF score of 15.15. ED was significantly associated with obstructive CAD ($p=0.001$) and correlated directly with vessel involvement ($p<0.01$) and inversely related to SYNTAX scores ($p<0.001$). In non-obstructive CAD patients, there was a mean FMD of 17.11 +/- 6.59% while obstructive CAD patients, the mean FMD was 6.47 +/- 3.6% ($p<0.010$). There was a significant direct correlation between FMD and ED scores ($p<0.01$) and an inverse correlation with FMD and SYNTAX scores ($p<0.01$).

Conclusion. There is a high prevalence of ED among CAD patients and it is significantly associated with obstructive CAD. There is a significant inverse relationship between the severity of ED and SYNTAX scores. There is a significant direct relationship between FMD and ED scores and a significant inverse correlation between FMD and SYNTAX scores making FMD a viable marker of CAD severity.

Key words : *Erectile dysfunction, Brachial Flow-mediated Vasodilatation*
Conflicts of interests : None

Do increased HbA1c levels constitute an independent risk factor for the severity of Carotid Artery Stenosis in T2DM patients ?

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Aim & Background. The increasing rate of Cerebrovascular incidents in diabetic patients has been described during the last years in Clinical Medicine. Clinical or subclinical atherosclerosis is defining patient outcomes in the patient population that has been diagnosed with Type 2 Diabetes Mellitus. Vascular atherosclerotic complications involving the Carotid artery may lead to Transient Ischemic Attacks and Stroke. The aim of this study was to assess glycosylated Hemoglobin A1c levels as an independent risk factor evaluating the degree of Carotid Artery stenosis.

Material and Methods. 637 T2DM patients (341 male, 286 female) wrere recruited for this study (42-74 age range). The clinical assessment for this study included HbA1c levels and Ultrasonographic evidence (Duplex/Doppler) of Internal and Common Carotid arteries. Diagnosis of Common Carotid artery stenosis was made when CCA diameter was <0.49 cm. Blood circulation was evaluated using standardised St.Mary's ratio by assessing blood flow velocities of Common and Internal Carotid arteries. HbA1c values were analysed as independent risk factor and the values of St.Mary's ratio and Common Carotid artery diameter were analysed using ANOVA and binomial logistic regression analysis. Data are presented as mean values +_ standard deviation and level of significance was accepted when $p<0.05$.

Results. From 637 T2DM patients that participated on this study 243 (38.1%) patients have presented HbA1c levels of 8.8 +_ 0.94%, CCA diameter of 0.46+_ 0.18 cm and St.Mary's ratio 13.2+_ 2.9. 198 patients (31.1%) had HbA1c levels of 9.1+_ 0.98 % with St. Mary's ratio of 16.7+_ 3.1. Whereas 196 (30.8%) with HbA1c levels of 9.6 +_ 1.21 %, presented with CCA diameter 0.26+_0.13 cm and St.Mary'sratio of 18.9+_ 3.7. Data analysis revealed that Common Carotid Artery stenosis was more severe measuring CCA diameter $p<0.001$ and St.Mary's ratio $p<0.001$ in patients with increased glycosylatted hemoglobin A1c levels as an independent risk factor.

Conclusion. Increased HbA1c levels constitute an independent risk factor for the severity of Carotid Artery Stenosis in Type 2 Diabetes Mellitus patients.
Key words : *Carotid Artery Stenosis, Type 2 Diabetes Mellitus*

14:00-16:00 GRATTE CIEL 3

IUA oral free paper session 2 : Cardiovascular diseases : Varicose veins

Session 2 de communications orales UIA : Maladies cardiovasculaires : Varices

An investigation of the relationship between exercise, range of ankle joint movement (ROM) and venous leg ulcer (VLU) healing.

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Introduction and Objectives. Several theories have tried to explain the pathophysiology of VLU, however the exact mechanism remains unclear. Calf muscle pump failure is believed to be a major contributory factor in the development of VLU. Researchers have mentioned a relationship between ROM, the failure of calf muscle pump and venous ulcer. We investigated the effect of exercise on ROM and VLU healing.

Materials and Methods. A total of forty patients were enrolled in 2 groups for a period of 3 months of regular exercise. Group 1 (n = 20), VLU subjects performed exercise only without wearing compression therapy during the study. Group 2 (n = 20), VLU participants performed exercise and wearing compression therapy through out the study.
Exercise composed of 10 dorsiflexion movements every hour while the participant awake. All 40 Patients were assessed for peripheral arterial occlusive disease, ankle brachial pressure index (>0.8 and < 1.2). Participants were comparable at baseline in terms of age, sex and body mass index.
Measurements of ROM and ulcer size were taken on 2 occasions, first one at the beginning of the trial and the second at the end of the 3 months period. ROM was assessed by goniometry which measured the maximum dorsiflexion and plantar flexion of the ankle joint. Venous ulcer measurement was determind by multiplying the two maximal perpendicular diameters.

Results. At the end of the trial, ROM increased significantly ($p < 0.001$) in group 1&2, while ulcer size showed significant decrease in both groups. There was clear negative relationship between ROM and ulcer size.

Conclusions. Our findings suggest that regular exercise increased the ROM significantly and venous ulcer size decreased by exercise. The increase of ROM is associated with VLU size and may contribute to venous ulcer healing.

Key words : *Venous, Exercise*
Conflicts of interests : No conflict of interest

A body weight transfer manoeuvre with minimal ankle movement significantly outperforms the tip-toe manoeuvre in assessing calf muscle pump function

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Objectives. The tip-toe manoeuvre (TTM) has been promoted as the gold standard plethysmography test for measuring calf muscle pump (CMP) function for several decades. In common with the dorsiflexion manoeuvre (DFM), both rely on ankle range of movement to cause venous ejection. In contrast, body weight transfer manoeuvres (BWTMs), like the Paranà and Vasculab manoeuvre, rely on the weight of the body to cause venous ejection. The aim was to compare the TTM, DFM and a BWTM using the ejection fraction (EF) of air-plethysmography (APG) and evaluate which has the best pumping effect.

Methods. Twenty-two legs from 11 healthy volunteers were tested with APG. The working venous volume (wVV) was established by the total increase in calf volume from 70 degrees elevation drainage to standing dependency with most of the weight on the other leg. At the point of maximum filling volume from the trace the subject was asked to perform x3 TTMs, x3 DFMs and finally x3 BWTMs. The TTM was performed with both legs, approximated together, and the subject's weight distributed equally. The DFM was performed non-weight bearing, by pivoting on the leading heel. The BWTM was a gentle rock forwards onto the leading foot and back again, simulating a walking step. The EF was calculated as the ejected volume/wVV and expressed as a percentage.

Results. Expressed as median [inter-quartile range], BWTMs resulted in a significantly greater % of EF than TTMs at 59.7[53.5-63.9] vs 42.6[30.5-52.6], P <.0005 (Wilcoxon). There was no significant difference in the EF between the TTM vs DFM, P =.615. Adjusted to a common median to detect only the variance between the x3 tests, the repeatability (CI: 95%) of 66 EF tests was excellent: TTM (41.44-43.76)%; DFM (36.94-39.46)%; BWTM (58.14-61.26)%.

Conclusions. The BWTM appears to be a better method of measuring the full potential of the CMP with a 40.1% relative increase in the EF compared to a TTM. Exercises which involve body weight transfers from one leg to the other may be more important in optimising calf muscle pump function than ankle movement exercises.

Key words : *body weight transfer manoeuvre, calf muscle pump function*
Conflicts of interests : NONE

Utilising gravitational manoeuvres with a tilt-table to assess a gravitational disease.

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Objectives. Without gravity hampering drainage, most venous diseases will not exist. Therefore, the provocation manoeuvre assessing chronic venous insufficiency (CVI) should be gravitational. A tilt-table provided the gravitational manoeuvre and air-plethysmography (APG) quantified the changes in calf venous volume in response to positional change. Rapid dependent filling implies reflux and slow elevation drainage implies obstruction.

Methods. Three groups of subjects (providing n=11 legs each) were compared. (i) A control group (male:6; left:5, age:39 [19-74]), without clinical or duplex evidence of venous disease. (ii) An obstructed group (male:6; left:10, age:53 [40-75]), with past ilio-femoral deep vein thrombosis. (iii) A reflux group (male:5; left:4, age:70 [36-75]), with primary varicose veins. A manually operated tilt-table provided rapid tilting manoeuvres (< 3 seconds) from -70 degrees (almost standing) to 40 degrees (Trendelenburg position). The venous drainage index (VDI) of APG was calculated from the drainage curve in the same way the venous filling index (VFI) is derived from the filling curve, both in mL/s.

Results. Expressed as median (inter-quartile range) in mL/s. The VDI in the obstructed group was significantly reduced at 7 (6-9.6) vs. the controls at 17.4 (13.9-27.2), P <.0005 and vs. the legs with primary varicose veins at 28.1 (25.4-34.4), P <.0005. The VFI in the reflux group was significantly increased at 8.1 (4.2-10) vs. the controls at 1.8 (1-2.1), P <.0005. The VDI cut-off point discriminating obstruction was <11 mL/s and the VFI cut-off point discriminating reflux was >2.5 mL/s. The total working venous volume (mL) in the reflux group was significantly increased at 202 (180-240) vs. the controls at 138 (119-198), P =.008 and vs. the legs with obstruction at 117 (80-154), P <.0005. The % volume reduction from -45 to 40 was about 80% as expected in all 3 groups. However, there was also a significant reduction in leg volume (20%) with only a 25 degree tilt from more to less dependency (-70 to -45) in all subjects.

Conclusions. Manoeuvres using APG on a tilt-table have the potential to quantify the relative contributions of reflux and obstruction (mL/s) in patients with CVI. This is not possible with duplex ultrasound.

Key words : *Tilt-table assessments, Venous filling (reflux) and drainage (obstruction)*
Conflicts of interests : NONE

Correlation between reflux volume on the great saphenous vein and severity of chronic venous disease in patients with primary varicosities.

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Aim. To quantitatively assess the reflux volume (RVo) on the great saphenous vein (GSV) by duplex ultrasound (DUS) and to evaluate the correlation between the RVo, severity of disease and quality of life in patients with primary varicosities.

Method. This was an observational cross-sectional study involving 80 patients (22 men and 58 women) with primary varicosity of the GSV and blood reflux that extended no less than mid-thigh. The patients were 18-81 years old (mean – 48.8±12.7): 32 had C2, 33 had C3, five had C4, two had C5 and eight had C6 class according to CEAP classification.
All patients were assessed with VCSS and they filled disease-specific quality of life questionnaires CIVIQ-20 and VEINES Qol/Sym. The patients were then examined with DUS and Doppler. All measurements were made by one physician in upright position and repeated three times, and the average value was used. The measurements were made at three points of GSV: terminal valve of sapheno-femoral junction (SFJ), pre-terminal valve (PTV) and middle third of the thigh (MTT). The time and the flow volume of blood reflux were assessed during the Valsalva maneuver at SFJ and during the distal compression maneuver at PTV and MTT. The RVo (ml) was calculated as product of flow volume (ml/min) and time (sec/60) of blood reflux.

Results. The VCSS score was 2-20 (mean 6.9±4.3), the CIVIQ score was 19-83 (41.6±15.3), and the VEINES score was 30-104 (81.4±16.1). The RVo decreased from SFJ through PTV to MTT (median, 25th and 75th percentile): 24 (13;55), 11 (5;30), and 7 (3;18) ml, $p<0.0001$.
A low-strength significant correlation between RVo at SFJ and CEAP class (0,346, $p=0.005$), VCSS score (0.385, $p=0.002$), CIVIQ score (0.332, $p=0.008$) and VEINES score (-0.295, $p=0.019$) was found. A weak but significant correlation was found between CEAP class and RVo at PTV (0.254, $p=0.029$) or MTT (0.277, $p=0.013$).
It was found that RVo at all points significantly changes in accordance with CEAP class. From C2 to C4 it increases and then from C4 to C5-6 decreases. At MTT, the difference was most significant: 4 (2;11) ml in C2, 9 (5;13) ml in C3, 86 (23;123) ml in C4 and 5 (4;24) ml in C5-6 ($p=0.003$).

Conclusion. There is a significant weak correlation between volume of blood reflux and CEAP class, VCSS, CIVIQ or VEINES score. The value of reflux volume depends on CEAP class and it is maximal at C4. Thus, blood reflux on GSV is not the only reason for the severe forms of chronic vein disorders or low quality of life.

Key words : *chronic venous disease, reflux, great saphenous ve, haemodynamics, duplex ultrasound*

Results of endovenous radiofrequency thermal ablation with and without high ligation in comparison with high ligation and stripping for treatment of great saphenous varicose veins

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Introduction. Endovenous radiofrequency thermal ablation (ERFA) is a minimally invasive procedure to treat great saphenous varicose veins (GSV). Compared with high ligation (HL) of the saphenofemoral junction with stripping (HL/ST), proposed benefits include fewer complications, quicker return to work, improved quality of life scores, reduced need for general anesthesia and equivalent recurrence rates. The aim: to determine the different surgical approaches with open surgery, EFRA with HL (EFRA/HL) or without saphenofemoral ligation, estimation the impact of these methods on treatment results in patients with lower limb varicose disease (LLVD).

Material and methods. 166 patients with LLVD (C2-C6) were randomised into three different treatment groups: HL/ST group (75 patients-94 limbs), EFRA group (61 patients-125 limbs), EFRA/HL group (30 patients-32 limbs). HL/ST group: 23(30.7%) males and 52(69.3%) females (aged 18-69 years), diameter of GSV-8.4±1.6 mm., anesthesia-spinal; EFRA group: 14(22.9%) males, 47(77.1%) females (aged 20-74 years), diameter of GSV-7.9±1.7 mm., anesthesia-tumescent; EFRA/HL group: 9(30%) males, 21(70%) females (aged 20-75 years), diameter of GSV-11.2±1.6 mm., anesteziya-tumescent. Patients were examined clinically and by duplex ultrasound during 1 year. Quality of life determined by the Aberdeen Varicose Vein Severity Score (AVVSS), clinical improvement - by Venous Clinical Severity Score (VCSS).

Results. Postoperative pain decrease on 14 days (pain scores on visual analogue scale on 0 to 100 mm): HL/ST group-62%, ERFA group-100%, ERFA/HL group-92% ($p<0.01$). Return to habitual activity: HL/ST group-7.4±1.8, ERFA group-1.0±1.6, EFRA/HL group-2.1±1.4 days. Postoperative ecchymosis developed among 42.1% of the patents in the HL/ST group, in 3.3% of the ERFA group and in 6.7% of the ERFA/HL group. Paresthesia was found in 8 patients (12 limbs-13.2%) in the HL/ST group, in two patients (3 limbs-2.4%) in ERFA group and in 2 patients (2 limbs-6.3%) in EFRA/HL group. In HL/ST group the average postoperative decrease of VVCS was 7.2±2.5 to 1.1±0.44, AVVSS-22.7±6.47 to 5.7±1.8, in ERFA group-VVCS-7.8±6.2 to 0.8±0.6, AVVSS-23.1±6.2 to 3.1±2.2, in EFRA/HL group-VVCS-7.4±4.1 to 1.0±0.4 and AVVSS-22.9±5.3 to 4.1±1.1 ($p<0.05$).

Conclusion. Peri- and postoperative data showed significant differences between the three groups. ERFA and ERFA/HL in comparision with HL/ST demonstrated early return to habitual activity on 1-2 day, painless post-procedure period, painless post-procedure period, regression of chronic venous insufficiency symptoms, improvement of life quality and better cosmetic effect. We consider, that high ligation (HL) of the saphenofemoral junction must be used not routinely, only in cases when the diameter of GSV more than 15 mm, in the presence of proximal GSV aneurysm and superficial thrombophlebitis of femoral segment of GSV in the past.

Key words : *Endovenous Radiofrequency Thermal Ablation, Great, High Ligation, Stripping*

Results of prospective noncomparative study of endovenous laser ablation of the saphenous veins more then 2 cm of the diameter.

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Endovenous laser and radiofrequency methods of treatments of varicose veins have been significantly investigated and are considering as a gold standard of elimination of saphenous reflux. Modern catheters and fibers have radial spread of energy. It gives an opportunity to treat large veins that it was really difficult some years ago. However, nowadays there is no consensus which diameter of the veins meant large. The majority of the existed papers consider the veins more than 1 cm of diameter as large (Chaar C.I., et al. 2011; Florescu C., et al. 2014). Furthermore, in daily practice a big number of patients have a diameter of saphenous veins near the junction from 1 to 2 cm. However, the results of their ablation are approximately 100%.
Having treated the veins with a diameter sized 2 cm or more after tumescent anesthesia is growing the risk of a "blinded pocket" appearance. It means that some parts of the vein don't contact with the fiber. It can be one of the reasons of recanalization.
The aim of this study was to investigate the results of endovenous laser ablations (EVLA) of saphenous veins more than 2 cm of the diameter.

Material and methods. Prospective noncomparative study includes 64 patients who were operated from November 2014 until September 2015 and they had 67 EVLA of great saphenous veins (GSV). We used 1470 Nm laser, radial fibers and special pull-back device. All veins were treated under tumescent anesthesia. The diameter of the veins close to sapheno-femoral junction was from 21 to 43 mm (mean 27±4,3 mm). In all cases we used the power of 8-10W. The LEED in dilated segments was from 83,3 to 142 J/cm. The observation period was from 68 to 340 days (mean 138±37 days). The patients were examined by ultrasound the next day, a week later and 2 and 6 months later.

Results. in this investigation we were interested technical result which was existed in occlusion of treated veins. Also we appreciated in absence of presence of reflux in nonoccluded veins. The next day after EVLA 60 (89,5%) of the veins were occluded. In 7 (10,5%) cases the rest lumen in dilated segments was found but it was closed for 3 patients after 7 days. In 4 (6%) cases we did ultrasound-guided foam-form sclerotherapy (UGST). Over the period of 6 months the small stumps of GSV (mean 21 mm ± 5 mm) were found of 3 (4,5%) patients. In all cases it wasn't reflux in this stumps. Also only in 1 (1,6%) case we found recanalization with pathological reflux. This patient was treated by UGST. There was no necessary to retreat patients by EVLA.

Conclusions. EVLA 1470 nm by radial fibers are really effective also for the veins of the diameter more than 2 cm. We have found occlusion of GSV of 99,5% cases in early follow-up period. In 4,5% cases UGST has been done.

Key words : *Endovenous laser ablation, large diameter*

Surgical treatment of the insufficient perforators - VANST technique

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1. Background. There are various options for the approach of the reflux at the insufficient perforating veins level:

- the closing-up of the veins through endovenous treatment (thermic, chemical)
- the closing-up of the veins using SEPS
- the CHIVA approach
- the surgical treatment (stripping, VANST).

In my opinion the treatment of the insufficient perforators must interrupt the venous reflux (by closing up the perforating veins).
The purpose of this paper is to present the VANST technique for the treatment of the insufficient perforators.
There are a few complex morphologic aspects of the perforating veins that can generate difficulties in applying the treatment:

- underfascial multiple branches + single trunk above the fascia
- subfascial single trunk + multiple branches above the fascia
- inter-perforators anastomosis.

The topography of the non-saphenous perforating veins may also lead to difficulties in the therapeutic approach.

2. The Method.
VANST (Varices' Ambulatory Non-stripping Surgical Therapy) is a modern minimally invasive ambulatory surgical method of taking the varicose veins out of the circuit by disconnecting the ways of their filling-up (both the venous flux and reflux are eliminated).
Through this procedure the varicose veins are left in place but they become just empty collapsed non-functional tubes.
The steps of the procedure are:
A. The marking on the skin of the places of the future incisions
B. The surgical intervention:

- local anesthesia with 1% lidocaine
- incisions of 1-3 mm.
- by very gentle surgical dissection the varicose veins (including saphenous trunks) are intercepted, sectioned and ligated; the same procedure is applied for insufficient perforating veins (including their branches and anastomosis)
- a non-compressive bandage is applied.

C. The patient is immediately mobilized after the operation and leaves the clinic after 30 minutes.
D. Post-operative check-ups (24 hours, 7 days, 2 months and every 6 months).

3. Results. The total number of cases operated on using the VANST technique : 2008 (in private practice-office based).
The closing-up and disappearance of the varicose veins occurs immediately in 100% of the cases. The insufficient perforating veins are also closed up and the reflux at their level is eliminated.
A 5-year follow-up of 1279 cases (63,7%) showed that the recurrence of the varicose veins after VANST occurred in 89 cases (6,95%).

4. Conclusions. A - The surgical treatment of the varicose veins has changed. The modern surgical methods are ambulatory and minimally invasive.
B - VANST is both a radical and a conservative method: the varicose veins are permanently taken out of the circuit but VANST preserves the patients' normal venous capital.
C - VANST can be used for closing insufficient perforating veins (including underfascial branches, non-saphenous perforating veins and the inter-perforant anastomosis).
D - Taking its advantages into consideration, VANST can be compared to the endovenous techniques for treating varicose veins and it actually proves superior in terms of its wide application.

Key words : *insufficient perforators, surgical treatment*

Intraoperative sonografy in open venous surgery.

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(2) The Outpatient Department of General and Vascular Surgery, Prague, Czech Republic , Head Doctor: I. Malý, M.D., PhD., Ass. Prof.

Introduction. The authors present their experience in the field of intraoperative ultrasonography (IU) in open venous surgery . Nowadays we can not imagine of the performance of the endovenous thermal ablation without using of doppler ultrasonography. In this presentation we point out another approches of intraoperative ultrasonography in open venous surgery.

There are some situations during open venous surgery when we can use of doppler ultrasonography. The most common situation is in ligation of insufficient accessory lateral vein, when IU find exactly the position ot the vein and surgeon can lead incision directly above the vein. The great saphenous vein is preserved in these case. It takes shorter time, smaller incision, than in open surgery, Every surgeon can get to difficult situation, when can not find a saphenofemoral or saphenopliteal junction or it takes very long time. It is became more frequently in overweight patients. It is clear, there is increasing risk of complications such us injury of lymphatics or deep veins system.

Conclusions. IU brings smaller incision , shorter operating time and more safety than without IU. There are some disadvantages of thise approaches. There is a need of portable ultrasonography machine in operating theatre, skilled doctor with doppler ultrasonography.
This method is suitable for specialized departments in venous surgery.

Key words : *venous surgery, ultrasonography*

Vascular gel model for central venous catheterization

Pongpol SRIPHAN, Piyanut POOTRACOOL, Wiwat TIRAPANICH, Sopon JIRASIRITUM, Assoc.Prof. Surasak LEELA-UDOMLIPI, Suthas HORSIRIMANONT, Nutsiri KITTITIRATONG
Ramathibodi hospital,Mahidol University, Bangkok, Thaïland

Background. Central venous catheterization provides a route for delivery of caustic or critical medications and allows measurement of central venous pressure. Ultrasound guide puncture is now recommended in central venous catheterization procedure. The purpose of this study is to describe an inexpensive material (gelatin, mucilin powder) and simple method to create ultrasound-imaging models for the purpose of education and practice using, comparable with standard gel model

Method. 60 non-experience trainees were included in study and subjected to two groups, homemade and standard gel model. Procedural times were collected and compare between the two groups.

Result. Homemade ultrasound phantom we produced contains two vessel lumens. The images obtained using the phantom were high reliance quality and comparable to standard gel model. When compare the two groups, time to complete procedure was no statistic significant (p=0.957).

Conclusion. Homemade gel model can used as simulator in central venous catheterization for trainees and comparable to standard gel model.

Key words : *Vascular gel model, central venous catheterization*
Conflicts of interests : -

Early patency and feasibility of cutting balloon treating central vein stenosis in hemodialysis patients

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Ramathibodi Hospital, Bangkok, Thaïland

Background. Central vein stenosis in hemodialysis patients has high recurrent rate after the percutaneous transluminal angioplasty (PTA) with plane balloon.

Objectives.

- Primary outcome , study of success rate between cutting balloon and plain balloon angioplasty
- Secondary outcome , evaluate different pressure,restenosis in 3 month follow up between two types of balloon angioplasty

Methodology.
This is the cross sectional study of central vein stenosis in hemodialysis patients during January 2015 - December 2015.
There are 30 patients who were treated with angioplasty. Out of those 30 patients, 13 patients were treated with the cutting balloon method and 17 patients were treated with the plane balloon method. After that the demographic data ,succession and recurrent in 3 month after the treatment in comparison with both groups was recorded.

Results. PTA success rates are 14 patients (82.3%) in the plane balloon and 7 patients (53.9%) in the cutting balloon . Total occlusive lesion is the factor which influences the success (p-value = 0.009). The Restenosis rates in 3 month are 2 patients (11.7%) in the plane

balloon and 1patient (7%) in the cutting balloon(p-value > 0.05). The pressure and inflated time are not different between 2 groups(p-value > 0.05). There is no complication in both groups.

Conclusion. Cutting balloon angioplasty in central vein stenosis patients was not demonstrated statistic significant in outcome pressure use ,inflating time, success rate of balloon angioplasty ,recurrent stenosis .
PTA with cutting balloon was safety without perforation.

This is due to the small number of patients in the study to determine the outcomes and factors, which induce the stenosis.

Key words : *cutting balloon, central vein stenosis*
Conflicts of interests :

16:30-18h00 TETE D'OR 2

IUA oral free paper session 3 : Arterial disease : Treatment, interventions
Session 3 de communications orales UIA : Maladie artérielle : traitement, interventions

A Comparative Study of Percutaneous Atherectomy for Femoropopliteal Arterial Occlusive Disease: Experiences in 160 Patients

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Purpose. To analyze the safety and effectiveness of percutaneous atherectomy using the directional atheroectomy (DA) in treatment of symptomatic femoral popliteal atherosclerotic disease.

Material and Methods. Clinical data of all consecutive patients treated with atherectomy at one university hospital from October 2010 to December 2013 was retrospectively analyzed. The anatomic criteria of the atherosclerotic lesions were divided into four types: type I referred to stenosis; type II referred to occlusion; type III referred to in-stenting restenosis; type IV referred to stent occlusion.

Results. There were 160 patients treated during the study period. Protection device was used in 129 patients. Technical success rate was 98.6%, 93.3%, 97.9% and 91.7% in type I, II, III and IV lesions, respectively. The mean follow up period was 23.5±10.4 months. Restenosis rate of type I to IV lesions was 21%, 36%, 36% and 40% respectively. Restenosis rate in type I lesion was significantly lower than that in type III and IV lesions（p< 0.05） ... Patients with tissue loss responded to revascularization as follow: type I lesions, 11/13 healed or reduced

(84.6%), type II lesions, 3/3 improved (100%). In type III group, 5/6 improved (83.3%) and in type IV lesions 4/4 healed (100%).

Conclusions. DA is safe and effective for both de-nuvo atherosclerotic and in-stent stenotic or occlusive lesions . Thrombolysis before plaque excision is recommended in case of in-stenting thrombosis.

Key words : *atherectomy, Femoropopliteal Arterial Occlusive Disease*
Conflicts of interests : No

Late Fate of arterial Allografts

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Background. Cryopreserved arterial allografts have gained increasing interest as a vascular substitute in the management of infected vascular prostheses.Other indications for arterial allografts are primary infectious arteritis or mycotic aneurysms and limb salvage revascularisation in the absence of adequate autologous saphenous vein.
The initial enthusiasm in the use of cryopreserved arterial allografts was subsequently tempered by suboptimal long-term outcome. Thrombosis, recurrent intestinal fistulisation, anastomotic pseudo- aneurysm, allograft disruption, aneurysmal degeneration and persistent infection have been frequently reported in series with long term follow-up.

Methods and results. The authors report their experience with 132 cryopreserved allografts inserted in 123 patients between July 2000 and July 2015. It concerned 78 patients with infected vascular prosthesis (group 1) , 9 patients with an aorto-enteric fistula (group 2), 9 patients with infectious arteritis (group 3) and 27 patients with critical limb ischemia (group 4).
The in-hospital mortality was 9.41% for group 1, 30.0 % for group 2, 0% for group 3 and 6.89% for group 4. Mean follow-up was 59 months. Allograft-related re-interventions were necessary in 29.41% of group 1, 45% of group 2, 0% of group 3 and 34.50 % of group 4.
The 5-year patency rate was 80% in group 1, 45% in group, 100% in group 3 and 24% in group 4.
The 5 year survival attained 52.85% for group 1, 44.0 % for group 2, 90.0 % for group 3 and 40.0 % for group 4.
During the study period, the authors changed their policy from 2010 onward. They used less frequently allografts for critical limb ischemia. They performed preferentially segmental resection of low-grade prosthetic infection where possible and resected the eroded intestine (third duodenum in most of cases) with an intestinal anastomosis outside the area of vascular repair in cases of aorto-digestive fistula. These modified strategies are based on the observed

complications in the initial study period. The outcome results showed a trend to improvement (lower perioperative mortality, lower rate of allograft related reinterventions).

Conclusions. Implantation of arterial allografts is characterised by inherent allograft-related complications and suboptimal outcome results. Nevertheless, cryopreserved arterial allografts remain the first choice treatment modality to eradicate major vascular infections . For critical limb ischemia, the poor results do not longer justify the use of cryopreserved arterial allografts.The authors discuss the allograft-related complications and suggest some tricks to minimize their risk.

Key words : *Cryopreserved arterial allografts, Arterial infection*
Conflicts of interests :

Primary aortoenteric fistulas as a rare complication of abdominal aortic aneurysm: single-center experience

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Primary aortoenteric fistula (PAEF) is a very rare but clinically important kind of complicated abdominal aortic aneurysm (AAA). Its principal manifestation is a massive gastrointestinal hemorrhage. For this reason, a majority of patients were being delivered in emergency departments of general hospitals. Naturally, the mortality among such patients is very high due to tardy diagnosis. PAEF was described by Astley Cooper in 1829 for the first time. Ever since only less than 300 clinical cases were reported, only of the nearly 140 patients were treated surgically. A little number of centers has several cases of PAEF for observation and presentation.

Aim. This study aims to analyze the results of diagnosis and treatment of patients with primary aortoenteric fistulas.

Methods. Three cases of PAEF were revealed among 178 patients (1.7%) operated for ruptured AAA for the period from 2005 to 2014. All of patient (two males and one female) had a gastrointestinal bleeding and hemorrhagic shock as a main manifestation. PAEF located in jejunum (2) and sigmoid (1). Ultrasound and CT(A) scans were performed in all of cases. All patients underwent aortic replacement using synthetic graft. In addition, bowel resection (1), simple seam of the bowel hole with Braun's entero-anastomosis (1) and Hartmann's procedure (1) were performed.
Results: The significant diagnostic criteria of PAEF were investigated. Close contact between aortic and bowel walls without adventitial layer identification, local absence of intraluminal thrombi and infiltration of bowel wall were as a most valuable signs by ultrasound

examination. The most sensitive CT(A) criterion was contrast agent inflow in bowel lumen certainly. By native CT series, we revealed also a tight blood filling of intestine and gas bubbles in aortic wall. The time between admission and first bleeding was different, from 4 to 25 hours. In postoperative period one patient died in six days because of several sepsis with multiple organ failure. Another one patient underwent several Gramm-negative sepsis (Enterobacter spp.) with recovery. Survivors were followed for 22-51 months after surgery.

Conclusion. The reasons of adverse outcomes in cases of PAEF including late and inadequate diagnosis are associated with curiosity and low alertness among general surgeons and physicians.

Key words : *Aortoenteric fistula, Abdominal aortic aneurysm*
Conflicts of interests : No conflict of interests

Thromboangiitis obliterans (buerger's disease): surgical treatment results in patients with critical limb ischemia at used of prolonged epidural analgesia and ozonated autohemotherapy

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Introduction. Buerger's disease (thromboangiitis obliterans-TAO) is a clinical syndrome characterized by the development of segmental thrombotic occlusions of the medium and small arteries of the extremities. It most often occurs in young male smokers, especially those from Mediterranean and Asian countries. The aim: estimation of combined surgical treatment results in patients with TAO and critical limb ischemia (CLI) at used prolonged epidural analgesia (PEA) and ozonated autohemotherapy (OAH).

Material and methods. 125 patients (aged from 20 to 62, median 48.4±0.6) with TAO were surgically treated between 2009-15. Young men and smokers were consisted 97.6%. Duration of disease-1 to 17 years, manifestations of CLI-2 to 22 weeks. Autogenous venous femoropopliteal bypass was made in 7(5.6%), femoroptibial bypass PTFE grafting-1(0.8%), thrombendarterectomy with lumbar sympathectomy (LS)-7(5.6%), LS-64(51.2%), LS with "minor" amputation-22(17.6%), "minor" amputation-24(19.2%). Patients were divided into 2 groups: 60 patients (control group) in perioperative period received basis treatment including anticoagulants, antiplatelets, dextrans, angioprotectors, corticosteroids, narcotic and non-narcotic analgesics; 65 patients (main group) along with generally accepted therapy underwent PEA and OAH. Peripheral flow in lower limbs was investigated by angiography, multispiral computed tomography angiography, duplex angioscannig. Microcirculation was studied by transcutaneous oxygen pressure (tcPO2).

Results. According to our data the best results of surgical treatment was recorded by employment of LS with perioperative PEA and OAH. In early postoperative period (up to 30 days) frequency of secondary below knee amputation amounted 1.5% in the main group and 10.0% in the control group ($p<0.05$). Primary healing of operative wound after "minor" amputation on the foot was observed in 83.3% of patients in the main group and in 63.3% of patients in the control group ($p<0.05$), regeneration of ulcer defects on the foot in 76.2% and 62.2% respectively. In the main group a satisfactory treatment result was achieved in 80.0%, control-61.7% cases ($p<0,05$).
Conclusion. We consider, that used of surgical operations to restore the main and mobilization of collateral blood flow combined with PEA and OAH provides impairment in results of surgical treatment and quick rehabilitation in patients with TAO and CLI.

Key words : *Thromboangiitis Obliterans, Critical Limb Ischemia, Prolonged Epidural Analgesia, Ozonated Autohemothe*

Penetrating Aortic Ulcer : a re-appraisal.

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The authors observed the last two years (Sept. 2013-Sept. 2015) five cases of "Acute Aortic Syndrome" caused by a penetrating atherosclerotic ulcer of the descending thoracic aorta. This represents 10 % of all acute aortic syndromes admitted in the same period. All five patients benefitted thoracic endovascular stentgrafting with a 100% procedural success rate.

A literature review aims to define the distinct disease entity of penetrating aortic ulcer. It is opposed to intramural hematoma and acute aortic dissection, two more common pathologies manifesting as acute aortic syndrome. Natural history and optimal management of penetrating aortic ulcer are outlined according most recent insights.

Key words : *TEVAR, penetrating aortic ulcer*
Conflicts of interests : no conflict of interest

16h30-18h00 GRATTE CIEL 3

IUA oral free paper session 4 : Thromboembolic disease : treatment

Session 4 de communications orales UIA : Maladie trhomboembolique : traitement

Intermediate doses of Tinzaparin for the treatment of Superficial Vein Thrombosis: Results from an observational National multicentre study - The SEVEN study

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Introduction. The role of low molecular weight heparins in the treatment of superficial vein thrombosis (SVT) is recommended but with low grade of evidence. The objective of this study was to assess the treatment outcomes in patients with acute SVT with Tinzaparin in intermediate dose.

Methods. Retrospective analysis of medical records collected from 8 hospitals in Greece over a period of 16 months. Inclusion criteria: Out-patients aged ≥18 years, with acute SVT ≥5cm in length, confirmed with ultrasound, with symptoms <10 days, without any treatment prior to initial diagnosis. Exclusion criteria: history of deep vein thrombosis (DVT) or pulmonary embolism (PE) in the past 6 months, SVT after sclerotherapy or indwelling catheters in the past 1 month or history of any intervention in the past 3 months, thrombus close to sapheno-femoral or -popliteal junction (<3cm), BMI >35 Kgr/m2, and known bleeding diathesis. Selected patients who treated with intermediate dose of Tinzaparin 0.5 ml (10.000IU) once daily for duration that was at the treating physician's discretion were analysed. All patients had to have a follow-up of at least 12 weeks after treatment.

Results. 296 patients (189 females) with a mean age of 57.4 years were included. Overweight or obese were 203(68.5%), long-standing or restricted mobility was reported in 96 (32.4%), varicose veins were present in 240 (81%) and history of treatment for vein thrombosis beyond the past 6 months from the index event was reported in 65 (22%). Two thirds of the patients (191/296, 64.5%) received treatment for about a 5 weeks (mean 36.9 days) while the remaining one third (105/296, 35.5%) received short period treatment (mean 16.2 days).

There was no difference in patients' characteristics between the two treatment groups. Presence of thrombus above the knee (p=0.002) and restricted daily activity (p=0.005) were the only factors associated with longer period of treatment. Only one case with minor bleeding was observed. Recurrence of thrombosis over a 12-week follow-up period after treatment initiation occurred in 6% (SVT recurrence in 14 or 4.7%, DVT in 3 or 1% and thrombus progression in the superficial veins in 1 or 0.3%). Recurrence was not related to duration of treatment (4% in short duration and 8% in prolonged treatment, p=0.46) but there was a trend in association with the resence of varicose veins/ valvular incompetence (p=0.09).

Conclusion. Tinzaparin in intermediate dose was safe and effective treatment for SVT. In two thirds of patients a five week treatment was required while in the remaining one third two-week treatment sufficed. The location of thrombus (above the knee) and the status of patients' mobilisation were associated with longer period of treatment. Recurrence was rare (6%) and there was a trend of association with the presence of varicose veins/ valvular incompetence. Future large prospective randomized studies are needed to corroborate these findings.
Key words : *superficial vein thrombosis, treatment*

Thromboembolism Disease Following Pancreaticoduodenectomy and Hepatectomy: Efficacy of Prophylaxis and Associated Bleeding Complications

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Background. Gastrointestinal cancers are associated with a significant risk of venous thromboembolism (VTE). The thrombotic rate is reported to be as high as 17% to 57% for pancreatic cancer and the incidence of pulmonary embolism (PE) may be as high as 6% post hepatectomy for liver cancer. Concern between VTE risk and peri-operative bleeding remain an issue and the role of pharmacological prophylaxis due to liver dysfunction in patients undergoing hepatectomy remains controversial.

Aims. To assess the incidence of thrombotic events following pancreaticoduodenectomy and hepatectomy as well as the efficacy of prophylactic modalities used and associated bleeding complications.

Methods. In total 447, patients were retrospectively reviewed between 2002 to 2014 that underwent pancreaticoduodenectomy or hepatectomy for benign or confirmed malignancy. Demographic details, diagnosis, VTE risk, hospital length of stay (LOS), operative details, pharmacological and mechanical prophylaxis used and bleeding complications were collected

and analysed. Thrombotic events included in-hospital and one year incidence of deep vein thrombosis (DVT), PE and portal vein thrombosis (PVT).

Results. Male to female ratio was 1.4: 1. Median age was 63 years (55-71), LOS was 20 days (12-31) and operative duration was 4.5 hours (3.8-6.3) in patients that underwent pancreaticoduodenectomy. For patients that underwent hepatectomy, the median age was 59 years (50-68.5), LOS was 8 days (6-12) and operative duration was 4 hours (2.9-5.3). The majority of patients underwent surgery for malignancy. In the pancreaticoduodectomy patients, unfractionated heparin (UH) was used in 84.6%, 7.7% received low molecular weight heparin (LMWH) and 7.7% used UH followed by LMWH. Major bleeding occurred in 22.7% of patients on UH. In the hepatectomy patients, 89.5% received UH, 2.6% LMWH and 7.9% UH followed by LMWH. 14.7% of patients on UH had a major bleed. Following pancreaticoduodenectomy, the in-hospital incidence for thrombosis was 7.1%, 2.2% for PVT, 2.7% for upper extremity DVT, 1.1% for lower extremity DVT and 1.1% for non fatal PE. The one year thrombotic incidence was 9.9% with 27.8% of late VTE events detected post hospitalisation. VTE accounted for 5.4% of all readmissions and one year mortality was 23.1%. Following hepatectomy, the in-hospital thrombotic rate was 1.9%, 0.8% for PVT and 1.1% for non-fatal PE. At one year the incidence of thrombotic events was 3.1%, 0.8% for PVT, 0.4% for DVT and 1.9% for non-fatal PE. Post-hepatectomy after discharge VTE accounted for 50% of all events. Mortality at 30 days was 1.1%.

Conclusion. The rate of in-hospital thrombotic events was relatively low highlighting the importance of balancing the optimal in-hospital prophylaxis relative to risk factors, tumour grade chemotherapy and/or radiotherapy, operative duration, LOS against the risk of bleeding. The out of hospital increase in thrombotic events in these groups suggests that these high risk patients may possibly benefit from post-discharge prophylaxis.

Key words : *Venous thromboembolism, Cancer*
Conflicts of interests : Nil conflict of interest.

Rivaroxaban versus standard anticoagulation for symptomatic venous thromboembolism (REMOTEV observational study): analysis of 6-month outcomes

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Aims. Direct oral anticoagulants are approved for the treatment of acute deep vein thrombosis (DVT) and pulmonary embolism (PE). The aim of this study is to provide safety and efficacy data of rivaroxaban in routine patient care in a non-selected symptomatic venous thromboembolism (VTE) population.

Methods and Results. REMOTEV is a prospective, non-interventional study of patients with acute symptomatic VTE, treated with oral rivaroxaban, vitamin K antagonists (VKA) or parenteral heparin/fondaparinux alone for at least 3 months and who are followed up for 6 months. From Nov 2013 to July 2015, 499 consecutive patients were retained for baseline analysis and 445 for safety analysis. The mean age was 65.1 years, 7.6% had previously known active cancer, 18.6% had creatinine clearance 30≤CrCl <60 mL/min, and 87.8% had pulmonary embolism with or without deep venous thrombosis. The major and clinically relevant non-major bleeding rate was 5.4% (15/280) in the rivaroxaban group, 9.4%/(9/96) in the VKA group and 7.2% (5/69) in the heparin/fondaparinux group. The recurrent VTE rate was 1.4% (4/280) in the rivaroxaban group, 3.1% (3/96) in the VKA group and 11.6% (8/69) in the heparin/fondaparinux group. In the propensity score-adjusted samples, clinically relevant major and non-major bleeding (HR 0.37 [95% CI, 0.15 to 0.93], p<0.05), all-cause death (HR 0.21 [95% CI, 0.06 to 0.66], p<0.01) and the composite of recurrent VTE, clinically relevant major and non-major bleeding and all-cause mortality (HR 0.35 [95% CI, 0.17 to 0.71], p<0.01), were significantly lower in the rivaroxaban group compared to the VKA group.

Conclusion. In this non-interventional study comparing the safety and effectiveness of rivaroxaban, in VTE treatment with standard anticoagulation therapy, outcomes were consistent with the findings of the phase 3 randomized trials and post marketing data, with low rates of major bleeding and symptomatic recurrent VTE.

Key words : *venous thromboembolism, direct oral anticoagulant*
Conflicts of interests : No conflict of interest

Oral Rivaroxaban in patients with permanent inferior vena cava filter: a pilot case-control study with 3 years follow-up

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Aim. To evaluate the efficacy and safety of oral Rivaroxaban in comparison with vitamin K antagonist (VKA) in patients with permanent inferior vena cava (IVC) filter who require lifelong anticoagulant therapy.

Methods.
Design. pilot prospective observational case-control study.
Clinical center: Clinical Hospital no.1 of the President's Administration of Russian Federation.
Ethics: The study was approved by local IRB.
The inclusion criteria: recurrent proximal DVT with free-floating thrombus (≥ 4 cm), implantation of retrievable IVC filter and failure to remove it during 3 weeks, given informed consent.
The exclusion criteria: suspected PE, severe renal or liver failure, contraindication to anticoagulant therapy.
Primary outcome measures: the patency of IVC filter, the rates of VTE recurrence and major and minor bleedings.
Treatment protocol. Before IVC filter implantation the diagnosis of proximal DVT was confirmed by duplex ultrasound. All patients had initial treatment with low molecular weight heparins for 48 hours followed by transitioning to longer-term anticoagulation with a vitamin K antagonist. Those patients who refused assigned anticoagulation were allowed to choose a new oral anticoagulant and after obtaining the consent they were treated with Rivaroxaban 15 mg twice daily for the first 3 weeks, followed by 20 mg once daily. The duration of treatment was lifelong.
In all patients included in the study IVC filter for various reasons had not been removed after implantation and retrievable filters were considered as permanent.
Patients follow-up. The maximum follow-up period was 36 months. Patients were evaluated at 6th, 12th, 18th, 24th, 30th and 36th month after intervention with clinical examination, duplex ultrasound of IVC system and revision of medical records.

Results. Study started in 2013 and ongoing.
Patient characteristics. Totally 15 patients were treated with Rivaroxaban: 8 men and 7 women, age: 35-87 years (mean – 65.6±15.2) with 1-6 (2.9±1.4) individual risk factors for venous thromboembolism.
In patients enrolled into the study attempts to remove IVC filter were made during 3 weeks after implantation. The main reasons of failure in filter removing were technical inability (76.7%), persistence of irreversible individual risk factors (cancer, lower limbs paralysis – 13.3%), persistence of free-floating thrombus (10%).
During 24 month, we followed up all 30 patients, during 30 month we followed up 9 cases and 14 controls and during 36 month – 2 cases and 6 controls. We found no IVC filter obstruction or PE in all patients treated with Rivaroxaban or VKA during the whole time of observation.
At 6th month after intervention, we found no recurrent DVT. Hemorrhagic complications were found in one case and two controls (6.6% vs 13.3%, n.s.).
At 12th month after intervention, we found one recurrent DVT in control patient (0% vs 6.6%, n.s.). New hemorrhagic complications were found in one case and one control. Totally hemorrhagic complications during first year of observation were found in 2 patients at Rivaroxaban and 3 patients at VKA without any statistically significant difference (13.3% vs

20.0%), but in controls they were more severe: one intracranial hemorrhage and two skin hemorrhage versus one skin and one gingival hemorrhage.
During the second and third years of observation, we found no new cases of DVT or bleeding.

Conclusion. A better understanding of new oral anticoagulants features may help to improve treatment algorithms for patients with non-removable cava-filters in clinical practice. This study seems to suggest that Rivaroxaban is associated with similar efficacy and safety and does not lead to the filter obstruction, as compared with standard therapy, but results need to be confirmed in randomized controlled trials.

Key words : *inferior vena cava filter, new oral anticoagulants, venous thromboembolism, pulmonary embolism, preven*
Conflicts of interests : Schastlivtsev I., Lobastov K., Barinov V. received honorarium from BAYER company

Opportunities for the new oral anticoagulants in acute deep vein thrombosis treatment – two-year experience

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Background. The cornerstone of treatment of acute deep vein thrombosis (DVT) is anticoagulant therapy. The standard line of treatment consists of heparin combined with vitamin K antagonist (VKA) but it has well-known limitations. The new effective and safe oral anticoagulants which do not require parenteral administration and monitoring of anticoagulant effects offer a viable alternative to standard therapy.

Aim. The study aims to provide an overview of the treatment of acute DVT and compare the standard anticoagulation against the use of new oral direct factor Xa inhibitorrivaroxaban.

Methods. Between March 2013 and March 2015, 95 outpatients were enrolled. They were divided in two groups. The rivaroxaban group consists of 48 patients with female/male ratio-1.06. The standard anticoagulation group is composed of 47 patients with female/male ratio-1.08. The average age of both groups is 64.5 years old. Patients were eligible if they have symptomatic DVT and no clinical/ECG signs of pulmonary embolism (PE). They were all examined with color Doppler ultrasound. Patients in the standard group received unfractionated heparin or low-molecular-weight heparin for five consecutive days and were then switched to vitamin K antagonist (acenocoumarol) with a target INR of 2-3. Patients in the rivaroxaban group received 15mg Rivaroxaban twice-daily for 21 days, followed by 20mg once-daily. The follow-ups took place on the 21st day, 45th day and the third, sixth and twelfth month. During these follow-ups special attention was paid to the percent of vein

recanalization, assessed by compression ultrasonography, along with the following possible complications: recurrent VTE, major bleeding and side effects.

Results. Initial results showed around 50% recanalization of the diseased venous segment: on the 45th day for the femoro-popliteal segment and 3th month for the ilio-femoral segment. No major or life-threatening bleeding occurred in both groups. Clinically insignificant bleeding was observed in 4 patients in the standard treatment group and in 3 patients in the rivaroxaban group. Compliance to treatment was very high in both groups. In regards to efficacy and safety, there is no statistically significant difference between the two approaches.

Conclusion. The patient data analysis shows that rivaroxaban can be used as a single-drug approach for the treatment of acute symptomatic DVT. This line of treatment resulted in similar efficacy and safety to standard therapy.

Key words : *deep vein thrombosis, anticoagulant therapy, factor Xa inhibitor*
Conflicts of interests : None

Ovine and porcine heparins exhibit biosimilarities in contrast to bovine counterparts.

***Yiming YAO, Olivia BOUCHARD, Debra HOPPENSTEADT, Paula MAIA, Alice SILVA DE CASTRO, Emmanuel KUMAR, Nil GULER, Walter JESKE, Daniel KAHN, , Jeanine WALENGA, Erwin COYNE, Jawed FAREED**
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Introduction. The currently used unfractionated heparin (UFH) and low molecular weight heparins (LMWH) are mostly derived from Porcine mucosal tissue. Since the technology to manufacture heparin has advanced and the quality assurance practices are in place, improved products with high potency and purity are now available. Considering these factors the resourcing of heparins utilizing bovine (cow) and ovine (sheep) tissues is discussed at regulatory and pharmaceutical levels. The purpose of this study is to compare 5 individual batches of UFH obtained from Bovine, Ovine, and Porcine origin and their depolymerized product obtained by benzylation followed by alkaline hydrolysis representing enoxaparins.

Methods. The molecular profile of the heparins and enoxaparins from various sources were determined using the size exclusion method. The anticoagulant potency was measured use clot based methods such as aPTT and Thrombin Time. Chromogenic substrate based methods were used to determine the USP potency in terms of anti-Xa and anti-IIa activities (Hyphen Biomedical, Ohio, USA). The interaction between AT and heparins and enoxaparin were investigated in a purified biochemical system, using AT supplemented buffered assay. Thrombin Generation inhibition studies were carried out using a flourometric method (Technoclone, Vienna, Austria). The relative interaction of the heparins and enoxaparins with heparin induced thrombocytopenia (HIT) antibody induced aggregation of platelets were

investigated using serum pool obtained from clinically confirmed HIT cases using aggregometry.

Results. The molecular profile of the Bovine, ovine, and porcine heparins and enoxaparin were almost identical. The global anticoagulant and amidolytic protease assays for the bovine heparin were consistently lower than porcine and ovine samples. In the purified system the Porcine and Ovine preparations consistently showed lower IC50 values for both the thrombin and Xa inhibition in contrast to the bovine heparin. Similar trends were observed in the anti IIa assays. The USP potency of the Porcine and Ovine heparins ranged from 180 to 190u/mg, whereas the Bovine was found to be 130-140 u/mg. The anti-Xa – IIa ratio for the heparin were comparable. The ovine and porcine enoxaparin exhibited comparable potencies which ranged 94-110 u/mg whereas bovine enoxaparin was slightly lower 80-87 u/mg. However the antiXa and anti-IIa ratios were comparable. The AT mediated inhibition of factor Xa and anti-IIa was stronger with heparins in comparison to the enoxaparins. Similarly heparins produced stronger inhibition of thrombin generation in comparison to the enoxaparin. In the HIT screening there was no difference between the HIT responses in the heparins from different species. Similar results were obtained with enoxaparins.

Conclusions. These studies show that while bovine, ovine and porcine heparins and enoxaparins exhibit comparable molecular profiles however in some of the functional assays bovine heparin and enoxaparin exhibited somewhat lesser potencies especially in the pharmacopeial assays. No differences were noted in the HIT antibody interactions among heparins and enoxaparins from different species. These studies demonstrate that ovine and porcine heparins are biosimilar and can be developed as such for clinical purposes. Potency adjustment for in vivo usage may be required to obtain comparable anticoagulant responses for the bovine heparin and enoxaparin.

Key words : *Heparins, Enoxaparins*
Conflicts of interests : Yiming Yao - Employee of Ronnsi Pharma Co., LTD

Idarucizamab, a specific antidote for dabigatran, cross-reacts with melagatran and may also interact with other benzamidine-containing compounds

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Idarucizamab (Praxbind) is produced by Boehringer-Ingelheim for the specific neutralization of dabigatran and is recently approved by the US FDA for the control of bleeding associated with dabigatran. Dabigatran etexilate is a prodrug which is converted into the active agent dabigatran endogenously. Idarucizamab is an anti-dabigatran Fab fragment which specifically binds to the benzamidine group on dabigatran and inhibits its anti-thrombin activity.

Benzamidine represents a commonly used chromophore which is present in a variety of drugs, mainly serine protease inhibitors and related agents. In order to test the specificity of the inhibitory effects of idarucizamab, such antithrombin agents as argatroban, melagatran, hirudin, and bivalirudin were tested in plasma-based anticoagulant assays including thrombin time, PT, and aPTT. In addition, other antithrombin agents such as human antithrombin, thrombomodulin, heparin cofactor II, and heparin-AT complexes were also tested. Idarucizamab at a concentration of up to 1 mg/ml did not produce any effect on plasma clotting profile. The antibody showed strong specificity for the inhibition of dabigatran and did not affect the anticoagulant effect of the other synthetic and natural thrombin inhibitors with the exception of melagatran, which was strongly inhibited by this antibody. Dabigatran and melagatran contain benzamidine moieties in their structures, which is primarily responsible for the inhibition of thrombin. The benzamidine group on dabigatran is also primarily responsible for its interaction with anti-dabigatran Fab fragment idarucizamab. Therefore, the cross reactivity between idarucizamab, dabigatran, and melagatran may involve the benzamidine pharmacophore. These results suggest that while idarucizamab does not inhibit the currently available antithrombin agents, as stated before, since it inhibits the action of melagatran, it may also modulate the action of drugs which contain benzamidine moieties. Thus, these observations warrant a systemic screening of idarucizamab for its potential interactions with drugs containing benzamidine moieties.

Key words : *Idarucizamab, Dabigatran*
Conflicts of interests : None.

Neuromuscular stimulation with GEKO®: Co-ordinated pumping or twitches and jerks?

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Objectives. The common peroneal nerve stimulator (CPNS) is a UK approved device appearing in the National Institute for health and Care Excellence (NICE) guidelines for reducing venous thrombo-embolism risk. The aim was to quantify the claim that it empties veins and imitates walking.

Methods. Twelve healthy volunteers performed 10 weight bearing tip-toe movements and 10 non-weight bearing ankle dorsi-flexions to imitate walking movements. Air-plethysmography (APG) recorded the reductions in calf volume from the plateau of maximum dependent volume. The common peroneal nerve was stimulated with the CPNS for 10 seconds at each of the 7 increasing electrical impulse settings and the volume reductions were measured.

Results. Expressed as median [inter-quartile range] absolute (mL) and percentage reduction in calf volume. Tip-toe and dorsiflexion pumping were not significantly different 59 (33.6 -

96.1), 81.9% vs. 51.4 (34 – 68.5), 59.7%, respectively (P=0.53). However, they both outperformed the CPNS at the maximum setting: 10.8 (7.3 - 18), 13.2% at P=0.002 and P=0.002. Qualitatively, the CPNS registered on the tracings as a small spike (muscle twitch) at low settings, with higher amplitudes (ankle jerk) at higher settings. The CPNS activity spikes were separate and discrete lasting a median (range) of 0.24 (0.16 - 0.3) seconds.

Conclusions. The claim that the CPNS empties veins with significant reductions in calf volume is supported when the device is set at the maximum intensity setting. However, the amount of venous emptying with the CPNS is small in comparison to the tip-toe and dorsiflexion movements. Furthermore, the CPNS has a very short activity profile on the APG trace. Device innovations which promote longer contractions and involve the posterior calf compartment may improve pumping.

Key words : *GEKO, Pumping*
Conflicts of interests : NONE

Superior vena cava syndrome treated by stenting : 11 cases

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Aim. Superiror vena cava syndrome (SVCS) requires urgent management.

Patients and Methods. We report on 11 patients , 6 women and 5 men , with ages from 32 to 82 years , who presented with malignant SVCS with important dyspnea and facial edema.All patiet had a sibclavian vein port catheter implantation for chemotherapy.CT showed compression of vena cava superior (VCS) in 6 patients , 5 patients presented with thrombosis of this vein.All patients were treated with percutaneous stenting of the SVC.

Result. No major complications were reported in short and long-term follow up in any of the patients.There was no recurrence of the symptoms, and the median survival after the stenting was 18 months.

Conclusion. Vascular stenting for malignant SVCS allows a rapid improvement of the symtoms (dyspnea and edema)

Key words : *Vena cava superirior, Stent*

Jeudi 6 Octobre – *Thursday, October 6th*

16h30-18h00 TETE D'OR 2

IUA oral free paper session 5 : Thromboembolic disease Diagnosis
Session 5 de communications orales UIA : Maladie thromboembolique : Diagnostic

From varicose veins to deep venous thrombosis

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Objective. Varicose veins represent one of the most frequent vascular diseases and are in most cases benign. However, advanced disease is frequently associated with complications such as chronic venous insufficiency, superficial and deep vein thrombosis. The pathogenic mechanisms are not well understood. Besides increased venous pressure, it is suggested that local blood constituents trigger various mechanisms responsible for the progression of the disease and its complications.
The aim of one of our study was to investigate the changes in the blood in varicose veins and to compares them with the systemic markers of inflammation and endothelial damage.
Fifty patients with primary varicose veins were included in the study. Most patients were in class C2. Blood samples were taken from the leg from the tortuous and dilated varicose tributaries of the great saphenous vein and from the cubital vein.
In varicose veins, the following parameters were significantly increased in comparison with systemic blood: hsCRP (3.12 ± 2.18 mg/L vs. 2.04 ± 2.21 mg/L, p = .04), IL-6 (3.54 ± 2.59 pg/mL vs. 2.25 ± 1.27 pg/mL, p = .008), vWF (118.4 ± 27% vs. 83.2 ± 22%, p < .05). D-dimer, in samples taken from the leg varicose veins, was also significantly higher than in the systemic blood (104.3 ± 9.3 ng/mL vs. 89.5 ± 8.3 ng/mL, p = .039).
In another study it was shown that after acute period of the disease recanalization of occluded veins started, which is time – consuming process and is inhibited by increased systemic inflammatory response.

Conclusion. Some inflammatory markers and indicators of endothelial dysfunction are increased in varicose vein blood. This is most probably the consequence of deteriorated blood flow in dilated and tortuous superficial veins, and increased venous pressure. Damage to the venous wall, which causes a chronic inflammatory response, together with the procoagulant properties of local blood may promote further progression of the disease and thrombotic complications including deep venous thrombosis. Recanalization of occluded veins is time – consuming process and depend on systemic inflammatory response and on the trombous load.

Key words : *Varicose Veins, Thromboembolic Complication*
Conflicts of interests : NO CONFLICT.

Thrombophilia testing results after a first venous thromboembolic event in selected and unselected patients

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(2) Institute of Medical Genetics, Charles University Medical Faculty in Pilsen, Pilsen, Czech Republic
(3) Institute of Clinical Biochemistry and Haematology, University Hospital, Pilsen, Czech Republic

Aim. To compare thrombophilia workup results after the first episode of venous thromboembolism (VTE) in patients meeting or not meeting the suggested selection criteria according to the guidelines for thrombophilia testing (IUA 2013 Consensus, respectively).

Methods. 544 subjects underwent thrombophilia testing. Homozygous factor V Leiden or prothrombin gene mutation, natural anticoagulant deficiencies, antiphospholipid syndrome or combination of ≥2 disorders were considered a strong thrombophilia.

Results. In the whole group, thrombophilia was detected in 28.5% and strong thrombophilia in 6.6% of patients. In the subgroup aged 40-60 years, in men with unprovoked cases the prevalence of thrombophilia was 35.7% and that of strong thrombophilia 12.5%; in provoked cases it was 19.5% and 4.9%, respectively. In women aged 40-60 with unprovoked events, thrombophilia was found in 18.8%, in cases provoked solely by estrogens or pregnancy in 40.9%, and in those with another trigger in 9.1%.
Comparing the patients above and under 60, thrombophilia was detected in 27.6% and 29.2%, respectively (P=0.67) and strong thrombophilia in 9.1% and 4.7%, respectively (P=0.041).
Factors significantly associated with positive thrombophilia testing were positive family history of VTE (including superficial vein thrombosis) – OR 1.80; 95% CI 1.71-2.77 and proximal location of deep vein thrombosis (DVT) – OR 1.94; 95% CI 1.25-3.02.

Conclusion. Of VTE patients not meeting selection criteria for testing, the prevalence of thrombophilia and even strong thrombophilia was relatively high in those older than 60 years. In the whole group, the only factors significantly associated with thrombophilia finding were positive family history of VTE and proximal location of DVT. Selection criteria for thrombophilia testing should be respected but in some cases an individual approach to testing might be considered.

Key words : *venous thromboembolism, thrombophilia*

D-dimer use and PE diagnosis in emergency units: why is there such a difference in PE prevalence between Europe and the USA?

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5 Department of Hematology, Hopital Maisonneuve-Rosemont, University of Montreal, Canada;
6 Pathology and Laboratory Medicine, Medical University South Carolina, Charleston, USA.

Objective. Although diagnostic guidelines are similar, there is a huge difference in pulmonary embolism (PE) prevalence between the USA (US) and countries outside the USA (OUS) in the emergency care setting. In this study, we prospectively analyze patients' characteristics and differences in clinical care that may influence PE prevalence in different countries.

Methods. An international multicenter prospective diagnostic study was conducted in a standard-of-care setting. Consecutive outpatients presenting to the emergency unit and suspected for PE were managed using the Wells score, STA-Liatest® D-Dimers and imaging.

Results. The prevalence of PE in the study was 7.9% in low and moderate risk patients. Among the 1060 patients with low or moderate PTP, PE prevalence was four times higher in OUS (10.7%) than in the US (2.5%) ($P < 0.0001$). The mean number of imaging procedures performed for one new PE diagnosis was 3.3 in OUS vs 17 in the US ($P < 0.001$). Stopping investigation in the case of negative DD combined with low/moderate PTP was more frequent in OUS (92.7%) than in the US (75.7%) ($P < 0.01$). Moreover, the use of imaging was much higher in the US (44.4% vs 19.2% in OUS) in the case of moderate PTP combined with negative DD.

Conclusion. Differences between US and OUS PE prevalence in emergency setting might be explained by differences in care patterns. US physicians performed CT scan more often than in Europe in cases of low/moderate PTP combined with negative DD.

Key words : *Pulmonary embolisml, Prevalence*
Conflicts of interests : non

Elastography a new diagnostic tool for venous thrombosis.

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Object. To evaluate ultrasound elastography as new diagnostic tool in the assessment and the follow of deep venous thrombosis.

Methods and Materials. Ultrasound elastography was used to evaluate 65 patients (45 women and 20 men aged 27 to 68 years) with occlusive acute deep venous thrombosis, comfirmed by vascular ultrasound of lower extremities. Èvery patient was scanned in the standard position, in multiple orientations, grey-scale, doppler ultrasound and elastography were performed. Elastographical score of 5 points were used in order to classifie the thrombus caracteristicts.

Results. Ultrasound elastography showed the different characteristic of the thrombus. Elastography can detect initial signs of recanalization that were identified as areas of relatively high elasticity, while the standard ultrasound and Doppler examination had not detect the signs of recanalization.

Conclusion. Ultrasound elastography can be a new diagnostic tool for monitoring of acute venous thrombosis, and a valid imaging metodo to identify initial signs of thrombus recanalization.

Key words : *Elastography, Deep Venous Thrombosis*

Analysis of the anatomical sites of 172 lower-limb venous thrombosis occurring in a hormonal context in 996 young women

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Aim. To analyze localizations of duplex ultrasonography-diagnosed lower-limb venous thrombosis in young women in hormonal periods in order to optimize the ultrasound screening.

Patients and methods. A retrospective analysis of 42,018 standardized duplex ultrasonography report forms incremented in a prospective database (January 2001-July 2013) was performed. Ultrasound screening performed for a first event of venous thrombosis in women ≤ 45 years were selected (n = 996). The diagnosed venous thrombosis (n = 172) were classified into

three groups: oral contraception (n = 74), pregnancy (n = 39) and post-partum group (n = 59). Clinical symptoms and thrombosis localizations were analyzed.

Results. Among the 22 deep venous thrombosis, 9 were limited to the proximal segment, including 4 in the vena cava coming from a right ovarian vein thrombosis. Pulmonary symptoms at presentation were more frequent in the contraception group than in the obstetrical group (pregnancy and post-partum period) (69 % vs 20 %, $p < 0.001$). The frequencies of thrombosis limited to iliac veins were similar in the contraception group (31 %) and the pregnancy group (28 %); the results were similar for left internal iliac vein thrombosis (respectively 8.1 and 5.1%). In the post-partum period, superficial venous thrombosis were more frequent than in the other groups (62.7%).

Conclusion. Duplex ultrasonography in young women taking oral contraception, as during pregnancy, must target iliac venous segments, especially on the left side, otherwise one thrombosis out of three may be missed. In the post-partum period, superficial veins are to be explored too.

Key words : *Venous thromboembolism, Hormons*
Conflicts of interests : Aucun

Incidence of Deep Venous Thrombosis of Lower Extremities in Patients with Pulmonary Thromboembolism – Unicenter Experience

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2 Department of Pulmology- Tokuda Hospital Sofia, Bulgaria

Introduction. Venous thromboembolism (VTE) is a condition combining deep venous thrombosis (DVT) and pulmonary embolism (PE). Aim of the study was to determine the frequency and type of DVT of the lower extremities in patients with varying severity of PE.

Material and Method. 331 patients were diagnosed with PE in the Department of Pulmology in "Tokuda Hospital Sofia" between 03.2007 -12.2014. All patients were diagnosed by CT pulmoangiography. Using a simple version of Mastora score, they were divided into 3 groups according to the severity of embolism percentage of the affected lung circulation: segment embolism; submassive form; massive form. In all patients color-coded duplex sonography (CCDS) and compression ultrasound (CUS) were made. We divided in three groups according to the level of the affected veins: iliofemoral DVT (IF-DVT); femoropopliteal DVT (FP-DVT); iliofemoropopliteal DVT (IFP-DVT).

Results. From 331 patients with PE, 184 were men and 147 - women (p=0,042) at the average age of 61.4 years. 141 (42,6%) patients were diagnosed with DVT. From those patients 83 (58.9%) were men and 58 women (41.1%). 93 persons were symptomatic, and 48 patients were asymptomatic. 61 (43.3%) patients were with IF-DVT, FP-DVT was found in 70 (49.6%) and 10 (7.1%) patients were with IFP-DVT.

Table 1. Localisation of DVT according to the severity of PE

	Total DVT n=141	*Iliofemoral phlebothrombosis*	Femoral-poplital phlebothrombosis	*Ileo*-femoral popliteal phlebo thrombosis	Asympto-matic	Symptomatic
Segmental pulmonary embolism	11 (7,8%)	2 (18 %)*	9 (82 %)*	-	4 (36 %)*	7 (64 %)*
Submassive Pulmonary Embolism	50 (35,5%)	13 (26 %)*	34 (68 %)*	3(6 %)*	21 (42 %)	29 (58 %)
Massive Pulmonary embolism	80 (56,7%)	48 (60 %)*	26 (32.5%)*	6 (7.5 %)*	23 (29 %)*	51 (71 %)*

*p<0,05

DVT is a risk factor VTE with massive load of OR- 2,82, 95%CI (1,77 -4,51) (p<0,0001), and asymptomatic DVT - OR- 2,43, 95%CI (1,43 -4,11) (p<0,0001).

Conclusion. DVT of the lower extremities is a known risk factor and one of the most commonly causes of PE. The establishment of DVT in already existing PE does not change the therapy. The presence of DVT requires follow-up in order to prevent recurrent PE and severe and disabling post-thrombotic syndrome. Proximal DVT,before a PE should be treated immediately because of the high rate of life-threatening massive PE.

Key words : *deep venous thrombosis, pulmonary embolism*
Conflicts of interests : No conflict of interest

Profiling of hypercoagulability for the identification of high VTE risk patients with lung adenocarcinoma. The ROADMAP study

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Background. In patients with lung adenocarcinoma (LA), metastasis (MTS), advanced stage and chemotherapy (CTx) are risk factors for thromboembolism (VTE). Routine thromboprophylaxis is not recommended but individualized risk assessment is encouraged.

Aim The selection of the most relevant hypercoagulability biomarkers (HB) for incorporation into the risk assessment models (RAM) for VTE.

Patients & Methods. Patients with documented LA eligible for CTx at distance of at least 3 months from surgery or hospitalization were included. They were either CTx naive (NG) or had received CTx (OTG). Control group (CG) consisted of 30 healthy age & sex-matched individuals. We assessed them for thrombin generation (TG), P-Selectin, heparanase (HPA), procoagulant phospholipids (PPL), factor VIIa, D-Dimers (DDi) and Tissue Factor activity (TFa).

Results. Patients showed significantly shortened PPL and higher levels of TFa, DDi and HPA as compared to the CG. FVIIa levels were lower in patients compared to CG. The NG showed significantly shorter lag-time and lower ETP as compared to the OTG. It also showed significantly higher levels of HPA as compared to the OTG. The increase of TG and of HPA, P-Selectin, FVIIa was associated with the stage. Patients with MTS had higher levels of P-Selectin, TFa, DDi, FVIIa, TGT and HPA than those with localized or advanced disease. Patients with VTE had higher baseline levels of DDi, TGT, shorter PPL and lower levels of HPA as compared to those without. Patients who died within 3-months had higher baseline levels of DDi and lower HPA levels as compared to those who were alive.

Conclusion. Increased PPL, TF pathway up regulation, DDi and HPA increase is a universal phenomenon in LA. CTx has an impact on TGT and HPA levels. Baseline values of TGT, PPL, HPA, DDi were related with mortality and thrombosis. The incorporation of HB in VTE-RAMs might improve their predictive value. This concept is being studied on an ongoing trial.

A new Risk Assessment Model for VTE in ambulatory patients with lung adenocarcinoma on chemotherapy. The ROADMAP study.

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Background. In ambulatory patients with metastatic lung adenocarcinoma (LA) the risk of VTE increases during chemotherapy but the identification of patients at risk is an unmet medical need. The available risk assessment model (RAM) is not applicable in patients already on chemotherapy.
Aim. The prospective longitudinal non-interventional study ROADMAP was designed to elaborate a RAM for VTE specific for ambulatory patients with LA on chemotherapy.

Methods. Patients with LA on chemotherapy were included and followed up at 3, 6 and 12 months. Documented symptomatic VTE was the end-point of the study. Blood samples were collected at inclusion and assessed for thrombin generation (TG) and procoagulant phospholipids (PPL-ct). Assays and reagents were from Diagnostic Stago (France). Multivariate analysis was performed and the RAM was developed using the logistic regression. Sensitivity, specificity and the predictive value of the RAM were calculated. The receiver operating characteristic (ROC) curve was plotted.

Results. The study included 150 patients (mean age 65 years, 73% male). The LA diagnosis was done within 6 months before inclusion in 70% of them and 90% had advanced or metastatic disease at inclusion. In 85% of patients the Eastern cooperative oncology group (ECOG) performance status was <3. In one year follow up 12 symptomatic VTE episodes occurred (8%), 75% of which occurred within the 3 months from inclusion. The RAM includes the following variables: Recent hospitalisation, Time since diagnosis of the cancer, Mean Rate Index of TG and PPL-ct. The ROC analysis gave an area under the curve (AUC) value of 0.84. The sensitivity of the RAM was 89% and the specificity was 70%. The positive predictive value is 16% and the negative predictive value is 98%.

Conclusions. The new RAM for VTE is specific for ambulatory patients with LA on chemotherapy and can reliably predict VTE using simple clinical variables and biomarkers of hypercoagulability. This RAM can be used by physicians for the identification of ambulatory lung cancer patients eligible for thromboprophylaxis.

Vendredi 7 Octobre - *Friday October 7th*

08h30-10h30 - BELLECOUR 1

Session 1 de communications orales SFMV : Pathologie artérielle périphérique
SFMV oral free paper session 1 : Peripheral arterial pathology

Pronostic des patients artériopathes en fonction du BMI.

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Contexte. Dans la littérature, l'impact du poids sur la morbi-mortalité des patients artériopathes est peu évalué.

Objectif. Evaluer l'impact du BMI sur la mortalité globale et les événements cardiovasculaire : décès (quel qu'en soit la cause), survenue d'un syndrome coronarien aigu, accident vasculaire cérébral ou amputation majeure. Décrire les caractéristiques de la population en fonction des différents groupes de BMI.

Matériels. Etude prospective, descriptive, réalisé de 2006 à 2015, à partir de la cohorte COPART, registre multicentrique de recueil de données de tous les patients hospitalisés pour une artériopathie du membre inférieur symptomatique d'origine athéromateuse. Les patients ont été répartis en 4 groupes d'IMC : maigreur (IMC<18,5, poids normal (IMC entre 18,5-24,9), surpoids (IMC entre 25-29.9) et obésité (>30). Au cours du suivi à un an, nous avons recueillis : les décès de causes cardiovasculaires, les décès de causes non vasculaires, et les événements non fatals de cause cardiovasculaire).

Résultats. L'analyse a porté sur 2208 patients issus du registre COPART entre 2006 et 2015. La population globale des artériopathes était majoritairement masculine soit 76,6%. L'âge moyen était relativement jeune 69,9+/-12,6. On retrouvait une hypertension chez 75,5% de nos patients, cette HTA était plus importante chez les obèses soit 85,6%. 26% des artériopathes étaient tabagiques. Les maigres étaient plus fumeurs, 50% versus 21,6% chez les patients en surpoids. Plus de la moitié des artériopathes soit 53,2% ont un IMC supérieur à la normale. 23% des patients avaient une obésité morbide, 41,9% avec un poids normal et seulement 4.9 % avec un BMI<18,5. A un an, 836 patients ont présenté un événement selon le critère composite (Décès, SCA, AVC, amputation majeure) soit 38% de notre population. 26,8% ont subi une amputation. Parmi le total des amputés, 56% ont eu une amputation majeure au cours de l'hospitalisation. Le taux de survie était moins important chez les patients maigres, 48% à un an. L'âge, le diabète, l'anémie, l'insuffisance cardiaque et le stade AOMI (5-6) de Rutherford sont significativement associé à la survenue de l'end point. L'amputation apparaît également comme un facteur de risque avec RR : 8,72, IC95% : 5,94-12,8 et p<0.001. Le surpoids et l'obésité n'apparaissent pas comme facteur protecteur.
Un BMI<18 ,5 était significativement associé à la survenue d'un syndrome coronarien aigu, accident vasculaire cérébral ou amputation majeure (RR à 1,51 ; p<0,007).

Conclusion. Dans notre étude, on ne retrouve pas l'effet protecteur de l'obésité et du surpoids, qui restent des facteurs de risques bien établis de morbi-mortalité chez les patients artériopathes. La maigreur est significativement associée à la survenue d'un décès, évènement cardiovasculaire ou

amputation à un an. Nos résultats démontrent la nécessité d'une prise en charge nutritionnelle adéquate des patients artériopathes avec un BMI pathologique.

Mots-Clés : Artériopathie des membres inférieurs, COPART, BMI

L'obésité androïde favorise-t-elle une augmentation du diamètre aortique 20 ans plus tard ? Suivi de cohorte (STANISLAS).

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Introduction. La combinaison d'un tour de taille (TT) élevé et d'un taux de triglycérides (TG) élevé correspond à une population présentant une surcharge en graisses abdominales, qui n'est pas identifié comme un facteur de risque d'anévrysme aortique. L'objectif principal était de montrer que cette population était plus à risque de développer une dilatation de l'aorte abdominale sous rénale.

Matériel et Méthode. La cohorte **STANISLAS** est une cohorte longitudinale familiale mono centrique de la région de Nancy, France, composée de 4295 sujets sains. Quatre visites (V1 à V4) ont été réalisées. Le sexe, l'âge, la pression artérielle systolique, le statut tabagique ont été recueillies à V1. Les diamètres aortiques ont quant à eux été mesurés a postériori sur des images échographiques de l'aorte sous-rénale (AoR) effectuées à V4. Des analyses par régressions linéaires univariées et multivariées ajustées sur l'âge et le sexe ont été réalisées. Les diamètres aortiques ont été comparés aux différentes variables en formant quatre groupes dichotomiques : TT élevé et TG bas (TT+/TG-), TT et TG élevés (TT+/TG+), IMC élevé et TG bas (IMC+/TG), IMC élevé et TG élevés (IMC+/TG+).

Résultats. Les mesures en trois points ont pu être effectuées sur 1220 patients, lorsqu'au moins une image échographique correspondante était disponible. Notre population était en moyenne âgée de 32 +/- 14 ans, composée majoritairement de femmes (52,2 %). Parmi eux, 30,9 % présentait un IMC > 25 kg/ m², 17,2 % un TT augmenté, 9 % des TG élevés, 0,7 % un diabète, 21,6 % étaient fumeurs et aucun n'était hypertendu.
On observait une relation significative entre un diamètre aortique augmentée et un IMC élevé quel que soit le TG (pour IMC+/TG+ : p=0,0006, r= 0.158 ± 0.046 et pour IMC+/TG-, p<0,0001 et r=0.151 ± 0.024), et ce même après ajustement pour l'âge et le sexe pour le groupe IMC+/TG+ (p=0,005 et r=0.063 ± 0.023).

Conclusion. Un surpoids, de répartition androïde ou non doit faire rechercher une augmentation du diamètre de l'aorte abdominale 20 ans après quelle que soit l'évolution du statut pondérale.

Mots-Clés : Anévrysme aorte abdominale, Obésité

Facteurs de risque et type d'atteinte cardiovasculaire du sujet jeune exposé aux drogues. Étude rétrospective cas-contrôle sur 202 patients.

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Objectifs. La consommation de drogues est en constante augmentation dans la population française. Le risque cardiovasculaire des patients toxicomanes reste difficile à évaluer. L'objectif principal était de comparer chez les patients présentant une maladie cardiovasculaire (MCV) exposés ou non aux drogues le nombre de facteurs de risques cardiovasculaires (FDRCV) et de déterminer pour chaque groupe le type d'atteinte artériel.

Matériels et Méthodes. Nous avons réalisé une étude rétrospective cas-contrôle, comparant des patients exposés à une ou plusieurs drogues (groupe A) à une population contrôle de patients fumeurs (groupe B) ayant présenté une MCV et âgés de moins de 45 ans, au CHU de Nantes entre 2004 et 2014. Les patients exposés aux drogues seront appariés un pour deux pour l'âge de survenu de la MCV, le sexe et leur niveau de consommation de tabac.

Résultats. Deux cents deux patients ont été inclus dans cette étude, 68 dans le groupe A et 134 dans le groupe B. Le nombre moyen de FDRCV était significativement inférieur pour le groupe A avec (1,37 ±0,7 vs. 2,55 ±1, p <0,0001). La prévalence des accidents ischémiques cérébraux (AIC) [32,4 % vs. 18,7%, p=0,014] et l'artériopathie oblitérante des membres inférieurs [38,1 % vs. 9 %, p=0,004] étaient significativement plus fréquente dans le groupe A. De plus, les AIC d'origine vasospatique été plus important chez les patients du groupe A [9,1 % vs. 0%, p=0,03]. L'alcool été associée à une augmentation de l'atteinte athéromateuse vasculaire périphérique [42,1 % vs. 8,2 %, p=0,02], alors que le cannabis été plus souvent en lien avec à la survenue d'AIC [28,6 % vs. 0%, p=0,03] et les syndromes coronariens aigus vasospastique [25% vs. 0%, p=0,04]. Finalement, parmi les usagers de drogues il n'a pas été mis en évidence de différence significative entre les territoires artériels atteints.

Conclusions. L'exposition aux drogues semble favoriser une atteinte vasculaire plus rapide, diffuse et vasospastique par rapport aux patients non exposés. En regard de ces données, l'exposition aux drogues devrait être considérée comme un facteur de risque cardiovasculaire indépendant.

Mots-Clés : Drogues, Facteur de risque cardiovasculaire
Conflits d'intérêts : Déclaration d'intérêt : Les auteurs déclarent ne pas avoir de conflits d'intérêt en relation avec cet article.

Infarctus rénal : analyse rétrospective des causes d'une série de 186 cas sur 15 ans

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Introduction. Le mécanisme de l'infarctus rénal (IR) peut être général (embolique ou secondaire à un trouble de la coagulation) ou local par pathologie de l'artère rénale (AR). En l'absence de cause malgré un bilan exhaustif, l'IR est étiqueté idiopathique ». L'objectif de cette étude est d'analyser la fréquence des causes d'IR.

Patients et méthodes. Les patients atteints d'IR consécutivement admis entre juillet 2000 et juin 2015 ont été rétrospectivement identifiés à partir des comptes rendus des réunions de concertation pluridisciplinaires hebdomadaires. Les caractéristiques cliniques et biologiques des patients ont été extraites de notre base de données. L'imagerie de chaque patient a été relue en aveugle par 2 médecins, afin de confirmer le diagnostic d'IR et d'en déterminer la cause. En cas de discordance (n=39), l'imagerie a été relue en aveugle par un 3ème médecin spécialisé en radiologie vasculaire : sa conclusion a été retenue.

Résultats. 186 des 259 patients identifiés étaient analysables. Les aspects radiologiques les plus fréquents de l'AR étaient la dissection (n=76, 40.8%) et l'occlusion (n=75; 40.3%). Le mécanisme de l'IR était une pathologie intrinsèque de l'AR chez 151 (81.2%) patients, une maladie embolique chez 17 (9.1%) patients, un trouble de la coagulation chez 11 (5.9%) patients. Aucun mécanisme n'a été mis en évidence chez 7 (3.8%) patients. L'atteinte AR était plus fréquemment une maladie athéroscléreuse (MAS) (n=52, 34.4%) qu'un hématome disséquant (HD) (n=35, 23.2%) ou une dysplasie fibromusculaire (DFM) (n=29, 19.2%). La fibrillation auriculaire était l'étiologie la plus fréquente des IR cardio-emboliques. Les patients qui avaient un IR secondaire à une MAS étaient plus âgés, avaient plus de pathologies rénale ou cardio-vasculaire.

Discussion. Dans cette grande série, les IR étaient principalement dus à une pathologie intrinsèque de l'AR, plus fréquemment par MAS que par HD ou DFM.

Conclusion. Cette étude souligne l'importance d'une exploration artérielle exhaustive pour déterminer le mécanisme de l'IR et la maladie vasculaire sous-jacente, en cas de pathologie intrinsèque de l'AR.

Mots-Clés : Infarctus rénal, Dissection artérielle rénale
Conflits d'intérêts : Aucun

Étude de la rigidité artérielle chez les patients exposés au cannabis. Étude prospective sur 21 patients.

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Objectifs. La consommation de cannabis est connue pour favoriser l'apparition de maladies cardiovasculaires, mais leurs survenues restent difficiles à anticiper. La mesure de la rigidité artérielle est reconnue pour être un facteur de risque cardiovasculaire indépendant et précoce. L'objectif principal était de déterminer s'il existe une corrélation entre la vitesse de propagation de l'onde de pouls (VOP) et le niveau de consommation de cannabis. Secondairement les résultats ont été comparés à la population générale.

Matériels et Méthodes. Il a été réalisé une étude monocentrique prospective mesurant la vitesse de propagation de l'onde de pouls par SphygmocorÒ, chez des patients dépendant au cannabis venant consulter au CHU de Nantes entre 2015 et 2016. Les patients ne devaient pas présenter préalablement de maladies ou de facteurs de risque cardiovasculaire en dehors du tabac.

Résultats. Vingt et un patients ont été inclus dans cette étude dont 12 hommes (57,1%) et 9 femmes (42,9%). Le niveau moyen de consommation de cannabis était de 18,75 ± 6,8 paquets/année, de la VOP de 6,1 ± 1,5 m/s. L'augmentation du niveau d'exposition au cannabis était corrélée à la croissance de la VOP avec un test régression linéaire significatif ($r=0,75$, $p<0,0001$), confirmée en analyse multivariée ($t=4,33$, $p<0,0001$). En revanche le tabac n'était pas significativement corrélé à la VOP dans notre étude ($r=0,32$, $p=0,15$) ayant probablement un effet moindre. Comparé à l'évolution des valeurs dans la population générale en fonction de l'âge il existait une tendance à l'augmentation plus rapide de la VOP chez les patients consommateurs de cannabis avec une pente à 13,4% contre 8,9%. Finalement avant l'âge de 40 ans, il semble que la VOP soit diminuée chez les consommateurs ce qui peut s'expliquer par l'effet initialement bradycardisant et hypotenseur du cannabis qui s'estompe par un effet de tolérance.

Conclusion. Il a été mis en évidence pour la première fois que le niveau d'exposition au cannabis semble avoir une corrélation forte avec l'augmentation de la rigidité artérielle. Ceci suggère que le cannabis peut être à l'origine d'un phénomène d'artériosclérose accéléré. Ces données devront être confortées par l'inclusion d'un plus grand nombre de patients et la constitution d'un groupe témoin.

Mots-Clés : Cannabis, Rigidité artérielle

Echographie de contraste et suivi des artérites inflammatoires

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Objectif. La technique de l'échographie de contraste a montré dans certaines observations, une capacité à mettre en évidence certaines zones d'inflammation lors d'une poussée d'artérite inflammatoire, notamment à travers l'analyse de la paroi des vaisseaux artériels. Le peu de publications sur le sujet traitent de cas isolés. L'objectif de cette étude est d'évaluer, à travers le suivi d'une cohorte de 8 patients, si l'échographie de contraste pourrait être un marqueur de suivi d'activité pour les patients

atteints de maladies inflammatoires telles que le Takayasu, ou la maladie de Horton, en comparaison d'une surveillance par PET-scanner, et cela dans le but de moins irradier le patient.

Méthodologie. Il s'agit d'une étude pilote, prospective, réalisée au CHU de Nancy, sur une période de six mois, de janvier à juin 2016. Huit patients ont été inclus dans l'étude. Quatre patients étaient atteints d'une maladie de Takayasu, deux d'une maladie de Horton et deux cas d'athérome ont servi de témoins. Au total, quatre carotides communes, ont été analysées, deux axillaires, une sous-clavière et une carotide interne.
La mesure de la fixation en PET scanner a été effectuée par la mesure de SUV, et par la mesure de l'intensité des zones d'intérêt (ROI) en décibel pour l'échographie de contraste.

Résultats. Les épaisseurs intima-média variaient de 0,103 à 0, 309 cm. Le PET scanner fixait dans deux cas de maladie de Takayasu sur quatre, dans deux cas de maladie de Horton mais par contre dans aucun des deux cas d'athérome. En comparaison, l'échographie de contraste semblait tout aussi sensible puisque trois des quatre cas de Takayasu fixaient. De même, les deux cas de Horton prenaient le contraste avec cette technique. Finalement, il faut préciser que les deux cas d'athérome, à l'inverse du PET scanner, fixaient relativement bien en échographie de contraste, ce que nous avions déjà constaté dans la littérature.

Discussion. Le but final de l'étude sera de voir si après traitement, et dans le cadre du suivi, l'échographie de contraste serait une alternative moins irradiante et tout aussi performante que le PET-scanner pour vérifier l'efficacité des traitements par disparition de la fixation. Nos patients seront convoqués en juin afin d'en analyser les résultats.

Mots-Clés : Echographie de contraste, Takayasu

Les antécédents cardiovasculaires, facteur de mauvais pronostic local chez les patients en ischémie critique : registre COPART

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Introduction. L'ischémie critique chronique (ICC) des membres inférieurs correspond à l'atteinte la plus sévère de l'Artériopathie Oblitérante des Membre Inférieurs (AOMI). L'importante corrélation qui existe entre l'AOMI et la morbimortalité cardio-vasculaire (CV) a déjà été démontrée. Nous avons émis l'hypothèse que la présence des antécédents CV (ATCD CV) a un rôle pronostic défavorable pour le devenir à un an des sujets en ischémie critique.

Matériel et méthodes. L'étude réalisée est une étude prospective et descriptive, basée sur les données du registre COPART (COhorte des Patients ARtériopathes). Cette base de données regroupe l'ensemble des sujets AOMI pris en charge aux CHU de Toulouse, Bordeaux et Limoges depuis 2006. Le diagnostic d'ICC a été retenu en cas de troubles trophiques ou des douleurs de décubitus évoluant depuis plus de 2 semaines associés à une pression en cheville <50mmHg et/ou pression d'orteil < 30 mmHg. Les ATCD CV retenus ont été le syndrome coronarien aigu, l'accident vasculaire cérébral et l'accident ischémique transitoire.
Résultat. Sur les 2520 sujets inclus, 1160 (âge moyen 72 ans, 70% hommes) ont été pris en charge pour une ischémie critique (46% de la population) dont 470 présentant des ATCD CV.

L'évolution locale, définie comme une amputation majeure a été plus défavorable (13,4%) chez les sujets avec des ATCD CV comparée à celle des sujets sans ATCD CV (8,8%) (p=0,0498). Cette influence des ATCD CV reste significative même après ajustement à tous les facteurs confondants (facteurs de risque CV, comorbidités associées) (OR : 1,56 ; 95%CI : 1-2,43 ; p=0,049).
Parallèlement, la présence ou non des ATCD CV ne semble pas avoir d'influence sur la mortalité à un an des sujets en ischémie critique (OR:1,4; 95% CI : 0,993-1,95 ; p=0,57).

Conclusion. La prise en charge des sujets en ischémie critique doit être globale et pluridisciplinaire car les comorbiditées cardiovasculaires associées semblent jouer un rôle important dans le devenir local.

Caractéristiques cliniques et méthode diagnostique devant une dissection extra-neurologique inexpliquée : 15 cas de diagnostic de segmental arterial mediolysis

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Introduction. La "segmental arterial mediolysis" (SAM) est une entité clinique initialement décrite par l'histologie constatée après dissection, sur des pièces chirurgicales ou des autopsies, mais dont les caractéristiques cliniques sont désormais connues. La survenue de dissections inexpliquées fait discuter ce diagnostic avec des données d'imagerie assez clairement établies.

Objectif. Dans une série de patients ayant présenté des dissections inexpliquées, rechercher les patients répondant aux critères du diagnostic de SAM.

Méthodologie. Etude monocentrique, rétrospective depuis 2008, analysant les patients porteurs de dissections non traumatiques, spontanées et inexpliquées après un bilan étiologique standard, avec confrontation aux données d'imagerie.

Résultats. Une série de 15 patients d'âge moyen de survenue à 44ans, avec 13 hommes et 2 femmes, répondent aux critères. La dissection concerne les artères digestives dans 11 cas et rénales pour 4 cas. L'artère la plus souvent touchée est le tronc coeliaque (6cas, dont 3 en association à l'artère hépatique qui est touchée dans 1 cas de manière isolée), puis l'artère mésentérique supérieure dans 4 cas. Les artères rénales concernées sont dans 3 cas la droite et 1 cas d'atteinte bilatérale. Le patient n'a pas de facteur de risque dans 7 cas, un tabagisme dans 7cas et une HTA dans 1cas, sans antécédent familial (1 recherche génétique de Marfan négative). L'imagerie comporte toujours une association de scanner et d'échographie. L'évolution est toujours favorable, avec une récidive dans 2 cas. Le traitement proposé comporte toujours l'aspirine, parfois précédé d'une période d'anticoagulant (4 cas) et associé au Celiprolol dans 3 cas.

Conclusion. Le SAM est une entité clinique rare, se manifestant par une dissection d'artère digestive ou rénale le plus souvent, en l'absence d'athérome et avec peu de facteur de risque, même si la moitié des patients sont fumeurs et très majoritairement masculins. Les caractéristiques d'imagerie doivent être connus avec une atteinte brutale, distale et à distance des bifurcations en l'absence de dysplasie des

parois. Le pronostic est excellent, permettant de rassurer les patients. Une meilleure description clinique des patients et leur suivi à long terme devrait permettre de préciser les critères diagnostiques et les modalités de prise en charge.

Mots-Clés : Dissection, segmental arterial mediolysis

Augmentation de la vitesse de marche de patients avec claudication intermittente sur AOMI après 20 séances de rééducation supervisée à la marche.

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Introduction. La claudication à la marche au cours de l'artérite oblitérante des membres inférieurs (AOMI) est un motif fréquent de consultation en médecine vasculaire. La place de la rééducation supervisée à la marche en plus du traitement médical associant antiagrégant plaquettaire, statine et inhibiteur de l'enzyme de conversion (IEC) ou un antagoniste des récepteurs de l'angiotensine 2 (ARA2) n'est plus à démontrer et fait l'objet d'une recommandation IA (ESC 2011). En revanche, de nombreuses variantes dans le rythme et la durée du programme ont été publiées, pouvant s'étaler jusqu'à 6 mois. Plus réaliste, nous avons développé un programme de rééducation en groupe composé de 20 séances étalées sur 5 semaines dont nous présentons les premiers résultats.

Méthode. Description des résultats d'un programme de rééducation comportant 20 séances de rééducation supervisée à la marche réparties en 4 jours par semaine pendant 5 semaines. La marche sur tapis roulant s'effectue à chaque séance à raison de 30 minutes de marche à vitesse constante et en l'absence de pente, après 10 minutes d'échauffement, suivie de 10 minutes de récupération. La vitesse initiale choisie correspond à 80% de la vitesse du test de marche de 6 minutes (TM6). Elle est augmentée de 5% toutes les 2 séances, sauf si le patient préfère effectuer un pallier ou s'il se sent capable d'augmenter plus vite.

Résultats. 27 patients dont 23 (85%) hommes, d'âge moyen ± écart type 63,6±12,3 ans. Un diabète associé est présent pour 6 (22%) patients. Le LDL-cholestérol est de 2,57±1,0 mmol/L avec 42% à l'objectif (LDL-c<1,8mM). Fonction rénale normale chez 55% des patients avec un débit de filtration glomérulaire à 88,7±20,7 mL/min/1,73m2. L'index de masse corporelle est de 26,9±4,7 kg/m2, témoin d'un surpoids. Tous les patients avaient dans leur traitement une statine, un IEC ou ARA2, un antithrombotique. L'abandon du programme a concerné 4 (15%) des patients. Entre le début et la fin du programme, pour les 23 patients évaluables, le TM6 est passé de 349±86m à 393±68m soit une augmentation de 15%, la vitesse de survenue de la gêne à la marche est passée de 4,5±0,9 à 6,4±1,0 km/h soit +43%, enfin, la vitesse de marche sur tapis roulant pendant 30 minutes sans arrêt est passée de 2,6±0,9 à 3,9±1,1 soit +57%.

Conclusion. Tous les patients qui ont été au bout des 20 séances de rééducation supervisée à la marche ont tiré bénéfice du programme avec une augmentation moyenne de 15% du TM6 et de 43% de la vitesse maximale avant gêne. La progression de la vitesse de marche sur tapis au fil des séances a été en moyenne de +57%. Ces résultats témoignent une fois de plus du bénéfice d'un programme de rééducation supervisée à la marche au stade de claudication à la marche de l'AOMI. Nous rapportons ici un programme réalisable sur 20 séances journalières. A noter un abandon chez 15% des patients, mais une satisfaction pour 100% de ceux ayant terminé le programme. L'évaluation des bénéfices à 6 et 12 mois est une étape qui sera nécessaire pour valider le schéma de ce programme.
Mots-Clés : Claudication intermittente, Programme de rééducation à la marche
Conflits d'intérêts : aucun

Purpuras localisés révélateurs d'une infection vasculaire

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Les infections vasculaires sur matériel prothétique ou sur artère native sont rares, mais leur pronostic reste sombre, en raison des difficultés diagnostiques et du risque thrombotique associé. Les présentations cliniques et microbiologiques diffèrent selon le délai d'apparition de l'infection et le mode de contamination.
Rapporter des présentations cliniques atypiques d'infection vasculaire.
Nous rapportons deux cas.
Cas N°1 : un patient de 52 ans présente une infection de prothèse ilio fémorale droite à Staphylocoque aureus, 7 ans après son implantation, révélée par un purpura vasculaire localisé du membre inférieur en contexte septique, sans arguments pour une ischémie distale. Le scanner évoque une infection de l'anastomose terminale de sa prothèse avec un thrombus endoluminal et une collection extra vasculaire. La porte d'entrée n'est pas objectivée et le patient s'améliore sous antibiothérapie, permettant une prise en charge chirurgicale dans un délai de 15 jours. L'histologie retrouve un aspect inflammatoire péri prothétique et confirme la nature du germe. Après un démontage de prothèse, une revascularisation extra anatomique par greffon veineux et une antibiothérapie de 6 semaines, l'évolution est favorable.
Cas N°2 : un patient de 65 ans hospitalisé en réanimation pour un sepsis sévère avec purpura fébrile du membre inférieur gauche, dont le bilan met en évidence une arthrite du genou gauche à Streptocoque pyogenes sans porte d'entrée retrouvée. Malgré l'absence de signe vasculaire, un doppler artériel des membres inférieurs est demandé pour écarter une étiologie embolique, chez ce patient sans antécédent vasculaire en dehors d'une hypertension artérielle. Cet examen objective un anévrisme poplité haut, d'aspect ancien, calcifié et partiellement thrombosé, en regard du genou infecté. Le scanner atteste de l'évolution septique de cet anévrisme sacciforme devant un réhaussement médio adventitiel. Son évolution est rapide avec un doublement de son volume en deux semaines, confortant l'hypothèse d'un anévrisme infecté et conduisant à une prise en charge chirurgicale précoce.
Ces deux cas suggèrent l'intérêt de réaliser un écho doppler artériel devant un tableau de purpura segmentaire septique, afin d'éliminer une infection vasculaire sur artère native ou sur matériel prothétique, et cela même en présence d'un autre foyer infectieux.

Mots-Clés : Infection vasculaire, Purpura
Conflits d'intérêts : Aucun

Recherche par échographie doppler d'une sténose de l'artère rénale : recommandations et facteurs prédictifs de la présence d'une sténose serrée : analyse de 450 examens consécutifs

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Objectif. La présence d'une sténose des artères rénales représente la première cause d'hypertension artérielle secondaire. Elle serait responsable de 5 à 10% des insuffisances rénales terminales. L'échographie doppler, est un des examens clés du diagnostic. Cette étude a pour but de rechercher si les indications des examens sont conformes aux recommandations des sociétés savantes pour réaliser cet examen.
Les objectifs secondaires sont de rechercher si la conformité aux recommandations était un facteur prédictif de présence de SAR, quel type de recommandation est prédictif de sténose, et quels sont les facteurs prédictifs de présence d'une SAR autres que les recommandations

Matériel et méthodes. Nous avons analysé rétrospectivement 450 échographies doppler des artères rénales consécutifs, réalisés dans le cadre du dépistage de sténoses des artères rénales (SAR) du 1er janvier 2014 au 31 décembre 2015 au Centre Hospitalier Universitaire Lyon Sud.
Les recommandations retenues étaient celles dictées par quatre sociétés savantes : l'Anaes en 2004, la société américaine d'Echographie et la société de médecine et de biologie vasculaire en 2006, l'European Society of Cardiology en 2011 et le collège américain de cardiologie et l'American Heart Association en 2013. Elles concernaient l'HTA (HTA non contrôlée malgré un traitement anti-hypertenseur bien conduit avec au minimum 3 anti-hypertenseurs dont 1 diurétique, HTA associée à une hypokaliémie, HTA d'aggravation brutale, HTA apparue avant 30 ans, HTA maligne, présence d'un souffle lombaire ou abdominal, OAP flash répétés c'est-à-dire la survenue de deux épisodes minimum en 6 mois), l'IR (aggravation d'une IR après instauration d'un traitement bloqueur du système rénine angiotensine avec une augmentation de la créatinémie ≥30%, IR inexpliquée) et des critères morphologiques (asymétrie rénale ≥1.5cm, hypotrophie rénale inexpliquée ≤8 cm).

Résultats. Parmi les examens réalisés, 212 avaient au moins une indication répondant aux recommandations, soit 47.1%.Une sténose ≥75% a été découverte chez 18 patients, soit une prévalence de 4.0%. Parmi les 18 examens pathologiques, 17 répondaient au moins à une recommandation, soit 94.4%.
Les facteurs prédictifs de SAR étaient la présence d'une indication répondant à au moins une recommandation (OR=21.86, [2.88 - 165.8]). Parmi les recommandations liées à l'HTA, trois recommandations étaient des facteurs prédictifs de sténose : l'HTA non contrôlée malgré 3 antihypertenseurs dont un diurétique (OR=3.85, [1.44 -10.33], p=0.011), l'HTA d'aggravation brutale (OR=7.30, [1.40 - 37.99], p=0.049) et les OAP flash répétés (OR= 7.30, [1.40 - 37.99], p=0.049). Parmi les recommandations liées à l'IR, seule l'IR inexpliquée était un facteur prédictif statistiquement

significatif de SAR (OR=3.58, [1.37 - 9.37], p=0.011). Les deux recommandations liées à la morphologie rénale sont des facteurs prédictifs de SAR statistiquement significatifs : l'hypotrophie rénale inexpliquée (OR=16.69, [4.38 - 63.69], p<0.001) et l'asymétrie rénale (OR= 4.32, [1.45 - 12.85], p<0.016).
Les autres facteurs prédictifs de SAR recherchés tels que l'âge, le sexe, l'HTA, l'IR, le diabète, les antécédents de coronaropathie et d'atteintes artérielles périphériques n'apparaissent pas comme des facteurs prédictifs de SAR.
Les conséquences thérapeutiques de ces examens ont été peu nombreuses : pas de modification du traitement médical déjà optimal, 10 dossiers discutés en RCP d'angioplastie, 4 patients ayant effectivement une intervention.

Conclusion. Notre étude illustre la pertinence des recommandations. La réalisation d'EDAR doit être limitée aux patients ayant au moins une recommandation diminuant les examens inutiles dans un souci d'économie de santé. Une meilleure diffusion de ces recommandations auprès des prescripteurs est nécessaire.

Mots-Clés : sténose des artère rénale, échographie doppler
Conflits d'intérêts : aucun

Progression de l'athérome carotidien et évènements vasculaires : données prospectives d'une cohorte de sujets diabétiques

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Objectif. Le diabète est un facteur de risque d'athérome carotidien dont la progression est associée à un risque accru d'événements vasculaires. Toutefois aucune étude spécifique n'a été faite chez les sujets diabétiques. Nous avons évalué de façon prospective monocentrique par écho-doppler artériel la progression de l'athérome carotidien d'une cohorte de patients diabétiques afin d'évaluer l'importance de la progression et d'en identifier des facteurs prédictifs mais aussi d'analyser le lien entre cette progression et les évènements vasculaires.

Patients et méthodes. Sur 732 patients diabétiques ayant bénéficié d'un écho-doppler en 2012, 63% ont déjà pu être recontrôlés entre 2014 et 2016. Les dopplers carotidiens étaient cotées en 3 catégories : normaux, sténose carotidienne < 50% en critères vélocimétriques et sténose carotidienne ≥ 50%, une progression étant définie par un changement de catégorie. Un recueil des données démographiques, des traitements, des facteurs de risque cardio-vasculaires a été réalisé en 2012 et en fin de suivi ainsi qu'un relevé des évènements vasculaires survenus pendant la période de suivi.

Résultats. En 2012, 31,3% des patients présentaient un doppler normal, 64,7% une sténose carotidienne < 50%, et 4,1% une sténose carotidienne ≥ 50%. Un traitement par statine était présent dans 71,5% des cas, par antiagrégant plaquettaire dans 58,5% et par bloqueur du système rénine-angiotensine dans 77% des cas. Les données préliminaires sur 460 patients montrent une progression dans 3,2% des cas avec un suivi moyen de 2,9 années. Un patient a bénéficié d'une revascularisation carotidienne. Un événement vasculaire est survenu chez 6,0% des patients soit 2,1%/an. Il y a eu 20%

(n=3) d'évènements cardiovasculaires chez les patients qui progressent; contre 6,5% (n=29) d'évènements chez les patients non progresseurs.

Conclusion. Ces données préliminaires sur une cohorte de patients diabétiques avec initialement un traitement cardio-protecteur le plus souvent optimisé montrent une faible progression des lésions athéromateuses carotidiennes mais un taux d'évènements vasculaires élevé de 2,1% par an. Ces résultats semblent montrer un sur risque d'évènement cardiovasculaire chez les patients avec un athérome carotidien qui progressent mais cela nécessite d'être confirmé sur l'ensemble de la cohorte.

Mots-Clés : Athérome carotidien, evènement cardiovasculaire

08h30-10h30 - TETE D'OR 2

Session 2 de communications orales SFMV : Pathologie veineuse et lymphatique
SFMV oral free paper session 2 : Venous and lymphatic pathology

Prise en charge de la thrombose veineuse superficielle spontanée aiguë symptomatique des membres inférieurs de l'adulte en médecine vasculaire libérale

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Contexte. La thrombose veineuse superficielle (TVS) est une affection commune souvent associée à une TVP ou à une embolie pulmonaire (EP) ou qui peut se compliquer d'une TVP/EP en l'absence de traitement approprié. Dans le cadre du remboursement de fondaparinux dans le traitement de la TVS, la Commission de la Transparence a souhaité connaitre ses modalités de prise en charge en médecine vasculaire ambulatoire.

Objectifs. Décrire les caractéristiques des patients (démographiques, antécédents médicaux et caractéristiques échographiques du thrombus) traités pour une TVS spontanée aiguë symptomatique des membres inférieurs de l'adulte sans TVP associée, et évaluer l'incidence des récidives d'évènements thromboemboliques veineux (ETV) et des événements hémorragiques majeurs sous traitement, selon la prise en charge thérapeutique initiale.

Méthode. PERSEUS était une étude de cohorte observationnelle française, qui devait porter sur 1.000 patients adultes atteints d'une TVS spontanée aiguë symptomatique des membres inférieurs sans TVP associée, avec un bilan de suivi à 3 mois.

Résultats. 144 médecins vasculaires libéraux ont inclus 1.069 patients entre le 1er juillet 2014 et le 29 février 2015, dont 978 suivis à 3 mois. L'âge moyen des patients était de 63,3 ans, avec 62,9% de femmes, 27,3% d'obèse, 92,8% avec des veines variqueuses, 34,2% avec des antécédents de TVS,

17,8% de TVP ou EP. 75,2% ont été traités par le fondaparinux, 13,0% par héparine ou HBPM. 78,1% des patients traités par fondaparinux ont reçu une dose de 2,5 mg et 4,4% ont reçu une dose de charge pendant moins de 7 jours avant de recevoir 2,5 mg. La durée médiane du traitement par fondaparinux était de 34 jours. Six patients traités par fondaparinux ont eu un ETV durant la période de traitement, 3 extensions de TVS, 2 récidives de TVS et une TVP, soit une incidence des ETV de 0,8% (IC95% = 0,3%-1,8%). Aucun événement hémorragique majeur n'a été déclaré durant l'étude quel que soit le traitement.

Discussion-Conclusion. Dans cette étude en vie réelle, l'incidence des ETV était similaire à celle de l'essai thérapeutique randomisé Calisto (0,9%) malgré une population plus âgée, une fréquence plus importante de facteurs de risque d'ETV, ainsi que d'antécédents de TVS et de TVP ou EP. Cette prévalence importante d'antécédents montre le caractère récidivant des TVS et que les TVS s'inscrivent bien comme une forme clinique de maladie thromboembolique veineuse.

Mots-Clés : Thrombose veineuse superficielle, Etude observationnelle
Conflits d'intérêts : Aucun

Facteurs de risque de récidive clinico biologique et échographique de la maladie thromboembolique veineuse après un premier épisode de thrombose veineuse profonde proximale.. Résultats d'une étude prospective sur 195 patients

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Introduction. La durée optimale du traitement anticoagulant après un premier événement thromboembolique veineux n'est pas encore clairement établie. Une meilleure connaissance des facteurs de risque de récidive et leur importance respective permettrait d'optimiser de façon individuelle la durée du traitement et limiter la survenue de récidive.

Patients et méthodes. Une étude prospective ville hôpital a inclus les patients présentant un premier épisode de thrombose veineuse profonde proximale avec ou sans embolie pulmonaire traité par 3 ou 6 mois d'anticoagulant avec réalisation à l'arrêt du traitement d'un échodoppler des membres inférieurs standardisé évaluant les séquelles et la dévalvulation et un mois après l'arrêt du traitement d'une consultation clinique, du dosage de D dimères, d'un test de génération de thrombine, de recherche de facteurs de thrombophilie biologique (antithrombine, protéine C, protéine S, facteur V leiden, facteur II, antiphospholipides). Les patients ont été suivis trois ans après leur inclusion.

Résultats. 216 patients ont été inclus de 2003 à 2011, suivi jusqu'en 2014. 5 patients ont été exclus et 16 perdus de vue, permettant l'analyse de 195 patients. La population comporte 115 femmes (58,7%) et 80 hommes (41,3%) d'âge moyen 59,6 +/- 18,1 ans. Le poids moyen est de 74, 1 +/- 16,2 kg avec 19,4 % avec un IMC supérieur à 30. 103 patients avaient un épisode non provoqué (groupe 1) et 92 avec facteurs de risque (groupe 2). 53 patients avaient une embolie pulmonaire (EP) associée, 37 dans le groupe 1 et 16 dans le groupe 2. Les facteurs de risque transitoires étaient une chirurgie datant de moins

de 3 mois chez 22 patients, une fracture ou un traumatisme de moins de 3 mois chez 33 patients, une immobilisation prolongée (plâtre ou attelle des membres inférieurs ou voyage en avion de plus de 6 heures ou alitement) dans 51 cas, la grossesse et post partum dans 9 cas et l'introduction depuis moins d'un an d'un oestroprogestatif chez 12 patientes. 31 patients (soit un tiers) avaient plusieurs facteurs déclenchants.
La durée du traitement a été de 6 mois chez 72 des 103 épisodes spontanés (72,8 %) et 3 mois chez 38 des 92 épisodes avec facteurs de risque (41,3%), conformément aux recommandations. La durée du traitement a été de 3 mois chez 15 patients (14,5%) avec épisode spontané et de 6 mois chez 47 (51%) patients avec facteurs declenchants transitoires. 14 des 47 avec une EP associée. L'élasto compression a été prescrite chez tous les patients et portés par 161 soit 82 ,5 % d'entre eux. 24 patients (12,7%) ont présentés une récidive thrombotique au cours du suivi de 3 ans, 19 dans le groupe 1 et 5 dans le groupe 2.
Le second épisode thrombotique est non provoqué dans 18 cas sur 24 (75%). 6 ont récidivé au cours de circonstances favorisantes : 4 post chirurgicales, 1 sur immobilisation et 1 pendant une grossesse. Ces 6 patients avaient tous un premier épisode spontané. La localisation des récidives est proximales isolés dans 3 cas, proximales et distales dans 6 cas, proximales avec EP dans 2 cas, proximales et distale avec EP dans 1 cas, distales isolées dans 9 cas et EP isolée dans 2 cas. Les 2 patients récidivant sous forme d'EP isolée avaient présenté une EP lors du premier épisode. La récidive est homolatérale au premier épisode chez 6 patients, controlatérales chez 12 patients et bilatérale chez 3 patients.
Plusieurs facteurs cliniques ont été associés à un risque de récidive thrombotique durant les 3 années de suivi : le sexe masculin (OR= 3,34; p = 0,0079) l'IMC>30 (OR=4.51; p=0,0012) et le caractère spontanée de la première thrombose (OR=3.35;p=0,0107).
Un taux élevé de d dimères (> 500 ng/ml) 1 mois après l'arrêt du traitement anticoagulant était associé à un risque de récidive de MTEV de 3.75 (p=0,011) ainsi qu'une élévation de l'ETP supérieur à 1900 nM.min OR = 2.96 (p+0.022).
Aucun des thrombophilies génétiques n'est apparu comme facteur de risque de récidive, trop faiblement présente dans la population étudiée. La présence de séquelles à l'echodoppler de contrôle n'a pas été contributive, présente chez 91 patients soit 46,6% et 11 soit 46 % des patients récidivants.
Conclusion. La meilleure connaissance des facteurs de risque et de leur importance dans le risque de récidive est une étape indispensable dans la décision thérapeutique. La réalisation d'un score prédictif individuel combinant ces différents paramètres est en cours d'évaluation dans notre service.

Mots-Clés : Maladie thromboembolique veineuse, Epidémiologie

L'INR dans la surveillance du traitement Antivitamine K : conception et évaluation d'un outil et d'une fiche pédagogique destinés aux patients

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Contexte. Dans notre établissement, la prescription hospitalière d'un traitement AVK s'accompagne d'un entretien-patient par des intervenants formés (pharmaciens, internes et étudiants en pharmacie, infirmières). Pour autant, la notion d'*International Randomized Ratio* (INR) cible et les modalités de surveillance biologique restent partiellement acquises par les patients. Si ces points sont abordés dans les carnets d'information AVK, il semble nécessaire d'apporter un support pédagogique illustré et

complémentaire pour améliorer la compréhension des patients. Dans une démarche éducative, deux supports pédagogiques portant sur la surveillance biologique des AVK ont été élaborés puis évalués par les patients.

Méthode. L'outil pédagogique avait pour objectif d'illustrer l'INR cible par rapport aux risques d'accidents hémorragiques et de récidives thrombotiques sous forme d'une roue en dégradé associé à un curseur mobile. En complément, une fiche d'information illustrée reprenait les éléments clés de la surveillance (INR, objectif thérapeutique, modalités pratiques du contrôle biologique dans le temps). L'outil pédagogique et le tryptique d'information ont été validés par un comité d'experts (médecins/pharmaciens/infirmières) puis évalués par entretien semi-dirigé auprès des patients hospitalisés. L'évaluation avait pour objectif de tester le fond ainsi que la forme des outils.

Résultats. 30 entretiens ont été conduits durant 3 mois. 13 patients débutaient un traitement AVK. Environ 80 % des patients ont jugés « très utile » l'outil pédagogique (n=23) et la fiche d'information (n=24) et apportant des informations complémentaires. Les illustrations sur l'INR cible et le calendrier des contrôles étaient appréciées (n=28 ; n=24). L'évaluation globale (présentation et contenu) exprimée par une note sur 10 était satisfaisante (outil 8,9/10 ; plaquette 8,6/10). Les commentaires des patients nous ont permis de personnaliser le tryptique, de reformuler les messages clés et de réduire le contenu de certains paragraphes.

Discussion - conclusion. Ce travail original s'inscrit dans une démarche d'amélioration pluridisciplinaire des pratiques. Depuis, l'outil a été intégré dans la conduite des entretiens et la fiche d'information est remise au patient avec le carnet AVK. Ces nouveaux outils pédagogiques pourront être diffusés plus largement au sein de notre institution et faire l'objet d'une évaluation de leur impact clinique sur la gestion de l'INR.

Mots-Clés : Antivitamine K, Entretien

Evaluation de l'obstruction veineuse résiduelle associée au DASH score dans l'estimation du risque de récidive de MTEV à l'arrêt du traitement

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Rationel. La durée optimale du traitement anticoagulant en cas de MTEV non provoquée reste débattue. Des scores d'estimation du risque de récidive ont été proposés, mais leur pertinence reste discutée. Une autre approche pour prédire le risque de récidive repose sur l'évaluation de la thrombose résiduelle, mais les résultats en termes de pertinence restent contrastés. L'association de la thrombose résiduelle à un score de probabilité clinique n'a jamais été évaluée.

Objectif. Notre étude évalue l'intérêt de l'estimation de l'obstruction veineuse résiduelle associée au DASH score dans l'estimation du risque de récidive de MTEV à l'arrêt du traitement anticoagulant

Méthodes. Nous avons conduit une étude prospective de patients présentant une TVP proximale. A la fin du traitement, une exploration ultrasonore complète était réalisée. Le DASH score a été calculé rétrospectivement. Le critère de jugement principal était la récidive de MTEV.

Résultats. 222 patients ont été inclus, dont 169 ont été évalués à la fois par le DASH score et l'échographie veineuse. Pour les DASH score ≤ 1, le taux annuel de récidive à l'arrêt du traitement était de 2.7% (95% CI 1.1-6.6) versus 6.7% (95% CI 3.5-12.8) pour DASH > 1. A la fin du traitement, 127 patients présentaient une thrombose résiduelle. Le taux de récidive était plus élevé dans le groupe avec séquelles (7.3%, 95% CI 4.5-11.9 vs 4.3%, 95% CI 1.9-9.5 en l'absence de sequele). L'item "séquelles" a ensuite été intégré au DASH score. Un DASH score > 1 et pas de séquelles avait un taux de récidive de 2.1% (95% CI 0.3-15.1), similaire à celui observe dans le groupe faible risque défini par un score DASH ≤ 1 seul (2.7% (95% CI 1.1-6.6). En prenant en compte l'absence de séquelle combine au DASH score, 24 patients (33% des risques élevés) ont été reclassés en faible risqué.

Conclusion. L'intégration de l'obstruction veineuse résiduelle échographique au score clinique DASH permet une meilleure caractérisation des patients à faible risque de récidive.

Mots-Clés : DASH score, ultrasond

Quantification de la corona phlebectatica dans l'optique d'études longitudinales: le potentiel de l'analysée automatisée d'images

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Objectif. La corona phlebectatica témoigne d'une pression veineuse distale élevée, elle marque le stade précoce d'insuffisance veineuse chronique. En matière d'affection veineuse chronique, les études longitudinales, d'ordre épidémiologique ou thérapeutique, sont longues et difficiles. La corona phlebectatica peut être un signe clinique utile à quantifier pour pallier les aléas de ces études. L'analyse automatisée de photos numériques rend possible cette approche clinimétrique ; cependant, aucune méthode n'a encore été validée. Notre but était d'évaluer la validité clinique et la reproductibilité de la quantification des surfaces des télangiectasies bleues (TB) à la cheville et au pied recueillies par une technique photographique normalisée.

Méthode. Les images sont obtenues grâce à un dispositif de prise de vue spécialement conçu permettant un positionnement reproductible du pied. Ce dispositif est muni d'un système d'éclairage normalisé et d'un appareil photo avec un objectif 14-50mm et une résolution de 10MP. L'analyse d'image a été effectuée au moyen d'un outil développé en utilisant des algorithmes optimisés pour la détection et la quantification des TB et de leur surface relative par rapport à la surface de la région d'intérêt. La validité clinique a été définie comme la corrélation entre les paramètres mesurés et la classe CEAP C chez 32 patients (25 femmes - 7 hommes, âge médian: 69 ans) en cure thermale pour insuffisance veineuse. Les reproductibilités inter-et intra-observateur ont été testées dans un sous-groupe de 10 patients et exprimées par la valeur médiane et le 9ème décile de la variation relative.

Résultats. Les surfaces des TB augmentaient de façon significative avec la classe C (r=0,36, p<0,005). La médiane des variations était de 4% (9ème décile: 14%) en intra-observateur et de 12% en inter-observateurs (23%).

Conclusion. La quantification de la corona phlebectatica par notre technique de recueil et d'analyse d'image fournit des paramètres pertinents avec une bonne reproductibilité à court terme. La reproductibilité à plus long terme reste à évaluer avant d'utiliser cette technique dans des études longitudinales

Mots-Clés : Corona phlebectatica (ankle flare), Quantification Clinimétrie
Conflits d'intérêts : Pas de conflit d'intérêt avec l'objet de la recherche.

Registre SFMV - ODPC MV des procédures de traitement endo-veineux thermique des incontinences de la veine grande saphène ; à propos de 1100 procédures.

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Objectifs. Analyser les conditions de réalisation et la sécurité des procédures endoveineuses thermiques dans la vraie vie.

Méthode. Analyse des données du registre prospectif, mis en place en 2015 par la SFMV et l'ODPC MV, et recueillies à l'aide un formulaire d'inclusion et un formulaire de suivi (contrôle précoce à moins d'1 mois). 52 médecins participants ont inclus 1121 procédures (mai 2016).
Résultats. 2/3 des procédures concernent des femmes, avec des diamètres de saphène de 5 à 8 mm dans 67 % des cas. ¾ des procédures sont effectuées par radiofréquence, 1/4 par laser endo-veineux.
Les actes sont réalisés pour 75 % au bloc opératoire, dans 84 % des cas avec une anesthésie locale par tumescence, utilisant le plus souvent la lidocaïne sans adrénaline, complétée dans 36 % des cas par une neurolept-analgésie. 90 % des procédures ne posent aucun problème technique.
Seuls 15 % des actes sont associés à une phlébectomie, et 5 % à une sclérothérapie. Dans 94 % des cas la procédure dure moins d'une heure, et la durée de surveillance post procédure est de moins de 90 mn dans 2/3 des cas.
L'occlusion précoce de la veine saphène est constamment obtenue, et les difficultés techniques de procédures exceptionnelles.
84 % de ces procédures ne donnent lieu à aucun arrêt de travail. Même si les thrombus de la jonction sont très rarement observés, une anticoagulation préventive a été proposée dans 1/3 des cas. Les ecchymoses constituent le principal événement indésirable constaté lors du suivi précoce (moins d'1 mois).

Conclusion. Le traitement endo-veineux thermique des incontinences de la veine grande saphène est une procédure sure. Les complications potentielles et les très rares complications observées sur plus de 1100 procédures colligées laissent penser qu'un environnement hors bloc opératoire est envisageable. La réalisation de plus de ¾ des procédures au bloc opératoire apparait en effet plus conditionnée par le choix des tutelles (avis HAS 2008 réactualisé en 2013) que par le risque réel de ces procédures.

Mots-Clés : Traitement endo-veineux thermique, Registre SFMV ODPC-MV

Taux élevés de métallo-protéases matricielles dans le processus cicatriciel des plaies chroniques - Revue des preuves cliniques

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Malgré une prise en charge optimale, le processus cicatriciel des plaies chroniques reste encore très long. Parmi les différents facteurs identifiés comme pouvant générer un retard de cicatrisation, les modifications du taux des métallo-protéases matricielles (MMPs) a fait l'objet ces dernières années d'un nombre croissant d'études cliniques.

Objectif. Réaliser une revue des preuves cliniques rapportant une élévation des taux de MMPs dans les plaies chroniques, notamment les ulcères de jambe et discuter de sa répercussion.

Méthode. Une revue systématique des essais cliniques évaluant les taux de MMPs dans les plaies chroniques.

Résultats. Plus de 50 études cliniques ont été analysées. On constate une hétérogénéité importante des taux de MMPs. Cependant, les plaies chroniques de diverses étiologies – même celles de bon pronostic – présentent en moyenne des taux de protéases plus élevés que dans les plaies aigües. Des taux élevés de MMPs peuvent même précéder l'apparition des plaies chroniques. Les taux initiaux élevés de MMPs documentés dans les plaies chroniques sont significativement corrélés à un retard de cicatrisation, et ces taux ont tendance à diminuer quand les plaies reprennent une bonne trajectoire cicatricielle. A ce jour, il n'y a toujours pas de consensus sur la meilleure valeur seuil de MMPs qui serait prédictive de la cicatrisation des plaies.
Conclusion. Un taux élevé de métallo-protéases dans les plaies chroniques impacte négativement le processus cicatriciel. Des travaux complémentaires évaluant les délais optimaux de cicatrisation des plaies et l'efficacité des traitements modulateurs des protéases seraient particulièrement intéressants.

Mots-Clés : Métallo-protéases matricielles, Plaies chroniques

Prise en charge des plaies chroniques avec les pansements inhibiteurs des protéases : une évaluation basée sur plus de 13 000 plaies traitées par des professionnels de santé en France et en Allemagne

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Introduction. Alors que les essais cliniques contrôlés randomisés sont les « gold standard » pour démontrer l'efficacité de nouvelles stratégies thérapeutiques, l'extrapolation de leurs résultats à

l'ensemble de la population générale est souvent difficile. Pour répondre à cette problématique, un large programme d'études cliniques non interventionnelles a été conduit depuis la mise à disposition des pansements inhibiteurs des protéases (*Urgostart®*).

Méthode. Neuf études observationnelles ont été conduites en France et en Allemagne entre 2007 et 2012. Ces études ont inclus une population sélectionnée sur des critères larges et la prise en charge de la plaie était laissée à l'appréciation du soignant. Dans toutes les études, l'aspect de la plaie (taille, colorimétrie, niveau d'exsudats, douleur au changement de pansement) et la survenue d'effets indésirables ont été notifiés en intégrant l'acceptabilité du pansement. Dans la plupart des études, les patients étaient invités à répondre chez eux à un questionnaire sur leur perception des soins de leur plaie. Deux études ont mesuré la qualité de vie (QOL).

Résultats. Au total 13 354 plaies, dont 69.6% ulcères de jambe, ont été incluses et suivies entre 4 et 20 semaines. Quels que soient les types de plaies, le niveau de détersion, l'ancienneté de la plaie ou les traitements antérieurs, il a été observé une trajectoire de cicatrisation favorable et une forte acceptabilité du pansement par les patients. L'évolution rapide et favorable de la plaie a eu un fort impact sur l'amélioration de la qualité de vie des patients (principalement sur les dimensions douleur et anxiété/dépression). En plus des facteurs habituels de mauvais pronostic cicatriciel, la précarité sociale du patient influe négativement les chances de fermeture rapide des plaies. La tolérance locale était bonne et aucun effet indésirable grave ou inattendu n'a été observé.

Conclusion. Ces études confirment l'extrapolabilité des résultats des essais contrôlés à la vie réelle. Elles confirment également l'excellent rapport bénéfice-risque des pansements de la gamme UrgoStart dans la prise en charge des ulcères de jambe.

Mots-Clés : Ulcères de jambe, Inhibiteurs de protéases

Enquête de pratique sur les complications vasculaires des malformations veineuses des médecins vasculaires en France

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Objectifs. Les bilans exploratoires biologiques des malformations vasculaires veineuses sont non consensuels et hétérogènes. Les attitudes thérapeutiques qui devraient en découler le sont également. Afin de mieux connaître les habitudes de pratique des médecins vasculaires en France, le groupe des malformations vasculaires de la SFMV a voulu réaliser une enquête de pratique sur ce thème.

Méthode. Un questionnaire a été élaboré sur les bases du consensus international de l'International Union of Phlebology 2013 des malformations vasculaires. Il a été testé initialement auprès des médecins vasculaires du groupe de travail. Puis après quelques modifications, il a été diffusé par voie électronique aux 1875 médecins vasculaires de la SFMV. Une relance a été réalisée après 2 mois. Il comportait deux

parties : la première pour évaluer la proportion des médecins vasculaires intéressés par les malformations ; la deuxième pour détailler plus précisément les attitudes thérapeutiques lors d'une complication vasculaire d'une malformation veineuse.

Résultats. Quarante-neuf réponses ont été obtenues pour le questionnaire sur les malformations veineuses et 36 réponses pour le questionnaire sur les complications. 29 praticiens seulement ont répondu prendre en charge les malformations vasculaires et 15 réalisent des sclérothérapies dans ce domaine. Un peu de moins de 30 % des praticiens réalisent une exploration biologique lors d'une malformation veineuse large (>10 cm^2) et extra tronculaire. Le chiffre double lorsque le praticien envisage un traitement invasif de la malformation. Le fibrogène n'est dosé que dans 50 % des cas en première intention. D'un point de vue thérapeutique, lors d'une malformation veineuse douloureuse, la compression et les antalgiques sont les plus prescrits. Les HBPM ne le sont que dans 33% des cas.

Discussion et conclusion. Le recueil des réponses est loin d'être exhaustif au sein de la SFMV. Les enquêtes électroniques sont rarement exhaustives. L'étude tend néanmoins à démontrer deux points. Elle confirme l'hétérogénéité des pratiques dans l'intérêt et le contenu des bilans biologiques dans les malformations veineuses étendues. Elle confirme la place du médecin vasculaire hospitalier et libéral dans la thérapeutique y compris invasive des malformations vasculaires.
La perspective du groupe est de mettre en place une étude observationnelle pour évaluer l'impact du bilan d'hémostase dans la prise en charge thérapeutique des malformations veineuses compliquées.

Mots-Clés : Malformations vasculaires, Malformations veineuses
Conflits d'intérêts : Pas de conflit d'intérêt.

Efficacité du rivaroxaban dans le syndrome des anticorps antiphospholipides : rapports de cas et revue de la littérature

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Introduction. L'enjeu principal de la prise en charge du syndrome des anticrops antiphospholipides (SAPL) thrombotique est de prévenir les récurrences par une anticoagulation au long cours. Les anti-vitamines K (AVK), traitement de référence actuellement, impactent la qualité de vie des malades par la nécessité d'une surveillance rigoureuse. De récentes études démontrent l'absence d'infériorité des antiXa oraux, comme le rivaroxaban, pour le traitement de l'embolie pulmonaire ou thrombose veineuse profonde et de la fibrillation auriculaire non valvulaire. De nombreux rapports de cas rapportent l'efficacité du rivaroxaban chez les patients porteurs d'un SAPL mais de nombreux cas de récidive thrombotique sont également décrits dans la littérature.

Objectif. Etablir l'efficacité d'un traitement par rivaroxaban chez les patients atteints d'un SAPL et déterminer les facteurs prédictifs de récidive sous ce traitement.

Méthode. Nous rapportons 4 cas de récidive thrombotique chez des patients porteurs d'un SAPL traités par rivaroxaban, ainsi qu'un cas d'absence de récidive et nous analysons les cas de SAPL traités par rivaroxaban dans la littérature.

Résultats. Nous avons collecté les données de 19 patients SAPL ayant récidivés sous rivaroxaban et 34 patients sans récidive. Il y avait 70.5% de SAPL triple positif dans le groupe récidive contre 29.4% dans le groupe sans récidive. De même, la proportion de SAPL à manifestations artérielles était plus importante dans le groupe récidive (41.1%) que dans le groupe sans récidive (20.6%). Par contre, il n'y avait pas de différence importante concernant le type d'anticorps antiphospholipides entre les deux groupes. Concernant les maladies auto-immunes associées, le SAPL secondaire semble plus à risque de récidive sous rivaroxaban que le SAPL primaire.

Conclusion. Le rivaroxaban semble être une alternative au traitement par AVK chez certains patients SAPL, mais à risque de récidive pour un certain nombre d'entre eux, les SAPL à manifestation artérielle et les triples positifs notamment. Ces données nécessitent confirmation par les études contrôlées, randomisée, Rivaroxaban in APS (RAPS) et Rivaroxaban in Thrombotic APS (TRAPS) dont les résultats sont attendus.

Mots-Clés : SAPL, Rivaroxaban

Thrombose ou sténoses de la veine cave supérieure, secondaires à la mise en place de chambres implantables. A propos de six cas traités chirurgicalement par voie endovasculaire ou chirurgie directe.

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Les thromboses de la veine cave supérieure (VCS) sont actuellement fréquemment observées au décours de cathétérisme veineux qui peuvent être un cathéter d'hémodialyse, une sonde de stimulation endo cavitaire, ou la mise en place d'une chambre implantable (CI). Les deux premières étiologies entrainent rarement un syndrome cave clinique. Par contre les lésions de la veine cave supérieure, secondaires à la mise en place d'une CI sont plus souvent symptomatiques, liées à la sévérité des lésions et à la toxicité de la chimiothérapie.
Nous rapportons notre expérience de six malades traités entre 2007 et 2013, par voie endovasculaire (5 cas) ou par abord chirurgical direct (1 cas).
Il y avait cinq femmes et un homme. Les femmes avaient été traitées par une radiothérapie pour maladie de Hodkin (1 cas), pour un cancer du sein (4 cas). Une des malades avaient eu à 15 ans d'écart le traitement d'une maladie de Hodkin et un cancer du sein. L'homme avait été traité 7 ans auparavant pour un cancer de l'estomac.
Tous les malades présentaient un syndrome cave cliniquement symptomatique, avec un œdème facial et des paupières, des céphalées et un œdème des membres supérieurs.
Dans trois cas, le cathéter était en place, lorsque les manifestations cliniques sont survenues.
Les explorations morphologiques ont comporté une exploration hémodynamique, par échotomographie-doppler et scannographiques, par un scanner 64 barrettes.
Les lésions étaient une sténose isolée de la VCS (3 cas), une sténose de la VCS associée à une thrombose du tronc veineux innominé gauche et une sténose du confluent de Pirogoff (1 cas), une thrombose de la

VCS (2 cas). Chez une de ces malades, le thrombus débordait dans l'oreillette droite Dans ces deux cas, le retour veineux azygos était concerné.
Cinq malades ont été traités par voie endo vasculaire, par un abord jugulaire droit (2 cas), par un abord bi jugulaire (2 cas). Une angioplastie de la VCS avec mise en place d'un stent cave a été réalisée dans deux cas. Une angioplastie en kissing, après thrombolyse du tronc veienux innominé (1 cas) des deux troncs veineux innominés et de la VCS, avec mise en place d'un stent cave a été réalisée dans un cas. Une angioplastie simple a été réalisée dans un cas, en raison de l'obtention d'un résultat incomplet, avec une lumière résiduelle inférieure à 8 mm.
Une malade a été traitée chirurgicalement par sternotomie médiane verticale. Une thrombo-intimectomie, avec extraction de la prolongation du thrombus dans l'oreillette droite. La VCS a été refermée sur une angioplastie de péricarde.
Les suites post-opératoires ont été satisfaisantes dans les six cas. Le contrôle scannographique a montré un bon résultat morphologique dans 5cas, un résultat incomplet dans un cas.
Les malades ont été suivis cliniquement et par échotomographie-doppler annuel. Le suivi va de 12 mois à cinq ans. Aucun malade n'a présenté de récidive clinique. Le malade avec un résultat incomplet est resté stable. Les cinq autres malades conservent un résultat hémodynamique correct.
En conclusion, le traitement des lésions de la VCS après mise en place d'une chambre implantable est actuellement souvent possible par voie endo vasculaire. La chirurgie conventionnelle conserve des indications, lorsque les lésions sont très étendues ou débordent dans l'oreillette droite.

Mots-Clés : Lésions de la veine cave supérieure, Traitement endovasculaire et traitement conventio

Utilisation combinée d'un système d'électro stimulation neuro musculaire surale associé au port d'un dispositif de compression dans le cadre de la récupération post exercice.

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Introduction. Lors d'une journée de compétition de gymnastique aérobic, un gymnaste peut être amené à réaliser quatre routines (qualifications, finales). L'optimisation de la récupération entre les exercices est très importante dans le but de maintenir le meilleur niveau de performance.

Méthode. Douze gymnastes de l'équipe de France ont réalisé une simulation de compétition avec, pendant les 10 minutes qui ont suivi chaque routine, deux méthodes de récupération : une récupération passive (groupe RP) et l'utilisation d'un système d'électro stimulation neuro musculaire (ESNM) (Veinoplus Sport®) au niveau du triceps sural associé au port de bas de compression (Full Leg Compressport®) (groupe V+C).
Pour comparer l'effet de ces deux méthodes de récupération, la performance réalisée lors de chaque routine était évaluée par un juge international. Les débits artériels et veineux ont été mesurés, par écho doppler, au niveau de l'artère fémorale commune et de la veine fémorale commune. Les taux de lactates sanguins, la fréquence cardiaque (FC) et le ressenti ont également été mesurés.

Résultats. L'utilisation combinée de l'ESNM et de la compression ne permet pas une amélioration statistiquement significative de la performance. Cependant, une analyse descriptive des données montre une augmentation de 1,6% (+0,33 points en moyenne) de la note entre la routine 1 et la 4 dans le groupe V+C, alors que dans le groupe RP, il existe une diminution de -4,5% (-0,95 points en moyenne).
En parallèle, une augmentation du flux vasculaire au niveau des membres inférieurs a été démontrée par l'intermédiaire de signes directs (augmentation des débits artériel et veineux) et indirects (diminution de la lactatémie sanguine et de la fréquence cardiaque).
Discussion. Les effets systémiques de l'utilisation combinée de l'ESNM et de la compression sont mis en évidence (augmentation des débits artériel et veineux du membre inférieur et diminution de la lactatémie sanguine et de la FC). Cela se traduit par une moindre dégradation de la performance. L'effet sur la performance est non statistiquement significatif, mais en pratique dans le sport de haut niveau, cela peut avoir un impact important sur un classement en compétition.
Par ailleurs cette méthode de récupération est simple à mettre en place et elle est très bien tolérée par les athlètes (évaluation réalisée à l'aide d'échelles de ressenti).

Mots-Clés : Phase de récupération, Electro stimulation neuro musculaire, dispositif
Conflits d'intérêts : Les auteurs ne rapportent aucun conflit d'intérêt.

11h00-12h30 - BELLECOUR 2-3

Session 3 de communications orales SFMV : Explorations et innovations
SFMV oral free paper session 3 : Explorations and innovations

Bio-impression pour la médecine vasculaire.

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Depuis quelques années, on assiste à l'émergence d'une nouvelle discipline : la bio-impression qui correspond à l'impression 3D de tissus vivants. Cela laisse entrevoir un réel potentiel, quant à l'utilisation de cette technique en médecine régénérative et en particulier en médecine vasculaire.

Notre approche a été de développer un bioprinter et de formuler une encre biologique compatible avec les cellules. L'étape d'impression nécessite un contrôle accrue de tous les paramètres : viscosité de l'encre, vitesse d'impression, température… L'étape de post-impression va faire naître les fonctions des cellules imprimées qui vont proliférer et synthétiser une nouvelle matrice extracellulaire.

Nos premiers résultats sur la peau sont extrêmement encourageants avec la formation d'un derme et d'un épiderme complet, ainsi que la présence de toutes les protéines structurantes d'une peau normale humaine. L'étape cruciale est maintenant d'adjoindre à ces peaux reconstituées, une microvascularisation leur permettant d'être greffées de manière optimale, sur des patients grands brûlés ou présentant des ulcères d'origine vasculaire.

Afin d'atteindre cet objectif, nous avons mis en place une technique permettant la bio-impression, dans des couches successives, à la fois de fibroblastes (derme), de kératinocytes (épiderme) mais également de cellules endothéliales pouvant générer des réseaux microvasculaires au sein même des tissus imprimés.

Mots-Clés : Bio-impression, Médecine régénérative

Reproductibilité du laser Doppler chez des sujets sains pour son utilisation comme méthode diagnostique d'une artériopathie digitale obstructive.

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Objectifs. Le laser Doppler couplé à une hyperthermie provoquée a une grande sensibilité (93%) et spécificité (96%) pour diagnostiquer une artériopathie digitale obstructive (ADO) comparativement à l'artériographie. La reproductibilité de cette technique cependant n'est pas connue. L'objectif de cette étude est d'évaluer la reproductibilité de cette technique non invasive et indolore. Si celle-ci est reproductible, elle pourrait remplacer les méthodes actuelles de diagnostic couramment utilisées (artériographie, angioscanner…).

Méthodes. Neuf sujets sains sans symptôme digital ont été étudiés avec le laser Doppler (PeriFlux 5000 ; Perimed, Jarfalla, Sweden et une sonde PF 457) en utilisant la méthode préalablement validée. Le laser Doppler permet de mesurer le flux cutané exprimé en unités arbitraires (ua). Un doigt était considéré comme présentant une ADO quand la valeur laser Doppler post-chauffage était ≤ 206ua. Les reproductibilités intra-sujet exprimées en ua à température ambiante, en ua après chauffage (47°C) et la reproductibilité diagnostique (doigt considéré comme malade ou non malade) ont été étudié à 7+/-4 jours. La reproductibilité est présentée en coefficient de variation (CV en %) et coefficient de corrélation intra-classe (ICC) pour les variables quantitatives et le test de Kappa pour les variables qualitatives.

Résultats. Sept hommes et deux femmes (âge moyen : 30+/-24 ans) ont été inclus. Quatre-vingt-dix doigts ont été analysés. A température ambiante, le CV était de 104,0% [88,8% ; 125,8%] et l'ICC était de 0.26 [0,09 ; 0,41]. En post-chauffage, le CV était de 22,6% [19,9% ; 26,2%] et l'ICC était de 0,28 [0,11 ; 0,43]. Le coefficient de Kappa n'a pas pu être calculé en raison de la présence d'aucune discordance. L'ensemble des doigts considéré comme sain (>206 ua) lors de la première visite était retrouvé sain (>206 ua) lors de la deuxième visite.

Conclusion. Ces résultats confirment que les valeurs absolues sont peu reproductibles à l'échelon individuel. La technique apparaît prometteuse en termes de reproductibilité pour le diagnostic d'ADO. Des sujets présentant une ADO doivent être étudiés afin d'analyser la reproductibilité chez des malades.
Ce travail a été financé par le CHU de Rennes pour l'acquisition du matériel.

Mots-Clés : Artériopathie digitale, Laser Doppler
Conflits d'intérêts : Aucun

Intérêts de l'écho-guidage pour ponction vasculaire avant thérapies interventionnelles endoluminales périphériques.

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Objectifs. Le but de cette étude a été d'évaluer l'intérêt d'une ponction vasculaire avec écho-guidage (EG) dans la pratique de thérapie interventionnelle endovasculaire. L'échoguidage a été évalué par la comparaison aux techniques traditionnelles des taux d'échecs et de complications des accès vasculaires percutanés.
Méthodes. Nous avons passé en revue toutes les revascularisations percutanées consécutives (Angioplastie transluminale percutanée et/ou stenting, traitement d'anévrysmes et de traumatismes vasculaires) depuis l'uniformisation des systèmes de fermeture (extra et endo vasculaires). L'EG a commencé en Novembre 2011 Les objectifs principaux de l'évaluation était le taux d'échec des ponctions et le taux de complications (hématome nécessitant transfusion ou chirurgie d'hémostase, faux anévrisme, dissection, thrombose, infection). Les échecs et les complications étaient comparés entre les 2 groupes EG- et EG.

Résultats. Entre 2008 et 2014, un total de 841 ponctions a été réalisé par voie fémorale (85 %), voie humérale (12%), voie poplité (1%), voie axillaire (0.5%), voie tibiale postérieure (0.5%) avec des introducteurs de 4F à 12F. Il y avait 20 complications (2.3 %) :6 hématomes, 4 pseudoanévrismes, 3 thromboses, une paralysie nerveuse, une infection de stent et 7 échecs percutanés. Les complications et les échecs étaient significativement moins fréquents quand l'échoguidage était utilisé (0.9 % contre 3.6 % ; p = 0.02, 0.2% contre 1.4%; p=0,06).
Conclusion. L'Echo-guidage permet de diminuer significativement le taux de complications et d'échecs des accès percutanés. Cet outil a permis une nette augmentation de la réalisation des angioplasties percutanées en hospitalisation ambulatoire.

Mots-Clés : Echo-Doppler, Angioplastie transluminale

Développement d'un Examen Clinique Objectif Structuré (ECOS) pour évaluer les compétences des étudiants en Médecine Vasculaire

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Objectifs. La Médecine Vasculaire est maintenant une spécialité. Au cours de leur cursus, les étudiants devront acquérir, outre les habiletés techniques, des compétences cliniques de recueil des données, relationnelles, de raisonnement et résolution de problèmes diagnostique et thérapeutique. Les Examens Cliniques Objectifs Structurés (ECOS) sont considérés comme l'instrument se rapprochant le plus de l'évaluation idéale de la compétence clinique.

Méthodes. Trois cas cliniques choisis en fonction de leur représentativité de la pratique de la Médecine Vasculaire ont été élaborés. La répartition des items reflétait les stratégies d'investigations et prise en charge thérapeutique sans évaluation des habiletés techniques. Les grilles, notées sur 100, ont été

validées par dix experts de la spécialité. Les ECOS étaient composés d'une séquence de situations cliniques présentés dans trois « stations » avec patients simulés de 7 minutes chacune. Le rôle du patient simulé était tenu par des étudiants en médecine. Les observateurs étaient des seniors de la discipline. Les étudiants du DESC de Médecine Vasculaire de la région Est ont participé au test lors d'un enseignement par ateliers. Une auto et hétéro-évaluation ont été réalisées. Nous avons effectué une comparaison statistique des performances des étudiants juniors et seniors. A la fin de l'ECOS, les candidats ont rempli un questionnaire pour évaluer leurs opinions sur le déroulement de l'examen et son contenu.

Résultats. Quinze étudiants ont été évalués. La performance des étudiants seniors a été globalement supérieure à celle des internes juniors. Nous n'avons pas rencontré de difficulté dans le développement et l'organisation de l'examen. Tous les participants ont confirmé que les situations cliniques présentées étaient réalistes et que les patients simulés étaient crédibles. L'ensemble des étudiants ont apprécié ce type d'examen et l'on jugé capable de mesurer les compétences nécessaires à la pratique d'une consultation correcte de médecine vasculaire.

Discussion. Cette première expérience prouve la faisabilité de l'ECOS en Médecine Vasculaire comme outil pédagogique et d'évaluation formative utilisable pour l'enseignement des étudiants en Médecine Vasculaire. Le petit nombre de stations et de candidats nécessite la réalisation d'études complémentaires à plus large échelle pour évaluer leurs performances.

Mots-Clés : Pédagogie, Médecine vasculaire
Conflits d'intérêts : aucun

Etude de la vasoréactivité cérébrale en échodoppler transcrânien : comparaison du breath-holding test au test de référence par acetazolamide

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La vasoréactivité cérébrale (VRC) est la capacité des vaisseaux intracrâniens à augmenter leur débit sous l'effet d'un stimulus chimique. En aval d'une sténose carotidienne asymptomatique, l'altération de ce réflexe est un prédicteur du risque d'accident vasculaire cérébral homolatéral. La méthode de référence pour l'étude de ce réflexe en échodoppler transcrânien est l'utilisation d'acetazolamide injectable. Une épreuve d'apnée (breath holding test - BHT), pourrait constituer une alternative plus simple à mettre en œuvre. Elle a fait la preuve de sa pertinence en conditions de laboratoire avec monitorage de la capnie. Nous avons étudié la concordance de ce test sans mesure de la capnie avec le test à l'acetazolamide en routine dans une unité d'explorations vasculaires.

Objectif. Mesurer la concordance du breath holding test avec le gold standard (injection d'acetazolamide), en soins courants au sein d'une unité d'explorations vasculaires, chez des patients porteurs d'une sténose carotide asymptomatique.

Méthode. Le BHT a été réalisé, suivi d'un test à l'acetazolamide. La concordance des résultats a été mesurée par le coefficient kappa.

Résultats. 20 sténoses ont été étudiées. Les tests ont pu être correctement réalisés chez seulement 11 des 20 sténoses. Les raisons en étaient l'absence de fenêtre temporale (20%) et des difficultés liées au matériel. Dans nos conditions d'examen, la concordance entre les deux méthodes de provocation était très faible ($k = 0.3714$; $p = 0.1404$). En revanche, pour les 6 sténoses où le breath holding test a montré

une conservation de la vasoréactivité, les résultats étaient concordants avec ceux obtenus avec l'acetazolamide.
Conclusion. Les résultats du BHT réalisé en routine concordaient très faiblement avec les résultats sous acetazolamide. L'utilisation du BHT en première intention pour éliminer ceux dont la VRC est conservée pourrait être testée sur un échantillon beaucoup plus grand.

Mots-Clés : Breath holding test, Vasoréactivité cérébrale

Dépister la vasculopathie cerebrale chez l'adulte drepanocytaire : valeur de l'écho-Doppler transcrânien (EDTC) comparé à ' par résonnance magnétique (ARM)

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Objectifs. Les accidents vasculaires cérébraux représentent une des principales causes de mortalité des patients drépanocytaires. L'écho-doppler transcrânien occupe une place centrale dans la détection de la vasculopathie cérébrale chez l'enfant drépanocytaire. L'objectif principal de ce travail était de montrer que l'EDTC permet la détection de la vasculopathie cérébrale de l'adulte drépanocytaire avec une bonne sensibilité et spécificité comparé à l'ARM.

Méthode. Cette étude multicentrique prospective a inclus 80 patients drépanocytaires adultes avec une suspicion de vasculopathie cérébrale. 77 patients sont explorés en EDTC et ARM (3T) 3D time-of-flight réalisés le même jour. 3 patients sont exclus sur contre-indication à l'IRM. L'atteinte vasculaire cérébrale sur la carotide interne intracrânienne et le segment proximal de la cérébrale moyenne était définie en ARM: Pas d'atteinte si la sténose intracrânienne < 50%- sténose >50%- Occlusion- Réseau Moya moya. En Doppler : sténose >50% si le ratio des vitesses moyennes (moyenne des maxima) ou TAMMx (time average mean maximum velocity) dans la sténose intracrânienne rapporté à la carotide interne extracrânienne homolatérale est >3- Occlusion- flux compatible avec un réseau Moya-Moya.
Le contraste ultrasonore est utilisé en cas de fenêtre acoustique insuffisante.

Résultats. Sur les 77 patients, 38 présentaient une vasculopathie cérébrale sur l'ARM, dont 17 un réseau Moya-Moya. Parmi eux, 33 avaient une vasculopathie sévère sur les critères ultrasonores avec un ratio TAMMx > 3 (n=5), une occlusion (n =11). Un réseau Moya-Moya était identifié chez les 17 patients. Un agent de contraste ultrasonore était nécessaire chez 15% des patients. La sensibilité et la spécificité du Doppler pour identifier une atteinte vasculaire cérébrale était de 87% et 90% respectivement avec une valeur prédictive positive de 86% et négative de 87%.

Conclusion. L'EDTC est réalisable chez l'adulte drépanocytaire. Il dépiste efficacement la vasculopathie cérébrale.

Mots-Clés : vasculopathie cérébrale de la drépanocytose, écho-doppler transcrânien

Evaluation échographique propriétés biomécaniques de la paroi aortique des patients porteurs de bicuspidie valvulaire aortique sporadique et leurs apparentés

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Objectif. La bicuspidie valvulaire aortique (BAV) est associée à un risque accru d'anévrismes et de dissections de l'aorte ascendante. Le but de cette étude est d'évaluer les propriétés biomécaniques de l'aorte ascendante qui pourraient expliquer la fragilité aortique chez les patients porteurs de BAV sporadique.

Méthodes. Etude prospective monocentrique des patients BAV et leurs apparentés non-BAV. Les diamètres systoliques et diastoliques du sinus de Valsalva et de l'aorte tubulaire ascendante ont été mesurés par échocardiographie transthoracique, associée à la mesure de la pression artérielle brachiale par méthode oscillométrique. Les calculs de distensibilité et d'indice de rigidité utilisent les variations des diamètres aortiques au cours du cycle cardiaque.

Résultats. 93 patients ont été inclus dans l'étude : 43 patients BAV non opérés (30 hommes, âge moyen 51 ± 17 ans, sans dysfonction valvulaire aortique significative) ont été comparés à 50 apparentés non-BAV (26 hommes, âge moyen 42 ± 18 ans). Les patients BAV avaient une distensibilité inférieure du sinus de Valsalva (2,28 ± 1,74 vs 3,72 ± 3,04, p = 0,005 et p = 0,044 après ajustement pour l'âge et l'hypertension) et de l'aorte tubulaire ascendante (2,30 ± 1,74 vs 3,34 ± 2,74, p = 0,055). L'indice de rigidité au niveau du sinus de Valsalva était plus élevé chez les patients BAV (18,41 ± 18,37 vs 11,89 ± 12,38, p = 0,046), mais non constaté au niveau de l'aorte tubulaire ascendante (16,45 ± 13,03 vs 13,28 ± 12,35, p = 0.307). Cependant, on a retrouvé une augmentation significative de l'indice de rigidité de l'aorte tubulaire avec la dilatation (R^2 = 0.334; p = 0,001) chez les patients BAV, ce qui n'était pas le cas chez les parents non-BAV (p = NS).

Conclusion. L'aorte ascendante des patients BAV a des propriétés biomécaniques différentes avec une distensibilité inférieure et une augmentation de l'indice de rigidité au niveau des sinus de Valsalva par rapport aux apparentés non-BAV indépendamment de l'âge et de la pression artérielle. La mise en évidence d'une modification de la distensibilité aortique pourrait être utilisée comme biomarqueur afin

de prédire la dilatation aortique chez les patients porteurs de bicuspidie. Une étude prospective sera nécessaire afin d'évaluer l'évolution de la distensibilité dans le temps chez les patients BAV.

Mots-Clés : Bicuspidie valvulaire aortique, Ultrafast ultrasound imaging
Conflits d'intérêts : aucun

Intérêt d'une GAMME pour optimiser les besoins pratiques de prise en charge de plaies chroniques diverses.

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Enquête prospective non interventionnelle réalisée par des médecins et infirmières, libéraux ou hospitaliers. L'objectif principal de l'étude est de rapporter la prévalence des plaies chroniques pour lesquelles un pansement inhibiteur des protéases est prescrit et décrire les motifs de prescription. En cas de décision d'utiliser ce type de pansement un suivi sur 6-8 semaines permettra de préciser l'efficience de cette prise en charge.
Les investigateurs incluaient tout patient majeur (hospitalisé ou suivi en consultation) présentant une plaie chronique chez qui ils décidaient d'initier un traitement par un pansement inhibiteur des protéases. Plus de 1500 patients ont été inclus par près de 300 investigateurs. Nous rapporterons dans la communication les résultats de cette étude dont l'analyse finale est attendue pour cet été.

Acceptabilité de la compression élastique progressive paramétrée pour la prise en charge de l'insuffisance veineuse chez l'artériopathe.

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Objectifs. La compression médicale classique dite dégressive avec des pressions plus importantes en cheville puis plus faibles en remontant le mollet est préconisée chez l'insuffisant veineux mais contre-indiquée de façon absolue chez l'artériopathe ayant un indice de pression systolique en cheville (IPS) < 0.6. La compression progressive a montré son efficacité sur l'amélioration des signes de l'insuffisance veineuse et serait particulièrement adaptée à l'artériopathe du fait des pressions plus fortes au mollet et faibles en cheville et un tricotage spécifique. L'objectif de cette étude pilote est de s'assurer que le concept progressif paramétré est bien toléré chez ce type de patients.

Méthodes. Une étude prospective de tolérance de la compression élastique progressive paramétrée a été réalisée chez 18 patients présentant une artériopathie oblitérante des membres inférieurs (AOMI)

avec un IPS entre 0.60 et 0.75 avec insuffisance veineuse modérée (classification CEAP C1s à C4). Le critère principal était l'acceptabilité de la compression progressive après 15 jours de port des bas (non dégradation de l'AOMI) définie par l'absence de dégradation de l'IPS > 15% et l'absence de dégradation de l'indice de pression au gros orteil (IPSO) > 15% et l'absence de dégradation du test fonctionnel du mollet > 25% du nombre de flexions.

Résultats. Dix-huit patients dont 14 hommes ont été inclus dans l'étude, la médiane d'âge étant de 80 ans. Huit patients présentaient des œdèmes. Après 15 jours de port des bas, aucun patient ne présentait de dégradation de l'AOMI. Concernant l'IPS sur le côté le plus grave, la médiane à l'inclusion était de 0.60 (écart interquartile Q1-Q3 0.56-0.64) et à J15 de 0.68 (Q1-Q3 0.55-0.78). La médiane de l'IPSO sur le côté le plus grave était de 0.31 (Q1-Q3 0.27-0.34) à l'inclusion et de 0.39 (Q1-Q3 0.36-0.46) à J15. Tous les patients ont vu leur nombre de flexions augmenter à J15 par rapport à l'inclusion. Quatorze patients ont augmenté leur périmètre de marche sur tapis à J15 et 4 patients avaient un périmètre stable. À J15, seul 1 patient sur 8 présentait encore des œdèmes. Aucun patient n'a présenté d'événement indésirable grave ou non grave.

Conclusion. Le profil de la compression progressive paramétrée semble adapté aux patients souffrants d'une AOMI. La compression agirait ainsi sur l'insuffisance veineuse mais également sur les paramètres de l'artériopathie.

Conflits d'intérêts :
Serge Couzan : Parts sociales société TBV et Compression
Jean-François Pouget : Parts sociales société TBV et Compression

11h00-12h30 BELLECOUR 1

IUA oral free paper session 6 : Vasculitis & Miscellaneous

Session 6 de communications orales UIA : Vascuarite et divers

On demand sildenafil as a treatment of Raynaud's Phenomenon: a series of N-of-1 trials

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Introduction. Continuous treatment of Raynaud's phenomenon (RP) with Phosphodiesterase-5 inhibitors has shown moderate efficacy (1). Moreover, patients with RP may not be willing to take a long-term treatment; as RP attacks are usually triggered by cold exposure, "as required" single doses before/during exposure may be a good alternative. The objective of the present study is to assess the efficacy and safety of an on demand sildenafil treatment in RP.

Methods. A series of randomized, double-blind, N-of-1 trials was conducted in patients with primary or secondary RP. Each trial consisted in repeated cycles of 1-week treatment periods with placebo, sildenafil 40 mg or sildenafil 80 mg taken as required, with a maximum of two doses daily. Mixed models were used and parameters were estimated in a Bayesian framework to determine individual and aggregated probabilities of efficacy on the Raynaud's Condition Score (RCS) and the frequency of RP attacks. Skin blood flow in response to cooling was assessed with Laser Speckle Contrast Imaging.

Results. Thirty-eight patients completed two to five treatment cycles (secondary RP, n=13). Aggregated data demonstrates that the probability that the efficacy of sildenafil 40 mg is superior to that of the placebo on the frequency of RP is 93%, and 90.6% for the RCS; and 91.5% and 62.6%, respectively, for sildenafil 80 mg. Sildenafil was associated with significantly more adverse events than placebo. We observed a dose-dependent effect of sildenafil on skin blood flow during cooling.

Conclusion. On demand sildenafil has a greater probability of efficacy than placebo in patients with RP. Individual data show highly heterogeneous response, highlighting the need for personalized treatment for these patients.

ClinicalTrials.gov Identifier: NCT02050360

1. Roustit M, Blaise S, Allanore Y, Carpentier PH, Caglayan E, Cracowski J-L. Phosphodiesterase-5 inhibitors for the treatment of secondary Raynaud's phenomenon: systematic review and meta-analysis of randomised trials. Ann. Rheum. Dis. 2013;72(10):1696–1699.

Key words : *Raynaud's, Sildenafil*
Conflicts of interests : This study was funded by a grant GIRCI Rhône-Alpes Auvergne Jeune Chercheur, and by Pfizer. Sildenafil was supplied by Pfizer.

Large vessel vasculitis in HIV patients, a retrospective study.

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Objectve. To describe large vessel vasculitis (LVV) in patients with human immunodeficiency virus (HIV) infection.

Design. Retrospective monocentric study between 2000 and 2015 through a university hospital of 8027 HIV infected patients.

Methods. The characteristics and outcome of11 HIV infected patients with LVV were analysed and compared with those of 82 patients with LVV but without HIV infection.

Results. The mean age was 42 years with 55% of female; At diagnosis of LVV the mean iCD4 cell count was of 425/mm3end, the mean HIV viral load was of 9241 copies. After a mean follow up of 96 months, one death was noted. Vascular lesions were located in the aorta in 7 patients, in lower limb arteries in 4 patients, in digestive arteries in 3 patients and in supra aortic trunks in 7 patients. In 4 patients, histologic findings were compatible with a Takayasu arteritis. The disaese was active in 6 patients according tp the Ishikawa criteria. Clinical manifestations of LVV included arterial hypertension in 2 patients, limb claudication in 2 patients, arthralgia in 2 patients, fever in 2 patients, blood pressure discrepancy in 2 patients, carotidodynia and vascular bruits in one patient. A biologic inflammatory syndrome was

present in 5 patients. Corticosteroids were given in 5 patients and 8 patients underwent a vascular surgery. A clinical response was observed in 4 cases. Regardless of the HIV virologic response, antiretroviral therapy did not improve LVV except in one case. Compared with their negative counterpart, the characteristics of HIV patients with LVV did not differ significantly.
Conclusion: This study shows that the characteristics of LVV did not differ in HIV infected patients.

Key words : *large vessel vasculitis, HIV*
Conflicts of interests : Ni conflict of interest.

Exercise Induced Vasculitis: a case series

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Background. Exercise induced vasculitis (EIV) is usually misdiagnosed ; it is not uncommon, occurring mostly after prolonged exercise especially in hot weather. EIV is an isolated cutaneous vasculitis, with stereotypical presentation.

Objective. The purpose of this study is to report the clinical characteristics, treatments, and outcomes of EIV.

Methods. The records of 16 patients with EIV referred at our hospital from 2007 to 2015 were analyzed and a systematic literature review of EIV cases was also conducted.

Results. We report 99 cases who developed EIV after walking, dancing, swimming or hiking especially during hot weather. Erythematous or purpuric plaques arise on the lower legs, not involving skin compressed by socks. Symptoms include itch, pain, and burning sensation. EIV is just a cutaneous vasculitis without other organ involvement. Lesions resolve spontaneously after 10 days. Relapses are frequent (77.5%) under similar conditions. Histopathology demonstrate leukocytoclastic vasculitis in 95% of cases with C3 or IgM deposits in 88% and 46% of cases, respectively. Blood investigations are negative. EIV appears to be consecutive to venous stasis induced by an acute failure of the muscle pump of the calf and thermoregulation decompensation, after a prolonged and unusual exercise, in hot weather. Treatment is not codified, topical corticosteroid may reduce symptoms and wearing light clothes might limit lesions occurrence.

Conclusion. EIV is a cutaneous vasculitis with stereotypical presentation. It occurs after prolonged exercise in hot weather.Histology, on recent lesions, shows leukocytoclastic vasculitis. Wearing light clothing could reduce recurrences. Knowledge of this vasculitis limits investigations.

Key words : *Exercise Induced Vasculitis, purpura*
Conflicts of interests : None

The role of Shear Wave Elastography in diagnosis of temporal Arteritis

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Background. Real-time shear-wave elastography (SWE) is advanced method that could measure the stiffness of tissues and arterial walls based on tracking of shear wave propagation through a structure. Numerous studies have established its potential in the differentiation between arterial wall stiffness and plaques morphology and normal tissue in clinical practices; however the applicability to temporal arteritis has not been well elucidated. This single-centre study was conducted to assess the clinical usefulness and the accuracy of shear Wave Elastography (SWE) in patients with temporal arteritis.

Methods. This study comprised twenty voluntary participants as control group and 15 patients with a clinical suggestion of active temporal arteritis. Both groups underwent B-mode US and SWE imaging. Elasticity was quantified by measuring mean Young's Modulus (YM) within the vessel wall of temporal arteries on both sides using two transducers hockey-stick and linear array probes (10-20MHz). Results obtained from SWE and conventional gray-scale sonography and biopsy were compared.

Results. The findings revealed that control groups showed smooth arterial wall with complete colour filing. The Young's modulus, including Emean, Emax, Emin and SD values in the arterial wall of positive clinical temporal arthritis were higher than those of normal arteries in control group (Emean, 78.07±9.01kPa vs 20.0±5.10kPa; Emax,94.07±6.53kPa vs 21.87±5.78kPa; Emin, 60.73±7.84 kPa vs 14.90±4.39kPa; SD, 7.67±0.60 kPa vs 2.30±0.36 kPa, [P<0.05]); The Emax and SD values along the arterial wall were higher than the corresponding area of the normal arteries (Emax, 11.23±0.30 kPa vs 4.97±0.95kPa; SD, 1.5±0.26kPa vs 0.67±0.35kPa,[P<0.05]) and Emin values was lower than those of normal arterial wall (0.93±0.51kPa vs 1.6±0.36kPa; [P<0.05]). The Young's modulus measurement between two vascular scientists showed good agreement. The Biopsy findings were in accordance with SWE measurement.

Conclusions. Our study showed SWE is able to measure arterial wall stiffness of temporal arteries. SWE is convenient and highly reproducible method and may serve as an important

alternative tool in the diagnosis and monitoring the progression of the temporal arteritis, in additional to conventional B-mode sonography.

Key words : *Temporal Arteritis, Shear wave, Elastography*
Conflicts of interests : None

Cardiac and Inflammatory Biomarkers and Their Role in the Pathogenesis of Heart Failure in End-Stage Renal Disease

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Introduction. Heart failure (HF) is highly prevalent in patients with End-Stage Renal Disease with a presence of approximately 40 %. HF is characterized by left ventricular hypertrophy, diastolic and systolic left ventricular dysfunction and cardiomyopathy resulting in myocyte hypertrophy and fibrosis. The purpose of this study was to determine the role of cardiac and inflammatory biomarkers in the pathogenesis of HF in ESRD patients.

Material and Methods. Under IRB approval, ninety blood samples from maintenance hemodialysis patients at Loyola University outpatient dialysis unit have previously been collected and stored at -70° C. Twenty-five male and twenty-five female plasma samples from healthy individuals were purchased from a biobank as a control (George King Biomedical Overland Park, KS). Maintenance hemodialysis patients' and healthy volunteers' plasma samples were used to profile KIM-1, NT-pro BNP, NGAL, IL-18, PDGF, Vitamin D, PTH, Endothelin, Endocan, MPTF, Heparin anti Xa, Lp(a) using commercial sandwich and competitive ELISA kits and assays (R&D Systems, Minneapolis, MN | RayBiotech, Norcross, GA | Hyphen Biomed, Neuville-sur-oise, France). In addition, patients' HF diagnoses, comorbidities, medications, and dialysis lab values were available through the patients' medical records.

Results. All plasma biomarkers, except PDGF, Endothelin and Vitamin D, were statistically increased in patients with ESRD compared to normal ($P < 0.05$). Vitamin D was statistically decreased in patients with ESRD compared to normal ($P < 0.05$). HF patients with ESRD, as compared to non-HF patients with ESRD, had significantly elevated NT-pro-BNP ($P = 0.0194$ | % change = 52.9) and KIM-1 ($P = 0.0485$ | % change = 58.5%). There were no statistical differences found between age groupings, except <60 y.o KIM-1 vs 60-69 y.o KIM-1. NT-pro-BNP in ESRD patients with HF was found to correlate with K+ ($P = 0.023$ | $R = -0.39$), Ca+ ($P = 0.029$| $R = -0.38$), and Heparin anti Xa ($P = 0.045$ | $R = 0.35$). KIM-1 in ESRD patients with HF was found to correlate with Creatinine ($P = 0.0175$ | $R = -.41$), EGFR ($P = 0.008$ | $R = 0.45$), Phosphate ($P = 0.002$ | $R = -0.51$), Intact PTH ($P = 0.043$ | $R = -0.36$), Calcium Phosphate Product ($P = 0.002$ | $R = -0.52$), and Vitamin D ($P = 0.037$ | $R = 0.36$).

Conclusion. Elevated plasma NT-pro-BNP and KIM-1 in all of the ESRD patients and ESRD patients with HF suggest that natriuretic peptides and KIM-1 may contribute to the pathogenesis of HF in ESRD patients. Elevated NT-pro-BNP further supports previous studies demonstrating NT-pro-BNP's potential diagnostic and prognostic utility. Previous studies have demonstrated that there tends to be elevated urinary KIM-1 levels in ESRD patients, but elevated plasma KIM-1 in ESRD patients with HF may contribute to cardiac remodeling and dysfunction.

Key words : *Inflammatory Biomarkers, Heart Failure*
Conflicts of interests : None.

Pre-Existence of Prothrombotic State in Patients with Atrial Fibrillation Despite Therapy with New and Traditional Anti-Coagulant Drugs

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Background. Oral anticoagulants such as warfarin (W) have been conventionally used for the management of atrial fibrillation (AF). Despite the effectiveness of W, its use in AF patients requiring anticoagulation is suboptimal with an even greater underuse seen in elderly patients who are at higher risk of stroke. New oral anticoagulants such as rivaroxaban (R) and apixaban (A) have been approved to manage thrombotic and cardiovascular disorders including AF.
Objective: To profile the baseline level of circulating thrombogenic biomarkers von Willebrand Factor (vWF), prothrombin fragment 1.2 (F1+2), microparticle bound tissue factor (MP-TF) and plasminogen activator inhibitor (PAI-1) in patients with AF. Additionally, the effect of both newer (R and A) and traditional (W) anticoagulants on the levels of thrombogenic biomarkers in patients with AF will be assessed.

Materials. Citrated blood was drawn from thirty AF patients prior to ablation surgery and spun at 3000 rpm to obtain platelet poor plasma. Normal plasma samples from healthy controls were purchased from a commercial source (George King Biomedical, Overland Park, KS). The plasma samples were analyzed using a biochip array (Randox, London, UK) for metabolic syndrome biomarkers including PAI-1 and ELISA kits for vWF, MP-TF (Hyphen BioMed, Nueville-Sur-Oise, France) and prothrombin F1+2 (Siemens, Newark, DE).

Results. Circulating levels of vWF, MP-TF and PAI-1 were statistically increased in patients with AF compared to normal ($P<0.0001$, $P<0.0001$, and $P=0.0014$, respectively). Circulating levels of prothrombin F1+2 showed no difference between the AF and normal group ($P=0.2696$). AF patients ($n=30$) were divided into two groups based on their usage (Group 1, $n=21$) and non-usage (Group 2, $n=9$) of any anticoagulant. Furthermore, those on

anticoagulants were divided based on their use of newer (R and A, Group 3, n=16) or traditional (W, Group 4, n=4) anticoagulants. A statistical increase in vWF (P<0.0001), MP-TF (P<0.0001) and PAI-1 (P=0.011) remained in Group 1 compared to normal while a statistical increase in prothrombin F1+2 (P=0.0343) and PAI-1 (P=0.0040) were noted in Group 2 compared to normal. vWF (P=0.0036) and MP-TF (P=0.0059) were elevated in Group 1 compared to Group 2 while prothrombin F1+2 (P=0.0697) and PAI-1 (P=0.4548) showed no difference between the two groups. Furthermore, there was no statistical difference in the level of any thrombogenic biomarker in AF patients between Group 3 (R and A) and Group 4 (W).

Discussion. Elevated levels of vWF, MP-TF and PAI-1 seen in AF patients compared to normal provide insight into an additional risk of thrombogenesis associated with AF which is not targeted by current anticoagulant medications. Of the 30 patients examined in this study, 8/9 (89%) patients who were not on anticoagulants had a stroke risk stratification score of 0 while 20/21(95%) patients who were on anticoagulants had a score of >1. This data suggests that although very effective in lowering prothrombin F1+2 levels in AF, the newer anticoagulants, R and A, and the traditional anticoagulant, W, still leave additional prothrombotic biomarkers unaffected. Thus additional pharmacological interventions may be needed to optimize the management of thrombotic stroke in atrial fibrillation.

Key words : *Atrial Fibrillation, Anti-coagulant drugs*
Conflicts of interests : None.

Extracellular nucleosomes, markers of cell death, are elevated in end-stage renal disease independent of circulating microparticle-associated tissue factor.

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Background. Extracellular nucleosomes in plasma (PNs) are complexes of DNA and histones that are released during cell death. In acute kidney injury, there is an increased release of nucleosomes with decreased nucleosome clearance. Nucleosomes mediate inflammatory and thrombotic responses and could serve as biomarkers in chronic kidney diseases. Microparticle-associated tissue factor (MP-TF) are released during cell death and mediate thrombotic responses.

Methods. The concentrations of PNs in ESRD patients (n = 90) and healthy volunteers (n = 50) were measured using the Cell Death Detection ELISA PLUS assay (Roche Diagnostics, Mannheim, Germany). MP-TF levels were measured using the ZYMUPHEN MP-TF kit

(Hyphen BioMed, Neuville-sur-Oise, France). The levels of both PNs and MP-TF were also correlated with WBCs, RBCs and platelets to determine the origin of measured PNs.

Results. In comparison to the plasma from healthy volunteers (6.74 ± 13.7 Arbitrary Units (AU)), the levels of PNs in ESRD patients were higher (15.5 ± 14.1 AU; $p < 0.0001$). Similarly, MP-TF levels were elevated in ESRD patients (3.00 ± 1.42 pg/mL; $p < 0.0001$) compared to normal (0.363 ± 0.263 pg/mL). There was no correlation between PNs and MP-TF in ESRD patients ($r = 0.077$; $p = 0.501$). Moreover, there was no correlation between PNs and platelets ($r = 0.067$; $p = 0.543$) and RBCs ($r = 0.083$; $p = 0.447$). However, the PNs showed a positive correlation with WBCs ($r = 0.223$; $p = 0.042$). There was no correlation between MP-TF and WBCs ($r = -0.057$; $p = 0.632$) and RBCs ($r = -0.042$; $p = 0.722$), but a positive correlation was observed between MP-TF and platelets ($r = 0.237$; $p = 0.042$).

Conclusion. PNs were elevated in ESRD patients, indicating an increased release of nucleosomes, suggesting increased cell death. The observed correlation between PNs and WBCs suggests that the detected PNs are derived from WBCs. A lack of correlation between PNs and MP-TF suggests that the MP-TF increase is independent of the pathophysiologic processes responsible for abnormal PN generation in ESRD patients.

Key words : *nucleosomes, End Stage Renal Disease*
Conflicts of interests : None.

Cancer and leg ischemia

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Introduction. The risk for venous thromboembolism events is seven times higher in cancer patients but a link between cancer and iterative arterial thrombosis is less well documented.Clinical case. we report a case of a 55 years old patient, smoker (35 pack-years), hypertensive, who underwent an aorto-bifemora bypass surgery in 2004, whose right leg of the bypass got thrombosed in January 2011 requiring thrombectomy. One month later he presented with an acute ischemia of the left leg requiring femoro-popliteal bypass surgery that was again thrombosed in June 2014 and treated medically. In March 2015 he presented again with limb ischemia during cardiogenic shock requiring bilateral transmetatarsal amputation. In January 2016 he presented with a worsening of trophic changes requiring tibial amputation. At this time, a large bowel cancer with liver metastases was discovered.
Discussion. Few studies have explored the association between arterial thrombosis and cancer although cancer is the second cause of mortality in patients with arteriopathy. In two series of 192 and 419 patients with acute limb ischemia reported respectively a cancer prevalence of

11,5% (1) and 3.8% (2) and amputations rates higher than in non-cancer patients. Recently a Danish national cohort of 7840 patients operated on for acute limb ischemia (3) found 30.4% of cancer diagnosed before or after revascularization. A 10% prevalence of cancer has been reported in a French cohort of 925 patients with arterial disease and anemia (4).Hypercoagulation status, embolism (tumor cells or DVT with paradoxical emboli), compression by the tumor, immobility, radiotherapy and chemotherapy are reported as causative factors.Conclusion. Although the pathogenesis remains unclear and probably multifactorial, the possibility of a underlying cancer should be considered in any patient with recurrent arterial thrombotic events.

(1)Tsang JS, Naughton PA,O'DonnellJ, Wang TT, Moneley DS, Kelly CJ, Leahy AL. Acute limb ischémia in cancer patients : should we surgically intervene ?Ann Vasc Surg 2011;25:954-60.(2)El Sakka K ,Gambhir RPS, Halawa M , Chong P, Rashid H. Association of malignant disease with critical leg ischemia. Br J Surg 2005;92:1498-1501.(3) Nicolajsen CW, Dickenson MH, Budtz-Lilly J, Eldrup N.Frequency of cancer in ppatients operated on for acute peripheral arterial thrombosis and the impact on prognosis. J Vasc Surg 2015 62(6):1598-606.(4) Desormais I, Aboyans V, Bura A , Constans J , Cambou JP , Messas E , Labrunie A, Lacrroix P. Anemia, an independent predictive factor for amputation and mortality in patients hospitalized for peripheral artery disease.

Key words : *Cancer, Critical limb ischaemia, arterial occlusive diseas*

Effect of Recombinant Lubricin on Human Blood Coagulation Parameters and Platelet Aggregation.

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** Lubris, LLC*

Introduction. Lubricin (proteoglycan 4; PRG4) is a proteoglycan which acts at tissue interfaces as a boundary lubricant. Lubricin is present in synovial fluid and plays a major role in synovial homeostasis. A recombinant form of human lubricin, rh-PRG4 is being developed to treat a variety of inflammatory conditions, including osteoarthritis & dry eye (Lubris Biopharma, Boston, MA). The purpose of this study is to investigate the effect of rh-PRG4 on blood coagulation utilizing various experimental studies.
Materials and Methods. rh-PRG4 was supplemented with citrated whole blood from normal human donors (n = 10) to obtain a concentration range of 0 - 200 mg/uL. Activated clotting time (ACT), thrombelastographic analysis (TEG), and whole blood prothrombin time (PT), partial thromboplastin time (aPTT), and thrombin times (TT) were measured. Similarly, citrated plasma was supplemented with rh-PRG4 at 0-200 mg/ML to determine PT, aPTT and TT. The effect of this agent was also studied on the generation of factors Xa and IIa using a

fluorokinetic method. Additionally, rh-PRG4 was also studied for its effect on platelet aggregation induced by various agonists, such as ADP, collagen, epinephrine and thrombin at a concentration range of 0-20 ug/ml.

Results. rh-PRG4 did not produce any effect on the whole blood clotting assays, such as the PT, aPTT and TT. Similarly, in the citrated plasma, none of the clotting assays were altered. rh-PRG4 did not produce any inhibition of thrombin generation in plasma. Furthermore, it did not produce any inhibition or augmentation of agonist-induced platelet aggregation. These studies suggest that rh-PRG4 does not modify whole blood and plasma coagulation profile and produce and more relation of platelet function.

Conclusions. These studies suggest that because of no potential alteration of the coagulation system, lubricin is not expected to modulate bleeding or thrombotic processes in clinical indications.

Key words : *coagulation, recombinant lubricin*
Conflicts of interests : Ed Truitt - Employee of Lubris, LLC

14:00-15:30 BELLECOUR 1

IUA oral free paper session 7 : Cardiovascular diseases : Ulcers, lymphoedma
Session 7 de communications orales UIA : Maladies cardiovasculaires : Ulcères, lymphoedème

Development and validation of the psychometric properties of a self-reported assessing adherence to the wearing of medical compression stockings

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Objective. The evaluation of the compliance to compression therapy by stockings remains a key problem in medical practice. At the present time no easy to handle validated tool is available. The objective of this work was to validate a short self-questionnaire measuring patients' adherence to the wearing of elastic compression stockings.

Method. A questionnaire using the gold standard for the development of an evaluation questionnaire was previously elaborated. Shortly, questionnaire items were selected through patient interviews then reduced using statistical methods such as PCA using Varimed rotation and the Rasch model. Comprehensibility, acceptability and the internal consistency using Cronbach's alpha test of the first version of the final questionnaire was also tested.
The second phase reported here is the evaluation of the external validity. An open labelled clinical trial was carried out. The calculated needed number of patients was 75. The questionnaire was given at the beginning and the end of a 28 ± 4 day period during which

the patients were asked to wear a compression stocking that exerted a pressure of 15 to 20 mmHg at the ankle. The stockings were equipped with an electronic sensor that made possible a direct objective measurement of compliance.

Results. 86 patients, 59.9 ± 14 years old (97,7% women) suffering from primary venous insufficiency with stage C3 of the CEAP classification were included between january 2015 and june 2016. The patients were prospectively included by 10 vascular disease centres. 98 % of the questionnaires were completed. The preliminary questionnaire was reduced and demonstrated a good correlation with stocking compliance. The final version of questionnaire and the ROC curves will be presented.

Conclusion. A validated compression adherence self-questionnaire is now available. This questionnaire should be used in medical practice first but also in clinical trials if stockings equipped with sensors are not available or may have a strong influence on the stocking compliance.

Key words : *Compression stockings, Compliance*
Conflicts of interests : Rastel D. Consultant for Sigvaris, médical compression stocking manufacturer

Biomechanical study of pressure applied on the lower leg by elastic compression bandages

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Compression bandages are commonly used for the treatment of some venous or lymphatic pathologies. Interface pressure applied by compression bandages is the key of this treatment, whose efficacy is admitted [1]. This interface pressure depends on several parameters either related to the bandage, such as its mechanical properties or application techniques, or to the patient, such as his leg morphology. A previous experimental study [2] showed that the patient's morphology and the bandage mechanical properties are not sufficient to explain interface pressure distribution. Nevertheless, these two variables are the only ones considered in Laplace's Law (P=T/r with P the pressure, T the bandage tension and r the local radius of curvature), the current standard method for interface pressure computation. Moreover,

various bandages are proposed by manufacturers and their evaluation requires reliable methods to predict interface pressure applied by these bandages.
Hence the need to better understand and to model interface pressure generation.
To this aim, a patient-specific simulation of bandage application (Biflex® 16 and Biflex® 17, Thuasne, applied in a spiral pattern with 2 and 3 layers on the leg) was developed and tested for 5 patients. The inputs of the simulation are the bandage's elastic properties, the application technique and the patient's leg morphology obtained thanks to a 3D optical scanner. The results of the simulation were then compared to experimental pressure measurements and pressure computed with Laplace's law.
The comparison of numerical simulation with values given by Laplace's law highlighted the influence of leg geometry changes due to bandage application on interface pressure. Even though differences with the experiments still remain, this study demonstrated that, using an appropriate surrogate model, simulation could be an efficient tool for interface pressure prediction. The numerical simulation need to be enriched in order the take into account other parameters which could impact on interface pressure, such as bandage to bandage friction for instance.

References :
1. Amsler et al, J. Vasc. Surg. 50:668–674, 2009.
2. Chassagne et al, Ann. Biomed. Eng, 43:12: 2967–77, 2015

Key words : *Compression bandages, Interface pressure*
Conflicts of interests : Thuasne is a medical devices manufacturer.

Compression therapy (CT) in Endovenous Laser Ablation (EVLA of Great Safenous Veins(GSV)

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Introduction.
In the EVLA the patients have higher expectations: less postoperative pain and faster restarting of everyday and work activities
The intensity of pain after EVLA is mild but is a determining factor in the acceptance of the procedure.
CT effectiveness has not been demonstrated in thermal ablations and it is complex by involving the thigh and groin.
There is absence of firm evidence and anarchic indication of CT in EVLA of GSV
Objectives.
- Primary
  - To establish CT protocol
- Secondary
  - To demonstrate decrease of minor complications

- To achieve better QOL and faster restarting of everyday and work activities
- To improve the PROM

Methods.

Prospective randomized cohort

- Group1: control
  Compression concentric bandages of high extensibility for 7 days, then graduated compression stocking (GCS) 20 to 30 mm Hg for 7 days
- Group2: Compression International Group (CIG) protocol
  Eccentric compression more 20 to 30 mHg Hemicollant stockings more concentric compression bandages of low extensibility cohesive for 72 hours, then GCS until 14 days
  Control of TC level: Picopress It is a pneaumatic pression sensor

We measure the pressure in points B2:35 , B3:45 and performe Magnetic Resonance MR to test the efficacy of CT GSV.

Period: 14 months

279 EVLA of SV were performed, 7 patients did not accept to participate

Population: 272 220 EVLA of GSV

52 EVLA of SSV were excluded

G1: control Conventional CT 110 versus G2 : 110 CiG protocol

Sample: 174 EVLA after applying exclusion criteria G1: 98 G2: 76

Results.

No differences in materials, surgical procedure, anesthesia, pain management PO or baseline characteristics of the groups: age, sex, acronym C of CEAP, VCSS, CIVIQ, length and maximum diameter of target veins, degree of reflux and duration of the procedure.

Pain intensity : low average immediate pain in both groups

Average pain : VAS scale

G1: 37.5 mm G2: 24.1 mm

G1: 90 EVLA 88.20% VAS mild 8 p VAS moderate 11.80%

G2: 76 EVLA 100% VAS mild

Pain temporality: G1 peak pain day 3 and 7 G2 peak pain 7th

Suspension of analgesic intake dia10

G1: 69% vs G2: 89%

Time restart to normal activities: average days G1: 3 vs. G2: 1

Time of labor reincorporation: average days G1: 7 vs G2 : 5

Ecchymosis

Mild: G1 71 % vs G2 92%.

Moderate: G1 27 % vs G2 8%

Severe : G1 2% vs G2: -%

Score: G1: 1.63 vs G2: 1,094.

Induration in mm: G1: 2.39 mm versus 1.12 mm

TFS: G1: 6.98% versus G2: 1.52%

Pigmentation: G1 3.92% versus G2: 0%

EHIT
72 hours: G1 and G2 Type 1: 100º%
7 days: G1: Type 1 96% Type 2 4%
G2: Type 1 100% Type 2 0%
No EHIT progression
Better results in the questionnaires completed by patients
G1: 51.94% good G2: very good 55.26%
Higher rate of abandonment of CT in the G2: 20 versus G1: 3
Lack of patient adherence to protocol TC

Conclusions.
We design a CT protocol in EVLA of GSV with materials available in our country.
CT in EVLA of the GSV with GIC protocol is effective because it achieves pressures in the thigh in a standing position more than 30 mm Hg.
CT demonstrate efficacy by MR and measurements of pressure with Picopress.
Neither MCG or concentric compression bandages high extensibility achieve adequate compression of the thigh in standing position (5-10 mm Hg).
We detected in the G2:
Changes in the timing of pain
Lower pain intensity

- analgesic consumption
- rate of minor complications and progression of EHIT
- time return to normal and labor activity

Key words : *EVLA, CT*
Conflicts of interests : I do not have any relevant financial relationship

Functional restoration of platelets by tri-block polymer (vepoloxamer) as studied in agonist induced platelet aggregation studies

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Loyola University Medical Center
** Mast Therapeutics*

Introduction. Vepoloaxmer (VP) is an amphiphilic, non-ionic, tri-block copolymer surfactant. It has been shown to be effective in the repair/recovery of damaged cell membranes. It enhances the survival of red blood cells by increasing the stability of the membrane and decreasing the fragility profile. VP is an attractive and promising agent for enhancing the blood cell viability and functions during prolonged storage in blood banking. Platelets gradually lose their functionality during storage. The aim of the study is to test the protective effect of VP on platelet function.

Material and Methods. Blood samples were collected in 3.2% sodium citrate from 30 heathy volunteers. To investigate the effect of VP on platelet function two experimental methods were used. In the first approach, VP was added to citrated whole blood (WB) in a 1:10 ratio at a final concentration of 10 mg/mL. For control studies, saline was used in the same manner. Saline and VP containing tubes were centrifuged to collect Platelet Rich Plasma (PRP) and platelet poor plasma (PPP). These were referred to 'saline-WB-preparation (saline-WBP)' and 'VP-WB-preparation (VP-WBP)'. In second procedure, citrated WB was centrifuged to obtain PRP and PPP. VP was added to PRP at a concentration of 10 mg/mL. For control purposes, saline was used in the same manner. These were referred to saline- PRP-preparation (saline-PRPP) and 'VP-PRP-preparation (VP-PRPP). Similar procedures were repeated at lower concentrations. Agonist induced aggregation (AIA) studies were performed at 30 minutes (min), 180 min and >300minutes at all different concentrations utilizing at PAP-8 aggregometer (Biodata Corporation). Such agonists as ADP, Arachiconic Acid (AA), Collagen and Epinephrine were used.

Results. In the saline supplemented systems all the agonists showed a time dependent decrease in platelet aggregation induced by different agonists. In the VP supplemented systems there was no protective effect of VP on AA and Epinephrine induced aggregation. However, there was a protective effect on ADP and Collagen induced aggregation except at 10 mg-WBP. After 300 min, the observed protective effect of on ADP induced aggregation was found to be 40-60% higher in comparison to saline control in 2mg-WBP. This protective effect was found to be 43 % at 10mg-PRPP and 10% at 2mg-PRPP. After 300 min, protective effect on Collagen induced aggregation was 65% compared to saline control in 2mg-WBP. This protective effect was 42 % at 10mg-PRPP and 11% at 2mg-PRPP. The aggregation values were lower in platelets recovered from VP-WBP in comparison to VP-PRPP with the exception of epinephrine induced aggregation.

Discussion. Platelets are known to lose their functionality upon storage. In this study, protective effects of VP were observed on ADP and collagen induced aggregation while a decrease aggregation response was noted with AA and Epinephrine aggregation. This suggests that VP modulates specific receptors on platelet surface. Since ADP and Collagen receptors have a major role in aggregation, the protective effects of VP on these receptors may be contributory to the restoration of platelet functionality upon storage.

Key words : *Platelet aggregation, Vepoloxamer*
Conflicts of interests : None.

Treatment of venous leg ulcers and the experience with sulodexide

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Venous leg ulcers (VLU's) are an expensive problem for any health care system in the world. Leg compression is considered the cornerstone of treatment, but there is still poor physician and patient compliance. healing rates ranges from 30 to 70% at 6 months or worst if the ulcer is larger than 10cm. We compare the effect of adding sulodexide to our usual treatment for VLU's, on: wound healing ratio, pain control, changes in lipodermatosclerosis(LDS) and Venous Severity Clinical Score (VSCS).
In a single center study we compare two groups of patients suffering VLU's due to deep os superficial vein reflux. patients with confirmes deep vein obstruction were excluded. Ulcer size was measured by photograph using the program software image j. the general protocol was: triple layer bandage, phlebotonic drug, oral NSAID and antibiotics if needed. two groups were analyzed. group A: general protocol + 10 days of intramuscular sulodexide (60mg) following with oral dose of 25mgtwice a day until ulcer was closed. group B: general protocol only. there was weekly follow-up when bandages were changed, wound cleansing and new bandage applied until wound closure. Chi2 and U-Mann-Whitney were used for statistical analysis.
90 ulcers in 70 patients where analized; similar demographics in both groups: average 56yr age, 67% female, 75% overweight; ulcer size was avg 468.19mm in group A and 435.47mm in group B. Pain was less intense at week 2 in group A ($p=0.024$). the healing rate at 4,6 and 10 weeks was 52, 84 and 96.8% in group A vs 7, 26.9 and 76.9% in group B ($p<0.05$). at week 4 the VSCS improved 34% in group A and 18% in group B. at week 2 LDS had reduce 54.9% in group A vs 43.2% in group B ($p<0.05$).
the use of sulodexide improved VLU's healing rate and pain was control much faster. LDS was showing also faster improvement, but we cut the analysis when patients stop visists due to complete ulcer healing. VSCS showed improvement but not statistical significant.

Key words : *sulodexide, Ulcer*
Conflicts of interests : No conflict of interest

Primary prevention. Prevent Study I

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Objectives..Determine demographics data
Rate of risk factors, previous treatments, symptoms, signs, C of CEAP, VCSS, CIVIQ 20
Correlate variables

This study is based on information obtained of Argentina campaign of primary prevention in Phlebology 2010

Methods.

Population: 2163 patients

- included: 2144
- excluded: 9 by severe flaws in data collection

16 simultaneous centers

Period: 23 / August 27, 2010

We did not perform neither reliability inter-observer index nor Kappa index

Results.

- Average age: 52.55 years
- Female sex: 86.8%
- Rate of risk factors: consistent with international studies
- All are more prevalent in men, less mesenchymal disease
- Multiple risk factors (over three): 77%
- Symptoms / signs: rate 50% higher than in international studies
- CEAP: higher prevalence C3 50.98%
- CEAP C1 prevalence in women: 89.81%
- C1 higher prevalence in patients less than 55 years: 59.30%
- CEAP C4-C6 correlates with elevated BMI, sedentary lifestyle, positive AHF and history of DVT
- Higher C CEAP correlates with higher pretreatments rate and multiple risk factors
- CVSS average overall: mild 0.48
- Domains pain, varicose veins, edema: moderate
- Higher CVSS in older men
- CIVIQ 20: average overall 73.2
- Higher rate: moderate impairment CIVIQ 20
- Female sex, younger age, multiple risk factors correlated with lower CIVIQ 20
- Minor CEAP C with minor CIVIQ 20
- Minor CVSS with minor CIVIQ 20
- Higher CVSS with higher CEAP C

Conclusion.

- High prevalence of high degree C of CEAP
- Higher rate of symptoms and signs
- Lower rate of previous treatments
- Increased severity of CVD and lower HRQOL indicates late consultation for failure prevention

This study improves the knowledge of demographic factors and proposes preventive measures to promote health and prevention of CVD in Argentina

Key words : *primary prevention, CVD*
Conflicts of interests : I do not have any relevant financial relationship

Prevent Study II.

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Introduction. This is based on information obtained of Argentina campaign of secondary prevention in Phlebology 2011(screening)

Method.

- Study: Prospective, observational, cross, national
- Multicenter:17 centers non-simultaneous
- Population: 3042 patients
- Sample: 2554 patients
- Excluded: 488
- Protocolized questionnaire
- Classification: CEAP
- Doppler ultrasound (DUS) device: Micro Max
- Protocolization: segments of studies and provocative maneuvers
- Definitions of reflows
- Classification of reflows: duration and extent of reflux and vein diameter

Objectives.
Determine prevalence:
Great and small saphenous veins insufficient: grade and length of reflows and vein diameter
Perforant vein insufficient(DVI): grade and length of reflows, diameter, height
Deep veins insufficient(PVI): grade and length of reflows / maximum speed of reflows (MSR)
Correlation DUS measurements
Correlation clinical with DUS measurements

Results.
Female: 87.2% Age: 52.55 years
Prevalence
DVI : 11.27%
Higher prevalence: right femoral vein 4.65%
MSR higher 10 cm / sec: 2.67%
Insufficiency of GSV: 7.32%
Insufficiency of SSV: 1.33%
Higher prevalencia: right lower limb in ostium and staff
diameter: severe degree

DUS correlation
Higher diameter with higher grade
higher diameter with higher extent
higher grade with higher extent
IPV
Increased incidence: area internal of leg 10%
height: 10 cm of plant 17 cm of knee crease
diameter: severe degree

- Correlation location / grade reflux
  Higher prevalence of severe degree in area internal of the leg: 10%
- Correlation location / diameter
  Larger diameter in area internal of the leg 9.9%
- Correlation diameter / location / degree / higher prevalence
  Larger diameter / area internal of thigh / moderate 45.80%
  area internal of leg / mild 52.00%

We could not establish an association between height, location, and extent of reflux with increasing diameter

Conclusions.
Doppler ultrasound (DUS) is the gold standard even in asymptomatic patients
Increased percentage of asymptomatic patients with pathological DUS have superficial venous insufficiency: 14%
We demonstrated high prevalence of reflux in at least one vein: 25% DUS/ Clinical Correlations
Insufficient of GSV and SSV of larger diameter, severe degree and length of reflows correlated with greater clinical severity without difference by sex and age
Insufficient perforating veins correlated with higher clinical severity
Insufficient deep veins with MSR higher 10 cm / sec with higher clinical severity
Assessment of perforant and Deep veins have higher technical difficulties
We propose a protocol for performing and reporting DUS and continuing medical education

Key words : *Secundary prevention, Screening*
Conflicts of interests : I do not have any relevant financial relationship

Real-time tissue elastography for the assessment of lymphedema

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Purpose. Elastography is a new ultrasonographic technique to evaluate tissue elasticity, which visualizes fluid retention as a red region in lymphedema patients. The aim of this study was to evaluate elastography in the assessment of lymphedema.

Methods. 44 legs in 22 patients with secondary lower extremity lymphedema (LEL) and 24 legs in 12 healthy volunteers were examined using elastography. Elastography was performed on both legs at the following three sites: medial thigh (MT), medial leg (ML), and anterior ankle (AA).

Results. We classified the normal subcutaneus tissue strain in healthy volunteers. And we create a new lymphedema elastography score to compare whit clinical examination and classification.

Conclusion. Elastography could be an interesting objective diagnostic tool to assess legs lymphedema.

Key words : *lymphedema, elastography*
Conflicts of interests :

Lymphedema of lower limbs associated to peripheral arterial disease : which treatment ?

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(2) Vascular Surgery, Cliniche Humanitas Gavazzeni, Bergamo, Italy

Purpose. Normally compression therapy (CT) is not indicated in patients with severe peripheral arterial disease (SPAD).The problem becomes serious when SPAD is associated with lymphedema of lower limbs (LLL). We thus established a protocol for treating these patients.

Method. In all patients affected by LLL we measure the ankle-brachial systolic pressure index (ABI).When ABI is lower than 0.50 CT is not indicated ; revascularization of the lower limb is attempted before the treatment. If 0.50<ABI<0.55 we use microcirculatory activity :Trancutaneous oxygen tension (TcpO2) with hanging legs and when the microcirculatory reserve is >40 mmHg CT is indicated. ABI is not applied in diabetic patients with LLL , in this case we use TcpO2 directly and the systolic pressure index of the big tue (BTI). In SPAD with significant lymphedema of the foot , we only use ABI abd BTI (TcpO2 gives false result).

Conclusion. This protocol allows us to treat these parients without significant adverse effects of compression.

Key words : *Lymphedema-arterial disesae, TcPo2-ABI*

14:00-15/30 TETE D'OR 2

IUA oral free paper session 8 : Arterial disease : Explorations
Session 8 de communications orales UIA : Maladie artérielle : Explorations

Diagnostic Accuracy of shear wave Elastography in vascular disease assessment: A meta-Analysis

Mohammed ALSAADI, Mohammed ASLAM
Department of Vascular Surgery, Imperial College London, UK

Background. The present study was aimed to evaluate the accuracy of shear wave elastography (SWE) for vascular disease assessment.

Material & Methods. Several search engines like MEDLINE, PubMed, Embase, and Google Scholar databases was conducted, and data on SWE tests and vascular diseases were collected. For each vascular disease like atherosclerosis, carotid plaques, arterial stiffness and venous thrombosis, pooled results of sensitivity, specificity, and area under summary receiver operating characteristic (SROC) curve were analysed. The study heterogeneity was evaluated. The publication bias was evaluated using Deeks funnel plots asymmetry test and Fagan plot analysis was performed.

Results. Numbers of published studies were included in the analysis. This review demonstrates that majority of the studies are on phantoms and very few attempts were on patients. The pooled sensitivity and spec-ificity of SWE for carotid plaques is high. The pooled sensitivity and specificity of SWE for venous thrombus were also high. The pooled sensitivity and specificity of SWE for normal arterial stiffness were about 90%.

Conclusions. The overall accuracy of SWE is high and clinically useful for the vascular disease imaging. The data shows high sensitivity and specificity however the accuracy of SWE in patients to characterize arterial plaque and venous thrombus remains challenging and requires further studies. In our laboratories, SWE studies on patients with PAOD is being performed and compared with the finding of MRI and histology. The preliminary data indicates high correlation of SWE with histological finding. Furthermore, this diagnostic information for patients being considered for carotid surgery will be available before surgery not afterwards as is the case for histology which is available only after the surgery.

Key words : *Shear Wave Elastography, Periperal Arterial Disease*
Conflicts of interests : None

Arterial stiffness assessed by popmetre® compaired to arterial stiffness assessed by carotid femoral PWV

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Aim. Large artery stiffness is recognized as a strong, independent marker of cardiovascular risk, mainly through aortic pulse wave velocity (PWV). pOpmètre ® is a non-invasive method, which estimates aortic PWV through finger-toe (FT) wave analysis. In a previous study, Alivon et al. (Archives of Cardiovascular Diseases 2014) have shown an acceptable correlation (r^2 = 0.43 for PWV) between pOpmètre ® and the reference method. However this study led to the necessity to optimize the algorithm and the procedures because of the presence of several outliers involving mainly obese and elderly subjects, and occurrence of suboptimal toe pulses.
Objectives. To analyze the accordance between FT PWV measured by the pOpmètre ® with optimized algorithm and procedures, and carotid-femoral PWV (CF PWV) measured using SphygmoCor ®.

Materials and Methods. The pOpmètre® have 2 photodiodes sensors, positioned on the finger and on the toe, next to the pulp artery. A particular attention was drawn on positioning of the toe sensor so that the pulp was in contact with the photodiode. Different signal processing was applied and no cut-off value was used for pulse height. CF PWV was performed in the same cession. Pearson's correlation and Bland Altman graph were performed.

Results. 45 subjects were included: 18 healthy subjects and 27 patients with essential hypertension aged 32 ± 7 years and 58 ± 18 years respectively. The correlation between FT PWV and CF PWV was good and significant (r^2 = 0.77; $p<0.0001$). In the 45 subjects Mean FT PWV was 9.5+/- 1.8 vs CF PWV 9.6+/-1.7 m/s. A better correlation was found in term of transit time (r^2 = 0.83; $p<0.0001$). The Bland and Altman analysis, mean difference was 0.35 m/s $p<0.0001$ versus -11 ms $p<0.0001$, the standard deviation of the difference was 0.87 m/s & 6.73 ms, classifying the device as good agreement with reference (Wilkinson, ARTERY RES 2010). A bias persisted with underestimation in older subjects

Conclusion. pOpmètre® with optimized algorithm and procedure qualifies as excellent agreement with the reference technique for PWV assessment Compared to CF PWV, FT PWV is faster, simpler to perform and importantly, more acceptable to patients, however, outcome studies must confirm the value of this new device.

Key words : *Arterial Stiffness, Pulse Wave Velocity*
Conflicts of interests : Magid Hallab possession d'un brevet.

An investigation between Oscillometry and Plethysmography based devices in the measurement of ABPI in comparison to the Doppler gold standard

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Aim. To compare two automated ankle-brachial index (ABI) systems with the conventional Doppler technique for identifying peripheral arterial disease.Method: 26 patients that were referred for lower limb arterial assessment at a London vascular laboratory underwent an ABI measured with an automated system based on Volume Plethysmography (ABIvp) and an automated system based on oscillometric (ABIo). A standard ABI using a handheld Doppler was then taken on fully rested patients and used as the 'gold standard'. The analysis methods used were Bland Altman limits of agreement, equality plots and Pearson's correlation.

Results & Discussion. The results showed good correlation between patients with the ABIvp device and Doppler ($r=0.90$, $p<0.05$) and 95% limits of agreement were ±0.20 with a bias of -0.015. The results showed poor correlation between patients with the ABIo device and Doppler ($r=0.61$, $p<0.05$) and 95% limits of agreement were ±0.43 with a bias of -0.08.

Conclusion. These results show that the ABIvp device has comparable results with Doppler and a considerable reduction in time to perform the tests. However, the ABIo device had difficulty in measuring ABIs below 0.8 and could not be used to reliably provide an ABI prior to compression bandaging and treatment planning. Both systems are fast and easy to use but the accuracy of the ABIvp device gives it the potential to be used in the measurement of ABI in place of Doppler prior to compression bandaging.

Key words : *ABPI, Plethysmography*
Conflicts of interests : None

Objective quantification of walking pain occurrences in free-living conditions in peripheral artery disease patients.

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Objective. Peripheral artery disease (PAD) patients can experience ischemic pain in the lower extremities whilst walking. Although walking pain occurrences can be objectively assessed in

laboratory during a treadmill test, no objective free-living assessment has been performed yet. Using physical activity (PA) monitors, our aim was to develop a method to objectively quantify in free-living conditions walking pain occurrence and stops induced by ischemic pain in PAD patients.

Methods. Fifteen PAD patients (defined by an ankle-brachial index ≤0.90) limited by ischemic walking pain wore a wGT3X+ accelerometer and a Micro Motion logger watch for 7 days (NCT02041169). Patients had to push a button on the watch (marker event) to report the onset of walking pain and the stop induced by the pain. In addition, patients completed a PA diary on a daily basis. We have developed an algorithm to appropriately assign to each recorded marker event the following: i) walking pain occurrence; ii) stop induced by walking pain; iii) inconsistent event (error). For this purpose, downloaded data from the wGT3x+ were analysed using conventional handling procedure and then used to discriminate walking and sedentary periods using the number of wGT3X+ counts/sec (Vector Magnitude). Consistent marker events were then assigned to walking pain occurrences or stops induced by walking pain. Diaries were scored with the Compendium of PAs and used to identify indoor/outdoor conditions.

Results. The algorithm developed allows quantifying walking pain occurrences and stops induced by walking pain in outdoor conditions. However it did not allow distinguishing walking pain occurrences from stops in indoor conditions because of the specific nature of the walk (short bouts).
When applying this algorithm among the included 15 PAD patients of the present study, we highlighted that, on average, patients experienced pain only six times per week in outdoor conditions and this pain led the patients to stop in half of the cases. In indoor conditions, on average 6 marker events per week were recorded.

Discussion. The objective assessment of walking pain occurrences and stops induced by ischemia in free-living environment could provide interesting clinical information on patients' walking limitation.

Authors thank the University of Rennes which granted a funding (CORECT) and the Region Bretagne, bourse ARED.

Key words : *Physical activity monitors, Free-living walking impairment*

Exercise induced limb ischaemia in peripheral artery disease

David KOVACS, Beata CSISZAR, Katalin BIRO, Katalin KOLTAI, Dora PRAKSCH, Dora ENDREI, Kalman TOTH, Gabor KESMARKY
1st Department of Medicine, Medical School, University of Pécs, Hungary

Background. Diagnostic procedures of vascular patients are usually restricted to physical examination, hand-held Doppler and radiological imaging of stenosis. Functional tests evaluating limb ischaemia at rest and during exercise have been neglected. The exercise induced changes were measured in patients with peripheral artery disease (PAD) by the non-invasive angiological methods in our study.
Methods. The patient group consisted of 51 patients diagnosed with PAD (mean age: 65±9 yrs) and 21 healthy volunteers without PAD were enrolled as a control group (mean age: 60±3 yrs). Transcutaneous tissue oxygen pressure (tcpO2), laser Doppler flowmetry and toe pressure measurement (toe/brachial index, TBI) were applied in patients besides the physical examination and hand-held Doppler (ankle/ brachial index, ABI). Exercise (6-minute walk test or treadmill) was performed as a provocation; measurements were done at rest and after exercise. These procedures were also carried out in the control group.

Results. Significant exercise induced decrease could be detected in the tcpO2 measured on the forefoot (41±15 mmHg at rest vs. 30±22 mmHg 5 minutes after exercise), ABI (0.74±0.32 vs. 0.58±0.34) and TBI (0.47±0.20 vs. 0.36±0.21) ($p<0.05$). In the control group, the tcpO2 on the forefoot after exercise showed increasing tendency, which was significant after 15 minutes compared to the resting values (58±10 at rest vs. 62±13 mmHg after exercise; $p<0.05$). Significant correlations could be found between tcpO2 and laser Doppler perfusion unit at rest (n= 46, R= 0.342, p= 0.018) and after exercise (n= 47, R= 0.325, p= 0.024). In some patients, values of ABI (n=16), tcpO2 (n=14) or both (n=10) revealed severe exercise induced limb ischaemia in spite of the normal resting values.

Conclusion. Our study included several methods to observe exercise induced circulatory alterations of the lower limb. These functional non-invasive tests should have a greater role in vascular diagnostics.

Key words : *non-invasive methods, functional test*

Effect of recovery duration on walking capacity after a symptom-limited walk in patients with peripheral artery disease.

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Purpose. To determine the effect of recovery duration, after a symptom-limited walk (MWT), on maximal walking time during the following walk in patients with peripheral artery disease of the lower limbs (PAD).

Methods. This study presents preliminary results of the CLASH protocol (NCT02041169) for 13 PAD (ankle-brachial index ≤ 0.90) patients. The included patients had a maximal treadmill walking distance < 500 m with limitations due to lower-limb pain. Using a Strandness protocol (3.2 km/h, 12% grade), patients performed 10 "walking blocks" in a random order on 4 different days. A block was composed of: i) a MWT1; ii) a recovery bout of a given duration; iii) a MWT2. Ten recovery durations were tested: from 0.5 to 9.5 min with 1.0-min increments. Maximal walking time was measured during MWT1 and MWT2. Individual linear and logarithmic models were tested for the relationship between change in maximal walking time ([MWT2 / MWT1] x 100) and recovery duration. A general (group-based) linear mixed model was also tested.

Results. Individual linear and logarithmic models were significant ($p<0.05$) in 9 and 11 patients, respectively. R2 coefficients ranged from 0.50 to 0.78 (linear models), and from 0.43 to 0.93 (logarithmic models). Higher R2 values were reached using logarithmic (vs. linear) models in most patients (n = 9/11). In 2 patients, no model reached statistical significance. The R2 coefficient for the general mixed model was 0.50 ($p<0.05$).

Discussion. Within the range of recovery durations tested here, the relationship between maximal walking time and previous stop duration was mainly logarithmic. It remains however an important inter-individual variability. Further analyses of our data are needed to determine which factors, such as pathophysiological responses to walking, could improve the prediction offered by both individual- and group-based models. Such a prediction could be tested in free-living conditions and likely be used to optimize walking exercise programs.

Support: University Hospital of Rennes (CORECT 2013 funding).

Key words : *maximal walking time, previous stop duration*

TcpO2 evaluation for the assessment of the lower limb revascularization results, in relation to the angiosome theory

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Department of Vascular Surgery, Poznan University of Medical Sciences, Poland

Background. The effect of revascularization can be confirmed by clinical evaluation, ABI, Doppler ultrasound or other imaging tests. However these analyses require interpretation and frequently appear to be subjective. Especially when predicting ischemic ulcer healing. The angiosome theory is a widely accepted approach directed to improve outcome of peripheral revascularization. We conducted the study in order to assess the angiosomal effect of lower limb revascularization, utilizing objective tcpO2 evaluation.

Methods. Between November 2015 and January 20016, 32(8F/24M) patients underwent revascularization of 39 lower limbs, due to severe symptomatic ischemia. 21 traditional and 18 interventions were performed. Operative procedure selection was based on precise clinical evaluation, Doppler ultrasound and diagnostic imaging. Adequate procedure was chosen, with the intention of the best revascularization effect. Additionally, optical fluorescence based tcpO2 measurement of each ischemic limb angiosome was performed, in order to verify diagnostic findings from previous analyses. Postoperatively, the same sequence of evaluations was performed, to compare revascularization effect results of different forms of analysis with the angiosomal tcpO2 changes.

Results. The level of correlation of the diagnostic results of clinical evaluation, Doppler ultrasound and imaging evaluation in comparison to the tcpO22 measures was 46.2%(18/39), 72.8%(28/39), 66,7%(26/39) respectively. Postoperatively, improvement of lower limb vasculature was observed in 82.1%(32/39) of clinical analyses and 100%(39/39) of Doppler ultrasound and imaging tests. However the tcpO2 improvement of critical angiosomes was noticed just in 74.4%(29/39) of cases.

Conclusions. The optical fluorescence based tcpO2 measurement is a well-tolerated, noninvasive, objective and quantify analysis of the tissue angiosomal arterial supply. This may serve as a supplementary method to traditional vascular diagnosis, contributing to the decision of the most appropriate operative procedure selection. The tcpO2 measurement improves the adequacy of revascularization results assessment with regard to angiosomal theory, supporting the prediction of ulcer healing.

Key words : *tcpO2, angiosome theory*
Conflicts of interests : Medicap homecare GmbH, Ulrichstein, Germany has lent the Precise 8008 (tcpO2 measurement device), free of charge for the study time.

Can Left Ventricular End Systolic Dimensions independently predict the severity of Peripheral Vascular Disease in patients with Graves Disease that have been diagnosed with Aortic Stenosis?

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Aim. Hyperthyroidism is an endocrine disorder that has been clearly associated with Cardiovascular Disease. Patients with Graves disease are clinically presenting with hyperdynamic circulation, high cardiac output heart failure and essential hypertension attributed to thyrotoxicosis. Cardiac Valvulopathies have not been directly linked to hyperthyroidism, however they can be present in a vast number of patients with Graves disease. Peripheral Vascular Disease in patients with Graves disease is caused mainly due to essential Hypertension, among other comorbidities. The aim of this study was to evaluate the cardiac morphology, particularly LVESD in patients with Graves disease that have been diagnosed with Aortic Valve Stenosis and the severity of Peripheral Arterial disease.

Methods. 568 patients (196 male, 372 female) with Graves disease have been participated on this study. The age range of this group of patients was between 41-73 years. All patients were admitted to hospital for arteriographic ventriculographies and duplex/Doppler Echo to evaluate the severity of Aortic Stenosis. Left Ventricular End Systolic Dimension were considered significant when <45mm. Aortic Stenosis was considered significant when Aortic Valve Area was <1.8 cm2. ABPI was considered significant when <0.9 for Peripheral Arterial Disease. Data were analyzed using ANOVA and logistic regression analysis. LVESD were analyzed as an independent risk factor. Data are presented as mean values +_ Standard Deviation and level of significance was accepted when p value was <0.05.

Results. Data were analyzed for 568 (196 male, 372 female) patients with Graves disease that have been diagnosed with AS. 194 patients (34.1%) presented AVA 1.5+_ 0.19 cm2, LVESD 42+_ 2.4 mm and ABPI 0.81 +_ 0.13. 207 patients (36.4%) with AVA 1.2+_ 0.16 cm2, LVESD 39+_1.8 mm and ABPI 0.74 +_ 0.11. And 167 patients (29.4%) with AVA 1.1 +_ 0.24 cm2, LVESD 37+_ 1.83 mm and ABPI of 0.68+_ 0.14. Considering LVESD p<0.007, in patients with Aortic Stenosis (AVA p<0.004) can independently predict the severity of Peripheral Vascular Disease with ABPI p<0.001.

Conclusion. Left Ventricular End Systolic Dimensions comprise an independent predictor for the severity of Peripheral Vascular Disease in patients with Graves disease that have been diagnosed with Aortic Valve Stenosis.

Key words : *Peripheral Vascular Disease, Left Ventricular End Systolic Dimension*
Conflicts of interests :

An alternative method of exercise for patients with intermittent claudication

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Supervised exercise is now well recognised as an effective first-line treatment for patients with intermittent claudication and is recommended by international guidelines as the standard of care. The exercise program consists mainly of walking on a treadmill to near-maximum claudication distance. The frequency of exercise starts with 3-4 visits per week and after several months it is reduced to 1 visit per month. Several trials have shown significant improvement in the claudication distance. However, this physical therapy is targeting participants who are relatively fit and excludes a large number of patients who are unable to walk on the treadmill.
The present study investigates the effect of regular dorsiflexion as an alternative exercise program which has very little exclusion criteria, does not need treadmill, supervision and can be performed at home.
This was a prospective pilot study, a total of 30 participants were recruited, of these, 15 were normal controls with no evidence of peripheral arterial occlusive disease (PAOD) as assessed by clinical examination and ultrasound study and 15 were patients with intermittent claudication. The exercise was performed in a sitting position with an angle of 110 degrees behind the knee.. Each subject was asked to perform 10 dorsiflexion and mean arterial blood flow of popliteal artery was measured at rest, and at 0 min, 5 min, and 10 min intervals following the cessation of exercise.
The data was expressed at percentage change in blood flow and analysed using paired t-test. The blood flow immediately after the exercise increased by 63% in controls and 85% in claudicants . After 5 minutes, the increase was 9% and 19% , and after 10 minutes 1% and 7% respectively. The data shows a significant increase ($p<0.05$) in mean blood flow flowing exercise in both groups but it persisted longer in the claudication group. In a second trial, participants will be monitored over a period of 12 months to assess the long term benefit of regular dorsiflextion on daily basis.
The present study shows significantly increased blood flow following dorsiflexion exercise although its long term benefit remains unclear. Intermittent claudication is affecting approximately 20 to 40 million people worldwide and is increasing rapidly with the aging

world population. Patients with claudication experience significant functional disability resulting in a sedentary lifestyle and reduced quality of life. A considerable number of these PAOD patients are not suitable for interventional procedure or supervised treadmill exercise. A simple exercise of regular dorseflextion may be an alternative option which can be safely performed at home.

Key words : *Supervised exercise, Intermittent claudication*
Conflicts of interests : None

Elastography imaging of carotid plaques: preliminary results.

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Background. Elastography imaging is a novel ultrasound technique for quantifying tissue elasticity. Studies have demonstrated that elastography is able to differentiate between diseased and normal tissue in a wide range clinical applications. However its applicability to atherosclerotic carotid disease has not been established. The aim of this study was to assess the feasibility and potential benefit of this technique for the assessment of carotid plaques.

Methods. 51 patients (mean age 76 years) underwent greyscale, dopple and elastography imaging. Elasticity was quantified by hystogram and strain ratio within the plaque and within the vessel wall.

Results.Tissue hardness was scored on a 5-point scale, and relative strains were calculated. The relative strain was 1.12 ± 0.14 for fibrous plaques (n = 8), 0.28 ± 0.07 for atherosclerotic plaques (n = 15), 0.47 ± 0.31 for intraplaque hemorrhage/thrombosis (n = 6) and 0.98 ± 1.04 for complex plaques (n = 14).

Conclusion. Elastography is a potential candidate for a non-invasive and effective approach to identify and carachterize atherosclerotic plaques in the carotid artery.

Key words : *carotid plaque, elastography*

Ultrasonically derived carotid bifurcation geometry as a marker of carotid atherosclerosis

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(3) Department of Vascular Surgery, Stony Brook Medical Center, Stony Brook, NY, USA

Objective. to investigate the impact of carotid bifurcation geometry in the development of carotid atherosclerosis.

Methods. Prospectively collected data including a cohort aged 50-60 years without history, symptoms and signs indicative of cardiovascular disease. Demographic variables and atherosclerotic risk factors (hyperlipidemia, hypertension, diabetes mellitus or history of relevant medication, smoking, family history of cardiovascular disease, body mass index, lipoprotein (a), serum creatinine and homocysteine levels) were recorded. All individuals were subjected to carotid duplex scanning to determine the carotid intima-media thickness (IMT) and the presence of plaque (focal thickening >0.15mm). Also the end-diastole diameters (d) were measured at the level of common carotid artery (CCA), carotid bulb (BULB), internal carotid artery (ICA) and external carotid artery (ECA). The cohorts were classified as Group 1 (n=294 carotid bifurcations) including those without the presence of plaque (207 with and 87 without atherosclerotic risk factors) and Group 2 (n=57 subjects or 114 carotid bifurcations) without atherosclerotic risk factors.

Results. In Group 1, multiple regression analysis showed that the higher dBulb and lower ratios dICA+ dECA)/ dCCA and dICA2+ dECA2/ dCCA2 were associated with early CCA wall thickening (IMT) independently of the presence of atherosclerotic risk factors. In Group 2, a plaque was detected in 27 bifurcations. The lower ratios of dBULB/dCCA and dBULB+ dECA)/dCCA were independently associated with the presence of a plaque.

Conclusions. Carotid bifurcation geometry as derived from ultrasonic investigation appears to be associated with early CCA wall thickening (IMT) and plaque development independently of the traditional risk factors for atherosclerosis and thus it may be useful in early identification of subjects at risk. However, our findings should be confirmed in future larger studies.

Key words : *Carotid Atherosclerosis, Carotid geometry*
Conflicts of interests : No conflict of interest

14:00-16:00 GRATTE CIEL 3

IUA oral free paper session 9 : Vascular Biology

Session 9 de communications orales UIA : Biologie vasculaire

Monocyte counts and phenotype in cardiovascular disease and comorbidities

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While the role of leukocytes in the development of atherosclerosis has long been known, the existence of heterogeneous subsets of specific leukocyte populations has been receiving enhanced attention of late. Of particular interest are monocytes, which can migrate into atherosclerotic plaques to form macrophages which, in turn, are highly influential on plaque stability. Monocytes can be divided into classical, intermediate and nonclassical subsets, which constitute approximately 85%, 10% and 5% of the total monocyte population, respectively. Changes in the proportions of these subsets, particularly an elevation in the intermediate subset, have been associated with presence of cardiovascular disease and occurrence of clinical events. A likely underlying mechanism in this relationship is the widely acknowledged inflammatory nature of the intermediate subset in vitro, which could promote an overall more inflammatory environment in vivo. Though, it must be noted that the relative in vivo inflammatory nature of the monocyte subsets remains difficult to determine.
In addition to changes in the proportions of monocyte subsets, changes in function have been observed in cardiovascular disease and its comorbidities. Of the functional alterations, those which pertain to the progression of atherosclerosis, such as changes in adhesion/migration, lipid uptake and inflammation, are of particular interest. Indeed, research using animal models reveals that targeting these functions can reduce atherosclerosis. In terms of inflammation, recent studies have begun adopting the M1/M2 macrophage terminology to describe a skewing of monocytes to specific macrophage subsets. As M1 macrophages are associated with vulnerable atherosclerotic plaques and M2 macrophages are associated with stable plaques, a skewing of monocytes towards an M1-like phenotype in the circulation may promote atherosclerosis both directly, through enhancing the inflammatory circulatory environment, and indirectly by increasing the likelihood of M1 macrophages being present in the plaque.
In this presentation, the characteristics of different monocyte subsets in atherosclerosis and associated diseases will be discussed to understand how alterations in monocyte proportions or characteristics may influence atherosclerosis progression.

Key words : *Atherosclerosis, Monocyte*
Conflicts of interests : None

Macrophage phenotypes in the atherosclerotic plaque

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Macrophages are key players in atherosclerotic plaque development, progression and importantly, plaque stability. Their uptake of lipid, and the consequential death that ensues, leads to formation of the necrotic core, while their production of matrix metalloproteinases leads to thinning of the fibrous cap. Macrophages however are heterogeneous with varying inflammatory / anti-inflammatory and wound healing forms now recognised. Such heterogeneity is particularly evident in the plaque with its multiple micro-regions (cholesterol crystals, haemorrhage, calcification etc), each containing a unique milieu of factors (cytokines, growth factors, matrix proteins, etc) that regulate macrophage function. As such, aside from an inflammatory macrophage form (M1), which predominates in the unstable plaque cap, an alternative form (M2) is evident that produces collagen I in the plaque- a pro-stabilising function. The presence of intraplaque haemorrhage promotes another form again (Mhem) which, in older regions of haemorrhage, takes up iron rather than lipid and up-regulates anti-inflammatory pathways. Modulating macrophage function to promote plaque stabilisation is thus an attractive idea, which is currently being investigated in murine models. Further research in this area will help identify key pathways to target to modulate macrophage function and promote plaque stabilisation. In this presentation, the characteristics of different macrophage subsets in atherosclerosis will be discussed, in particular their roles in plaque development and stability.

Key words : *cardiovascular disease, macrophages*

Effects of oxidative stress on the arterial endothelium in the experimental ischemia-reperfusion injury.

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The objective of this study was to evaluate the effects of oxidative stress on the arterial endothelium in experimental ischemia-reperfusion injury.

Materials and methods. experimental study was carried out on Wistar rates according to the European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes (Strasbourg, 18/03/1986) and the Order of the Ministry of Healthcare of the Russian Federation «On the ratification of the rules of laboratory practice» N267 iss.

19.06.2003. Two models of ischemia-reperfusion injury were created by cross-clamping the aorta (group 1) with the following conditioning (group 2). The levels of lysosomal cysteine proteases, oxidative modification of serum proteins, level of homogenates in the affected vascular wall and intact vascular wall distal to the manipulations were then evaluated. Statistical evaluation of data was performed according to the relevant methods of mathematical analysis provided by the advanced analytics software package «Statistica 10.0». Statistical significance was assessed with the Mann-Whitney U-test.

Results. in the given experimental model of ischemia oxidative stress developed by the 3rd postoperative day and intensified by the 5th day with regard to vascular wall. The levels of protein oxidation products were 18.01 nmol/sec per g [11.94; 26.38] and 86.80 nmol/sec per g [63.11; 95.34] on day 3 and day 5, respectively. The levels of protein oxidation products were significantly lower in the control group 2.23 nmol/sec per g [1,50; 4.97]. A similar trend was observed in the serum levels of protein oxidation: the concentration of protein oxidation products was 2.23 nmol/sec per g [1.50; 4.97] in the control group, reaching 4.40 nmol/sec per g [1.13; 8.41] and 11.09 nmol/sec per g [9.63; 12.55] on day 3 and 7 in the clinical group, respectively. In ischemia-reperfusion model oxidative stress was observed on days 3 and 5 in vascular wall, and day 5 in serum. The levels of protein oxidation products was 5.13 nmol/sec per g [1.8; 7.8] in the control group, 45.63 nmol/sec per g [21.3; 64.1] and 43.67 nmol/sec per g [28.1; 52.7] on days 3 and 7 in the clinical group, respectively. Serum levels of protein oxidation products were 2.23 nmol/sec per g [1.50; 4.97] in the control group, and in the clinical group – 3.93 nmol/sec per g [2.11; 6.37] on day 5.
A similar trend is observed in serum cathepsin activity: cathepsin B activity was 6.38 nmol/sec per g [4.15; 9.93] and 8.11 nmol/sec per g [7.02; 9.32] on days 3 and 5, respectively; cathepsin L activity was 4.57 nmol/sec per g [2.48; 4.52] and 6.97 nmol/sec per g [5.85; 7.34], on days 3 and 5, respectively; cathepsin H activity was 2.18 nmol/sec per g [1.26; 3.56] and 5.79 nmol/sec per g [2.70; 8.86]; adaptive reserve was 37.64 nmol/sec per g [27.29; 48.18].
The activity of lysosomal cysteine proteases (cathepsines) B, L, and H increases by days 3 and 5 reaching the levels of 0.38 nmol/sec per g [0.15; 0.93] and 2.11 nmol/sec per g [1.02; 2.32], 0.57 nmol/sec per g [0.48; 1.52] and 1.97 nmol/sec per g [1.85; 2.34], 0.18 nmol/sec per g [0.16; 0.56] and 0.79 nmol/sec per g [0.70; 0.86], respectively, which underscores the degree of irreversible oxidation and attenuation of adaptive reserve in the vascular wall by day 5 (86.02 nmol/sec per g [70.60; 106.58]).

Conclusions.

1. Oxidative stress in reperfusion is an independent process rather than a consequence of ischemic injury.
2. Cathepsin expression during ischemia underscores the intensity of protein oxidation.

Key words : *ischemia-reperfusion injury, oxidative stress*

A comparative study of perfusion imaging with 320 slices spiral CT and iFlow imaging with DSA in an ischemic reperfusion injury rabbit model

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Objectives. To comparative observe the correlation between the perfusion imaging with 320 slices spiral CT and parametric color coding of digital subtraction angiography (iFlow). To observe the changes of muscle tissue perfusion after acute ischemia reperfusion in rabbits, and to explore the value of these two techniques in evaluating skeletal muscle ischemia reperfusion injury.

Methods: Sixty New Zealand white rabbits under 3 hours of right hind ischemia followed by 0, 6, 12, and 24 hours of reperfusion (12 rabbits were randomly chosen for each reperfusion group). An additional 12 rabbits served as control group, which were further divided into CT control group (C CT group n=6) and DSA control group (C DSA group n=6). Reperfusion groups were then randomly divided into CT perfusion group (n=6) and iFlow group (n=6). The CT perfusion group accepted CT perfusion scanning of double lower limbs. Then CT perfusion parameters blood flow (AF), blood volume (BV), contrast clearance rate(C) were obtained and the repufusion parameters including rAF, rBV, rClearance (rC) which are ratio between the right side and left side were calculated. The iFlow group accepted DSA scanning of double lower limbs and then the iFlow parametric (rPeak) by syngo iFlow software were obtained. Meanwhile,measured the serumal LDH,CK,MDA and SOD by the sample from jugular vein. The correlation of CT perfusion parameters, DSA imaging parameters and serum biochemical parameters were analyzed.

Results.

1. Compared with the control group, the mean rAF in the treatment group in 0h, 6h, 12h, 24h were 0.92±0.14、0.89±0.12、0.88±0.20、0.75±0.11 respectively, and decreased gradually with the prolongation of reperfusion (P<0.05);
2. Compared with the control group, The mean value of rPeak in IR group in 0h, 6h, 12h, 24h, were 0.93±0.04, 0.80±0.06, 0.65±0.03 and 0.45±0.08 respectively, and it decreased gradually with the prolongation of reperfusion (P<0.05);
3. The correlation coefficients among rAF, CK, LDH, MDA, SOD were: -0.60、-0.44、-0.62 and 0.57 (P<0.05).
4. The correlation coefficient between rPeak and LDH, CK, MDA, SOD were: – 0.68、– 0.71、– 0.66 and 0.59 (P < 0.05), the correlation coefficient between rAF and rPeak is 0.70, (P < 0.05).

Conculsions.

1. Ischemia-reperfusion injury occurred immediately at the early phase of reperfusion on skeletal muscle after 3 hours of skeletal muscle ischemia and the injury was progressive with the prolongation of reperfusion. The degree of injury reached to the peak at 24 hours of reperfusion.

2. Application of 320 slices spiral CT perfusion imaging in lower limb skeletal muscle perfusion parameter values can half quantitatively reflect the damage of ischemia skeletal muscle in rabbits with reperfusion time. The extension of injury gradually increases with the reperfusion time.
3. iFlow can dynamically monitora the degree of skeletal muscle ischemia reperfusion injury. What's more, this study showed that the rPeak value less than 0.9 indicated the skeletal muscle ischemia reperfusion injury might occur, and the rPeak value less than 0.4 indicated a severe ischemia reperfusion injury in skeletal muscle might occur.

Key words : *ischemia reperfusion injury, digital subtraction angiography*
Conflicts of interests : No conflict of interest

Synthetic, Organic Compound Poloxamer-188 Potentiates Action of Heparin and Tissue Plasminogen Activator

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Objectives. Poloxamer 188 (P-188, Mast Therapeutics, San Diego, CA) is a synthetic, organic compound that acts as a surfactant by binding hydrophobic pockets in the circulation. P-188 has been shown to have anti-adhesive properties within the circulation and is currently being tested in patients with microcirculatory insufficiency such as in Sickle Cell disease. The aim of this study was to investigate drug interactions between P-188 and heparin and tissue plasminogen activator (tPA).

Methods. Bleeding Time (BT): Under general anesthesia, saline or P-188 (25 mg/kg) was administered to Sprague Dawley Rats via tail vein. After 5 minutes, the rats were treated with either saline, low dose (LD) heparin (125 ug/mg), or high dose (HD) heparin (250 ug/kg) (n=6 each group). After 5 minutes, distal 2 mm of the tail was cut and BT measured. Statistical analysis was performed using a t-test.
Clot Lysis (CL): Mosquito forceps were used to induce thrombosis in the internal jugular vein via intermittent jugular clamping. Once thrombosis was confirmed by continuous wave Doppler, either saline or P-188 (25 mg/kg) was administered via tail vein. After 5 minutes, the rats were treated with saline, LD tPA (500 ug/mg), or HD tPA (1 mg/kg) (n=6 each group). Time to clot lysis (detection of flow with Doppler) was recorded. No flow up to 15 minutes was recorded as no lysis. Statistical analysis was performed using a Fisher's exact test.

Results. P-188 increased the tail BT by itself and with LD heparin (Table 1). With HD heparin, P-188 had no additive effects. P-188 alone did not influence CL (Table 2). However, with LD tPA, it tended to facilitate CL ($p = 0.06$). With HD tPA, P-188 did no effects on CL.

Conclusions. P-188 potentiates the action of heparin and tPA at low doses. P-188 has potential as an anti-thrombotic and thrombolytic adjunct. As an adjunct, P-188 may improve drug efficacy and may decrease adverse effects and cost. More studies need to be done in order to fully elucidate this drug interaction between P-188 and both heparin and tPA.

Table 1. Bleeding times (min)

	Saline	Heparin 125 ug/mg	Heparin 250 ug/mg
Saline	7.1 ± 1.0	6.2 ± 1.2	17. 0 ± 1.4
P-188	10.3 ± 1.6	14.2 ± 2.9	17.5 ± 3.1
p	0.001	<0.001	NS

Table 2. Percent thrombolysis

	Saline	tPA 0.5 mg/kg	tPA 1 mg/kg
Saline	0	0	5 (83%)
P-188	0	4 (67%)	4 (67%)
p	NS	0.06	NS

Key words : *Heparin, Tissue Plasminogen Activator*
Conflicts of interests : Martin Emanuele - Employee of Mast Therapeutics

Application of a shear microgradient microfluidic assay for von Willebrand´s disease screening

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Background. Von Willebrand's Disease (VWD) is the most common inherited bleeding disorder caused by either quantitative (types 1 and 3) or qualitative defects (type 2) of Von Willebrand factor (VWF). Given the frequency of VWD, clinicians are often confronted by clinical uncertainty when undiagnosed patients present in emergency settings.

Aims. To develop and clinically validate a rapid and sensitive shear based microfluidic screen forVWD.Methods: The microfluidic consists of microcontractions with dimensions of 2060µm. Hirudin whole blood (< 150µL) was introduced using negative pressure with realtime flow control. Patients ≥18 years with previously diagnosed VWD or who presented for evaluation of a bleeding disorder were sampled. Control samples were taken from healthy subjects without a bleeding or thrombotic history, not on antiplatelet medications.Samples were obtained for device, VWF:Ag, VWF:CB, VWF:RCo testing.

Results. The microfludic was able to identify patients with Types 1 (VWF antigen < 30%), 2A and 3 VWD. ROC analysis of control versus VWD samples determined that the device sensitivity approached 94.4%, with a specificity of 100% for VWD. A statistically significant difference ($p < 0.05$) was observed when comparing control blood samples to type 1VWD ($p < 0.001$) and type 2A VWD samples ($p=0.004$), with both subtypes showing minimal to no platelet aggregation in the device. Patients presenting with bleeding symptoms but found not to have VWD (normal VWF:Ag levels) showed no significant difference ($p=0.907$) to controls. Blood from a type 3 patient displayed no aggregation in the device, which could be rescued by exogenous VWF (50µg/ml) supplementation. Comparison with all three accepted clinical tests demonstrated strong linear correlations of device output.

Conclusions. The device has the capacity to sensitively detect platelet aggregation defects resulting from VWF deficiency associated with type 1, 2A and 3 VWD and demonstrates a strong correlation with standard clinical screens.

Key words : *Von Willebrand disease, Microfluidics*
Conflicts of interests : None

The comparison of branded and copies of enoxaparin with thrombin generation assay, reveals the need for new criteria of biosimilarity of low molecular weight heparins

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Background. The patent protection of LMWHs expired so the definition of criteria for the biological similarity between LMWH copies and the original product is a real need.

Aim. The present in vitro study compared copies and branded enoxaparin using the specific anti-Xa activity and the calibrated automated thrombogram assay.

Methods. Samples of platelet poor (PPP) and platelet rich plasma (PRP) from 15 healthy volunteers were spiked with branded enoxaparin (Lovenox®) or its copies (Cutenox®, Dilutol®, Enoxa®, Fibrinox®, Loparin®, Lupenox®, Novex®, Noxprin®, Versa®). The specific anti-Xa activity was measured in PPP and thrombin generation was assessed in PPP and PRP in the presence of tissue factor or pancreatic cancer cells BXPC3.

Results. The anti-Xa activity of enoxaparin copies ranged from 0.072 to 0.088 IU/µg, being lower as compared to the branded enoxaparin (0.095 anti-Xa IU/µg). The potency of each copy to inhibit thrombin generation varied in the three experimental systems. The presence of platelets or pancreatic cancer cells BXPC3 in human plasma induced significant modifications of the inhibitory efficiency of enoxaparin copies on thrombin generation which distinguished them from the branded product.

Conclusion. Enoxaparin copies showed significant variability regarding their inhibitory potency on thrombin generation. Platelets and cancer cells significantly increased the variability of the antithrombotic efficiency of the copies as compared to the branded enoxaparin. The present study underlines the need for the elaboration of additional functional criteria to evaluate the global antithrombotic capacity of enoxaparin copies in order to evaluate their potential sameness with the branded drug.

Unexpected Inflammation in the Sympathetic Ganglia in Thromboangiitis Obliterans

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Background. During the evaluation of the arteriography of Thromboangiitis Obliterans (TAO) patients, we noticed that in the patients who had one limb involvement, the diameter of the involved artery was less than the non-involved artery from its origin, and its appearance was similar to a general vasoconstriction. This clue led us to inspect more closely the sympathetic ganglia histology and gene expression in TAO.

Methods. The paraffin block and frozen RNAlater-treated tissue of the lumbar sympathetic ganglia of 19 TAO patients were enrolled in this study. The gene expression of CD4 and CD8 markers in the frozen RNAlater-treated sympathetic ganglia tissues were evaluated by real-time PCR.

Results. Unexpectedly, lymphocyte infiltration was observed in all of the histological sections, ranging from scattered to moderate lymphocyte infiltration. For seven patients, who five of them underwent below-knee amputation, neutrophil infiltration was also observed in addition to lymphocyte infiltration. The gene expression of the CD8 marker in all of the samples with the expression of CD4 markers in only four tissue samples was demonstrated. The expression of CD8 in comparison to CD4 was about 4.37 fold changes using Pfaffle method.

Conclusions. It appears that inflammation of the sympathetic ganglia plays a role in the pathophysiology of TAO and its outcome. Sympathetic ganglia inflammation may be responsible for general vasoconstriction, vascular inflammation, and the increased risk of thrombotic events, by activating the platelets. The infiltration of T cytotoxic lymphocytes and

neutrophils in the sympathetic ganglia may indicate an infection of the sympathetic ganglia in TAO.

Key words : *Thromboangiitis obliterans, Buerger's disease*
Conflicts of interests : There is no conflict of interest

Assessment of matrix metalloproteinases activity in patients with varicose veins of the lower extremities

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Objective. to evaluate the level of matrix metalloproteinases (MMP-9, MMP-1) and tissue inhibitor of metalloproteinase-1 (TIMP-1) in patients with varicose veins of the lower extremities, depending on the clinical score of Clinical-Etiology-Anatomy-Pathophysiology (CEAP) classification.

Methods. 110 subjects were enrolled in the study. The study group included 90 patients with varicose veins of the lower extremities. The subjects were divided into three groups: 30 patients (group I) with varicose veins CEAP class C2-C3, 30 patients (group II) with varicose veins CEAP class C4, and 30 patients (group III) with healed or active venous ulcers (varicose disease CEAP class C5-C6). The control group included 20 healthy volunteers. Peripheral blood samples were collected. Serum was obtained by centrifugation at 3000 rev. / min for 15 min. Serum levels of MMP-9, MMP-1, and TIMP-1 were determined by quantitative ELISA (Bender MedSystems). Patients in both study and control groups had similar age. The number of females was similar to the number of males.

Results. alterations in MMP activity exert influence on the remodeling of different organs via enhancement or inhibition of the development of fibrosis. Varicose veins are characterized by an imbalance between MMPs and TIMPs in combination with the interruption of the collagen fibers, the loss of elastin, as well as proliferation, reorganization, and migration of smooth muscle cells into the intima. Patients with varicose veins had an increased concentration of MMP-1 in comparison with the control group. Patients in group I had a concentration of MMP-1 of 6.8±1.12ng/ml, in group II – 6.2±0.63ng/ml, and in group III – 7.2±1.83ng/ml. MMP-1 concentration in the control group was 4.8±1.23ng/ml. Patients in the study group had a 2.5 times higher level of MMP-9 as compared with the control group. The highest level of MMP-9 was detected in patients with varicose veins CEAP class C5-C6 (14.5±1.7ng/ml). MMP-9 concentration in the control group was 1.23±4.5ng/ml. TIMP-1, also known as a fibroblast collagenase inhibitor, is an important component of the extracellular matrix; its main biological role is to maintain the balance between the MMP-1 and MMP-9 in physiological and pathological conditions. In patients with varicose veins of the lower extremities hypodermic TIMP-1 concentration was as followed: group I – 201.8±10.1ng/ml,

group II – 190.2±7.8ng/ml, group III - 217±12.9ng /mL. There was an evident tendency for higher concentrations of TIMP-1 as compared with the control group (154.2±14.4ng/ml).

Conclusions. 1. Matrix metalloproteinases concentration is increased in patients with varicose veins. 2. Patients with venous ulcers have the highest levels of matrix metalloproteinases.

Key words : *matrix metalloproteinases, varicose veins*

14:00-16:00 GRATTE CIEL 3

IUA oral free paper session 10 : Arterial disease
Session 10 de communications orales UIA : Pathologie artérielle

Long-term 5 years follow-up after gene therapy for peripheral arterial disease

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A plasmid VEGF165 (pl-VEGF165) gene therapy drug was approved in Russia for the treatment of atherosclerotic peripheral arterial disease (PAD) after an open label, prospective, randomized, controlled, multicenter clinical study in 2011. The trial enrolled 100 patients with atherosclerotic lower limb ischemia stage II-III (pain-free walking distance of less than 200 m and rest pain) according to the Fountaine-Pokrovsky classification. 40 patients gave their consent to participate in the long-term 5-year follow-up study. The results of the study are reported herein.
The primary endpoint was pain-free walking distance (PWD). Ankle-brachial index (ABI) and transcutaneous oxygen tension (TcPo2) were chosen as secondary endpoints. Safety of pl-VEGF165 gene transfer in terms of the trial protocol was evaluated within 5 years following the onset of the study with the registration of adverse event (AE) and serious adverse event (SAE) during both routine visits and unscheduled requests for medical care. The current long-term follow-up study included 28 patients in the test group (pl-VEGF165) and 12 patients in the control group (standard phrmacological treatment).
By the end of the 5th year the value of PWD increased in pl-VEGF165 patients (n=28) by 297.5 m (278%) as compared to baseline (from 107.5 m to 405 m, respectively; $p<0.01$). The largest increase in the PWD value by 200.3 m (186%) was observed at the end of the first year. After this value of PWD continued to increase in the test group more moderately. The

opposite results were obtained in the control group (n=12): PWD decreased by 25.0 m (22%) during the follow-up period as compared to baseline. No adverse events assocated with pl-VEGF165 treatment were observed. The long-term follow-up results demonstrated a slight but stable improvement in ABI in the test group by 6% ($p>0.05$). ABI value decreased in the control group by 17% ($p<0.01$). The absolute values among the test and control groups as well as the increase in the absolute values between the groups were statistically insignificant at each visit. TcPo2 value in the pl-VEGF165 group increased by 18 mmHg (24%, $p<0.01$) within the 1st year and slightly decreased during the next 4 years by 9%. There were no statistically significant changes in TcPo2 in patients of the control group.
No AE, SAE, or significant laboratory abnormalities were observed in either study group during follow-up period. Tumor growth, eyesight disorders, and other pathological conditions that could indirectly suggest complications of gene therapy were not observed in patients throghout the study during 5-year follow-up period. Limb salvage rates at 5 years were 91.7% in the test group (2 amputations) and 67% in the control group (4 amputations). However, the differences were not statistically significant.
Thus, pl-VEGF165 intramuscular gene transfer is an effective and save method of treatment of moderate to severe claudication due to chronic lower limb ischemia. The therapeutic effect of pl-VEGF165 retained during 5 years.

Key words : *Gene therapy, Therapeutic angiogenesis*
Conflicts of interests : The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article:
A. A. Isaev, I. Ya. Bozo, R. V. Deev, I.L. Plaksa are employees of the OJSC ''Human Stem Cells Institute.''

Preliminary results of the pilot study of safety and efficacy of pl-VEGF165 gene transfer in patients with diabetic foot syndrome

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The objective of this study is evaluation of safety and efficacy of pl-VEGF165 transfer in patients with neuroischemic type of diabetic foot syndrome (NCT02538705). The pilot study included 27 diabetic patients with neuroischemic foot ulcers (Wagner stage 1-2) who were not candidates for revascularization procedures. The mean age of the patients was 63.9±7.6 years, the mean duration of diabetes mellitus – 12.1±2.4 years, and mean duration of foot ulcers – 3.2 months. Plantar localization of the foot ulcers was dominating (24 out of 27

patients). 42% of patients have previously undergone minor amputations. The patients were closely monitored after repeated pl-VEGF165 intramuscular gene transfer (2.4mg) at 1, 3, and 6 months after treatment. The primary efficacy endpoint was the surface area of the ulcers (sq.cm), the secondary endpoints were transcutaneous oxygen tension (tcp02), ankle-brachial index (ABI), neuropathy disability score (NDS), neuropathy symptoms score (NSS), and Michigan neuropathy screening instrument (MNSI). Adverse events were monitored throughout the study.

At 6 months the mean surface area of the ulcers decreased from 3.2sq.cm to 0.45sq.cm. Complete healing of ulcers was achieved in 18 patients. 2 patients developed heathy granulation tissues. No changes were found in 3 patients. 4 patients underwent major amputations due to the progression of ischemia and infectious complications. Positive changes in reparative regeneration of the foot tissues were associated with improved perfusion: within 6 months tcp02 value increased by 38% as compared to baseline (42.3 mm Hg vs. 30.6 mm Hg, respectively). The mean value of ABI increased by 24% and reached 1.12. NDS improved within 6 months as compared to baseline (12.2 vs. 8.4, respectively). Both NSS and NDS improved, but did not reach statistical significance. No adverse events, oncology cases or visual impairment were observed during the monitoring. Thus, preliminary results of the pilot study show that the use of pl-VEGF165 gene transfer in combination therapy allows for complete healing of neuroischemic diabetic foot ulcers in the majority of patients.

Key words : *gene therapy, therapeutic angiogenesis*
Conflicts of interests : The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article:
A. A. Isaev, I.L. Plaksa, and R. V. Deev are employees of the OJSC ''Human Stem Cells Institute.'' A. A. Isa

Can Abdominal Aortic diameter independently predict the severity of diabetic nephropathy in T2DM patients with suprarenal AAA ?

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Aim & Background. The association of Diabetes Mellitus and Cardiovascular Disease comprises one of the clinical standards of Evidence Based medical practice in Western Medicine. Diabetes Mellitus is also associated with renal impairment, mostly attributed to renal ischemia , thus defining Diabetic Nephropathy. Does abdominal aortic aneurysmatic disease relate to renal disease and to what extent ? The aim of ths study was to evaluate any association of the severity of suprarenal abdominal aortic aneurysms with the level of renal impairment in Type 2 Diabetes Mellitus patients.

Material & Methods. 492 T2DM patients (298 male, 194 female) participated on this study. Age range of the patients was between 57-74 years. All patients were admitted to hospital for Ultrasonographic and Angiographic assessment and the severity of aeurysmatic disease was considered significant when suprarenally Abdominal Aortia was >4,1cm in diameter. Renal impairment was considered significant when Glomerular Filtration Rate was < 90ml/min. Data were analyzed using ANOVA and logistic regression analysis. Diameter of Abdominal Aorta was analyzed as an independent predictor. Data are presented as mean values +_ Standard Deviation and level of significance was accepted when p<0.05.

Results. Data were analyzed on 492 (298 male, 194 female) T2DM patients. 121 (24.6%) prsented with abdominal aortic diameter 4.4+_ 0.17 cm and GFR of 81 +_7 ml/min. 183 (37.2 %) patients have had an abdominal aortic diameter of 4.6+_ 0.22 and GFR of 74+_ 8 ml/min. And 188 patients (37.4%) with abdominal aortic diameter of 4.9+_0.26 cm and a GFR of 63+_9 ml/min. Evaluating suprarenally AAA disease (AAA diameter p<0.002) the severity of Diabetic nephropathy estimating GFR (p<0.001) was evident.

Conclusion. Diameter of AAA can independently predict the severity of Diabetic Nephropathy in T2DM patients with Suprarenal AAA.

Key words : *Suprarenal AAA, Diabetic Nephropathy*

Postexercise ankle brachial index in thrombophilia and venous disease.

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Current evidence indicates that atherosclerotic and venous diseases including venous thromboembolism share common features. The aim of this study was to compare changes of ankle brachial index (ABI) after exercise between patients with thrombophilia with (n=7) and without (n=7) history of venous thromboembolism and between patients with chronic venous disease (n=21) and patients with peripheral artery disease (n=29) and control group (n=12). Methods: All participants underwent treadmill exercise tests with ABI measurements. Results: Patients with thrombophilia and venous thromboembolism had greater decrease of ABI after exercise (-0.126 ± 0.134; p=0.048) than patients without venous thromboembolism (+ 0.034 ± 0.076; p=0.284). The difference between both groups was statistically significant (p=0.010). ABI after exercise decreased less in patients with chronic venous disease (- 0.057 ± 0.053; p<0.0001) than in patients with peripheral artery disease (- 0.130 ± 0.168; p<0.0001) (difference between both groups, p=0.038) but more than in control group (- 0.028 ±0.51; p=0.062) (difference between both groups, p=0.110). Conclusion: We observed greater decrease of ABI after exercise in patients with thrombophilia and venous thromboembolism/in patients with chronic venous disease than in patients with thrombophilia without venous

thromboembolism/without vascular disease in lower limbs. These findings support potential association between artery and venous disease.

Supported by MH CZ - DRO („Institute for Clinical and Experimental Medicine – IKEM, IN 00023001“)
Key words : *Postexercise ankle brachial index, Thrombophilias*
Conflicts of interests : No conflict of interest to report.

Effect of cilostazol on walking distances in patients with intermittent claudication

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Aim. Peripheral arterial disease(PAD) is an increasing problem worldwide. A common complaint is intermittent claudication, which can seriously impair the patients quality of life. Cilostazol was registered in Hungary in 2014 (Noclaud®, EGIS Pharmaceuticals). This study evaluated the efficacy and safety of cilostazol in patients with intermittent claudication (IC) caused by PAD.

Methods. The study was a multicenter, non-intervantional trial. 1405 patients were enrolled, who received cilostazol (50 or 100 mg b.i.d.) for 6 months. Treadmill test (pain free and maximal walking distance) or 6 minute walking test were performed in all patients at baseline, 3 months and 6 months visit, advers events were recorded at every visit. Ankle-brachial indexes were calculated from Doppler-measured systolic pressures at baseline and at the 6 months visit.

Results. 1301 patients completed the study. Pain free walking distance, maximal walking distance and the distance of the 6 minute walking test improved siginificantly at 3 months (78.65%, 65.23%, 56.09%; respectively, $p<0.001$), and a further increase was observed after 6 months treatment (129.74%, 107.2%, 80.38% respectively, $p<0.001$). Ankle-brachial indexes improved on both limbs (left side 0.71 ± 0.19 to 0.77 ± 0.19, right side side 0.70 ± 0.18 to 0.76 ± 0.18)($p<0.001$). Adverse events occured in 7.26% of the patients. The most frequent adverse events were headache, diarrhea, and dizziness, tachycardia or palpitaion was observed in 1.5 % of the patients. 23 patients (1.7%) stopped cilostazol treatment because of side effects.

Conclusions. 6 month cilostazol treatment significantly increased the walking distance in patients with intermittent claudication, without important safety problems.

Key words : *intermittent claudication, cilostazol*
Conflicts of interests : There is no conflict of interest.

The best choice of off-loading devices in patients with the diabetic foot and peripheral arterial disease after surgical procedure

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Off-loading is one of the crucial components of diabetic foot (DF) therapy. There is still not determined which off-loading device is the most effective and safe in patients with the DF and peripheral arterial disease (PAD) in postoperative care. The aim of our study was to compare the safety and the effect of different off-loading devices on the healing and postoperative complications in patients with the DF and PAD after surgical procedures. Methods: 122 patients with the DF and PAD, who underwent outpatient or inpatient foot surgery (mean age 66.1 ± 9.9 years, diabetes duration 22.8 ± 12.6 years, BMI 28.8 ± 4.6 kg.m-2, HbA1c 60.8 ± 6.15 mmol/mol) and were treated only by one type of off-loading device were enrolled into our observation study. Patients were followed until healing or for at least 3, maximally up to 12 months. Based on the type of off-loading (chosen empirically), patients were divided into 6 groups that we compared in terms of patient basic characteristics including the presence of osteomyelitis, TcPO2, the number of revascularization, of healed patients and their healing time and duration of antibiotic therapy; from postoperative complications in terms of the number of reamputations, major amputations, rehospitalisation and their length. Results: 6.7% of patients were treated by orthopedic shoes (group S), 20.8% by half-shoes (group H), 40.8% by wheelchairs (group W), 10% by the combination of wheelchairs and total contact splints (group WT), 12.5 % by wheelchairs and half-shoes (group WH) and 9.2% of patients by wheelchairs and orthoses (WO group). These study groups did not differ significantly in basic characteristics including osteomyelitis, TcPO2 and the number of revascularizations. The number of healed patients was similar in all study groups (55-88%), patients from the groups S and WT were healed ($p = 0.03$) and treated by antibiotics ($p = 0.044$) for the shortest time. The number as of reamputations as of major amputations did not differ significantly between the study groups; the lowest number and shortest rehospitalisation were found in the S, H and WT groups ($p = 0.015$). The highest numbers of outpatient procedures (84%) healed in the S and W groups ($p = 0.011$), the highest number of inpatient procedures (65%) healed in the group S, H and WT ($p = 0.041$). Conclusions: Orthopedic shoes indicated for small surgical procedures and combinations of wheelchairs and total contact splints for larger surgery are the most effective and safe off-loading devices for patients with the DF and PAD that lead to reduced healing time and lower postoperative complications.

Supported by the project 00023001 (IKEM, Prague, Czech Republic)

Key words : *diabetic foot, off-loading*
Conflicts of interests : no conflict of interest

E-POSTERS

SESSION COMMENTEE SFMV 1 DE E-POSTERS

SFMV E-POSTERS DISCUSSION SESSION 1

PSFMV01

Contribution du score de risque cardio-vasculaire à la rigidité artérielle des sujets drépanocytaires (homozygotes et hétérozygotes) sénégalais par rapport à la viscosité sanguine et au stress oxydant.

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Introduction. La drépanocytose est une maladie héréditaire caractérisée par la présence de l'hémoglobine anormale S (HbS). La forme homozygote (SS) et le trait drépanocytaire (AS) sont les plus grandes formes de la maladie. Les sujets SS ont une viscosité sanguine (ηb) basse par rapport aux AS et présentent un stress oxydant majoré en période de crise. Ces altérations chroniques peuvent engendrer des modifications structurales et fonctionnelles des vaisseaux. Le but de notre étude était de calculer le score de risque cardio-vasculaire (RCV) et de rechercher sa contribution dans la rigidité artérielle des sujets drépanocytaires et par rapport à la viscosité sanguine et au stress oxydant.

Méthodologie. Au total, 54 AS (âgés de 35 ± 12 ans ; 15 hommes) ont été comparés à 14 SS (âgés de 29 ± 9 ans ; 2 hommes) et à 25 témoins AA (âgés de 35 ± 10 ans ; 12 hommes), tous recrutés au Centre National de Transfusion Sanguine (CNTS) de Dakar. La ηb et le stress oxydant (activité de la superoxide dismutase : SOD) ont été mesurés, le RCV calculé grâce au score de Framingham-Laurier et la rigidité artérielle évaluée par la mesure de la vitesse de l'onde pouls doigt-orteil (VOPdo) en utilisant pOpmètre® (Axelife SAS-France).

Résultats. Le RCV (%) était bas chez les sujets SS (1,14 ± 0,97) par rapport aux sujets AS (3,77 ± 5,13) et AA (3,83 ± 2,96), $p = 0,002$. La SOD (% d'inhibition) était basse chez les sujets AS (71,82 ± 8,46) par rapport aux SS (78,12 ± 6,14) et AA (86,82 ± 8,84), $p < 0,001$. La ηb (mPas1) des AS (5,78 ± 0,82) était plus élevée que celle des SS (4,92 ± 0,55) et les AA (4,84 ± 0,55), $p < 0,001$. Les sujets SS avaient les artères moins rigides que les sujets AS et AA ($p = 0,002$). Une régression linéaire multi variée a montré une corrélation positive entre la VOPdo et le RCV ($r2 = 0,64$, $F = 16,13$, $p < 0,001$).

Conclusion. Le RCV demeure un déterminant indépendant de la rigidité artérielle chez les

sujets drépanocytaires.

Key words : *Drépanocytose, risque cardio-vasculaire, rigidité, Drépanocytose, artère, sénégalais*

PSFMV02

Efficacité du sevrage tabagique avec la cigarette électronique dans la maladie de Buerger

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Objectifs. Le sevrage tabagique dans la maladie Buerger, est plus difficile à obtenir du fait d'une dépendance très forte. La cigarette électronique montre des taux d'abstinence supérieurs aux autres thérapeutiques existantes, ainsi qu'une meilleure tolérance. Nous avons cherché si son utilisation était plus souvent associée à une évolution favorable des lésions, chez ces patients.

Méthode. Nous avons réalisé une étude cas-témoin rétrospective, comparative, bicentrique. La population de l'étude comprenait 61 patients, pour 119 épisodes ou récidives de la pathologie. Le critère d'inclusion était la présence d'une maladie de Buerger, diagnostiquée et/ou suivie dans les services de médecine vasculaire des CHRU de Brest ou Nantes. Le recueil de données s'étend sur 27 années. Nous avons analysé les caractéristiques de la population à l'aide d'analyses univariées (Student, chi 2) et la probabilité de guérison des lésions, sous cigarette électronique, a été estimée à l'aide d'une régression logistique multinomiale (prise en compte du type de lésion, du sevrage et de l'Ilomédine).
Résultats. On ne retrouve pas de différences significatives entre les deux groupes étudiés (cas-témoins) au niveau des critères étudiés (âge moyen (38 ans +/-11), sexe (28% femmes), antécédents notables).
Tableau 1. Risques relatifs d'évolution défavorable.

	RRR	Std. Err.	z	P>|z|
Avec e-cig	1,56	1,48	0,47	0,64
Sevrage tabagique complet	0,038	0,03	-4,09	<0,001
Troubles trophiques	4,9	3,87	2,03	0,043

73 % des patients utilisant la cigarette électronique présentent une évolution favorable contre 51% chez ceux ne l'utilisant pas (p-value 0,287). On ne retrouve pas de différence significative sur la guérison avec la cigarette électronique (RRR 1,56, p 0,64).
Discussion. Le manque de patient sous cigarette électronique, la faible proportion de sevrage

tabagique dans cette population, le taux important de troubles trophiques et l'absence de sous-groupes basés sur la sévérité des lésions sont responsable d'un manque de puissance et de biais dans l'étude.
Conclusion. Cette étude pilote n'a pas conclu à l'existence d'une différence significative chez les patients utilisateurs de cigarette électronique en termes de guérison.
Cependant la cigarette électronique reste un atout prometteur dans la maladie de Buerger.

Key words : *Maladie de Buerger, Cigarette électronique*
Conflicts of interests : Aucun.

PSFMV03

Prévalence de l'artériopathie oblitérante des membres inférieurs chez la population hypertendus.

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L'artériopathie oblitérante des membres inférieurs (AOMI), est une des localisations de l'athérothrombose méconnue et sous diagnostiquée et par voie de conséquence sous-évaluée et sous-traitée, maladie invalidente reliée à l'athérosclérose.
Afin d'évaluer cette patholgie, nous avons mené une étude épidémiologique de type transversal pour estimer sa prévalence dans la commune de Sidi Bel Abbès.

Sujets et méthodes. L'étude a concerné 700 sujets (hommes, femmes) dont l'âge est supérieur ou égal à 50 ans, vivant dans la ville de Sidi Bel Abbès depuis plus d'une année. Les données ont été receuillies par le biais d'un questionnaire comprenant un interrogatoire minutieux, un examen clinique, biologique, la mesure de l'IPS pour chaque sujet.
La prévalence de l'AOMI estimée par la mesure de l'IPS est de 14,4 %, la moitié de notre population (57,4 %) était hypertendue. Dans notre étude, la prévalence de l'AOMI chez les hypertendus était de 22,1 % ; elle est de 21,70 % pour l'HTA systolique et de 21,3 % pour l'HTA diastolique (IPS<0,9). L'analyse univariée a montré que le risque d'apparition de l'AOMI est multiplié par 2,3 chez les hypertendus (Odds Ratio= 2,3, IC [1,5-3,5]), l'hypertension dans sa forme diastolique multiplie le risque par 3,4 (Odds ratio=3,4 IC [1,2-9,6]), l'hpertension artérielle dans sa forme systolique par 2,4 (Odds ratio= 2,4, IC [1,5-4]), une regression logistique multivatiée dans la population des hypertendus, deux facteurs sont associés à l'AOMI : l'age avancé >70 ans multiplie le risque par 3 ; l'hypertriglycéridémie multiplie le risque par 2,7.

L'étude faite au Cotonou en 2012 retrouve une prévalence de 26 %. La population avait un âge de plus de 40 ans. Kannel en 1985 a montré que l'HTA augmente 2,5 fois le risque d'AOMI chez l'homme et de 3,9 chez la femmme.

Les résultats de notre étude recommande le dépistage de l'AOMI asymptomatique chez le sujet hypertendu.

Key words : *Artériopathie oblitérante des membres inférieurs, Index de pression systolique*

PSFMV04

Etude pilote : évaluation de la distance de marche maximale du patient artériopathe des membres inférieurs.

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Introduction : La claudication intermittente altère la qualité de vie du patient d'artériopathie oblitérante des membres inférieurs (AOMI). La distance de marche maximale (DMM) est nécessaire en complément de l'imagerie pour l'orientation thérapeutique. Le test de Strandness objective ce paramètre. Cependant en pratique cet examen est très peu pratiqué du fait de sa mise en place complexe et de sa cotation nulle dans la nomenclature de la Classification Commune des Actes Médicaux. L'évaluation de la DMM est donc principalement subjective, basée sur l'interrogatoire. Ce travail a pour objectif de montrer la pertinence du questionnaire WELCH dans cette évaluation.

Méthode : Onze patients souffrant d'une AOMI ont été inclus. Une évaluation du statut hémodynamique a été réalisée (examen clinique, index de pression systolique, examen écho doppler, pression gros orteil PGO). La DMM a été évaluée à l'aide de trois méthodes : la question suivante était posée « quelle distance pouvez vous réaliser en marchant avant qu'une douleur nécessite votre arrêt ? », questionnaire WELCH (Walking Estimated Limitation Calculated by History), test de Strandness (3,2 km/h, pente 10%).

Résultats : 72% des sujets ont réalisé moins de 200m au test de Strandness, et ont obtenu un score <25/100 (WELCH), une PGO à 54±17mm Hg, et 407±305 m lors de l'estimation de la DMM. L'analyse retrouve une corrélation très faible entre le Strandness/PGO ($R \leq 0.16$, $>0,05$) et WELCH/PGO ($R \leq 0.1$, $>0,05$). La corrélation est moyenne entre les tests Strandness/WELCH ($R \leq 0.54$, <0.05).

Discussion : Les sujets de l'étude présentent un statut hémodynamique d'ischémie d'effort. La corrélation entre l'interrogatoire, le questionnaire WELCH, le test de Strandness et le statut hémodynamique est faible (non significative). Ceci met en évidence la nécessité d'évaluer la DMM de manière complémentaire à l'évaluation du statut hémodynamique avant une décision thérapeutique. Le questionnaire WELCH est un outil simple et utilisable en pratique courante. Il présente une corrélation significative avec le test de Strandness. A partir de ce

constat, nous avons rédigé un modèle d'équation qui nous permet traduire le score de WELCH en mètres. Cette étude nécessite une validation sur un plus grand effectif, ce qui permettrait ainsi d'avoir une idée à la fois subjective et objective de la DMM à partir de ce questionnaire.

Key words : *distance de marche maximale, artériopathe des membres inferieurs*

PSFMV05

La prévalence de la sténose athéromateuse des artères rénales chez le polyartériel hypertendu

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Introduction. La sténose athéromateuse des artères rénales (SAAR) continue à défier le clinicien alors que nous entrons dans le troisième millenium. La SAAR peut être responsable d'une hypertension artérielle (HTA) rénovasculaire ou d'une néphropathie ischémique conduisant à l'insuffisance rénale chronique terminale. Bien que les procédures interventionnelles rénovasculaires soient maintenant largement disponibles, une grande proportion de patients progresse toujours vers la dialyse. Les investigations épidémiologiques récentes ont souligné le rapport entre SAAR et d'autres maladies vasculaires et l'artériographie conventionnelle par ponction artérielle reste l'examen de référence pour le diagnostic anatomique. Poser le diagnostic de sténose de l'artère rénale (SAR) a pour objectif de réduire les complications associées à cette pathologie qui sont considérées comme potentiellement réversibles.

Objectif de l'étude. L'objectif principal de cette étude est de déterminer la prévalence de la sténose de l'artère rénale chez les patients présentant une artériopathie oblitérante des membres inférieurs et hypertendus et dans un deuxième temps, nous avons essayé d'identifier les facteurs prédictifs simples d'une sténose significative des artères rénales.

Matériels et méthode. Nous avons effectué une étude rétrospective portant sur 103 patients consécutifs hypertendus et artériopathes (claudication intermittente ou ischémie aiguë des membres inférieurs), ces derniers avaient bénéficié d'une aortographie abdominale dans le cadre de l'artériographie des membres inférieurs. Les aortogrammes ont été passés en revue pour la sténose rénale d'artère, défini en tant que rétrécissement d'au moins 50% comparé à l'artère rénale normale adjacente.

Résultats et commentaires. La prévalence des sténoses artérielles rénales uni- ou bilatérale est estimée entre 0,5 et 3% pour une population d'hypertendus non sélectionnés., La prévalence peut atteindre des valeurs de 15 à 30 % dans une population sélectionnée.
Dans la série constituée de patients hypertendus artériopathes, la fréquence des SAAR est de 14,5%, comparable aux résultats de la littérature.
Quant aux facteurs prédictifs des SAAR, parmi les FDR classiques, seul l'âge et le diabète sont

apparus comme étant prédictifs de la SAAR; l'hypokaliémie, la fonction rénale et le profil tensionnel (notamment la notion d'HTA résistante) n'étaient pas suggestifs.
Par contre, l'atteinte poly-atérielle s'est révélée le principal facteur de risque associé à la SAAR, cette association étant d'autant plus forte que nombre des étages vasculaires atteints était importante. La présence d'une coronaropathie semble plus prédictive que les autres localisations.

Conclusion. La SAAR est fréquente chez l'hypertendu artériopathe et cette prévalence est encore plus importante chez le polyartériel. Leur découverte fortuite conduit à une intensification des mesures de prévention secondaire de la maladie athéroscléreuse.
Leur dépistage systématique lors des explorations invasives artérielles ne fait pas l'unanimité chez les auteurs (indication classe IIb C selon ACC/AHA).
Key words : *HTA rénovasculaire, Arthériopathie athéromateuse des membres inférieur*
Conflicts of interests : Pas de conflit d'interet

PSFMV07

Syndrome de Leriche : mode d'entrée dans un Syndrome des Anticorps Antiphospholipides (SAPL)

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Introduction. Le syndrome de Leriche est décrit comme une occlusion aorto-iliaque principalement d'origine athéromateuse. Le syndrome des antiphospholipides (SAPL) est caractérisé par la survenue de manifestations thrombo-emboliques et/ou obstétricales et la présence d'anticorps antiphospholipides. L'association syndrome de Leriche et SAPL est extrêmement rare.

Cas clinique. Mme G. 50 ans a présenté une claudication des membres inférieurs d'évolution rapide. Un échodoppler artériel puis une artériographie ont posé le diagnostic de syndrome de Leriche. La patiente a bénéficié d'une angioplastie et stent de l'aorte terminale et des artères iliaques communes. La patiente n'avait pas d'autre facteur de risque cardio-vasculaire qu'un surpoids. Une étiologie cardio-embolique a été éliminée. Ella a consulté ultérieurement en médecine vasculaire pour l'apparition d'un livedo racemosa au niveau du pied et de la face externe de la jambe gauche. Elle avait également présenté une thrombose veineuse profonde distale gauche dans les suites d'un long trajet, récidivante à droite à l'arrêt du traitement par anticoagulant oraux directs (AOD). Le bilan biologique retrouvait des anticorps anti-phospholipides triplement positifs : anticoagulants circulant, anticardiolipides et antiB2gP1 positifs, des anticorps anti-nucléaires positifs à 1024 avec consommation du complément, thrombopénie à 105000G/L. L'échocardiographie montrait un épaississement distal de la valve mitrale faisant évoquer une endocardite de Libman-Sacks. La biopsie du livedo montrait une

atteinte pariétale avec épaississement sous-intimal de la paroi des capillaires, ainsi qu'un infiltrat inflammatoire périvasculaire, lymphocytaire. Une IRM cérébrale retrouvait une atteinte microcirculatoire avec hypersignaux flair punctiforme. Le traitement comportait l'anticoagulation seule. Nous avons adjoint un traitement par plaquenil et antiagrégants plaquettaires.

Discussion. A notre connaissance six cas associant thrombose aorto-iliaque et SAPL ont été décrit. Ce cas présente un SAPL dont le premier épisode, artériel, était un syndrome de Leriche. Chez notre patiente, l'origine n'est probablement pas athéromateuse pure compte tenu des atteintes suivantes, veineuses et microcirculatoire, mettant en évidence une atteinte pariétale. Stabilité clinique sans nouvel évènement depuis 18 mois.

Key words : *Syndrome de leriche, Anticorps antiphospholipides*
Conflicts of interests : aucun

PSFMV08

Issue fatale d'une maladie de Takayasu. A propos d'une présentation inhabituelle.

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Objectifs. La maladie de Takayasu est une artérite inflammatoire des gros vaisseaux touchant l'aorte et ses branches principales. Elle évolue classiquement selon deux phases : phase pré-occlusive et phase occlusive cette dernière se traduit par la survenue de manifestations ischémiques résultant de l'inflammation qui est à l'origine des sténoses et d'occlusions pouvant être fatales.
L'objectif est de relater l'urgence suite au retard diagnostic qui était un mode de révélation atypique de la vascularite, et les difficultés de sa prise en charge que nous avons rencontré concernant le niveau d'amputation.

Key words : *Takayasu, Revascularisation*
Conflicts of interests : aucun conflit d'intérêt.

PSFMV09

Syndrome d'apnées du sommeil et hypertension artérielle : association fortuite ou lien physiopathologique ?

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Dans le cadre de l'exploration du risque cardio-vasculaire, une consultation du sommeil a été créée dans notre service en octobre 2014 avec pour objectif principal le dépistage et la prise en charge du syndrome d'apnées du sommeil (SAS). L'association SAS et HTA est fréquente ; environ 50 % des patients porteurs d'un SAS sont hypertendus (1) et une proportion significative de la population hypertendue souffre d'un SAS (2).
L'objectif de notre travail est de discuter le lien réunissant ces deux pathologies : s'agit-il d'une association fortuite ou d'un lien physiopathologique ?
Matériels et méthodes. 167 patients adultes, adressés à notre consultation pour suspicion de SAS ont été recrutes. 67 ont bénéficié d'une exploration complète, 13 sont entrain de la compléter et 18 sont perdus de vue. Les autres patients ne rentrent pas dans le cadre de cette étude et concernent d'autres troubles du sommeil que le SAS.
Nous avons effectué un interrogatoire à la recherche de SAS et d'HTA, une évaluation subjective de la somnolence diurne excessive par l'échelle d'EPWORTH, un examen clinique complet avec recueil des mesures anthropométriques (poids, taille, calcul du BMI, tour de taille, tour de cou) et recherche systématique d'anomalies des voies aériennes supérieures ainsi qu'une mesure clinique de la pression artérielle (PA).
Une mesure ambulatoire de la pression artérielle (MAPA) a été effectuée chez nos patients ainsi qu'un enregistrement du sommeil réalisé en polygraphie ventilatoire (PV).
L'analyse et l'interprétation des données est assurée par le médecin spécialiste du sommeil pour l'enregistrement polygraphique selon les règles de codage des stades du sommeil et évènements associés de L'Académie Américaine De Médecine Du Sommeil (AASM). Pour la MAPA et les autres explorations CV, les interprétations sont faites par le médecin vasculaire selon les recommandations de l'ESH-ESC 2013.
L'étude statistique a utilisé le calcul des moyennes avec écart type d'estimation et le calcul des pourcentages.

Résultats. Nous avons colligé 67 patients dont l'âge moyen est de 54,10 ans (E : 24 et 75ans) avec un sex- ratio de 0.86, le BMI moyen est de 34.48kg/m2 (E: 22,56- 64Kg/m2), le tour de taille: 115,90cm (E: 88 et 167cm) et le tour de cou: 41,05cm (E: 32 et 53cm). Les motifs de consultation sont représentés essentiellement par le ronflement (67,16% des cas), les pauses respiratoires (49,25% des cas), la somnolence diurne excessive (41,79% des cas) et dans 29,85% des cas il s'agit d'HTA ou de diabète mal équilibrés.
Parmi les antécédents personnels 31,34% des patients ont déjà fait un évènement CV (AVC/AIT, AOMI, IDM, ICC). L' HTA est présente dans 68,65% des cas, les troubles de la glycorégulation dans 37,31% des cas, le SM dans 55,22% des cas, l'hypothyroïdie dans 13,43% des cas. Les anomalies ORL existent chez 22,38% des patients et 16,41% ont une

BPCO ou un ASTHME. Seuls 9 % des patients sont vierges d'ATCD.
A l'examen, le ronflement est le maitre symptôme retrouvé chez 95,52% des patients, la somnolence diurne excessive est présente chez 83,58% des cas, les pauses respiratoires chez 86,56% d'entre eux, la nycturie chez 89,55% des cas et les troubles cognitifs dans 74,62% des patients. La moyenne à l'échelle d'Epworth est de 13,20/24 (E : 3 et 24). A la PV 61 % des patients enregistrés ont un SAS sévère, 32% ont un SAS modéré et 7% ont SAS léger.
A la MAPA, l'HTA est mal équilibrée dans 51% des cas, une HTA masquée est dépistée dans 32% des cas. 4 patients ont une HTA équilibrée et seuls 2 en sont indemnes sur l'ensemble des patients explorés.
Conclusion. L'association HTA et SAS est trop fréquente pour être le simple fait du hasard. Les liens physiopathologiques liant ces deux affections sont nombreux et expliquent aisément les pathologies cardiovasculaires observées chez les patients.

1. Millman RP, Redline S, Carlisle CC, et al. Dayt
2. Kales A, Bixler EO, Cadieux RJ, et al. Sleep ap

Key words : *Troubles respiratoire nocturnes, apnée du sommeil, Inflammation spécifique, dysfonction endothéliale*
Conflicts of interests : aucun

PSFMV10

Les complications thrombotiques au cours de la Thrombocytémie essentielle et La mutation JAK2 617F. A propos de 5 cas.

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Objectifs. La mise en évidence des mutations de JAK2 617F a modifié l'approche diagnostique des syndromes myéloprolifératifs BCR-ABL Négatif.Une plus grande fréquence de thromboses veineuses a été rapportée chez les patients mutés JAK2.L'objectif est de décrire à travers 5 tableaux cliniques de Thrombocytémie essentielle l'association de la mutation JAK2 à la survenue d'événements thrombotiques.

Patients et méthodes.
Observation 1 :Homme de 47 ans, Sans antécédents particuliers.Pas de facteurs de risque cardiovasculaire.Présente un Syndrome coronarien aigu ST+, Troponine positive.Hospitalisation en unité de soins intensifs: Traitement anti ischémique et anticoagulant.Exploration: Taux de plaquettes à 900000 éléments /mm³.
Observation 2 :Patiente de 51 ans sans antécédent particulier présentant une asthénie, jambes lourdes, acouphènes, thrombose veineuse profonde du membre inférieur droit.Biologie :

plaquettes : 1000.000 élément/mm3
Observation 3 :Patiente âgée de 73 ans aux ATCD : thrombose veineuse profonde récidivante membre inferieur droit, présentant des douleurs abdominales dont l'exploration retrouve un syndrome d'HTP par thrombose de la veine porte.Biologie : Taux de plaquettes à 600.000 éléments/mm3
Observation 4 :Patiente de 50 ans, HTA, Diabète typeII.Présente un Accident Ischémique Transitoire.Exploration : Taux de plaquettes à 800000elts /mm³.
Observation 5 :Patient âgé de 30 ans ATCD de tuberculose pulmonaire traitée, présentant des douleurs chronique de l'hypochondre gauche, dont l'exploration retrouve un syndrome d'HTP partiel par thrombose de la veine spléniqueBiologie : taux de plaquettes : 700.000 éléments/ mm3.
Résultats. L'exploration Hématologique de nos patients était en faveur d'une thrombocytémie essentielle avec JAK2 POSITIF.Les bilans immunologique et de thrombophilie étaient par ailleurs, normaux pour tous nos patients.Patients traités par hydroxyurée et AAP.
Evolution. La troisième patiente a présenté une décompensation ascitique avec des varices oesogastrique grade II. Bonne évolution hématologique et vasculaire pour les autres patients.

Conclusion. En plus des facteurs de risque thrombotiques connus pour la population générale, la mutation Jak2 V617F (à son état homozygote) augmente le risque Thrombotique artériel et veineux chez les patients atteints de thrombocytémie essentielle. Les recommandations actuelles visent à diminuer la survenue d'un premier événement thrombotique ou sa récidive au cours des thrombocytémies essentielles.

Key words : *Thrombocytémie essentielle, Mutation JAK2 617F*

PSFMV11

Fistule artério-veineuse rénale sur tumeur rétro-péritonéale

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Introduction. Les fistules artério-veineuses (FAV) rénales, sont rares, elles sont classées en congénitales, acquises et idiopathiques. Leur diagnostic repose sur l'echo-Doppler et sur l'angiographie.
Les FAV acquises sont les plus fréquentes, représentant 75 % des FAV rénales. Elles ont comme caractéristique d'avoir, le plus souvent, une communication unique entre l'artère et la veine et les lésions sont de type anévrysmal. Les étiologies les plus fréquentes sont la biopsie rénale et les plaies pénétrantes du rein. D'autres causes sont décrites, en particulier après néphrostomie, néphrolithotomie percutanée, néphrectomie ou d'origine néoplasique, c'est le cas de notre patiente.

Observation. Madame Z.D., 65 ans, hypertendue, connue depuis environ 5 ans, mal équilibrée, sans autres antécédents, a consulté pour douleurs abdominales atypiques, qui a motivé la pratique d'une échographie abdominale qui a révélé une masse rétro péritonéale hétérogène engainant les gros vaisseaux avec ectasie des vaisseaux rénaux droits en rapport avec une probable malformation artério-veineuse.
L'examen clinique ne révèle rien de particulier mise à part des chiffres tensionnels élevés.
Cet examen a été complété par un echo-Doppler rénal qui a fait le diagnostic de la fistule artério-veineuse en montrant : une VCI dilatée (30 mm de diamètre), une artère rénale droite dilatée anévrysmale (13 mm) et une importante dilatation de la veine rénale droite mesurant 19 mm, les structures veineuses intra parenchymateuses rénales sont très dilatées en rapport avec une fistule artérioveineuse rénale proximale.
Par la suite, un scanner abdominal a été pratiqué pour préciser la nature de la tumeur, et a montré une volumineuse masse solide hétérogène bien limitée vascularisée largement nécrosée rétro péritonéale droite évoquant une tumeur stromale gastro-intestinale (GIST) ou un paragangliome.

Discussion. Toutes les causes qui vont fragiliser et éroder les parois d'une artère et d'une veine adjacente vont créer une fistule artérioveineuse, notamment les traumatismes et les pathologies infectieuses ou malignes ; ces dernières doivent toujours être suspectées devant une fistule artérioveineuse non traumatique. Les tumeurs retrouvées sont les hépatomes, les hypernéphromes, les hémangiopéricytomes, les tumeurs glomiques et les angiosarcomes.
Notre patiente présente une tumeur rétro péritonéale dont la nature reste à préciser, ce qui va nécessiter une intervention chirurgicale qui va également servir à traiter la fistule artérioveineuse.
Néanmoins, les données de l'imagerie nous orientent vers une tumeur stromale gastro-intestinale (GIST) d'allure maligne, vues ses dimensions et la nécrose en son sein, c'est une tumeur rare d'autant plus qu'elle se développe en rétro-péritonéale, que sa découverte a été fortuite et qu'elle se complique d'une FAV rénale.
Conclusion. Les FAV rénales sont rares, leur diagnostic a été facilité par l'avènement de l'echo-Doppler vasculaire. Les étiologies sont diverses et surtout traumatiques, les causes néoplasiques sont à évoquer devant l'absence de traumatisme récent ou ancien. La sanction thérapeutique ne peut être que chirurgical et le pronostic sera celui de l'étiologie.

Key words : *Fistule artério-veineuse rénale, Tumeurs stromales gastro-intestinales (GIST)*
Conflicts of interests : AUCUN

PSFMV12

Atteintes artério-veineuses graves au cours de la maladie de Behcet : à propos de 7 cas

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Objectif. La maladie de Behcet (MB) est une vascularite systémique d'étiologie indéterminée et de pronostic reservé dans certains cas.Le but de ce travail est d'évaluer la prevalence de l'atteinte vasculaire grave au cours decette pathologie et d'étudier le profil épidémiologique, clinique et pronostic de nos patients.

Méthodes. une étude retrospective menée de 2008 - 2015 a permis de selectionner 7 cas deMB avec atteinte vasculaire grave sur 35 dossiers colligés.Le diagnostic des differentes atteintes est confirmé par: radio du thorax, échodoppler vasculaire et cardiaque, angioscanner abdominal, thoracique, cérébral et ou angio-IRM.

Résultats. Il s'agit d'une série à prédominance masculine 27H/08F avec une moyenne d'âge de 34,55 ans et des extrêmes de [17- 59].L'atteinte vasculaire est retrouvée dans 79,41% des cas avec une localisation veineuse prédominante à 61,76%. La prévalence des formes vasculaires graves à été de 20% (7 cas) avec toujours une prédominance masculine 06H/01F.Il s'agit de 3 cas de syndrome de Budd Chiari (SBC) associés dans 2 cas à des thromboses intra cardiaques; et de 4 cas avec des anevrysmes bilatéraux des artères pulmonaires dont un syndrome de Hughes Stovin.A noter que dans les 7 cas il s'y associe des thromboses veineuses periphériques. Le traitement a été de la colchicine des corticoides ,des immuno suppresseurs et des anticoagulants en fonction des indications et l'évolution a été fatale dans 4 cas.

Discussion. nous rejoignons les données de la littérature concernant les caractéristiques de l'angioBehcet avec la nette predominance masculine, un âge jeune des patients et une atteinte veineuse dans prés de 90% des cas. La gravité de certaines localisations vasculaires et le retard diagnostic conditionnent le pronostic vital: 25% de mortalité à court terme dans le SBC et 50% de mortalité par rupture d'anevrysmes.

Conclusion. La MB est une pathologie multisystémique dont le pronostic est parfois d'emblée engagé par certaines présentations cliniques.

Key words : *Anevrymes pulmonaires, Syndrome de Budd Chiari*
Conflicts of interests : Pas de conflits d'intérêt

SESSION COMMENTEE SFMV 2 DE E-POSTERS

SFMV E-POSTERS DISCUSSION SESSION 2

PSFMV13

Gravité de l'embolie pulmonaire après un voyage aérien.

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(2) Samu 93, CHU Avicenne
(3) UMP Urgence Médicale de Paris

INTRODUCTION. Le score PESI (Pulmonary Embolism Severity Index) simplifié est un score de gravité clinique de l'embolie pulmonaire (EP). Ce score attribue 1 point pour chacun des items suivant : âge >80 ans, antécédents de cancer, insuffisance cardiaque ou insuffisance respiratoire chronique, FC >110/min, PAS <100 mm Hg, saturation <90%.
Les patients obtenant un total de 0 point ont un risque de mortalité dans les 30 jours de 1% ; les patient obtenant >1 point ont un risque de mortalité à 30 jours de 10,9%.
Nous nous sommes intéressé au score de gravité d'une EP après un voyage aérien.

MATERIEL ET METHODES. Cette étude consiste en une revue systématique des patients suspects d'une embolie pulmonaire après un voyage aérien pris en charge à l'aéroport de Roissy Charles de Gaulle par le SAMU 93, de 1993 à 2013. Les critères d'inclusion étaient : âge >16ans, diagnostic d'embolie pulmonaire confirmé par angioscanner pulmonaire spiralé ou scintigraphie pulmonaire de ventilation-perfusion. Le score de PESI simplifié a été calculé pour chacun des patients rétrospectivement.

RESULTATS. Le PESI simplifié médian était de 2 [0-3] (N = 156).
36 patients (23%) avaient avec un score PESI simplifié nul et 120 patients (76%) avec un score PESI simplifié >1.

CONCLUSION. Nous avons retrouvé 76% d'EP avec PESI simplifié >1. Ce score de gravité ne tient compte que de critères cliniques. Les EP après voyages aériens sont souvent des EP à risque intermédiaire soit avec un risque de mortalité précoce élevé. Elles nécessitent donc une prise en charge rapide et optimale.

Key words : *Embolie pulmonaire, Voyage aérien*

PSFMV14

Fréquence des examens anormaux dans la recherche de cancer après un événement thrombo-embolique veineux.

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Introduction. On sait depuis TROUSSEAU que l'apparition d'un évènement thromboembolique veineux (ETEV) peut révéler un cancer méconnu jusqu'alors. Différentes stratégies de recherche de cancer ont été évaluées. Or, cette recherche est chronophage, anxiogène, et nécessite fréquemment des examens de seconde intention (du fait du risque de faux positifs), pour un rendement finalement très faible (environ 5%). Nous avons donc souhaité évaluer le nombre d'examens suspects de cancer, avant de les rapporter au nombre de cancers finalement diagnostiqués, dans les suites d'un ETEV.

Matériels et méthodes. Nous avons étudié de manière rétrospective les patients hospitalisés dans le service de Médecine Vasculaire et Thérapeutique du CHU de St Etienne pour un évènement thromboembolique entre 2011 et 2012. La recherche de cancer a été définie par la réalisation d'au moins un des examens suivants : PSA, Hémotests, Mammographie, Iconographie abdominopelvienne (échographie abdominale et/ou scanner abdominal) à la recherche de cancer. Nous avons comptabilisé le nombre d'examens suspects de cancer, le nombre de cancers diagnostiqués, leur stade et la survie des malades. Ces résultats ont été exprimés en pourcentage avec un intervalle de confiance à 95%.

Résultats. Sur les 491 patients pris en charge pour un ETEV, une recherche de cancer a été réalisée chez 295 patients (âge médian 66,2 ans). Dix neufs dosages de PSA (16.7%, IC95% [10.3-25]) sont revenus anormaux. Deux patients ont eu un diagnostic de cancer de prostate à un stade localisé. Dix neufs hémotests (15.3%, IC95% [9.5-23]) sont revenus positifs. Deux cancers digestifs ont été diagnostiqués à un stade local : un cancer du côlon et un cancer de l'intestin grêle. Cinq mammographies sont revenues suspectes de cancer (4,7% IC95% [1,6-10,8]) pour un cancer diagnostiqué. Trente-huit iconographies abdomino-pelviennes (14,4% IC95% [10,4-19,2]) sont revenues suspectes, pour 7 cancers diagnostiqués, dont 6 métastatiques fois au moment du diagnostic. Un seul patient était vivant à un an.

Conclusion. Au total, sur les 607 tests réalisés, 81 sont revenus suspects (13.3%) pour seulement 12 cancers (2.0%) diagnostiqués. La recherche de cancer expose donc les patients à un nombre important d'examens pour un rendement très faible (moins d'un sur six).

Key words : *Maladie veineuse thromboembolique, Dépistage cancer*
Conflicts of interests : Bayer (soutien non financier)
Leo-Pharma (soutien non financier)

PSFMV15

Thrombophlébites cérébrales : à propos de 32 cas.

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*** Service de Pédiatrie du CHU Benboulaid, Blida, Algérie*

Objectifs. Etudier les particularités épidémiologiques, cliniques, étiologiques et évolutives des thrombophlébites cérébrales (TVC) dans notre service.

Matériels et méthodes. Il s'agit d'une étude rétrospective et analytique sur dossiers des patients hospitalisés du 1/01/2014 au 31/12/2015.

Résultats. 32 patients ont étaient hospitalisées pour TVC dont le diagnostic a été confirmé après imagérie cérébrale (scanner et IRM), l'âge moyen était de 40,38 ans avec une nette prédominance féminine (sex ratio à 4,625).
Le tableau clinique était aigü dans 70% des cas, les signes inauguraux étaient essentiellement représentés par les céphalées dans 88,9% des cas, déficit moteur 34,8% des cas et de crises convulsives 21,74 % des cas, l'oedeme papillaire était présent dans 74 % des cas.
Sur le plan topographique : les sinus latéraux étaient les plus atteints 57 %, sinus longitudinal supérieur à 48,89 % des cas, les signes d'infarsissement et/ou d'hémorragie meningée étaient observés dans 35,55 % des cas.
Les étiologies étaient diverses, dominées par les pathologies auto-immunes (23,8 %), les pathologies endocriniennes (28,57 %), le post partum et la grossesse (14,28 %).
Dans la majorité des cas, l'évolution était bonne moyennant une héparinothérapie relayée par anti-vitamine K.

Discussion. Les TVC, dans notre étude, se distinguent par leur court délai diagnostique, le tableau clinique est tres varié, souvent trompeur et sur le plan étiologique par une fréquence élévée des maladies auto-immunes, des troubles endocriniens et des TVC du post-partum malgré l'anticoagulation préventive.

Conclusion. Malgré son faible taux d'incidence et la diversité des manifestations cliniques, la TVC est à évoquer devant tout symptomatologie d'hypertension intra-cranienne dont le clinicien devra connaître la sémiologie. Le traitement devra être instauré d'urgence dès la confirmation diagnostique par imagerie cérébrale.

Key words : *Thrombophlébite cérébral, Maladies auto-immunes*
Conflicts of interests : Aucun

PSFMV16

Plainte fonctionnelle secondaire à une thrombose veineuse profonde du membre supérieur : une étude rétrospective au CHU de Nantes

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Introduction. Bien que de plus en plus fréquente, la thrombose veineuse profonde du membre supérieur est une pathologie dont le traitement reste peu codifié et le retentissement fonctionnel mal et rarement étudié. Nous avons ainsi décidé de nous concentrer sur la plainte découlant de la gêne fonctionnelle à long terme, en essayant d'extraire de notre étude rétrospective quelques facteurs explicatifs.

Matériel et méthode. Cette étude s'étendant sur 5 ans est : épidémiologique, observationnelle, descriptive et analytique, rétrospective, monocentrique, de cohorte. Elle comprend 50 patients du service de médecine interne du CHU de Nantes, dont 9 patients ayant présenté un retentissement fonctionnel à long terme.

Résultats. Le sexe féminin, la persistance d'une occlusion veineuse résiduelle, la présence d'un œdème, le port (préventif ou curatif) d'une compression veineuse sont les quatre paramètres statistiquement liés à l'apparition d'une gêne fonctionnelle à long terme.

Discussion – conclusion. La plainte semble liée à l'occlusion veineuse résiduelle, et cela indépendamment de son degré, mais aussi et surtout à la qualité de vidange du réseau veineux. En cas de défaut de « collatéralités » fonctionnelles, un œdème se manifeste et une gêne apparaît. A l'avenir, nous pourrions étudier précocement la qualité de vidange du réseau veineux par pléthysmographie chez les patients présentant un syndrome occlusif résiduel, afin de les inclure dans un programme de rééducation dans le but de prévenir l'apparition d'une maladie post-thrombotique.

Key words : *Maladie post-phlébitique, Thrombophlébite veineuse profonde du membre supéri*

PSFMV17

Lymphodème du membre inférieur révélant une fistule artério-veineuse acquise idiopathique

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Introduction. Une fistule artério-veineuse (FAV) est une communication anormale entre la circulation artérielle et veineuse. Ces malformations peuvent être congénitales ou acquises.
Les FAV acquises sont secondaires le plus souvent à un traumatisme important, pénétrant ou

par forte contusion. Les FAV acquises iatrogènes suite à une ponction ou une intervention chirurgicale ou les FAV acquises athéromateuses sont plus rares.

Cas clinique. Nous rapportons le cas d'une patiente de 69 ans, présentant un lymphoedème majeur du membre inférieur gauche révélant une fistule artério veineuse acquise, sans facteur déclenchant retrouvé. Parmi ses antécédents, on retient un accident vasculaire cérébral hémorragique du tronc cérébral et cérébelleux en 2010 avec hémiparésie gauche séquellaire, une hypertension artérielle bien contrôlée par Perindopril, une tachycardie jonctionnelle, un éthylisme chronique sevré et un tabagisme sevré.

La patiente présente un lymphoedème unilatéral gauche majeur jusqu'à la racine de cuisse compliqué d'une dermite de stase et d'une papillomatose évoluant depuis plus d'un an et apparu spontanément sans notion de traumatisme, de ponction ou d'acte chirurgical. A l'examen, aucun souffle sur les axes vasculaires, aucune masse battante ne sont retrouvés. L'examen cardiaque est sans particularité.

Au cours du bilan du lymphoedème un échodoppler veineux est réalisé avec visualisation d'une fistule artério-veineuse iliaque gauche et stase veineuse majeure au niveau du membre inférieur gauche.

L'angioscanner du membre inférieur gauche et un scanner abdomino-pelvien sont en faveur d'une fistule artério-veineuse iliaque primitive gauche avec une dilatation du réseau veineux. Il n'y a pas de masse pelvienne, pas d'adénopathie, ni de compression extrinsèque. Aucune anomalie n'est retrouvée sur un scanner réalisé quelques années auparavant.

L'angiographie confirme une malformation artério-veineuse développée à partir de l'artère hypogastrique gauche, avec anomalie du retour veineux par sténose de la veine iliaque commune.

La prise en charge consiste en une dilatation de la veine iliaque commune gauche et stenting de cette veine permettant de rétablir le retour veineux avec un résultat final très satisfaisant à l'angiographie. Mise en place également d'une contention par bandes SOMOS permettant une amélioration clinique rapide avec une réduction de la papillomatose et du lymphoedème.

Discussion. Les fistules artérioveineuses iliaques se manifestent habituellement par un large panel de symptômes, pouvant même mimer une thrombose veineuse profonde, ce qui comme dans le cas présenté ci-dessus entraîne un retard diagnostique voir l'absence de diagnostic (1).

Les fistules artério-veineuses acquises iliaques sont le plus souvent secondaires à un traumatisme pénétrant.(2–4) Les causes de ces fistules iatrogènes comme la chirurgie discale sont moins fréquentes. (5–7) Aucune cause évidente n'a été retrouvée chez notre patiente.

Dans le cas que nous rapportons, l'originalité tient au caractère spontané de la fistule artério-veineuse acquise et le traitement simple par stenting veineux. Les FAV sont une causes rare de lymphoedème secondaire.

Bibliographie.

1. Li Y, Fu Q, Liu A, Zheng Z, Fan W, Zhu Z, et al. [A case of iatrogenic ilio-iliac arteriovenous fistula initially misdiagnosed as deep venous thrombosis]. Zhong Nan Da Xue Xue Bao Yi Xue Ban. 2014 Nov;39(11):1217–20.

2. Cronin B, Kane J, Lee W, Shriki J, Weaver FA. Repair of a high-flow iliac arteriovenous fistula using a thoracic endograft. J Vasc Surg. 2009 Mar;49(3):767–70.

3. Bertinchant JP, Nigond J, Dauzat M, Ovtchinnikoff S, Noblet D, Arnaud E, et al. [Arteriovenous fistula caused by spontaneous rupture of an aortic or iliac aneurysm in the iliocaval venous system. Apropos of 2 cases]. Arch Mal Coeur Vaiss. 1992 Jan;85(1):91–4.
4. Marino M, Kasemi H, Di Angelo CL, Fadda GF. Endovascular repair of a proximal ilio-iliac arterio-venous fistula and distal pseudoaneurysm of the hypogastric artery 23 years after penetrating trauma. Interact Cardiovasc Thorac Surg. 2015 Aug;21(2):269–71.
5. Hart JP, Wallis F, Kenny B, O'Sullivan B, Burke PE, Grace PA. Endovascular exclusion of iliac artery to iliac vein fistula after lumbar disk surgery. J Vasc Surg. 2003 May;37(5):1091–3.
6. Gallerani M, Maida G, Boari B, Galeotti R, Rocca T, Gasbarro V. High output heart failure due to an iatrogenic arterio-venous fistula after lumbar disc surgery. Acta Neurochir (Wien). 2007 Dec;149(12):1243–7; discussion 1247.
7. Ben Jemaa H, Maalej A, Lazzez K, Jemal H, Karray S, Ben Mahfoudh K. [Endovascular repair of iliocaval arteriovenous fistula complicating lumbar disc surgery]. J Mal Vasc. 2016 May;41(3):205–9.

Key words : *Lymphoedème, Fistule artério veineuse*
Conflicts of interests : Aucun conflit d'intérêt

PSFMV18

Séquestration broncho-pulmonaire. À propos d'un cas traité par lobectomie

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Introduction. La séquestration broncho-pulmonaire est une masse de tissu pulmonaire non fonctionnel qui n'a pas de connexion avec l'arbre bronchique ou les artères pulmonaires. Sa vascularisation artérielle vient d'un vaisseau systémique anormal différent d'une hypervascularisation systémique.
Matériels et méthode. Nous rapportons le cas d'un patient âgé de 57 ans avec antécédents de suppurations broncho-pulmonaires récidivantes traitées en ambulatoire ayant présenté des hémoptysies de moyenne abondance. L'examen clinique a retrouvé une légère diminution du murmure vésiculaire basithoracique droite. La radiographie thoracique a objectivé une opacité basithoracique droite avec niveau hydroaérique évoquant un kyste hydatique du poumon, pourtant la sérologie hydatique et la bacilloscopie étaient négatives. Un complément d'investigation par scanner thoracique et angioscanner ont permis de poser le diagnostic et confirment la nature tissulaire avec image de reconstruction évoquant une séquestration pulmonaire. La prise en charge chirurgicale a consisté en une lobectomie inferieure droite par voie thoracotomie vidéoassistée. Les suites opératoires ont été simples.

Conclusion. La séquestration broncho-pulmonaire est une pathologie très rare. L'identification de cette anomalie vasculaire par évaluation correcte de la nature et du trajet de l'artère

aberrante ainsi que son drainage veineux permet d'éviter des complications per-opératoires.

Key words : *Séquestration pulmonaire, Complications infectieus, Artère aberrante, Lobectomie, Thoracotomie vidéo-a*
Conflicts of interests : Aucun conflit d'intérêt.

PSFMV19

Prévalence de l'acrocyanose à partir de 798 consultations de Médecine Générale

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Introduction. L'objectif principal de l'étude était d'évaluer la prévalence de l'acrocyanose dans une population de patients vus en consultation de médecine générale.

Méthode. Les patients présentant une acrocyanose ont été inclus à partir des consultations de 6 médecins généralistes sur la période de novembre 2013 et avril 2014.

Résultats. Sur 798 patients examinés, 75 présentaient une acrocyanose, soit une prévalence globale évaluée à 9,4%. La prévalence de l'acrocyanose chez les femmes (10,3%) était plus élevée que chez les hommes (8,2%).

Discussion. Notre étude confirme l'importante prévalence de l'acrocyanose (9,4%) dans la population générale avec une prédominance féminine de la pathologie.

Key words : *Acrocyanose, Epidémiologie*

PSFMV21

Association du maladie de takayasu et spondylarthrite ankylosant : 2 nouveau cas.

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Introduction. La maladie de Takayasu est une artérite inflammatoire des artères de moyenne et gros calibre, son association avec la spondylarthrite ankylosante a été décrite mais reste rare, en voici 2 nouvelles descriptions.

Observation.
Patiente n° 1. Une femme de 41 ans présentant une SPA B27 positive avec sacro-iliite bilatérale, était traité par etanercept, consulte pour des vertiges et perte de connaissance, à

l'examen clinique : il existe une froideur des doigts à gauche, une abolion du poul radial et un souffle sous clavier homolatéral, sur le plan biologique : VS : 70 mm , CRP : 30mg/l, à l'écho-Doppler, on retrouve un thrombus de l'artère radiale gauche, l'angioscanner montrait une sténose de 50% du tronc arteriel brachio-céphalique de la sous claviere gauche et de la mésenterique supérieur sans athérome, une corticothérapie orale (1 mg/kg/j) était debutée avec du méthotrexate (15mg/semain) et anticouagulation efficace (lovenox à dose curatif), evolution aprés 3 mois de traitement favorable : régression du syndrome inflammatoire et disparition de trouble trophique.
Patiente n° 2. Une femme âgée de 50 ans consultait pour polyarthralgie récente d'horaire inflammatoire, aux antécédants de thrombose superficielle étendue responsable d'une claudication à 150 mm. A l'examen, il existe un souffle sous clavier, la VS 90 mm, CRP: 60mg ; le scanner de bassin montrait une sacro-iliite bilatérale, angioscanner : sténose etendue des fémorales superficielle, une orticothérapie 1mg/kg/j était debutée associée à du méthotrexate (15mg/semain), évolution : disparition des symptomes rhumatologiques et de la claudication.

Discussion. Le diagnostic de Takayasu est porté sur le terrain (femme) et la présence de 3 critères sur 6 exigés par l'American College of Rhumatology, des lésions vasculaires touchant l'aorte de façon focale mais pouvant parfois s'étendre aux segments ont été décrits au cours des spondylarthrites mais ces atteintes restent bien distinctes de celles de Takayasu, seuls quelques cas (n=15) authentiques associant Takayasu et spondylarthrite ont été rapportés.

Conclusion. L'association Takayasu-SPA est rare mais elle suggère l'existance de mécanismes pathologiques communs à ces deux maladies.

Key words : *Takayasu, sacroiliite, Spondylarthrite ankylosante*

PSFMV22

Une nécrose digitale compliquant une afibrinogénémie congénitale.

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Introduction. L'afibrinogénémie congénitale est une maladie rare due à un déficit constitutionnel en fibrinogène. Sa transmission se fait selon le mode autosomique récessif et la maladie est caractérisée par des saignements susceptibles d'engager le pronostic vital. Elle est exceptionnellement pourvoyeuse d'accidents thrombotiques.
A ce propos, nous rapportons l'observation d'une patiente suivie pour afibrinogénémie congénitale compliquée de nécroses digitales à l'âge de 21 ans.

Observation. Il s'agit d'une patiente suivie pour afibrinogénémie congénitale depuis l'âge de 18 mois, traitée par des perfusions mensuelles de fibrinogène. A l'âge de 21 ans, elle a

développé des lésions nécrotiques des orteils des deux pieds récurrentes à trois reprises. Ces nécroses survenaient dans les suites des perfusions de fibrinogène. L'enquête étiologiqueà la recherche d'une cause à ces thromboses distales récidivantes était négative. Ainsi, l'afibrinogénémie congénitale a été incriminée à l'origine des nécroses digitales.

Discussion. La survenue de thromboses au cours de l'afibrinogénémie congénitale est exceptionnelle. Certaines hypothèses incriminent la pathologie elle-même, d'autres le traitement par fibrinogène. Cette complication pose un problème thérapeutique majeur, notamment les anticoagulants qui sont contre-indiqués chez ces patients à haut risque hémorragique.

Conclusion. Si l'afibrinogénémie congénitale est une cause pourvoyeuse de nécroses digitales, elle demeure tout de même exceptionnelle. Ainsi, l'enquête étiologique d'une thrombose distale doit être exhaustive éliminant les autres causes plus fréquentes avant de retenir la responsabilité de l'afibrinogénémie congénitale.

Key words : *Afibrinogénémie congénitale., Nécrose digitale.*

PSFMV23

Hémoptysie révélant un angio Behcet

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La maladie de Behcet est une vascularite à atteinte systémique. Les manifestations respiratoires sont rares (12 %). Nous rapportons le cas d'un homme jeune pour lequel un anévrysme artériel pumlmonaire a été retrouvé, à la suite d'une hémoptysie.
Il s'agit d'un sujet jeune âgé de 32 ans, hospitalisé pour des épisodes récidivants d'hémoptysie de moyenne abondance.
L'interrogatoire retrouve la notion d'aphtoise buccale récidivante évoluant depuis deux ans, et la notion d'oeil rouge il y a une année.
L'examen physique objective un aphte buccal, pas de cicatrice d'aphte génital, pas de lésions de pseudo folliculite, l'examen neurologique et abdominal sans anomalies.
Le télé thorax objective une opacité para hilaire gauche.
L'angioscanner thoracique retrouve de multiples anévrismes des artères pulmonaires avec un anévrysme géant thrombosé de l'artère pulmonaire gauche mesurant 18 mm de largeur et 35 mm de grand axe antéro-postérieur, avec l'association de multiples embols bilatéraux proximaux et distaux segmentaires et sous segmentaires avec des infarctus pulmonaires.
L'examen ophtalmique retrouve des foyers de rétinites bilatérales, surtout à gauche.
Le diagnostic de la maladie de Behcet a été retenu selon les critères diagnostiques (Int Criteria for Behcet'sdisease).
Il a recu un traitement médical à base de corticoïde à forte dose avec diminution progressive

des doses, bolus mensuels de cyclophosphamide et colchicine.
Le patient n'a pas présenté de récidives d'hémoptysies.

Key words : *Angio Behcet, Anévrysme de l'artère pulmonaire*

PSFMV24

Hématomes spontanés : penser au scorbut !

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Introduction. Le scorbut, fréquemment mortel chez les marins du XVII siècle, est décrit depuis 160 avant JC. Secondaire à une carence sévère en vitamine C, il est responsable d'un tableau clinique polymorphe associant asthénie, œdèmes, arthralgies et fragilité capillaire, résultant du rôle essentiel de la vitamine C pour la stabilisation du collagène. Nous rapportons un cas de scorbut, adressé dans notre service pour bilan de volumineux hématomes.

Observation. Un homme de 46 ans est hospitalisé en médecine vasculaire, pour bilan d'œdèmes diffus associés à de volumineuses ecchymoses et anémie à 8.6g/dl, sans thrombopénie ni trouble de la coagulation. Ses antécédents comportent une hépatite C secondaire à une toxicomanie IV à l'héroïne et cocaïne, sevrée et substituée par méthadone, compliquée par le passé, d'ostéites des quatre membres, responsables de plaies délabrantes occasionnant une invalidité à 85%. Les lésions actuelles, d'apparition spontanée depuis dix jours, sont associées à une asthénie intense et des arthralgies. L'anémie normocytaire arégénérative est multifactorielle sur carence martiale, vitaminiques B9 et B12, et inflammatoire. La charge virale C est indétectable. La 25OH vitamine D est effondrée. Il présente une dénutrition modérée avec une albumine à 33.6 g/L. La biopsie cutanée révèle un purpura sans signe de vascularite. L'imagerie confirme l'infiltration des tissus mous sans hématome profond ni brèche vasculaire. Le diagnostic est confirmé par un taux de vitamine C sérique effondré à 1.1µmol/L [N=28.4-90.8µM/L]. La supplémentation en vitamine C 1g/jour

permet l'amélioration de l'état général et la régression complète des volumineux œdèmes, arthralgies et hématomes.

Discussion. Cette maladie touche habituellement peu les pays industrialisés, concernant alors les patients atteints de malabsorption digestive, alcooliques, dénutris ou isolés. Notre jeune patient, ne présente plus d'addiction mais des séquelles motrices responsables d'un handicap fonctionnel majeur le conduisant à une alimentation exclusivement composée d'aliment en conserve.

Conclusion. Souvent considéré comme disparu, le scorbut est toujours présent en France, mimant parfois une maladie systémique ou une vascularite. Le pronostic étant habituellement bon avec régression de la symptomatologie après supplémentation, il doit être évoqué afin d'être traité.

Key words : *Ecchymoses spontanées, Scorbut*

OF IUA E-POSTERS DISCUSSION SESSION 1
SESSION COMMENTEE UIA 1 D'E-POSTERS

PIUA01

Von Willebrand factor/ADAMS-13 ratio and TNF-α correlate with estimated GFR in patients with CAD

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Backgrounds. Chronic kidney disease (CKD) is one of the risk factors of coronary artery disease (CAD). Worsening of the renal function, and severity of microalbumina both factors independently induce with CAD events and severity of these two factors have been pointed out to be related with degree of endothelial cell dysfunction and inflammation. However, mechanisms of vascular damage suffering from renal failure are not well-known.

We investigated correlation among von Willebrand factor (vWF), which is a maker of endothelial injury, a disintegrin-like and metalloprotease with thrombospondin type 1 repeats 13 (ADAMS-13), which cleaves vWF, tumor necrosis factor-α (TNF-α), and renal functions in patients CAD.

Methods. In this prospective cross-sectional study, consecutive 142 patients (70±9y/o,103men) with CAD were enrolled. All patients were performed coronary angiography. We measured the plasma level of vWF, ADAMS-13, vWF/ADAMS-13 ratio, TNF-α, estimated glomerular filtration rate (eGFR) and uremic albumin/creatine ratio (ACR).

Results. Although ACR did not correlated with vWF/ADAMS-13, vWF, ADAMS-13 and TNF-α, eGFR were negatively correlated with vWF/ADAMS-13 (r=-0.351, <0.01), vWF (r=-0.27, <0.01) and positively correlated with ADAMS-13 (r=0.20, P=0.02).
TNF-α was positively correlated with vWF (r=0.19,=0.03) and negatively correlated with eGFR (r=-0.34,<0.01).

Conclusions.Although ACR did not correlate with vascular injury and inflammation, it is revealed that vWF/ADAMS-13 ratio and vWF are negatively correlated with eGFR, and ADAMS-13 and TNF-αare positively correlated with eGFR in patients with CAD.
Vascular injury is assumed to be associated with renal function and inflammation. And there would be different mechanisms in occurrence of renal dysfunction and microalburemia in patients with CAD.

Key words : *Endothelial dysfunction, CKD*
Conflicts of interests : We hava no conflict of interest.

PIUA02

Sulodexide in the prevention of recurrent dvt: a meta-analysis.

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Background. Venous thromboembolism (VTE) is a major health care problem resulting in significant mortality, morbidity, and expenditure of resources. A subset of thrombotic events, often taken for granted, is the superficial venous thrombosis (SVT) which may occur together with DVT and could pose problems in the same manner as DVT.

Methods.An electronic literature search for randomized controlled trials (RCTs) that used sulodexide for recurrent DVT prevention among patients on maintenance phase of treatment for a previous DVT was done. Quality of each study was assessed using the Meta-analysis Quality Assessment form. Results were combined in a meta-analysis using Odds Ratio with a 95% Confidence Interval.

Results. A total of 982 patients from 2 Quality A and B RCTs were used. Results showed that Sulodexide on top of standard treatment prevented DVT recurrence compared to standard treatment alone (OR 0.42; 95% CI, 0.26, 0.66). The results also showed benefit of treatment with Sulodexide in the prevention of Superficial Venous Thrombosis among post-DVT patients (OR, 0.39; 95% CI, 0.19, 0.78).
Conclusion.Compared to standard treatment alone, Sulodexide added to standard treatment was better in the prevention of recurrent DVT for post-DVT patients on maintenance phase of treatment. There is also evidence to show that the use of Sulodexide prevents the occurrence of Superficial Venous Thrombosis. The use of Sulodexide is promising and effective in reducing the risk of thrombotic events (be it deep or superficial venous) owing to its heparin-like antithrombotic and profibrinolytic activity.

Key words : *Recurrent DVT, Sulodexide*
Conflicts of interests : none

PIUA03

Abdominal deep vein thrombosis profile in an internal medicine department : A review of 70 cases.

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Aims. Abdominal deep vein thrombosis (DVT) is a rare condition. The aim of our study is to describe it's clinical and etiological profile.

Materials and methods. This is a single-center retrospective study involving 109 patients with DVT enrolled over a period of 18 years (1996-2014). We looked systematically for patients with abdominal DVT. The diagnosis was focused on imaging (venous Doppler ultrasound, CT or MRI). All patients underwent an exhaustive etiological investigation (Symptoms questionnaire, clinical exam, blood test : CBC, protein C, protein S, antithrombin III, Factor V Leiden, APL, ANA, bone marrow aspiration and biopsy, imaging).

Results. 70 patients with abdominal DVT were identified, (36 ♀, 34 ♂); mean age was 41 years ranging from 16 to 77. Portal and hepatic veins were the main locations, respectively in 46 (64%) and 22 (30%). The first sign which lead to diagnosis was: abdominal pain in 80% of cases, with abdominal distension in 20%, ascites decompensation in 5% and a cholestasis syndrome in 2%. The most frequent causes were: myeloproliferative disorders in 11 (13%), congenital thrombophilia in10 (11.7%), APL syndrome in 9 cases (10.5%). The other causes were: systemic lupus, Behçet's disease,Inflammatory bowel disease, celiac disease, extra membranous glomerulonephritis, locoregional causes (trauma, hepatic, neoplastic and sepsis). The use of oral contraceptives was noted in 13% of patients. Etiology was not identified in 24%.

Conclusion. Abdominal location of DVT is unusual and remains a reason for hospitalization in internal medicine. The most frequent causes are myeloproliferative and APL syndromes. However, the cause remains unknown in the majority of cases.

Key words : *Abdominal vein thrombosis, Myeloprofiferative disorders*
Conflicts of interests : Aucun.

PIUA04

Risk assessment models to predict venous thromboembolism in acutely ill medical inpatients

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Introduction. Hospital-Acquired Venous Thromboembolism (VTE) may represent an important cause of preventable deaths in hospitalized medical patients. On the other hand, anticoagulant thromboprophylaxis exposes patients to bleedings and increases medical cost. Identifying risk patients for VTE is therefore critical. We aim to externally evaluate three risk assessment models (Padua Prediction, Caprini and Improve VTE risk scores) and to assess the value of patients' age alone.

Patients and Method. Retrospective analysis of prospectively enrolled patients in the cluster-randomized PREVENU trial (Roy PM et al. Plos One, 2016). Patients over 40 years old, hospitalized at least 2 days in medical ward after emergency room consultation were consecutively enrolled and followed during 3 months. Patients diagnosed with VTE within 48 hours from admission, or receiving anticoagulant treatment or who undergone surgery were excluded. Risk assessment models were retrospectively assessed. Reduced mobility was deduced from hospital length of stay minus one day.

Results. Among 14,910 eligible patients, 14,659 (98.3%) were evaluable, of which 263 (1.8%) experienced symptomatic VTE or sudden unexplained death (possibly relative to PE) during 3mo follow-up. Area under ROC curves were respectively 0.60 [0.57-0.63], 0.62 [0.58-0.64] and 0.62 [0.59-0.65] for Caprini, Improve and Padua scores, respectively. None of them performed significantly better than patient's age alone (AUC 0.61 [0.58-0.64]). Results were similar considering only symptomatic non-fatal VTE: 0.62 [0.58-0.66], 0.62 [0.58-0.66], 0.63 [0.59-0.67] and 0.58 [0.54-0.62]); or in the subgroup of patients not receiving any anticoagulant prophylaxis during hospitalization: 0.62 [0.58-0.67], 0.64 [0.60-0.68], 0.64 [0.59-0.68] and 0.66 [0.62-0.70] for Caprini, Improve, Padua scores and age, respectively.

Conclusion. Padua Prediction, Caprini and Improve VTE risk scores have poor discrimination value to identify VTE-risk medical inpatients, similar to a risk evaluation based on patient's age alone. Better prediction rules are needed.

Key words : *Venous Thromboembolism, Medical Inpatients*
Conflicts of interests : Aucun

PIUA05

Quantification of corona phlebectatica with a view to longitudinal studies: the potential of automated image analysis

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Objective. Corona phlebectatica (ankle flare) is a sign oh high distal venous pressure and is an early marker of chronic venous insufficiency (CVI). In CVI, epidemiological or therapeutic longitudinal studies are lengthy and difficult to perform. Corona phlebectatica can be a useful clinical sign to be quantified in order to compensate for the uncertainties of such studies. The clinimetric approach is made possible by the automated analysis of digital photos. However, no method has yet been validated. Our objective was to assess the clinical validity and reproductibility of quantification of blue telangiectases (BT) on the ankle and foot, obtained using a standardised photographic method.

Method. The images are obtained using a specially designed photographic system enabling reproducible positioning of the foot. This devices is equipped with a standardised lighting system and a camera with a 14-50 mm lens and a resolution of 10MP. Image analysis was performed using a tool developped using algorithms optimised for the detection and quantification of BT and their relative surface area compared to the surface area of the region of interest. The clinical validity was defined as the correlation between the parameters measured and CEAP C class in 32 patients (25 women, 7 men, median age: 69 years) receiving hydrotherapy for chronic venous disorder. The inter- and intra-observer reproductibilities were tested in a subgroup of 10 patients and expressed by the median value and the 9th decile of the relative variation.

Results. The BT surface areas increased significantly with C classes (r = 0.36, p < 0.005).The variation median was 4% (9th decile: 14%) for the intra-observer test and 12% for the inter-observer test (23%).

Conclusion. Quantification of corona phlbectatica using our image recording and analysis method provides relevant data with a good level of short term reproducibility. The long-term reproducibility still needs to be assessed before this method can be used in longitudinal studies.

Key words : *Corona phlebectatica, Ankle flare, Clinimetrics*
Conflicts of interests : The study has been financed by Innothera laboratories.
No conflict of interest.

PIUA06

Venous stenosis- clinical importance, diagnostic and endovascular treatment

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Introduction: Venous pathology reffering to venous stenosis is common and causes serious complications including chronic venous insufficiency /CVI/, deep venous thrombosis /DVT/ and cerebral neurovascular diseases.

Aim:To diagnose and provide endovascular treatment of venous stenosis with different localizations.

Materials and methods:We diagnosed 52 patients with venous stenosis in different areas inlcuding iliac vein stenosis due to compression/ May Thurner Syndrome/, Nutckracker syndrome, stenosis and hypoplasia of superior and inferior cava vein, chronic cerebrospinal venous insufficiency/CCSVI/. Stenosis were established by EchoDoppler, CT phlebography and conventional phlebography.

Results: The diagnosis of venous stenosis was confirmed with conventional phlebography. Balloon dilation was perfomed in all cases of proven CCSVI. Stenosis of cava vein and iliac vein were treated with ballon angioplasty and stent implantation.

Conclusion: Venous stenosis and can cause serious complications includin CVI and DVT which requres preventive endovascular treatment.

Key words : *venous stenosis, endovascular treatment*

PIUA07

Impact of an educational program on the quality of life of patients with lymphedema: a preliminary evaluation

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Purpose. Lymphedema is a chronic disease that is difficult to treat. As for all disabilities a patient education program could be beneficial. Well-designed programs are rare, and their

evaluation is even scarcer. Here we report on the evaluation of the patient education program "Living with Lymphedema".

Patients and methods. This structured educational program was set up for patients with lymphedema. It was run by the GRANTED network that includes vascular medicine specialists, primary care physicians, physical therapists, and dietitians in the Alpine region of France. It proposed 3 individualized educational sessions, a choice of 7 possible workshops and 2 optional dietetic consultations, with customization to the patient's needs and expectations. The longitudinal cohort study assessed patients' quality of life using the SF36 and EuroQol 5D auto-questionnaires, filled-in at the first consultation (C1) and the third consultation (C3), as well as compliance to compression therapy.

Results. The cohort was the 34 patients included in the program, among who 28 completed follow-up. We found a significant improvement in the physical dimension of the MOS-SF36 score (P = 0.01) between C1 and C3, but not for the psychic dimension. The EuroQol 5D scores did not show a statistically significant difference (P = 0.46). Visual analog scales on the ability to cope with the lymphedema showed a statistically significant improvement between C1 and C3 (P = 0.05). No difference was observed in adherence to compression therapy.

Conclusion. This therapeutic educational program showed a significant improvement in several criteria of quality of life and in the autonomy of patients with lymphedema. More studies are needed with a longer follow-up that also assess physical criteria.

IRB number 5891.
Key words : *therapeutic education, lymphedema*
Conflicts of interests : none

PIUA08

Low lymphatic pumping pressure in the legs is associated with leg edema and lower quality of life in healthy volunteers

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There are previous studies about quality-of-life (QOL) of the patients with the lower limb lymphedema1-3, however, there were not studies about the association between lymphatic pumping pressure and QOL.
The objective of this study was to investigate about QOL of the healthy volunteers with low lymphatic pumping pressure of their lower limbs by our method.
A total of 465 subjects between the ages of 30 and 85 years (78 males and 387 females) volunteered to participate in this study, from September 2009 to September 2013.

Lymphatic pumping pressure was measured in 930 legs of the 465 participants. Indocyanine green (ICG) fluorescence lymphography was performed, and the real-time fluorescence images of lymph propulsion were obtained in a sitting position using an infrared-light camera system. A custom-made transparent sphygmomanometer cuff was wrapped around the lower leg and connected to a standard mercury sphygmomanometer. The cuff was inflated, and then gradually deflated until the fluorescent dye exceeded the upper border of the cuff. Lymph pumping pressure was defined as the value of the cuff pressure when the dye exceeded the upper border of the cuff.
Medical Outcome Study 36-Item Short-Form Health Survey (MOS SF36) was used to assess QOL of the participants.
We categorized the participants to 'good' (lymphatic pumping pressure of both legs ≧ 40 mmHg, n=100), 'moderate' (except 'good' and 'poor', n=314), 'poor' (lymphatic pumping pressure of both legs < 20 mmHg, n=51), investigated each group about backgrounds and MOS SF36.
In terms of MOS SF36, there were significant differences in Physical Functioning (PF) and General Health (GH) (both <0.05). In terms of backgrounds, only the edema of lower limbs had significant difference between three groups (<0.05).
The participants with edema of lower legs had significant lower scores in Physical Functioning (PF) and Role Physical (RP) and Bodily pain (BP) and Vitality (VT) than those of the participants without edema of lower legs (respectively <0.05, <0.01, <0.01, <0.01).
This study showed that healthy volunteers with low lymphatic pumping pressure of lower legs had low scores in Physical Functioning and General Health of MOS SF36, the edema of their lower legs made QOL worse.

Key words : *lymphedema, Quality of life*
Conflicts of interests :

PIUA09

Embolization and sclerosing therapy of arterio-venous malformation: our experience

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Arteriovenous malformation is a congenital vascular anomaly described in the ISSVA classification of 2014. The peripheral localization of arteriovenous malformations is rare, usually they are located in the brain. Despite the little epidemiologic impact of these anomalies they are the cause of serious complications and severe quality of life impairment. The purpose of this paper is report our experience about endovascular management of arteriovenous malformations with peripheral localization. Between January 2001 and

December 2015 we retrospectively analysed 55 arteriovenous malformations in patients treated by embolization or sclerosing therapy. None of the patients presented a complete resolution of arteriovenous malformation and for this reason they are intended to undergo other procedures in the course of their lives. Nevertheless these tecniques allows to reduce symptoms AVM related between a procedure and the next one without the employing of demolitive surgery, in fact in our study there was no treatment-related complications. Embolization and sclerosing therapy represent safe and repeatable treatments of arteriovenous malformations.

Key words : *MAV, Peripheral*

PIUA10

Raynaud's phenomenon of the tongue

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Although digital Raynaud's phenomenom was perfectly described from the 19th century, Raynaud's phenomenom of the tongue (TRP) is exceptional and has rarely been reported. We obtained information on case of TRP from members of the French college of vascular medicine. We identified 4 patients with TRP, and we pooled our findings with the results of a literature review (14 previously reported cases of TRP). In 72.2% of cases TRP was associated with connective tissue disease (CTD), 16.7% were idiopatic en 11.1% secondary to cervical radiotherapy. Systemic sclerosis represented 61.5% of CTD, and mixed connective disease in 15.4%. TRP manifestation were: numbness (80% of cases), tingling (71.4%), or dysarthria (71.4%). Tongue's pallor was present in 88.2% of cases and tongue's cyanosis in 47.7%. Cold weather triggered TRP in 87.5% of cases whereas cold food in only 7.7%. In 61.1% of cases of CTD or neoplasia preceded TRP but TRP may precede the CTD of several years in a few cases.

Although rare, TRP is probably underestimated, it was most often associated with CTD. Knowledge of this phenomenon, could avoid excessive neurological explorations in case brutal dysarthria with spontaneous resolution.

Key words : *Raynaud Phenomenon, Tongue*
Conflicts of interests : None

PIUA11

Simultaneous assessment of skin microcirculation and auto-fluorescence to predict cardiovascular dysfunction

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BACKGROUND AND AIMS: Oxidative stress and endothelial dysfunction are molecular, cell and tissue events occurring in the peripheral microcirculation earlier than the structural changes in blood vessels and clinical manifestations associated with Cardiovascular Disease (CVD). The preclinical detection of these predictors of risk may help the preventive application of all of the measures required to reduce the burden of deaths caused by CVD. Therefore, our research is aimed to assess simultaneously and non-invasively the peripheral skin microvascular function and the natural auto-fluorescence of oxidative stress markers for the establishment of novel preclinical predictors of cardiovascular dysfunction and risk.

METHODS: Laser-Doppler Flowmetry (LDF), Reflectance Oximetry (RO), and Fluorescence Spectroscopy (FS) single-point measurements were collected from the volar forearm of healthy subjects aged 20-58 in combination with the Post-Occlusive Reactive Hyperaemia (PORH) stimulus. Changes in microvascular and auto-fluorescent variables were evaluated at baseline (10min), ischaemia (5min), and PORH response (10min) time points. The oscillatory components of blood flow and oxygen saturation LDF and RO signals were investigated by wavelet analysis, and potential physical predictors of CVD risk (attractors) such as the correlative dimension (D2), entropy (Ho) and information (Hi) were calculated to evaluate the complex non-linear dynamics of the recorded signals.

RESULTS: We found a significant positive correlation (p-value ≤ 0.001-0.005) between D2, Ho and the oscillatory components more contributing to the adaptive blood flow and oxygen saturation PORH responses. On the other hand, the normalized auto-fluorescence of NADH, FAD and lipofuscin oxidative stress markers was negatively related (p-value ≤ 0.001-0.01) to D2, Ho and the wavelet oscillatory components.

CONCLUSION: The results suggest that the combined assessment of the attractors, the wavelet components and the auto-fluorescence from the peripheral skin could be used to predict non-invasively impaired or optimal microcirculation and tissue oxygenation conditions. However, the comparison of the obtained reference values against data from people at high risk or affected by CVD is needed, to establish and validate the specific markers that might have applications as early predictors of CVD risk.

Key words : *Skin microcirculation and auto-fluorescence, Cardiovascular Disease risk*

PIUA12

High Prevalence of Deep Vein Thrombosis in the first hours after Stroke in young patients with Right to Left Shunt.

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INTRODUCTION. Right-to-left shunt (RLS), usually due to a patent foramen ovale (PFO), has been associated with cryptogenic stroke in adults under 60. Paradoxical embolism may be the main cause of stroke through PFO.
The prevalence of deep vein thrombosis (DVT) is unknown in the acute stage of a stroke and detection may go unnoticed after the first days of the stroke.

OBJECTIVES. To determine within 48 hours, the prevalence of DVT in patients under 60 with cryptogenic stroke and RLS detected using contrast transcranial Doppler sonography (TCD).

METHODS. We performed TCD using an air-mixed saline and the Vasalva maneuver in 25 consecutive patients under 60 within 48 hours, and without evident aetiology of stroke, in the CHU of Saint Etienne from January to May 2016. If an RLS was found, we immediately searched for DVT by Doppler ultrasound examination of the legs. Ultimately all patients underwent transoesophageal echocardiography (TEE) as the reference examination for the diagnosis of intracardiac RLS.

RESULTS. 25 consecutive patients (mean age: 50.7) with acute stroke underwent TCD in our department. TEE was not performed in 5 patients. We detected an RLS in 11 patients with TCD (44%). DVT was found in 4 patients with RLS (40%). All thromboses were clinically silent. 1 DVT was proximal and 3 DVT were distal. The TCD had a sensitivity of 90% and specificity of 100% in the diagnosis of PFO in our study compared to TEE as gold standard. 6 PFOs with atrial septal aneurysm (ASA) were detected (60%).

DISCUSSION. The question of paradoxical embolism is still debated. A ventilation perfusion pulmonary scintigraphy could be performed to search for pulmonary embolism within the first week and then enhance suspicion of paradoxical embolism in patients with cryptogenic stroke. Likewise, a rate of 37% silent pulmonary embolisms was detected in patients however the scintigraphy execution time is unknown (Tanislav et al. Stroke 2011).

In our Department, we found a 40% rate of DVT. Nevertheless, more patients are required to complete the investigation and a shorter TEE time to confirm the findings of PFO. During our study, 5 patients were unable to have TEE performed on time.

CONCLUSION. DVT is frequent in young patients with acute stroke and RLS detected by TCD. This could be an argument for paradoxical embolism. As a consequence, a search for DVT should be performed within 48 hours.

Key words : *right to left shunt, stroke*

PIUA13

Hemodynamic studies of superior mesenteric arteries to identify underlying causes of the spontaneous isolated dissections using flow-sensitive four-dimensional magnetic resonance imaging

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Objectives: The etiology of spontaneous isolated superior mesenteric artery dissection (SISMAD) remains unclear. Usually, the dissection has been reported to occur at the anterior wall around the convex curve of the SMA. The purpose of this study was to investigate the underlying causes of SISMAD using flow-sensitive four-dimensional magnetic resonance imaging (4D-Flow).

Methods: [Study 1] 10 patients (all males, mean ages 50 years old) with SISMAD were enrolled in this study. The location and length of the dissections were retrospectively assessed by computed tomography. [Study 2] 4D-Flow was performed in 90 volunteers (48 males and 42 females, mean age 78 years old) without SMA diseases. The average values of wall shear stress (WSS-Ave) and the maximum values of WSS (WSS-Max) in one heartbeat were measured. The measurement sites were classified into three zones: zone 1: between the orifice of SMA and the site 1 cm distal to the orifice in the SMA curvature, zone 2: between the site 1cm distal to the orifice and the site further 1cm distal the in the curvature; zone 3: between the site 2cm distal to the orifice and the site further 1 cm distal in the curvature. WSS were analyzed at both anterior (A) and posterior (P) walls of the SMA in each zones.

Results: [Study 1] Among the 10 patients, the dissection occurred at the anterior wall of SMA in all patients. The mean distance from the SMA orifice to the proximal edge of the dissection was 17mm, and the mean length of the dissection was 54mm. [Study 2] The WSS-Ave of zone 1A and 2A were significantly higher than that of other zones (1A／2A／3A／1P／2P／3P, 0.369／0.345／0.253／0.261／0.231／0.218 Pa, p < 0.01, respectively). Similarly, the WSS-Max of zone 1A and 2A were significantly higher than that of other zones

(1A／2A／3A／1P／2P／3P, 0.927／0.850／0.543／0.631／0.482／0.450 Pa, p < 0.01, respectively).

Conclusions: 4D-Flow analysis showed that higher WSS was observed at the anterior wall of SMA around the convex curvature, which suggested that WSS might play an important role on causing SISMAD.

Key words : *superior mesenteric artery dissection, magnetic resonance imaging*

PIUA15

High-intensity Interval Training Enhances Functionality of Circulating Progenitor Cells and Depressed Shedding of Vascular Endothelial Cells undergoing Hypoxia

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The preservation of vascular endothelial integrity depends on the balance between the extent of injury and the endogenous capacity for repair. This investigates how high-intensity interval (HIT) and moderate-intensity continuous (MCT) exercise training affect the functionality of circulating progenitor cells (CPCs) and the shedding of vascular endothelial cells under hypoxic stress. Sixty healthy sedentary males were randomized to engage either HIT (3-min interval at 40% and 80%VO2max, n=20) or MCT (sustained 60%VO2max, n=20) for 30 min/day, 5 days/week for 6 weeks, or to a control group that did not received exercise intervention (n=20). CPC characteristics and endothelial shedding under hypoxic exercise (HE, 100W under 12%O2) were determined before and after various interventions. The results demonstrated that both HIT and MCT significantly increasing CD34+/CD133+/KDR+ (endothelial progenitor cell) cell count, whereas only HIT considerably increased CD34+/CD117+/KDR+ (hemangioblast stem cell, HSC) and CD34+/CD31+/KDR+ (endotheial precursor cell. CEP) cell counts at rest and folliowing HE. Moreover, HIT, rather than MCT, significantly diminished the extent of endothelail shedding (CD34-/KDR+/PS+) caused by HE. The HIT regimen also increased resting and HE-related tube cover area, tube length, tube count, migration of CPCs. However, MCT did not change migration of CPCs and modestly increased tube formation of CPCs at rest and following HE. Additionally, CTL for 6 weeks did not influence the functionality of CPCs and the shedding of vascular endothelail cells. Therefore, we conclude that HIT is superior to MCT for enhancing CPC functionality and suppressing endothelial injury undergoing hypoxia.

Key words : *Exercise, Endothelial progenitor cell*
Conflicts of interests : No conflicts of interest, financial or otherwise, are declared by the authors.

PIUA16

Arterial stiffness in a cardiac rehabilitation program : A French monocentric study

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Background and objectives : Pulse Wave Velocity (PWV) is a good surrogate of the arterial stiffness. This is an independent biomarker of cardiovascular events (ESH-ESC Guidelines 2013). PWV seems to be reduced with regular exercise. The effect of cardiac rehabilitation (CR) is less known on this biomarker. The aim of this study was to evaluate the impact of a CR program on arterial stiffness measured by pulse wave velocity (PWV).

Patients and methods : Data from 100 consecutive patients recruited in a French CR centre were analyzed. The finger-toe PWV was measured with a new validated device (pOpmètre®-Axelife SAS-France) at the beginning and the end of CR (mean duration = 18.3 ± 4 days).

Results : Patients (Mean age 64 ± 11 years, 84 % males), were coronary artery disease (51 %), valvular (38 %), heart failure (3 %) and other (8 %). The classical cardio vascular risk factors were the following: 1- current smoking (n = 3), 2- Diabetes (n = 26), 3- high blood pressure (n = 58), 4- high blood cholesterol (n = 48), There was also obesity (n = 15) coronary heredity (n = 19) sedentary lifestyle (n = 20). They took part in 15 ± 5 physical training sessions (mean duration : 120 min) ; The maximal workload (MWL) increased from 94.9 ± 35 to 116±37 Watts and the 6min walking test (6MWT) from 430 ± 113 to 505 ± 106 m (<0.0001). The PWV decreased from 9.16 ± 3.0 to 8.39 ± 2.5 m/s (p < 0.008). We found a positive correlation with age (r = 0.38 ; p < 0.0003) and inverse correlation with maximal workload (r = -0.34 ; p < 0.001) and 6MWT (r = 0.22 ; p < 0.003).

Conclusion : Maximal physical capacity and 6MWT were dependant of the PWV and a current CR program seems to improve the arterial stiffness in a cardiac population

Key words : *Arteriel Stiffness, Pulse Wave Velocity*
Conflicts of interests : Dr M Hallab détient un brevet

PIUA17

Pulse Wave Velocity Recordings with pOpmetre® in a General Primary Care Population: the IPC cohort.

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Aim: Aortic stiffness, best approached by pulse wave velocity (PWV), is a major determinant of health. Among the devices measuring PWV, gold standard is pulse transit time recordings using 2 points of measurement such as carotid to femoral assessment. pOpmetre® (P®) measures pulse wave transit time at the finger and the toe using photo-diodes clips and adequate algorithm in less than 5 minutes. It showed good agreement according to reference techniques, but P® feasibility and relevance were never tested in a large general population.

Population and methods: From September 2015, 527 Normotensives (aged 43.8 ± 13.6 years) had a standard health check-up at the IPC Center (Paris, France) including finger to toe pulse wave velocity recording with pOpmetre®, performed by nurses in supine resting after 10 minutes where ECG and blood pressure measurements were recorded (three values averaged). Data were compared to aortic PWV reference values (Eur Heart J, 2010; 31, 2338–2350).

Results: Pre-specified factors for measurement failure were variation coefficient within one record > 30%, and PWV extreme outliers: 13 were excluded. BP and PWV were respectively: 121 ± 10 / 73 ± 7 mmHg; 7.64 ± 2.7 m/sec. 231 had optimal BP, 202 normal and 81 high normal BP. PWV increased with age classes from <30 to >70 years. The P® values fell exactly within the aortic reference ranges for age classes: 6.2 ± 1.2, 7.1 ± 2.1, 7.4 ± 2.2, 8.2 ± 2.8, 10.2 ± 3.6, 9.6 ± 2.6 m/sec.

Conclusion: The easy to use and quick measurement with pOpmetre® device can be performed by nurses during a tight time schedule. It provides values within aortic Reference value ranges in normal population. It is a promising substitute to reference techniques for assessing PWV during standard health check-up.

Key words : *Finger Toe Pulse Wave Velocity, Arterial Stiffness*
Conflicts of interests : Dr Magid Hallab, Brevet

PIUA18

Biomonitoring of the patients with peripheral arterial occlusive disease.

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Antiplatelet therapy (aspirin and thienopyridine) is the cornerstone of the treatment for patients with Peripheral Arterial Occlusive Disease (PAOD). Thienopyridines are class of selective, irreversible ADP receptor/P2Y12 ihnibitors used for their anti-platelet activity. Inter-individual variability in the response to a thienopyridine is frequent,well established and observed in fairly large proportion of patients. A rapid advance in the knowledge of this phenomenon has shown that this variability is related mainly to differences in active metabolite production from the prodrug. Patients presenting biological resistance, determined through platelet fonction tests or genetic tests predicting the existance of low metabolism, have a higher risk of cardiovascular accidents.

Objectives. Our aim to suggesting the most convenient functionnal method in monitoring the dual antiplatelets treatment (DAPT) in PAOD patients.

Methods. Different methods can be use to analyze a platelet reactivity: light transmission aggregometry (LTA), measure of the phosphorylation of vasodilator stimulated phosphoprotein (VASP) by flow cytometry or enzyme linked immunosorbent assay (ELISA), platelet function analyser (PFA-100 or 200), verify Now P2Y12, Multiple Platelet Function analyzer (Multiplate), Plateletworks,thromboelastography (TEG).

Conclusion. This work provides a background to the current controversies surrounding the issue of testing for the effectiveness of antiplatelet therapy and reviews the various phenotype-based laboratory tests to measure aspirin and thienopyridine response and their correlation with clinical outcomes. On the basis of the current evidence and trying to be cost-effective, testing should be considered on a case by case basis. We think that testing might be helpful in particular risk groups of patients to avoid ischemic complications.

Key words : *Biomonitoring, Resistance*
Conflicts of interests : Pas de conflit d'intérêt

PIUA19

Experience in ultrasound-guided nerve block using lidocaine 0.1% with epinephrine in peripheral artery bypass

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Peripheral nerve block offers several benefits over general anesthesia. Our initial study showed the local anesthesia in peripheral artery revascularization had the advantage of shorter hospital stay and reduced early postoperative mortality, compared with general anesthesia. Peripheral artery bypass using only nerve blocks requires maximal dose of local anesthetics, which has the risk of systemic toxicity. Ultrasound-guided technique in nerve block has been introduced with both improving of the success rate and decreasing in the morbidity. We performed peripheral artery bypass under echo-guided peripheral nerve blocks combined with local infiltration anesthesia using lidocaine 0.1% plus epinephrine, and intravenous administration of dexmedetomidine.
Ultrasound-guided peripheral nerve blocks including a combination of transversus abdominis plane block, femoral nerve and sciatic nerve blocks were performed using lidocaine 0.1% plus 1:100,000 epinephrine and local infiltration with the same lidocaine solution was added when the patient complained of the pain. Dexmedetomidine was adjunctively administrated to maintain conscious sedation. Neither fluid intake restriction or premedication was done.
A total of 35 peripheral artery bypasses include 7 lower limb artery bypass,13 femoropopliteal artery bypass and 15 external iliac or femoral artery cross over bypass were performed. There was no shift to general anesthesia or any cardiovascular or respiratory complications. Intraoperative catecholamine administration was only needed in 9 of 49 patients with a maximum usage in 5γ dopamine. Five patients were categorized as ASA grade 3 and two patients as ASA grade 4, and the average Rutherford`s classification was 5.6 in patients undergoing lower limb artery bypass.

Combined ultrasound-guided peripheral nerve blocks, local infiltration with lidocaine 0.1% with epinephrine and intravenous administration of dexmedetomidine could provide successful peripheral artery bypass even in patients with poor condition. The use of this less invasive anesthetic technique may limit postoperative complications and decrease overall cost of peripheral artery bypass.

Key words : *Ultrasound-guided nerve block, Peripheral artery bypass*
Conflicts of interests : The author declare no conflict of interest associated with this manuscript.

PIUA20

Restenosis in PTA-treated patients: our experience.

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PTA plays a central role in the field of PAOD treatment being less invasive of open surgery and reducing the most common complications of long hospital stay. Aim of this study was to evaluate the efficacy of PTA in PAOD affected patients through the calculation of restenosis in the two years following the endovascular procedure. A second goal was to determine if the restenosis occurred in the same arterial districts or if it was a new primary occlusion.We have examined 342 consecutive patients who underwent PTA in our Hospital Center between January and December 2012 and we have calculated the percentage of patients who needed a second procedure in the following two years. The great majority of the subjects had no restenosis in the two years following the endovascular treatment: 78.4% (n=268) vs 21.6% (n=74). Moreover, 77% of restenosis were in at least one of the arterial segments that were previously revascularized; 23%, on the other hand, had a new primary occlusion. Therefore, in our experience, PTA represents a durable technique with a lower degree of invasiveness with respect to the open surgery. On the other hand, it is evident that PTA may not be the ultimate solution in a selected number of patients possibly because of the micro-traumatic effect on the endothelial cells.

Key words : *Restenosis, PTA*

PIUA21

The effect of cyclo-3-fort on patients with chronic arterial lesions of the lower limbs

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Introduction. As has been shown in previous studies treatment results in patients with chronic peripheral arterial disease (PAD) of the lower limbs depends on microcirculation and peripheral vascular resistance. Medications for venous disease of the lower limbs aim to reduce higher venous-capillary blood pressure, perivenous inflammation and transudation in

the microcirculation. The efficacy of Cyclo-3-Fort has previously been demonstrated in patients with chronic venous disease (CVD) and lymphatic insufficiency.

Aim of this study was to investigate the effect of Cyclo-3-Fort as adjuvant postoperative therapy in patients with PAD.

Material and Methods. We examined 900 patients with PAD who underwent surgery at the average age 63.5 years for a period of 12 months. They were divided into 2 groups – with Cyclo-3-Fort postoperatively (study group) and without adjuvant therapy with this medication (control group). There was no significant difference in both groups according to gender, age or PAD stage (The Fontaine Classification) in both groups. We studied comorbidity and subjective indicators like pain severity, heaviness, stepping edema and muscle cramps in both groups of patients. All the data were summarized in questionnaires from patients. Postoperatively patients werefollowed up on the first and third month after the discharge from the hospital.

Results. Our study showed significant reduction of complaints in all patients treated with Cyclo-3-Fort. Moderate decrease to almost full disappearance in all subjective symptoms was registrated in the study group till 3rd postoperative month. We found comparable improvement of symptoms like in our previous study regarding to application of micronized diosmin in patients with PAD of the lower limbs.

Conclusion. Treatment of patients with PAD requires an integrated approach and careful assessment of microcirculatory features. For this reason the application of Cyclo-3-Fort in patients with PAD is reasonable.

Key words : *Peripheral Arterial Disease, Cyclo-3-Fort*

PIUA22

Fortuitous discovery of a focal thrombus adherent pedicle isolated from the common carotid artery : a case-report.

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Thrombi in supra-aortic trunks usually occur in the bulb of internal carotid artery, and may embolized leading to transient ischemic attacks and cerebral infarctions.
A focal adherent isolated thrombus involving the common carotid artery is exceptional, because of the rarity of severe atherosclerosis disease in this large and non-turbulent vessel.
Very few cases have been reported in the literature.

A free-floating thrombus in the right common carotid artery was discovered fortuitously on a cervical computed tomography (CT) scan realized for the follow-up of 52-year-old woman with a history of throat cancer treated by surgery and chemo-radiotherapy 12 years ago. The patient had no complains and the only cardiovascular risk factor was represented by a weaned smoking estimated at almost 10 pack year.
After Doppler ultrasound examination, the diagnosis was corrected to "focal adherent isolated pedicle thrombus", resulting in a stenosis of 60% in lumen diameter reduction, but without hemodynamic consequences in color duplex flow imaging investigation turbulences characterized by an aliasing phenomenon and significant increase of the blood flow velocities. The lesion attached to the anterior wall opposite to the area of radiotherapy, was unvascularized, very hypoechogenic, regular, and respected the intimal-medial complex. There was no other parietal lesion, especially atherosclerotic or inflammatory.
Electrocardiograph and transthoracic echocardiograms were normal, as routine biochemical and hematological tests.

Because of lack of previous case, ethiopathogeny was discussed during a specialized vascular meeting and treatment with neurologists. We considered this thrombus as an atherosclerotic one, which appearance was favoured by parietal lesions associated with radiotherapy. Anticoagulation was introduced without affecting the persistence of thrombus in six weeks.

Key words : *thrombus adherent pedicle, common carotid artery*
Conflicts of interests : aucun

PIUA23

Thoracic endovascular aortic repair for traumatic aortic injuries: A single center experience

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Introduction. Endovascular repair has emerged as the preferred mode of treatment of aortic disease over the years. In the trauma setting where injuries are multifocal thoracic aortic injuries could be fatal and pose a management challenge in the presence of other injuries. In our study we present experience over 5years in endovascular repairs of traumatic aortic injuries.

Methods. From December 2006 to June 2015, 20 patients who suffered traumatic thoracic aortic injuries were referred to the Division of vascular surgery following diagnosis by CT angiogram. These patients underwent endovascular stenting and was followed up at 1,3,6 month intervals and yearly thereafter.

Results. The patient population included 6 pseudoaneurysms, 5 aortic transections, 6 pseudoaneurysm with transections, 1 pseudoaneurysm with dissection, 1 contained rupture and 1 intimal tear. The survival rate for the entire patient cohort was 100%. The average injury severity score was 43.55. 1 patient has stent collapse requiring another proximal stent and 1 more patient had acute lower limb ischaemia, which resolved with anticoagulation. Apart from those two acute complications no other complications like stent failure, collapse or migration occurred in the follow-up period.

Conclusion. In the poly trauma setting endovascular aortic stenting for thoracic aortic injuries produce good results with good outcomes with minimal complications.

Key words : *TEVAR, Traumatic aortic injuries*
Conflicts of interests : None

PIUA24

Sleep apnea on the prevalence of aortic dissection: A meta-analysis

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INTRODUCTION AND AIM. Some studies suggested that sleep apnea syndrome (SAS) is a risk factor of aortic dissection (AD), however, some other studies got opposite results. Whether SAS is a risk factor remains unclear. Here we meta-analyzed available evidence on odds ratio of patients with or without SAS.
MATERIAL AND METHODS. Two reviewers searched PubMed and Web of science, as well as reference lists in relevant articles to find studies published between January 2000 and May 2016 that met inclusion and exclusion criteria. Data on SAS and AD diagnosis were extracted from the studies and meta-analyzed.

RESULTS. A total of 6 studies involving 56312 patients were included in the meta-analysis, which was performed using a fixed-effect model since no significant heterogeneity was found. AD was significantly associated with SAS (OR 2.16, 95% CI 1.57 to 2.69). Funnel Plot suggested no significant publication bias in the meta-analysis.

CONCLUSIONS. The available evidence suggests that SAS is a risk factor of AD.

Key words : *Sleep apnea, aortic dissection*
Conflicts of interests : We declare that we have no conflict of interest.

AUTRES E-POSTERS SFMV / OTHER SFMV E-POSTERS

Pathologie artérielle périphérique

PSFMV25

Intérêt de la mesure transcutanée d'effort (TcPO2) pour la mise en évidence d'une amélioration fonctionnelle après traitement médical optimal et programme de rééducation non supervisé.

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Contexte. La marche et les programmes de réentrainement à l'effort sont proposés en première intention dans le cadre d'une claudication intermittente. De tels programmes, supervisé ou non, améliorent la distance maximale de marche, la qualité de vie et la morbi-mortalité cardio-vasculaire. Le test tapis est recommandé pour l'évaluation après une prise en charge thérapeutique. Un enregistrement de la mesure transcutanée d'effort (TcPO2 d'effort) permet d'avoir une évaluation objective de l'ischémie à la marche. Cependant, il n'a jamais été décrit que la TcPO2 d'effort pouvait mettre en évidence une diminution de l'ischémie d'effort après un traitement médical optimal associé au réentraînement.

Observation. Nous rapportons le cas d'un homme de 54 ans, tabagique (37 PA) déclarant une distance de marche limitée par une claudication distale droite à 300 m sur le plat et 200 m en montée.L'échographie doppler retrouve une thrombose de l'artère fémorale superficielle droite entrainant des flux biphasiques. Les Index de Pression systolique (IPS) de repos étaient de 0,48 à droite et 0,88 à gauche.Une première TcPO2 d'effort lors d'un test sur tapis roulant (10% de pente et 3,2km/h) a été pratiquée afin d'évaluer cette claudication. La distance maximale de marche sur tapis était alors de 223 m. Les valeurs de TcPO2 étaient en faveur d'une ischémie proximo-distale droite. Un traitement optimal associant antiplaquettaire, Inhibiteur de Enzyme de Conversion et statine est débuté. Lors de la consultation, l'arrêt du tabac est conseillé ainsi que la marche (30 min par jour 3 fois par semaine comme recommandé).Sept mois plus tard, le sevrage tabagique a été obtenu et le patient a effectué une marche tri-hebdomadaire d'au moins 45 mn/jour. Une deuxième TcPO2 d'effort selon le même protocole est réalisée. Les IPS sont à 0.67 à droite et 0.97 à gauche. La distance maximale de marche sur tapis est de 653 m. Les valeurs de TcPO2 sont en faveur d'une ischémie proximo-distale gauche avec une valeur minimale nettement améliorée : la valeur minimale lors du premier test au niveau du mollet droit est passée de -47 mmHg à une valeur lors du deuxième test à -36 mmHg.

Conclusion. Le suivi des recommandations (arrêt du tabac, marche 3 fois/semaine et traitement médical optimal) pendant 7 mois a permis à ce patient d'améliorer sa distance maximale de marche sur tapis (distance multipliée par 3). La TcPO2 d'effort permet

d'objectiver la diminution de l'ischémie après un traitement médical optimal associé à une marche régulière. Une telle technique pourrait être intéressante pour évaluer si certains réentrainements diminuent davantage l'ischémie que d'autres.

Key words : *Rééducation, TcpO2 d'effort*

PSFMV26

Anévrysme de l'artère pulmonaire révélateur de la maladie de Bechet : à propos d'une observation clinique

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Introduction. La maladie de Behçet est une vascularité d'étiologie inconnue se caractérisant par un polymorphisme clinique. Les complications vasculaires sont un mode d'expression de la maladie pouvant même être inaugural.

Observation. On vous rapporte ici une observation clinique d'un patient jeune sans facteurs de risque cardiovasculaires admis dans notre service pour douleur thoracique avec hémoptysie, l'examen cardiovasculaire était dans les limites de la normale, l'écho-Doppler cardiaque complété par un angio TDM aortique retrouve un anévrysme de l'artère pulmonaire.
L'examen des autres appareils montre une aphtose bifocale récidivante
Examen ophtalmologie : sans particularité.
Examen neurologique : sans particularité.
Pathergy test : positif.
Le diagnostic de la MB a été retenu et le patient a été mis sous colchicine et corticothérapie.

Résultats et discussion. La maladie de Behçet (MB) décrite en 1937 par un dermatologue turc Hulusi Behçet est une maladie inflammatoire chronique d'étiologie inconnue. Elle est caractérisée cliniquement par une aphtose buccale ou le plus souvent buccogénitale associée à des manifestations systémiques dont les plus fréquentes sont cutanées, oculaires et articulaires et les plus graves sont neurologiques, cardio-vasculaires, intestinales et oculaires.
Les atteintes vasculaires appelées aussi angio Behcet touchent le plus souvent l'adulte jeune de sexe masculin et surviennent jusque dans 46% des cas de MB. Elles peuvent constituer le mode initial de présentation. Il s'agit le plus souvent de thromboses veineuses qui se voient dans 24,9 % à 43 %.
Les atteintes artérielles sont plus rares et se caractérisent par des thromboses et des anévrysmes. L'anévrisme de l'artère pulmonaire au cours de la maladie de Behçet est très rare, auquel il faut penser en présence de signes évocateurs de la maladie. Le pronostic de ces localisations est grevé de complications pouvant entraîner le décès par hémoptysie foudroyante due à une rupture d'anévrisme.

Conclusion. L'atteinte artérielle est rare, souvent anévrismale, véritables aphtes artériels, assombrit significativement le pronostic vital du fait de la gravité des complications et du retard diagnostique imputable à sa grande latence clinique.

Key words : *Angio-Behcet, Anévrysme de l'artère pulmonaire*
Conflicts of interests : pas de conflit d'intérêt

PSFMV27

Les atteintes artérielles de localisation thoracique au cours de la maladie de Behçet

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Introduction. L'atteinte vasculaire au cours de la maladie de Behçet intéresse essentiellement les veines. Il s'agit le plus souvent de thromboses veineuses qui sont observées dans 30 % des cas. Les artères ne sont que très rarement touchées. L'atteinte artérielle s'exprime par des thromboses, des sténoses et/ou des anévrismes. Elle touche le sujet jeune. Nous rapportons à travers ce travail, 5 cas colligés entre 2012 et 2015, la majorité de sexe masculin, hospitalisés pour des lésions artérielles thoraciques.

Observation 1.Mr B.A., âgé de 35 ans, se plaint depuis un an et demi d'une toux sèche, hospitalisé pour exploration d'une hémoptysie de petite à moyenne abondance. Le Syndrome d'Hughes Stoven est évoqué sur la présence d'embolie pulmonaire et de trois anévrismes artériels (Lobaire supérieure droite non thrombosé, lobaire inférieure droite et gauche partiellement thrombosées) ainsi que sur la présence à l'échographie cardiaque d'une thrombose comblant la pointe du ventricule droit.
Le patient a été traité par des bolus de corticoïdes, des immunosupresseurs et la colchicine et une hypocoagulation qui a été arrêtée suite à l'apparition d'une hémoptysie de grande abondance et remplacée par une isocoagulation. Après 9 mois d'évolution, on note une bonne évolution clinique et absence d'embolie pulmonaire et d'anévrismes au scanner de contrôle, mais persistance de la thrombose intracardiaque.
Observation 2. Mr D.N., âgé de 21 ans, connu depuis l'âge de 11 ans pour Angiobehçet. Il a bénéficié, suite à des hémoptysies cataclysmiques, de deux interventions chirurgicales à un mois d'intervalle à type de lobectomie inférieure gauche puis droite. Vu la reprise de la symptomatologie cinq ans plus tard, un angioscanner a été demandé ayant objectivé la récidive des anévrismes. Le traitement par la biothérapie a donné une très bonne réponse, après échec des corticoïdes et des immunosuppresseurs.
Observation 3. Mr R.B., âgé de 25 ans, est hospitalisé pour exploration d'une fièvre au long court. Le diagnostic de la M.B a été posé sur la présence d'aphtose bipolaire, pseudofolliculite et thrombose de la veine cave supérieure avec signes d'embolie pulmonaire et thrombose

complète de la veine jugulaire et incomplète de la veine sous clavière droite. Un traitement à base de colchicine, corticothérapie, immunosupresseur ainsi qu'une hypocoagulation a donné une bonne réponse clinique.
Observation 4. Mr D.R., âgé de 44 ans, hospitalisé pour crachats hémoptoiques avec fièvre. Le diagnostic de maladie de Behçet est posé sur la présence d'aphtose bipolaire et embolie pulmonaire. Le patient a présenté une très bonne réponse clinique sous corticothérapie et anti coagulation. Suivi d'un traitement immunosupresseur.
Observation 5. Mme B.N., âgée de 32 ans, consulte pour une hémoptysie de petite abondance. Le diagnostic de la M.B est posé sur la présence d'aphtoses buccales, cicatrice d'aphte génital, une thrombose veineuse profonde des membres inférieurs. La TDM thoracique a objectivé la présence de trois anévrismes partiellement thrombosés. Le syndrome de Hughes Stoven est posé sur les éléments sus cités. La patiente a été traité par corticothérapie, azathioprine, hypocoagulation et colchicine. L'évolution clinique est favorable.
Conclusion. La localisation thoracique de la M.B est rare. Elle englobe des manifestations graves pouvant engager le pronostic vital tels que l'embolie pulmonaire, les thrombus intracavitaires et les anévrismes de l'artère pulmonaire. La présence de thrombose nécessite une anticoagulation qui risque d'entraîner ou d'aggraver le risque hémorragique préexistant. L'attitude thérapeutique nous impose une réflexion particulière !

Key words : *Angiobehçet-Anévrisme-Hémoptysie, Embolie pulmonaire-thrombose intra cardiaque-Hypoc*

PSFMV28

Atteintes artérielles multiples au cours de la maladie de Behçet.

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Introduction. Nous rapportons le cas d'un patient présentant une forme rare d'angio-Behçet à savoir une double sténose fémorale et une atteinte coronarienne.

Observation. Patient âgé de 33 ans, sans facteurs de risque cardio-vasculaires, suivi depuis 3 ans pour maladie de Behçet (MB) diagnostiquée devant une aphtose bipolaire, pseudo-folliculite, uvéite à hypopion et pathergy test positif. Il consulte pour claudication intermittente du membre inferieur gauche (stade 2) évoluant depuis une année; il présente également une thrombose de l'inter-ventriculaire gauche découverte en milieu cardiologique où il a été exploré pour syndrome coronarien aigu. L'examen clinique objectivait une abolition du poul poplité à gauche. Le bilan biologique ne notait pas de syndrome inflammatoire. L'écho-doppler et l'angiographie des membres inferieurs révélaient une double sténose de l'artère fémorale commune gauche. Le patient a bénéficié d'un pontage ilio-fémoral pour l'atteinte fémorale et mono-pontage pour l'atteinte coronaire. Un traitement

immunosuppresseur (Cyclophosphamides relayé par Azathioprine) a été instauré chez notre patient dont l'état demeure stable avec un recul de 6 ans.

Discussion. L'atteinte artérielle au cours de la MB est moins fréquente que l'atteinte veineuse (25% versus 75%) pouvaant interesser tous les territoires avec une prédilection pour l'aorte abdominale et les artères pulmonaires. Elle est représentée par des anévrismes (45-70%), des occlusions (36-80%), des sténoses artérielles (13%) ou des aortites diffuse (3%); en revanche l'atteinte artérielle périphérique est plus rare, elle est, en outre, souvent de type anévrysmal multifocal affectant les artères fémorales (15%), les iliaques, les carotides, les poplitées et les coronaires. Les localisations sont multiples dans environ 30% des cas.

Conclusion. Notre observation illustre la gravité de certaines formes de MB lorsqu'elles sont multiples et touchent les coronaires. Elle relève également les particularités de cette atteinte artérielle, en l'occurence, sa prévalence chez l'homme jeune et dans les premières années d'évolution de la maladie.

Key words : *Behçet, sténose fémorale, Behçet, coronaropathie*
Conflicts of interests : Aucun

PSFMV29

Manifestations cardiovasculaires sévères de la maladie de Takayasu. A propos de 2 cas cliniques originaux.

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Objectifs. La maladie de Takayasu est une artérite inflammatoire des gros vaisseaux touchant l'aorte et ses branches principales. Evoluant en phase pré-occlusive et phase occlusive, cette dernière se traduit par la survenue de manifestations ischémiques (sténoses et occlusions), pouvant être fatales.
Nous rapportons deux observations originales l'une révélée par un syndrome coronarien aigue ST+, et l'autre révélée par une ischémie bilatérale des membres inférieurs, dont l'objectif est de relater l'urgence suite au retard diagnostic qui était un mode de révélation atypique, ainsi que les difficultés de la prise en charge que nous avons rencontré.

Materiels et méthodes.
Observation 1. Femme de 50 ans, consulte aux urgences pour douleurs thoracique, type angineuse survenue au repos, Sans aucune pathologie familiale ou personnelle. L'examen cardiovasculaire : Angor de repos (classe IV CCS), Claudication du membre supérieur, Abolition totales de tous les pouls des deux membres supérieurs, Tension artérielle imprenable au niveau des deux bras, souffle important au niveau de la région sus claviculaire

gauche,Tension artérielle à 160/80 mm hg (prise au MI).
L'ECG : ischémie sous épicardique dans le territoire antérieur.
Syndrome inflammatoire Vs: 88/113mm, Insuffisance rénale modérée : clairance à la creat:56,4ml/mn, Troponine élevé (7x la normale.
Echocardiaque: Hypokinésie en apico –latéral.
Angio TDM artériel : Lésions serrée sur les coronaires, Lésions serrée sur les 2 sous Clavière droite et gauche, Lésions serrée sur les artères rénales .Lésion serrée sur l'artère mésentérique supérieure.
Le diagnostic de maladie de takayasu a été retenu.
Observation 2. Femme de 55 ans, s'est présentée après 15 jours d'évolution d'une ischémie critique bilatérale des membres inférieurs.
L'examen retrouve un état général modéré, Anisotension, carotidodynie, Syndrome de Raynaud unilatéral. Souffle bilatéral de l'A. sous Clavière. Claudication du membre supérieur droit. Diminution du pouls brachial droit ; Abolition bilatérale du pouls poplité et du tibial antérieur ; Notion de claudication des membres inferieurs.
L'échodoppler des artères complétée par l'AngioTDM retrouve : un épaississement homogène hyper échogène circonférentiel de toutes les parois artérielles, avec sténose des A. subclavières, A axillaire et brachiale droite, Sténoses régulières et occlusions étagées bilatérale des AFS et A POP, Absence du lit d'aval.
Le diagnostic retenu : artérite de TAKAYASU active classe V , avec ischémie des membres inférieurs.

Résultats. La 1ere patiente a été mise sous corticothérapie (1 mg/kg) ce qui a permis une amélioration du bilan inflammatoire, ainsi que la fonction rénale puis présentée pour un geste de revascularisation.
La 2eme patiente mise sous corticoïdes, double anticoagulants et une statine mais une gangrène bilatérale des membres inférieurs s'est vite installée avec des troubles métaboliques biologiques ioniques, CPK LDH fonction rénale une décision d'amputation a été prise mais la hantise était sur le niveau d'amputation vue que les occlusions étaient étagées. La malade a été amputée des deux jambes, pour sauver les segments restartant une tentative de revascularisation satisfaisante par angioplastie a été réalisée de l'axe fémoropoplité droit dans l'espoir de la repredrendre pour le membre gauche, mais la malade décède le lendemain.

Discussion. Les deux patientes ont présenté des manifestations artérielles sévères rendant délicate la prise en charge thérapeutique à savoir :
Atteinte des coronaires, Atteinte rénale bilatérale, Atteinte bilatérale des artères des membres inférieurs.

Conclusion. Nous soulignons l'intérêt de l'examen clinique, notamment cardio-vasculaire qui guidera les explorations radiologiques d'autant plus qu'aujourd'hui nous disposons des nouvelles techniques d'imagerie, d'échographie et de scanner qui ont bouleversé l'approche diagnostique et le suivi évolutif de la maladie et de mieux définir les stratégies thérapeutiques,

à fin de réaliser des gestes de revascularisation à temps.

Key words : *Artérite de Takayasu, Ischémie*
Conflicts of interests : aucun conflit d'intérêt.

Maladie thrombo-embolique veineuse

PSFMV31

Différents aspects cliniques révélant un déficit en protéine S dans une série d'observation en médecine interne.

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La protéine S appartient à l'un des principaux systèmes anticoagulants physiologiques, le système protéine C / protéine S. Le déficit héréditaire en protéine S s'accompagne de manifestation thromboembolique et le dosage de la protéine S fait partie des analyses réalisées dans le cadre du bilan étiologique de thrombose idiopathique.
Observations. Il s'agit d'une patiente agée de 36 ans sans antécédents pathologiques, hospitalisée pour douleurs abdominales généralisée. Devant l'agravation de l'état général, le diagnostic d'ischémie mésentérique a été posé sur le TDM abdominal. La laparotomie objective une ischémie mésentérique par thrombose de la veine mésentérique supérieure. Le bilan à la recherche d'anomalies de l'hémostase retrouve une protéine S diminuée. un deuxième contrôle de la protéine S confirme ce diagnostic.
Le deuxième cas : patiente agée de 36 ans hospitalisée dans un tableau d'AVC. Un scanner cérébral avec injection objective une thrombose veineuse cérébrale, dans ses antécédents, on retrouve la notion de phlébite traitée 2 ans auparavant. Le bilan objective un déficit en protéine S.
Le troisième cas a été observé chez un homme de 51 ans hospitalisé pour AVC ischémique aux antécédents de diabète type2 et HTA, le bilan vasculaire objective un thrombus carotidien et une thrombose veineuse fémoro poplité gauche.
Le quatrième cas : une femme agée de 28 ans qui a présenté des douleurs abdominales dont l'écho-doppler du tronc porte objective une thrombose du tronc porte. Le bilan objective un déficit en protéine S.

Key words : *Thrombophilie, Protéine S*

PSFMV32

Thrombose de veine ovarienne gauche étendue à la veine rénale.

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Introduction. Les thromboses veineuses uro-génitales sont considérées comme des thromboses de siège insolite et de diagnostic très difficile, vu leur extrême rareté et leurs expressions cliniques atypiques. On devrait y penser devant certaines situations particulières, comme celle de notre patiente, dont nous rapportons le cas.

Observation. Madame B.K., 36 ans, a présenté au 4ème jour de post-partum, des douleurs de la fosse iliaque gauche rebelle aux antalgiques avec cliniquement fièvre et tableau pseudo-chirurgical, dans un contexte d'accouchement récent par forceps, compliqué d'une rupture utérine pour laquelle elle a été opérée il y a 4 jours.
Le diagnostic d'une urgence chirurgicale a été soulevé, rapidement éliminée par un scanner abdomino-pelvien qui révéla la présence d'une thrombose ovarienne gauche avec extension à la veine rénale homolatérale.
La patiente a été de ce fait mise sous anticoagulant, et adressée un mois après pour contrôle par echo-Doppler, qui a montré la persistance de la thrombose veineuse ovarienne gauche et la recanalisation de la veine rénale homolatérale.
Devant la bonne amélioration clinique et paraclinique de la patiente, il a été décidé de poursuivre le traitement anticoagulant.

Discussion. Les thromboses veineuses ovariennes sont des thromboses insolites et rares compliquant de 1/600 à 1/2.000 grossesses, survenant généralement dans les 4 semaines suivant l'accouchement et se manifestant par une symptomatologie vague incluant asthénie, fièvre, douleurs abdomino-pelviennes, difficile à distinguer des troubles inflammatoires ou infectieux du post- partum.
Les thromboses ovariennes droites sont plus fréquentes (80-90 %), le diagnostic est le plus souvent par TDM ou IRM devant une inflammation ou une infection pelvienne, une chirurgie du pelvis compliquée d'infection ou dans le post abortum.
Ces thromboses peuvent s'étendre aux veines rénales et la VCI, et se compliquent d'embolie pulmonaire dans 3 à 13 % des cas avec évolution fatale dans 4 % des cas.
Le traitement est assuré par l'anti coagulation conventionnelle pendant 3-6 mois.
Le cas de notre patiente est donc assez rare, encore plus la localisation à gauche, elle a malheureusement fait les frais d'un accouchement dystocique, et elle échappé de justesse à une seconde intervention grâce à l'imagerie qui a redressé le diagnostic, mais avant la TDM, un écho-Doppler abdomino-pelvien, examen non invasif, peu onéreux, reproductible, aurait pu parfaitement et rapidement faire le diagnostic, encore fallait-il penser à ce genre de pathologies qu'il faut absolument connaitre pour éviter de graves déboires à nos patients.

Conclusion. Les thromboses veineuses urogénitales, malgré leur rareté, méritent d'être connues, puisque leurs expressions cliniques atypiques peuvent faire errer le diagnostic et aboutir à des conduites thérapeutiques inadaptées et dangereuses, alors que le diagnostic est facilité par l'imagerie notamment par l'echo-Doppler, et le traitement est assez bien codifié.

Key words : *Thrombose veineuse ovarienne, Thrombose de veine rénale*
Conflicts of interests : AUCUN

PSFMV33

Atteinte vasculaire multifocale veineuse et artérielle sévère révélatrice d'une néoplasie pulmonaire

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Introduction : L'association cancer et thrombose veineuse est connue depuis prés d'un siècle et demi. Elle représente presque toujours un critère indépendant de mauvais pronostic du cancer, par ailleurs la thrombose artérielle est rare et nettement moins documentée, sa survenue témoigne souvent une maladie avancée. Nous rapportons un cas de cancer bronchique révélé par une atteinte vasculaire multifocale sévère faite de 2 thromboses veineuses à bascule, une embolie pulmonaire et deux accidents vasculo-cérébraux ischémiques.

Observation : Patient âgé de 61 ans tabagique suivi pour BPCO sous traitement ayant déjà présenté il ya six mois une TVP fémoro-poplité droite étiquetée comme idiopathique, un mois après l'arrêt du traitement anticoagulant le patient est réhospitalisé pour une TVP du membre controlatéral. Au cours de l'exploration le patient développe deux épisodes d'AVC ischémique à une semaine d'intervalle suivie dix jours plus tard d'une embolie pulmonaire massive malgré une anticoagulation curative à base d'HBPM, la réalisation d'une TDM thoracique retrouve un processus tumoral pulmonaire.

Discussion : Les patients cancéreux ont un risque de développer une MTEV de 4 à 20 % et quatre à sept fois supérieur à celui des patients non cancéreux.
Les thromboses artérielles d'origine paranéoplasique sont rares par rapport aux thromboses veineuses, et leur association est fortement évocatrice d'un processus tumoral et c'est le cas de notre patient ou l'atteinte vasculaire artérioveineuse a précédé la découverte d'une néoplasie pulmonaire.
Si le lien physiopathologique entre MTEV et cancer est bien établi, la relation entre cancer et thrombose artérielle reste incertaine. Les données de la littérature et cette observation ne peuvent que suggérer l'existence de facteurs de risque communs entre MTEV et thrombose artérielle.
Un autre aspect de cette observation est la survenue d'une atteinte artérielle très peu de

temps après une thrombose veineuse inaugurale.

Conclusion : l'association d'une maladie thromboembolique veineuse avec une thrombose artérielle est rare, elle doit faire rechercher en premier lieu un cancer qui est souvent à un stade avancé.

Key words : *thrombose arérioveineuse, cancer*
Conflicts of interests : aucun conflit d'intérêt

PSFMV34

Un déficit familial en fibrinogène révélé par une thrombose veineuse profonde

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INTRODUCTION. La déficience en fibrinogène est une maladie héréditaire très rare de la coagulation sanguine, sa prévalence est estimée à 1-9 / 1 000 000.
Il existe trois types de déficit du fibrinogène : l'afibrinogénémie, l'hypofibrinogénémie et la dysfibrinogénémie. Cette maladie touche autant les hommes que les femmes. Elle peut dans certains cas provoquer des saignements importants(25%) ou plus rarement , des thromboses(21%).
La prévalence du déficit constitutionnel en fibrinogène dans la maladie thrombotique est faible (<1%)

OBSERVATION. Nous rapportons le cas d'un patient âgé de 16 ans, aux antécédents personnels de consommation occasionnelle de tabac et de cannabis ; dans ses antécédents familiaux, on note une sœur ayant présenté a l âge de 16 ans une thrombose veineuse cérébrale ainsi qu'une thrombose splénique.
Admis pour enquête étiologique d'un premier épisode de thrombose veineuse profonde(TVP) proximale du membre inferieur gauche, sans facteurs déclenchants particuliers.
L'examen clinique était sans particularités hormis les signes de TVP du membre inferieur gauche , on note l'absence de notions de saignement.
Les examens biologiques révèlent une hypofibrinogénémie sévère a 0,22 mg /L ; un taux de protéine C, antithrombine III et RCPA sont normaux.
Une enquête familiale a été débutée, retrouvant une hypofibrinogénémie chez la mère de ce patient.

CONCLUSION. A travers de cette observation, nous soulignons le caractère rare de cette affection, la nécessité de doser le fibrinogène chez les patients ayant présenté une TVP sans facteurs déclenchants , et nous insistons sur l'importance de l'enquête familiale

Key words : *hypofibrinogénémie familiale, thrombose veineuse*
Conflicts of interests : aucun conflit d'intérêt

PSFMV35

La Mutation JAK2 V617F dans la Thrombocytémie Essentielle : Facteur prédictif de thrombose, A propos de 3 cas d'un service de médecine interne.

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OBJECTIFS. La mise en évidence des mutations de JAK2 617F a modifié l'approche diagnostique des syndromes myéloprolifératifs BCR-ABL Négatif.
Une plus grande fréquence de thromboses veineuses a été rapportée chez les patients mutés JAK2.
L'objectif est de décrire à travers 3 tableaux cliniques de Thrombocytémie essentielle, l'association de la mutation JAK2 à la survenue d'événements thrombotiques.

MATERIEL ET METHODES
OBSERVATION 1 : Patient âgé de 30 ans ATCD de tuberculose pulmonaire traitée, présentant des douleurs chronique de l'hypochondre gauche dont l'exploration retrouve un syndrome d'HTP partiel par thrombose de la veine splénique
Biologie : taux de plaquettes : 700.000 éléments/ mm3
Exploration Hématologique : Thrombocytémie essentielle. JAK2 POSITIF
OBSERVATION 2 : Patiente âgée de 51 ans sans ATCD particulier présentant une asthénie, jambes lourdes, acouphènes, thrombose veineuse profonde membre inférieur
Biologie : plaquettes :1000.000 élément/mm3
Exploration Hématologique : Thrombocytémie essentielle. JAK2 POSITIF
OBSERVATION 3 : Patiente âgée de 73 ans aux ATCD : thrombose veineuse profonde récidivante membre inferieur droit présentant des douleurs abdominales dont l'exploration retrouve un syndrome d'HTP par thrombose de la veine porte
Biologie : Taux de plaquettes à 600.000 éléments/mm3
Exploration Hématologique : Thrombocytémie essentielle. JAK2 POSITIF

Résultats.
Patients traités par Hydroxyurée et anticoagulants.
Evolution : Bonne évolution hématologique pour les deux premiers patients, la troisième a présenté une décompensation ascitique avec des varices oesogastrique grade II

Key words : *JAK2, THROMBOCYTEMIE ESSENTIELLE*
Conflicts of interests : aucun conflit d'intérêt.

PSFMV36

Manifestations artérielles et veineuses révélant une hémoglobinurie paroxystique nocturne : à propos d'une nouvelle observation.

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Introduction. L'hémoglobinurie paroxystique nocturne (HPN) est une anémie hémolytique acquise impliquant une sensibilité anormale des érythrocytes à l'action lytique du complément. Son histoire naturelle peut être émaillée de trois complications : l'aplasie médullaire, l'hémolyse intravasculaire et les complications thrombotiques veineuses et exceptionnellement artérielles. Nous rapportons l'observation d'une HPN diagnostiquée à l'occasion de complications vasculaires à la fois artérielle et veineuse.

Observation. Patiente âgée de 39 ans a présenté deux épisodes d'accidents ischémiques transitoires récents non explorés. Elle a été hospitalisée pour un accident vasculaire cérébral(AVC) ilya un mois. L'IRM cérébrale a montré un AVC ischémique sylvien droit total. L'ECG et l'échographie cardiaque étaient normaux. L'angioscanner des troncs supra aortiques a conclu à une dissection de la carotide commune droite avec une thrombose de la carotide interne droite. Une anticoagulation par antivitamines K a été initiée mais arrêtée devant un surdosage et la patiente a été mise sous aspirine. Elle nous a été adressée pour grosse jambe gauche. Elle avait une hémiplégie gauche et un signe de Homans positif. Les bandelettes urinaires étaient sans anomalies. A la biologie, il y avait une anémie normochrome normocytaire régénérative et des stigmates d'hémolyse. Le test de Coombs direct était négatif. L'écho doppler veineux a confirmé une thrombose veineuse profonde (TVP) distale. L'angioscanner thoracique a montré une embolie pulmonaire proximale bilatérale. Le bilan de thrombophilie constitutionnelle, les anticorps antinucléaires et anti phospholipides étaient négatifs. L'homocystéinémie était normale. Devant l'anémie hémolytique avec un test de Coombs direct négatif, le diagnostic d'HPN était suspecté et confirmé par la présence d'un clone HPN à la cytométrie de flux. L'évolution était favorable sous traitement anticoagulant.

Conclusion. Dans notre observation, l'infarctus cérébral pourrait être secondaire d'une part à la dissection carotidienne et d'autre part à l'HPN étant donné que la patiente a présenté d'autres complications vasculaires à savoir la TVP et l'embolie pulmonaire. De ce fait, une attention particulière devrait être accordée à la numération formule sanguine devant toute manifestation thromboembolique chez le sujet jeune.

Key words : *Hémoglobinurie paroxystique nocturne, Thrombose*

PSFMV37

Un syndrome de Budd-Chiari révélant une sarcoïdose.

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Introduction. Le syndrome de Budd-Chiari (SBC) peut compliquer l'évolution de plusieurs pathologies. Sa survenue au cours de la sarcoïdose est exceptionnelle volontiers s'il constitue sa circonstance de découverte. Dans ce cas, il peut être du à une compression extrinsèque des veines hépatiques par des granulomes, ou une infiltration granulomateuse de leur paroi. Nous rapportons le cas d'une patiente chez qui une sarcoïdose était diagnostiquée à l'occasion d'un SBC.

Observation. Une patiente, âgée de 45 ans, était admise pour exploration d'une hépatomégalie de découverte fortuite. L'examen abdominal montrait une flèche hépatique à 20 cm. La biologie révélait un syndrome inflammatoire biologique avec une cholestase anictérique sans cytolyse. L'échographie abdominale mettait en évidence une hépatomégalie, une hypertrophie du segment I du foie et de multiples adénopathies hilaires hépatiques. L'étude Doppler n'avait pas montré de circulation veineuse collatérale. La tomodensitométrie thoracoabdominale montrait ,en plus, de multiples nodules pulmonaires intra parenchymateux, ainsi que de multiples adénomégalies médiastinales et intra-abdominales. L'examen anatomopathologique du foie révélait un élargissement des espaces portes qui étaient le siège de granulomes épithélioides et gigantocellulaires sans nécrose caséeuse, ainsi qu'une ectasie focale des veines centrolobulaires et des sinusoïdes. La recherche d'une thrombophilie, d'un syndrome des antiphospholipides et d'une hémoglobinurie paroxystique nocturne était négative. Le diagnostic de sarcoïdose était fondé sur la mise en évidence d'un taux élevé de l'enzyme de conversion de l'angiotensine, l'existence de granulomes à l'examen histologique du foie et du parenchyme des glandes salivaires accessoires et l'atteinte médiastinopulmonaire avec un bilan phtysiologique négatif. La patiente était initialement traitée par des anticoagulants et par une corticothérapie à la dose de 1mg /kg par jour. Devant l'inefficacité des corticoïdes, l'hydroxychloroquine était introduite à la dose de 400 mg par jour avec une évolution favorable.

Conclusion. Devant un SBC, il faut savoir penser à la sarcoïdose avec localisation hépatique. De même, la pratique d'une échographie-doppler abdominale en cas de sarcoïdose hépatique connue serait utile à la recherche d'un SBC asymptomatique permettant ainsi une prise en charge plus précoce et donc plus efficace.

Key words : *Syndrome de Budd Chiari, Sarcoidose*

PSFMV38

Thromboses veineuses de siège insolite. A propos de 25 cas.

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Introduction. Les thromboses veineuses représentent un motif fréquent de consultation en médecine interne. Elles sont dominées par les thromboses veineuses (TV) des membres inférieurs. Les sièges insolites (veines cérébrales, veines sus hépatiques, membres supérieurs et veines jugulaires) représentent un aspect bien particulier de part leur symptomatologie, leur diagnostic positif, étiologique et leur pronostic.

Objectifs. Notre objectif était de rapporter les difficultées et les retards au diagnostic positif et de préciser les étiologies.

Patients et méthodes. Notre étude est rétospéctive, elle porte sur 27 patients hospitalisés dans le service de médecine interne de l'EPH de Hadjout du 1er Janvier 2010 au 31 Décembre 2015 et représentant une TV de siège insolite. Le diagnostic de TV est basé sur les données de l'imagerie (échographie doppler et/ ou imagerie par résonnance magnétique avec angiographie selon la localisation.

Résultats. Vingt sept patients (16 F/11 H) ont été inclus dans l'étude avec un âge moyen de 54 ans (extrêmes 28- 75 ans). Les sièges étaient veines cérébrales 11 cas, le tronc porte 8 cas, veines des membres supérieurs 4 cas, veines jegulaires 3 cas et la veine cave supérieur 1 cas. Un bilan étiologique, réalisé dans tous les cas, avait mis en évidence une cause néoplasique(huit cas), une maladie de behçet (trois cas), thrombophilie (cinq cas), Syndrome des Antiphospholipides (deux cas), la maladie de cohn (un cas), la contaception (un cas) et la TV demeurait inexpliqée dans sept cas.

Conclusion. Le siège insolite des thromboses veineuses doit être connu par les cliniciens. Ceci permettra d'éviter les retards de diagnostic, comme nous l'avons constaté dans notre série. Le clinicien doit également être averti sur la sensibilité et la spécificité des examens complémentaires à visée diagnostique (positif). La recherche étiologique est quant à elle obligatoire. Elle but cependant comme pour toute thrombose veineuse sur la nature des examens à réaliser. Le bilan doit être exhaustif ou très exhaustif.

Key words : *Thromboses veineuses de siège insolite, difficulté, Intérêt du bilan étiologique exhaustif*

Troubles veineux chroniques

PSFMV39

Prise en charge chirurgicale des varices des membres inferieurs en milieu militaire

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Objectif de l'étude. Il s'agit d'une étude prospective évaluant la prise en charge chirurgicale en ambulatoire des varices des membres inferieurs en milieu militaire pendant des missions au sud algérien.

Malades et méthodes. De janvier 2011 à décembre 2015, 306 patients porteurs des varices des membres inferieurs symptomatiques et présentant une incontinence valvulaire à l'écho-doppler, ont été opérés en ambulatoire au bloc opératoire de l'hôpital de compagne. Tous des hommes, l'âge moyen a été de 34 ans (21-52 ans). Ils ont été revus par leur chirurgien et par leur médecin anesthésiste avant leur sortie et par le chirurgien au dixième jour.

Résultats. Tous les patients ont été opérés sous anesthésie locale par une double incision cutanée pré-malléolaire et au niveau du pli de l'aine, un stripping de la veine saphène interne a été réalisé et complété par une phlébectomie chez 45 patients (14.70 %). Deux cents quatre vingt douze patients (95.42 %) ont quitté la structure hospitalière le même jour. Seulement 18 patients (5.88%) ont présenté une symptomatologie douloureuse postopératoire. Le taux de complications postopératoires précoces a été de 2.61 % (8 patients). La durée moyenne de convalescence a été de 10 jours. L'index de satisfaction global était de 96.40 %. La réduction en coût était de 80%.

Conclusion. La cure chirurgicale des varices des membres inférieurs, sous anesthésie locale, est une intervention fréquente en milieu militaire du fait de l'incidence élevée de cette pathologie chez les soldats, la prise en charge en chirurgie ambulatoire à l'hôpital de compagne pendant des missions organisées a permis d'éviter les évacuations des patients vers les centres hospitaliers au nord avec un taux de complication faible, une reprise rapide des activités, un index de satisfaction élevé et une réduction en coût considérable.

Key words : *Varices des membres inferieurs, Milieu militaire,, Chirurgie ambulatoire, Economie de santé*

Conflicts of interests : Pas de conflit d'intérêt.

Lymphoedème

PSFMV40

Evaluation de l'efficacité et de la tolérance d'un système de compression multitype dans la prise en charge du lymphœdème des membres inférieurs

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Le lymphœdème primitif est une maladie chronique liée à une anomalie du système lymphatique, se caractérisant par une accumulation anormale de lymphe dans les tissus sous-cutanés, essentiellement au niveau des membres inférieurs.
A ce jour, il n'existe pas de traitement curatif du lymphœdème ; cependant, une combinaison de soins cutanés, de drainage lymphatique, d'exercices/mouvements, associée à l'utilisation de bandes multicouches permet un contrôle de cette pathologie.
La prévalence globale du lymphœdèmeest estimée à 0.13-2% avec un retentissement psycho-social important associé à une altération de la qualité de vie du patient.
Les Laboratoires URGO ont développé un système de compression bicouche, URGOK2® dédié au traitement étiologique des ulcères de jambe veineux, et pour lequel les indications ont été récemment étendues à la prise en charge du lymphœdème.
Une évaluation clinique a été menée dans un service hospitalier français de référence, afin d'évaluer l'efficacité de ce système de compression dans cette pathologie, avec pour critère de jugement, la réduction du volume du membre atteint au terme du traitement.
Huit patients présentant un lymphœdème primaire des membres inférieurs de stade II avancé, d'âge moyen 64 ans, et un IMC moyen supérieur à 41kg/m², ont participé à cette évaluation,
Au terme d'une durée moyenne de traitement de 33 jours, une réduction moyenne de volume de 8% a été observée, associée à une bonne tolérance locale.
L'acceptabilité du système de compression a été jugée par le patient « bonne » et « très bonne » pour le confort ressenti en périodes nocturne et diurne.
Les auteurs rapporteront le détail des données cliniques documentées chez les patients traités et suivis dans cette évaluation.
Le système de compression URGOK2®, jugé efficace et bien toléré dans cette pathologie chronique, trouve une place de choix dans le cadre de la prise en charge globale du lymphœdème.

Key words : *Compression multitype, Lymphoedeme*

Malformations vasculaires

PSFMV41

Syndrome polymalformatif et thrombose veineuse profonde idiopathique révélant une agénésie de la veine cave inferieure : à propos d'un cas

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Objectif. L'agénésie de la veine cave inferieur (AVCI) est une malformation vasculaire rare mais non exceptonnelle, sa prevalence varie de 0.0005 à 1 % selon les séries. notre objectif est de rappeler à travers notre observation les situations devant lesquelles il faut y penser et les explorations nécessaires au diagnostic.

Observation. Patiente agée de 18 ans presentant une dysmorfie faciale, un rein unique droit congenital, une hématurie macroscopique épisodique sans étiquette étiologique et comme antécédent un traitement par oestroprogestatifs pour une dystrophie ovarienne kystique bilatérale; une anticoagulation bien conduite à base d'antivitamine K depuis 2 ans pour un premier épisode de thrombose veineuse profonde (TVP) de la veine iliaque primitive étendue à la veine cave inferieur (VCI) sous hépatique. Une enquête étiologique exhaustive à l'époque est restée négative. Hospitalisée à nouveau pour suspision d'un deuxième épisode de TVP proximale devant des douleures abdomo-pelviennes importantes. Cependant, les differents écho-Dopplers n'ont pu être contributifs. L'AVCI est alors suspectée devant le jeune âge, les malformations congénitales et les antécédents de TVP; la réalisation d'un angioscanner abdominopelvien confirme le diagnostic en montrant une anomalie du retour veineux systémique avec interruption de la VCI retro hépatique et continuation azygos et une thrombose étendue de la VCI sous renale associée à une importante collatéralité pelvienne. Le traitement anticoagulant est alors maintenu avec surveillance regulière.

Discussion. L'angioscanner et l'IRM sont les examens de référence dans le diagnostic de l'AVCI et le bilan étiologique est le plus souvent négatif; un facteur favorisant les TVP peut être retrouvé comme les oestroprogestatifs chez notre patiente.

Conclusion. L'AVCI est une anomalie rare souvent asymptomatique qui doit etre évoquée chez le sujet jeune qui fait des TVP idiopathiques recidivantes , le diagnostic est rendu facile par le scanner multibarette et l'IRM.

Key words : *Veine cave inferieur, Agénésie*
Conflicts of interests : Pas de conflits d'intérêt

Microcirculation et pathologie vasculaire inflammatoire

PSFMV42

Atteintes cutanés sévères ulcéro-nécrosante révélant une maladie lupique chez six patientes et revues de littératures.

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Objectifs. Analyser la fréquence de l'atteinte cutanée sévère au cours du lupus, les formes cliniques prédominnates et les aspects thérapeutiques et évolutifs dans notre service.
Matériels et méthodes. Etude rétrospective de dossiers de patients présentant un acrosyndrome dans sa forme sévère révélant une maladie lupique dans sa forme systémique (LES) pendant une durée de 24 mois.

Résultats.
6 femmes présentants des polyarthralgies et des signes systémiques associés à un acrosyndrome dans sa forme sévère (ulcère et nécrose digitale), l'âge moyen était de 37,4 ans.
Le diagnostic a était posé sur les critères de l'ACR, avec une association à une néphropathie lupique dans 2 cas, une atteinte nerveuse dans un cas, et une association avec une polymyosite dans un autre cas.
3 patientes ont bénificié de nécrectomie associées au traitement de fond.

Discussion.
L'atteinte cutanée était révélatrice de LES dans 50 % des cas et déclenchée après exposition au froid.
La sclérodermie systémique est la cause la plus fréquente des ulcères digitaux dans notre série. Elle a la même fréquence que celle du LES, de la polyarthérite rhumatoïde et des connectivites mixtes.
Les lésions sont sources de douleurs, de gène fonctionnelle et de préjudice esthétique considérable.
La prise en charge difficile associe des mesures préventives et des traitements médicamenteux dont certains sont toujours en cours d'évaluation.

Conclusion. Le LES est une maladie d'aspect clinique très polymorphe, ne cesse de surprendre le clinicien tant dans sa forme révélatrice que dans sa prise en charge complexe. Il est indispensable d'assurer un soutien psychologique aux malades.

Key words : *Acrosyndrome, Lupus érythémateux systémique*
Conflicts of interests : Aucun

PSFMV43

Angor mésentérique révélant une maladie de Takayasu

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La maladie de Takayasu est une artérite inflammatoire touchant les vaisseaux de gros calibre comme l'aorte et ses branches. L'incidence de la maladie varie de 1.2 à 2.6 cas/millions/an. L'épaississement de la paroi vasculaire conduit à des sténoses voire des occlusions, ou au développement d'anévrysmes. Les manifestations cliniques sont très variables, les patients pouvant être asymptomatiques ou présenter des tableaux ischémiques ou hémorragiques sur rupture d'anévrysmes. La prise en charge des complications de la maladie permet d'améliorer la qualité de vie du patient et d'éviter des séquelles irréversibles.
Nous présentons ici le cas d'une femme de 64 ans, hospitalisée pour douleurs épigastriques chroniques post prandiales évoluant depuis 3 ans. Ses antécédents sont une coronaropathie et une hypertension artérielle. Cliniquement, il n'existe pas de pouls distaux des membres inférieurs ni de pouls radial droit mais les pouls temporaux sont bien perçus. Au Doppler continu, le signal radial droit est démodulé et les flux aux membres inférieurs ne sont pas retrouvés. Un angioscanner pan-aortique, des artères digestives et des membres inférieurs est réalisé devant une symptomatologie d'angor mésentérique. Ce dernier montre un anévrysme de l'aorte thoracique, des sténoses du tronc cœliaque et de l'artère mésentérique supérieure et une occlusion de l'aorte au-dessus de sa bifurcation. La vascularisation artérielle des deux membres inférieurs est reprise en fémoral commun par les mammaires internes. Le reste du bilan lésionnel révèle une occlusion de l'artère vertébrale gauche, la vertébrale droite est grêle de façon physiologique. Dans l'hypothèse d'une vascularite, le TEP scanner pratiqué ne révèle pas de foyer hypermétabolique. Il n'existe pas de syndrome inflammatoire biologique. La patiente bénéficie d'un stenting de l'artère mésentérique supérieure permettant la disparition complète de la symptomatologie digestive.
Il s'agit donc d'un angor mésentérique révélant une artérite de Takayasu en phase non inflammatoire. La fréquence des manifestations digestives au cours de cette pathologie est variable, elle peut concerner jusqu'à 50% des patients. Devant des douleurs abdominales, l'examen clinique cardiovasculaire ne doit pas être négligé afin de ne pas méconnaitre une atteinte vasculaire le plus souvent athéromateuse mais parfois aussi d'origine inflammatoire.

Key words : *Maladie de Takayasu, Angor mésentérique*

Pathologie cérébro-vasculaire

PSFMV44

Présentation atypique d'une hémoglobinurie paroxystique nocturne

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Introduction. L'hémoglobinurie paroxystique nocturne (HPN) est une maladie rare de la cellule souche hématopoïétique. Cette affection est responsable de complications thromboemboliques veineuses et exceptionnellement artérielles.

Patient et Méthode. Les auteurs rapportent un cas d'HPN de manifestation initiale artérielle cérébrale.
Cas clinique. Mme L., 49 ans, (tabagisme 30 PA, dyslipidémie, hypothyroïdie), a présenté des céphalées associées à une désorientation spatio-temporelle et à des troubles de la compréhension des ordres simples. Le scanner cérébrale initial retrouvait un hématome lobaire frontal droit. Rapidement, son état s'est compliqué d'un syndrome de détresse respiratoire aigüe sur une infection pulmonaire compliqué d'un sepsis. Une lésion ischémique pariétale gauche est apparue. A l'angioscanner et à l'artériographie, on retrouvait un aspect irrégulier et rétréci des artères de manière diffuse, pouvant évoquer un aspect de vasospasme globale ou de vascularite. Le bilan de première intention ne retrouvait pas d'argument pour une thrombophilie ou une vascularite sous-jacente. Le bilan de seconde intention a confirmé la présence d'un clone HPN en cytométrie de flux. Aucun argument en faveur d'une hémolyse n'a été mis en évidence de manière concomitante au diagnostic (haptoglobine à 3,89 g/l, LDH normal, absence de schizocyte). On ne notait pas non plus de cytopénie mis à part l'apparition d'une anémie normocytaire régénérative (réticulocytes à 146 giga/l) avec une hémoglobine de départ 15,3 g/dl qui a chuté, à J+5 à 8,3 g/dl en 24h sans syndrome inflammatoire associé, sans dosage complémentaires concomitants réalisés. La patiente est décédée 10 jours après le diagnostic sans qu'un traitement ne puisse être initié.

Discussion. Le mécanisme pro coagulant de l'HPN est encore en cours d'étude mais certaines voies non associée à l'hémolyse ont été identifiées. Les cas de thrombose artérielle et les cas d'HPN sans hémolyse sont quant à eux rares.

Conclusion. L'HPN est une maladie rare. La seule étiologie retrouvée chez notre patiente est l'HPN. Cette présentation est atypique pour deux raisons : l'absence d'hémolyse et l'atteinte artérielle.

Key words : *Hémoglobinurie paroxystique nocturne, Hémorragie cérébrale*

PSFMV45

Le foramen arcuale : une cause rare de compression de l 'artere vertebrale

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Nous présentons le cas d'un homme de 22 ans hospitalisé pour l'exploration de malaises atypiques à type de paresthésie des 2 membres supérieurs, larmoiement, perte de vue et d'audition lors de la rotation prolongée de la tête vers la droite, récurrents depuis plusieurs années, de plus en plus fréquents.. L'examen neurologique chez ce patient sans antécédent est normal.

L'EEG est sans anomalie. Pas d'ischémie sur l'IRM encéphalique.

L'écho-doppler des troncs supra aortiques et trans-crânien, tête en position indifférente, visualise une petite vertébrale droite de 2mm de diamètre avec un flux bien modulé de faible débit en rapport avec son calibre ; une vertébrale gauche de gros calibre 5mm sans lésion pariétale sur son trajet extra-crânien, de flux bien modulé de V0 à V4. Pas d'anomalie hémodynamique sur le tronc basilaire.

Au cours de l'enregistrement de la vertébrale gauche segment V3, la tête en rotation vers la droite, une compression extrinsèque de la vertébrale gauche se manifeste par une sténose hémodynamique. Le degré de sténose augmente avec l'angle de rotation de la tête. Cette sténose est incidente en aval avec une démodulation du flux de la vertébrale gauche en V4 et du tronc basilaire dès 45° de rotation et un effondrement du débit au-delà de 60°.

On observe l'absence de reprise en charge du TB chez ce patient qui présente des variantes de l'anatomie vasculaire, à savoir : 1/ la vertébrale droite qui ne rejoint pas le TB car se termine en PICA 2/ l'absence de communicantes postérieures ne permettant pas la reprise en charge du TB par les carotides internes

L'angioscanner permet de visualiser un foramen arcuale, anomalie anatomique responsable de la compression positionnelle de cette vertébrale gauche. Chez l'humain, l'atlas forme un sillon juste en arrière de ses processus articulaires supérieurs permettant la traversée de l'artère vertébrale et du premier nerf cervical jusqu'au foramen magnum. A cet endroit, il peut se former un pont osseux appelé foramen arcuale. Le sillon de l'artère vertébrale est alors transformé en un tunnel de diamètre variable. Dans l'espèce humaine, l'incidence d'un foramen arcuale est estimée entre 1,14% et 37%.

Lorsqu'un traitement est envisagé, il est le plus souvent chirurgical.

Key words : *foramen arcuale, artère vertébrale*

Anévrismes de l'aorte

PSFMV46

Un angio-Behçet révélé par une hématémèse de grande abondance.

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Introduction. Nous rapportons le cas d'un patient présentant un anévrisme de l'aorte abdominale fistulisé dans le duodénum, révélé par une hématémèse de grande abondance, compliquant une maladie de Behçet.

Observation. Il s'git d'un patient âgé de 34 ans traité par Colchicine depuis 4 ans pour maladie de Behçet dans sa forme cutanéo-muqueuse, il est admis pour hématémèse de grande abondance. L'examen clinique notait une pâleur cutanéo-muqueuse. Biologiquement on notait une anémie à 8g/dl et un syndrome inflammatoire, les endoscopies digestives hautes et basses étaient sans anomalies. L'angio-TDM abdominale retrouvait un anévrisme de l'aorte abdominale avec fistule duodénale. Le bilan d'extension ne mettait pas en évidence d'autres atteintes. Le traitement a comporté un traitement chirurgical : pontage aorto-aortique, suture de la plaie duodénale et mise à plat de l'anévrisme. Le traitement médical : un corticothérapie 1mg/Kg/j associé à des bolus de Cyclophosphamide relayés par Azathioprine oral. L'état du patient est stable avec un recul de 12 mois.

Discussion. L'atteinte artérielle au cours de la maladie de Behçet est moins fréquente que l'atteinte veineuse (25% versus 75%) survenant en général dans les 5 premières années d'évolution de la maladie et touchant majoritairement l'homme jeune (80%); elle est représentée par des anévrismes (45 à 70%), des occlusions (30 à 80%), des sténose (13%) ou des aortites (3%). Les anévrismes intéressent essentiellement l'aorte abdominale sous rénale et constituent une forme grave de la maladie, en raison du risque mortel par rupture, estimée à 60%, et du caractère récidivant, posant ainsi, des problèmes de prise en charge.

Conclusion. Les anévrismes dans la maladie de Behçet, constituent une urgence chirurgicale, leur évolution rapide vers la rupture étant la règle, et ce, indépendamment de leur taille. L'administration de corticoides et d'immunosuppresseurs en post-opératoire semble nécessaire et efficce contre les récidives.

Key words : *Behçet, Anévrysme de l'aorte abdominale*
Conflicts of interests : Aucun

Plaies chroniques d'origine vasculaire

PSFMV47

Evaluation de l'efficacité de la compression veineuse elastique dans la prise en charge d'ulcères veineux par la mesure d'une pression d'interface.

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Introduction : La compression veineuse par bandes de contention (BDC) élastique étant la pierre angulaire de la prise en charge des ulcères veineux, l'objectif de ce travail était d'évaluer l'efficacité des BDC par la mesure d'une pression d'interface (PI) chez des patients suivis pour un ulcère veineux.

Méthode : Nous avons réalisé une étude prospective mono-centrique au CHU de Nantes observationnelle de mai 2015 à mai 2016, chez des patients vus en consultation « ulcères » porteurs de BDC élastiques à allongement moyen. La mesure des PI s'est faite en décubitus au niveau du point B1 par un capteur de PI Kikuhime®. Une PI comprise entre 30 et 40 mmHg était jugée comme efficace, en accord avec les recommandations de l'HAS. Les patients avec des PI inférieures à 20 mmHg ont été comparés à ceux avec des PI supérieures à 20 mmHg.

Résultat : 37 mesures de PI ont été réalisées chez 27 patients de 76 ans d'âge moyen avec une prédominance féminine (55% de femmes). Seulement 13% des PI étaient efficaces à environ 2h30 de la pose. Pour améliorer cette efficacité il semble nécessaire que la pose soit réalisée par une infirmière expérimentée (66% des PI efficaces au lieu de 13%), que les BDC soient récentes (1.8 mois, p=0.024) et que l'entretien soit fréquent (2.6 fois/semaine, p=0.0042).

Conclusion: La compression par bande montre des PI insuffisantes en pratique pour cicatriser un ulcère veineux. Les systèmes de compression multi-types devraient être privilégiés.

Key words : *compression veineuse, pression d'interface*
Conflicts of interests : non

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Peripheral Arterial Disease

PIUA25

What is the potential of infracyanine fluorescence angiography in the diagnosis of critical limb ischemia?

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Critical limb ischemia, defined as the presence of chronic ischemic rest pain, ulcers or gangrene attributable to objectively proven arterial occlusive disease, is associated with the appalling prospect that approximately 30% will lose their leg and 25% will die at one year. Despite the progress of our therapeutics these statistics haven't changed. Critical limb ischemia is a clinical diagnosis but should be supported by objective tests. None of theses tests (toe blood pressure (TBP), transcutaneous oxygen pressure (TcPO2) and skin perfusion pressure (SPP)) have proven to be enough specific or sensitive, more so they are time consuming, can be subject to several artifacts and may be in some cases discordant making diagnosis difficult. Fluorescence angiography has long been used in ophthalmology for the evaluation of the microcirculation of the retina. Infracyanine remains within the intravascular space allowing the visualization of the vasculature to a depth of 10 mm. With the Fluobeam system, images to a maximal width of 20 cm can be obtained therefore allowing the evaluation of the tissue perfusion of the entire foot.

Method: Fluorescence angiography is performed in the laboratory in the same time as TCPO2, TP and SPP. Infracyanin is injected in an antecubital vein and visualization and signal acquisition carried out using a specific camera device (Fluoptic SAS, France) producing the time course of hemodynamic parameters (slope, amplitude, saturation time).

We present the case of a patient with systemic sclerosis and peripheral arterial disease presenting ischemic wounds of the foot. The curves of fluorescence with the studied parameters in correlation with microcirculation measures will be shown.

Conclusion: Fluorescence angiography is well tolerated exploration technique providing interesting new information, both imaging and quantified, about microvascular perfusion of the skin in CLI patients. Its practical usefulness remains to be further evaluated. A systematic evaluation study is presently ongoing.

Key words : *critical limb ischemia, fluorescence angiography*

PIUA26

Comparison of long-term results of revascularization procedure for critical limb ischemia with distal bypass and hybrid therapy.

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Aim. Patient with critical limb ischemia (CLI) requires immediate revascularization procedure. However, determination of therapeutic strategy is hard because of patient accompanied by complications such as cardiac disorder, diabetes mellitus, long-term dialysis and others. The aim of this study was to evaluate the effectiveness of the therapeutic strategy and revascularization procedure for CLI patients in our institute.

Methods. We studied all patients in Hamamatsu red cross hospital undergoing revascularization for CLI between 2009 and 2015. The procedure was grouped by infrainguinal bypass (17 limbs) and hybrid treatment (18 limbs). We compared the amputation free survival (AFS) rates, survival rates (SR), retreatment rates, and wound healing rates among both groups.

Results. At the end of follow-up, 13 patients were dead (41.9 %), 10 (32.3 %) were alive without major amputation, and 6 (19.4 %) were alive with major amputation. 2 were lost to follow-up. There were not significant differences of background between the two strategies. The proportion of the bypass group vs Hybrid group was 48.6% vs 51.4%. AFS at the 1 and 2-year period was 41.2% vs 38.9% and 29.4% vs 27.8%, respectively. SR was 58.8%vs 61.1% and 47.1%: 27.8%. The rate of retreatment was 88.2%vs 88.9% and 94.1%vs 88.9%. The rate of wound healing was 64.7% vs 66.7%, 76.5% vs 100.0%. AFS, SR, retreatment rates and wound healing rates between the two strategies did not differ during the follow-up (95% confidence interval [CI], 0.53-2.28; N.S.) .
Conclusions. Overall, there was no significant difference in AFS, SR, retreatment rates and wound healing rates between the two strategies. A prospective randomized trial is needed to determine the overall better treatment option.

Key words : *critical limb ischemia, revascularization*

PIUA27

The role of non-invasive tests in the decision-making in peripheral artery disease

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Background: The diagnostics of peripheral artery disease (PAD) usually implies physical and hand-held Doppler examination. Patients with severe PAD are referred to the radiologists for an imaging using contrast agents and ionizing radiation. By the functional non-invasive angiological tests limb ischaemia could be detected but these tests are neglected in general.

Case report: A 45-year-old smoker male with dyslipidaemia was treated against myocardial infarction with ST elevation in 2000 and 2005, percutaneous interventions were performed in the right coronary artery. After a repeated coronary angiography he underwent CABG operation due to progression in 2005. Regular exercise tolerance tests provoked lower limb pain which turned to be limiting more recently. Hand-held Doppler was performed regularly from 2013 which showed a worsening of the ankle/brachial index. The patient complained about intermittent claudication. CT angiography was carried out in late 2015 that proved severe calcification of both femoral arteries. Functional tests were performed: 6-minute walk test resulted in 164 m pain-free walking distance and 396 m maximal walking distance. After walking, the transcutaneous partial tissue oxygen pressure (tcpO2) reduced from 36 to 13 mmHg on the left foot and the ankle pressure was 75 vs. 80 mmHg on the right, 80 vs. 30 mmHg on the left side (at rest vs. exercise). The toe pressures measured with laser Doppler flowmetry were moderately deteriorated: on the right hallux 60 vs. 41, on the left hallux 67 vs. 54 mmHg. Our multidisciplinary vascular team decided against the surgery. Optimal secondary prevention, symptomatic treatment, smoking cessation and close follow-up were recommended. After 6 months, the patient's complaints reduced, the tcpO2 improved (47 mmHg at rest vs. 39 mmHg after exercise) which could be due to cilostazol therapy and smoking cessation.

Summary: The severely calcified lesions can raise diagnostic challenge to CT angiography. The non-invasive angiological tests are appropriate techniques to evaluate the functional capacity of a patient. They can be helpful in the decision pro or against the intervention and in the proper evaluation of changes during the follow-up of PAD patients. Multidisciplinary approach (vascular team) is recommended in the decision-making.

Key words : *limb ischaemia, transcutaneous partial tissue oxygen pressure*

PIUA28

Peripheral Artery Disease and Central Hemodynamic modification.

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Peripheral arterial disease (PAD) affects the hemodynamics of the lower limbs and is associated with increased cardiovascular risk and mortality. The aim of this study was to evaluate central hemodynamics and to test the relationships between lower ankle-pressure index (ABI) and Augmentation index (Aix). In 242 PAD patients (mean age 67±9.8 years), Augmentation index (Aix) carotid-femoral pulse wave velocity (c-fPWV), pulse pressure amplification (PPA) aortic pulse pressure (aPP) and subendocardial viability ratio (SEVR) were measured using applanation tonometry. The ABI values were obtained using an 8-mHz Doppler probe7. c-fPWV was similar (0.164) in both sexes, Aix was higher (p <.0001), aPP was marginally higher (p=0.062) PPA and SEVR were lower (p= 0.013), (<.0001) in women with PAD In the multiple regression model Aix was associated with MAP (<.0001), age (p=0.0003), smoking history (p=0.013), cfPWV (p=0.016) diabetes (p=0.039) and female sex (p = 0.050). In this large PAD population Aix is increased in women with PAD but is not associated with a lower ABI. Furthermore, it remains uncertain whether Aix in women with PAD provides more information concerning the prognosis of these high-risk patients.

Key words : *PAD, Aix*

PIUA29

Clinical research on the application of VIABAHN stent in the treatment of branching area lesions in lower extremity arterial diseases

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Objective: To explore the security and the short term efficacy of VIABAHN stents in the treatment of branching area lesions in lower extremity arterial diseases.

Methods: The data of 16 patients (11 male and 5 female, aged 59 to 81 with median of 71.6) with lower extremity arterial occlusive disease from November 2014 to June 2015 were analyzed retrospectively. All lesions were located around the branching area of the lower extremity artery (3 cases in the internal iliac artery orifice, 6 cases in the deep femoral artery orifice and 7 cases in the vascular net around the knee). The short-term effects on these

patients in the follow - up period, such as the success rate of surgical technique, the improvement of symptoms and the incidence of complications were summarized.

Results: Revascularization was technically successful in all 16 patients, and ischemic symptoms relieved significantly after the operation. The ABI were0.36±0.12 before and 0.89±0.10 after the operation. The patients were followed up for 3 to 9 months (median 5.5 months). All the patients were achieved limb salvage and no complication occurred.

Conclusion: VIABAHN stent is safe and effective for the treatment of lower extremity arterial occlusive disease. The branches around the lesion can be covered with VIABAHN stents.

Key words : *Arterial Occlusive diseases, Cover stent*
Conflicts of interests : No conflict of interest

PIUA30

Renal and splenic infarction revealing a left ventricular myxoma

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Introduction: The left ventricular myxoma is a rare benign heart tumor. It may be responsible for serious thromboembolic complications and make diagnosis difficult especially when echocardiographic and contrast imaging aspects are not characteristic.

Observation: A 34-year-old woman, was admitted for acute abdominal pain and vomiting without transit disorder or fever. She presented: palpitations, recurrent oral aphtosis and ulcerations. Clinical examination revealed a soft abdomen, BP 150/90 mmHg, temperature 37 °C. Blood test: WBC 10600/mm3, Hb13, 5g/dl, platelets: 490000/mm3, C-reactive protein 180.7mg/l, GFR: 50ml/min. Prothrombin level: 100%, TG: 2g/l, TC: 1.99 g/l, LDH 1728UI/l, D dimer 2000ng/ml, lipasemia: 90 UI/l. Abdominal CT shows an infarction of left renal parenchyma and spleen.transesophageal echocardiogram showed an apex hyperechogenious pediculated left ventricular (LV) mass, reminding thrombus, myxoma or papillary fibroelastoma. Cardiac MRI: nodular mobile pediculated LV mass, at the apical level (15X13cm), compatible with a thrombus. Electrocardiogram and 24 H Holter ECG were normal. ANA:1/80 homogeneous and antiprothrombin antibodies (IgG) 30 UI/ml. Protein C, S, antithrombin III, V Leiden factor, flow cytometry, JAK 2 mutation and anti transglutaminase antibodies II were negative. After one month of acenocoumarol, abdominal pain has disappeared but the LV mass persisted. Surgery followed by pathological exam of apical tumor concludes: myxoid matrix, significant fibrosis. Three months later, she presented superior

mesenteric and bilateral popliteal thrombosis. Antiphospholipid syndrome diagnosis was made.

Conclusion: LV myxoma diagnosis must be systematically considered in any mass occurring on LV with a preserved function. Its main complication is thromboembolic and can be life-threatening. Surgery is required to prevent them. Nevertheless, etiological investigation particularly thrombophilic screening should be systematic face to multifocal thrombosis even if LV myxoma diagnosis was made.

Key words : *Ventricular myxoma, Thrombophilia*
Conflicts of interests : Aucun.

PIUA31

Carotidynia: Myth or reality?

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Introduction. Carotidynia is a rare syndrome characterized by either unilateral or bilateral tenderness of the carotid artery. It has been considered as merely symptom of many heterogeneous causes of neck pain (infections, migraine, trigeminal nevralgia, neoplasms , and various carotid disorders including aneurysm, dissection, carotid arteritis), and less frequently as a distinct clinicopathological entity.We report a case of a 43 year old woman, referred to our department for recurrency of left cervical pain exacerbated by palpation, head rotation, cough and swallowing. Neither releasing factor nor past history of traumatism. On physical examination: All pulses are palped. No anisotension, a localized swelling at the left side of the neck is seen and provoked pain at palpation of this area without goiter, no murmur is listened on cervical nor abdominal areas. Blood investigations were normal. Immunological tests were negative.Carotid duplex note a significant hypoechoic thickness of left internal carotid artery at 3 mm. CT Scan confirm the thickness of the left carotid bifurcation , extending to proximal left internal carotid artery, with normal luminal diameter. No abnormalities were seen in the others cervical arteries. Wall and diameter of aorta were normal. After ruling out other diagnostic such as aorto-arteritis, we retain the final diagnosis of carotydinia according to International Headache Society Classification Committee 2004.Patient successfully treated by non-steroidal anti-inflammatory drugs after one week. Two months later, she starts to have the same manifestations in his right carotid bifurcation confirmed by the ultrasound exam.

Conclusion.The etiology of carotidynia is unknown although vascular or no vascular causes were suggested.Carotidynia is the expression of carotid alteration probably due to possible localized vasculitis process or at a very early stage of systemic arteritis such Takayasu. In this

regard, careful monitoring of the patient is necessary to detect timely a progression of potential disease.

Key words : *Carotidynia, Vasculitis*
Conflicts of interests : Aucun.

PIUA32

Popliteal artery aneurysm : a non reported etiology.

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Introduction. Popliteal artery aneurysm is the most common aneurysm of the peripheral arteries. It results essentially from an atherosclerotic process and uncommonly from genetic, traumatic, inflammatory, infectious, degenerative, congenital and tumor causes.

Material and methods. The author reports the case of a 48 years old male patient, electrical technician with a history of multiple high voltage electric injuries and subsequent skin scars of the neck and thorax, complaining of severe intermittent claudication of the right leg and foot. Duplex scan and Angio CT scan revealed a 23.9 mm x 16.4 mm thrombosed aneurysm of the right politeal artery. Arterial damage was highly suspected to be secondary to electric injury, the patient was treated medically and the intermittent claudication disappeared completely 20 months later.

Discussion. Arterial lesions secondary to electric injury are rare. Damage to arteries depends on the intensity of the voltage, on the duration of the exposure to electric current and on the size of the artery. Lesions may affect all the layers of the artery resulting in thrombosis, aneurysm formation or complete delayed rupture with hemorrhage. Published series of arterial lesions related to electric injury are reviewed by the author.

Conclusions. Arterial lesions secondary to high voltage electric injury are rare. To our knowledge, this is the first case of a popliteal artery aneurysm secondary to electric injury reported in the literature. Arterial reconstruction is associated with a high rate of complications when performed within 6 weeks after the electric injury. Long term caution care might be needed because of increased risk of arterial stenosis and thrombosis.

Key words : *Popliteal artery, Aneurysm*

PIUA33

Efficacy and safety of hybrid therapy for lower extremity acute arterial occlusion by a vascular team

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Purpose. A lower extremity acute arterial occlusion (LEAAO) is observed to be complicated lesion such as multiple stenosis, occlusion and severe calcification. It is difficult to make a strategy decision. We report hybrid therapy for four cases of LEAAO.

Cases.
Case 1: A 63-year-old male. He has a pain, coldness and cyanosis in his right leg suddenly. Emergency CT angiogram revealed total occlusion of external iliac artery (EIA) and popliteal artery (POP) in his right leg.
Case2: A 90-year-old female. She has a pain and coldness in her left leg suddenly. Emergency CT angiogram revealed total occlusion of superficial femoral artery (SFA) in her left leg.
Case 3: A 65-year-old male. He has a pain and cyanosis in his left leg suddenly. Emergency CT angiogram revealed total occlusion from EIA to POP in his left leg.
Case 4: A 74-year-old male. He has a pain in his left leg suddenly. Emergency CT angiogram revealed total occlusion from EIA to SFA in his left leg.
Strategy and treatment. A one- stage hybrid therapy was selected and performed by surgeons and cardiologists in all cases. Case1: After a thromboendarterectomy (TEA) using a fogaty catheter for POP was performed by surgeons, percutaneous peripheral intervention (PPI) was performed for EIA by cardiologists.Case2: After a TEA using a fogaty catheter from EIA to POP was performed by surgeons, PPI was performed for POP by cardiologists.
Case3: After a TEA using a fogaty catheter from SFA to POP was performed by surgeons, PPI was performed for SFA by cardiologists. Case4: After a TEA using a fogaty catheter for EIA and profunda femoris artery (PFA) was performed by surgeons, PPI was performed for EIA by cardiologists. In all cases, a one-stage hybrid therapy was successfully performed.

Conclusion. A one-stage hybrid therapy by a vascular team was an effective and a safe strategy for a lower extremity acute arterial occlusion with multiple complications.

Key words : *Hybrid therapy, Vascular team*

Venous Thromboembolism

PIUA37

Iliac venous occlusion and post thrombotic syndrom: is it reasonable to perform endovenous iliac stenting in patients with long infra-inguinal venous occlusion?

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INTRODUCTION : Endovascular treatment of isolated iliac or ilio caval venous occlusion is effective and safe, with permeability rate close to 100%. The main risk factor associated with stent occlusion is the quality of the flow in prothesis, that is correlated with infra inguinal lesions (femoral vein or profunda femoral vein). The aim of this work is to analyze our results, in patients with complex disease, according to the severity rating of the infra-inguinal lesions and the clinical context.

METHODS : From 2009 to 2015, a total of 42 patients with infra inguinal sequelae associated to iliac occlusion underwent deep venous angioplasty stenting. Two patients had a systemic disease and 11 a thrombophilia. The permeability of the femoral, the profonda femoral vein and the great saphenous was scored from 0 to 2 (0 = occluded vein, 1 = vein permeable but atretic or synechiae, 2 = normal caliber vein > 6 mm). The three quotations were added together to define three grades: grade 1 (Σ = 4-5) = minimal venous sequelae (n = 14), grade 2 (Σ = 2-3): important venous sequelae (n = 21), grade 3 (Σ≤1) = major venous sequelae (n = 7) .

RESULTS : After a mean follow- up of 44 months, grade 1 patients (n = 14) have a primary patency rate of 79 % (n = 11), a secondary patency rate of 100%. In grade 2 (n = 21), the primary patency rate was 52% (n = 11), the secondary patency rate of 86% (n = 18). In grade 3 (n = 7), the primary patency rate was 43% (n = 3), secondary patency rate of 57 % (n = 4). Reintervention rate was 21 %, 43 %, 57% for grades 1, 2, and 3, respectively. Among six patients who had stent rethrombosis, 4 had grade 2-3, one had a systemic disease (lupus) and one a combined thrombophilia.

CONCLUSIONS : In our experience, the endovascular treatment of iliac venous disease is possible even when complex infra inguinal sequelae are associated. The failure and reintervention rates are proportional to the severity grade of the subinguinal venous disease, and the existence of a systemic disease or major thrombophilia.

Key words : *deep venous obstruction, angioplasty-stenting*
Conflicts of interests : none

PIUA39

Acute cerebral venous thrombosis and pulmonary embolism during a high altitude expedition.

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Introduction. High altitude is associated with significant pathophysiological changes, including hypercoagulability. We report here a case of young male who developed severe venous thromboembolism while on mountain climbing expedition. We will further review the literature to discuss the pathophysiology and the management of high-altitude associated venous thromboembolism.

Methods and results. A young male developed severe headache while he was on a mountain climbing expedition in Nepal. He was treated as for mountain sickness with supplemental oxygen and acetazolamide, but with no relief. He was descended to the base camp and transferred to Singapore. On arrival in Singapore he developed right sided pleuritic chest pain. Physical examination was unremarkable except for bilateral retinal hemorrhagic spots on fundoscopy. A MRI/MRV brain scan confirmed the presence of acute cerebral venous sinus thrombosis, and a spiral CT scan of chest revealed right lower lobe segmental pulmonary embolism. Comprehensive thrombophilia work-up was negative. He was treated with anticoagulation and supportive measure with good relief of symptoms.

Conclusions. This case highlights the role of high altitude in the pathogenesis of venous thromboembolism. With its varied manifestations and lack of onsite investigation facilities, early recognition and prompt evacuation to an appropriate centre can save life.

Key words : *High altitude, venous thromboembolism*
Conflicts of interests : NO CONFLICT OF INTERESTS

PIUA40

Chronic thromboembolic pulmonary hypertension in a young individual : A systematic approach to diagnosis.

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INTRODUCTION. Chronic thromboembolic pulmonary hypertension (CTEPH) is a potentially life threatening consequence of pulmonary embolism. We report here a case of young man

who presented with persistent symptoms after initial treatment of acute pulmonary embolism, and was subsequently diagnosed with CTEPH. In this report we will review the literature and discuss a systematic approach to the diagnosis of CTEPH.

METHODS. Our patient is a 28 year old male who was previously diagnosed to have acute bilateral severe pulmonary embolism 5 years ago. A 2D echo then had shown normal LV function, but severely dilated RV and RA, mildl RV dysfunction and severe pulmonary hypertension (PAH 91 mmHg). Thrombophillia workup was negative. He was started on anticoagulation treatment with some improvement. However he presented a year later with persistent shortness of breathlessness on exertion. Physical examination revealed elevated jugular venous pressure, and a left parasternal heave and a loud second heart sound at pulmonary area were evident. A repeat CTPA showed residual filling defects in bilateral pulmonary arteries and a 2D echo showed persistent severe pulmonary hypertension (72 mmHg). A VQ scan was done which showed bilateral large perfusion defects, which appear mismatched in comparision with the ventillation images. A right heart catheterisation was done which confirmed resting precapillary pulmonary hypertension. With these features it was concluded that he has CTEPH, and was offered pulmonary endarterectomy, which he declined. He was continued on anticoagulation and started on sildenafil, with which his symptoms have shown some improvement.

CONCLUSIONS. CTEPH is a unique complication of pulmonary embolism, which is probably stilll underdiagnosed. A high index of suspicion and a systematic approach is required in the diagnosis of CTEPH in a patient who has persistent symptoms and pulmonary hypertension after initial treatment of acute pulmonary embolism.

Key words : *Chroni thromboembolic pulmonary hypertension, sildenafil*
Conflicts of interests : None

Chronic venous disorders

PIUA41
Sclerotherapy as treatment of venous ulcers

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Chronic venous ulceration is the severest manifestation of this disease. A venous leg ulcer is a defect in pathologically altered tissue on the lower leg, as result of varicose disease, or postthrombotic syndrome. According to the objectives of sclerotherapy: ablation of varicose veins, prevention and treatment of complications of chronic venous disorders, improvement and/or relief of venous symptoms, improvement of quality of life, the aim of this study is to identify an easy, safe, cheap and effective technique for resolving and prevention the

recurrences for CEAP C VI and C V. Method. In the Surgical Clinic no.1 Timisoara, Romania, an original, personal technique of sclerotherapy (Brinzeu) is the sclerotherapy with iodinate surgical wire, through endovenous intraaoperatory inclusion which is performed with a good therapeutically effect for CEAP C III-VI. In CEAP C VI, in the presence of the calf ulcer, we used sclerotherapy as a complementary treatment method, often in the varicose ulcer, more often than in the postthrombotic ulcer. This method completes the pathological reflux interruption surgery by resolving the restant ulcers. As a complementary treatment method, the endovariceal inclusion has been used for many patients for over 30 years. Our study is based on 178 cases of varicose ulcers treated by this method during 2005 – 2015, as a single surgical therapy. This therapy was associated only with the local sterilization and dermatological treatment for wound healing.Results. When the treatment is efficient, the varices disappear and the clinical and the eco-doppler examinations show the flux and reflux venous absence. The results were generally very good (66,3%), good (23,5%). Poor results (10,2%) were due to repermeabilisation and the relapse of the pathology owing to the persistence of the pathological reflux.Discussions. We do not make use of sclerotherapy in the anatomical regions presenting advanced trophic lesions in order to avoid infectious, ulcerative or necrotic complications. The sclerosing treatment may suppress the reflux of the perforating veins having a small, or medium flow, which cannot be used in massive reflux. In advanced stages, C5-C6, in which the superficial venous is pathologically modified, with advanced lesions, the therapeutically attitude is more difficult and satisfying results more difficult to obtain, besides the superficial venous system interruption associated with perforator discontinuation and large ulcers grafting.Conclussions. Sclerotherapy, through endovenous inclusion with iodinate wires, is an alternative method of chemical sclerosis, safe, efficient, faster and shorter, in terms of treatment duration and recuperation. Our technique ensures the morphological, physiopathological and esthetic objectives in the inferior limb treatment of the varicose ulcer with long lasting good results.Relapse is common when the etiology persist, or patients do not comply with postoperative instructions.

Key words : *leg ulcers, sclerotherapy*

PIUA42

The efficacy of Rivaroxaban for treatment endovenous heat-induced thrombosis after endovenous laser ablation.

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At the last time endovenous methods of treatment of varicose veins have become more and more popular. However, after their using it had been appeared a new complication such as endovenous heat-induced thrombosis (EHIT). First of all the EHIT was described by Lawell S.

Kabnick in 2005. Also Kabnick used classification of EHIT which consists of 4 classes. The 1st class is a thrombus close proximity to superficial-deep venous junction. The 2nd class is thrombus extending beyond junction with cross-sectional diameter of <50%. The 3rd one is thrombus extending beyond junction with cross-sectional diameter of >50%. And the 4th one is totally occlusive deep venous thrombosis.
Nowadays, the majority of doctors use the parenteral treatment of EHIT by low-molecular weight heparin. However, after appearance of new oral anticoagulants such as rivaroxaban the treatment of EHIT by them becomesubstantiated. But in modern scientific articles this direction hasn't been investigated enough.
The aim of our work was to investigate the efficacy of rivaroxaban for the treatment of EHIT after endovenous laser ablations (EVLA).

Materials and methods. prospective noncomparative study includes 1326 patients who had 1514 EVLA over the period from September 2014 to February 2016. In 1091 (72,1%) cases the great saphenous vein (GSV) was ablated. The anterior accessory vein (AASV) was treated in 124 (8,2%) cases and small saphenous vein (SSV) was treated in 299 (19,7%) cases. We used 1470 nm laser, radial fibers and automatic pull-back device. All veins were treated under tumescent anesthesia. The diameter of the veins close to sapheno-femoral junction was from 5 to 38 mm (mean 14±4,3 mm). We used the power of 5-10W. The LEED was from 50 to 90 J/cm.
The EHIT were found out in 21 (1,4%) cases. 19 (1,7%) patients had EHIT of GSV and in 2 (1,6%) cases there was EHIT of AASV. We didn't observed any EHIT after treatment of SSV. All the patients with EHIT were prescribed rivaroxaban.

Results. According to Kabnick classification it was the 1st class EHIT in 9 (0,6%) cases, the 2nd class in 10 (0,7%) cases and there were only 2 (0,1%) cases of 3rd class EHIT. All the patients with the 1st class were prescribed rivaroxaban 20 mg once a day and we used 15 mg twice a day for the patients of the 2nd and the 3rd classes of EHIT. We had to stop of using rivaroxaban for 1 (4,8%) patient because of dyspepsia. In this case we began to use enoxaparin in therapeutic dosage once a day. It was a complete regress of EHIT over the period of 6-25 days in all cases. In 1 (4,8%) case there was nose bleeding without major complications. This patient went on using rivaroxaban. There were no cases of pulmonary embolism.

Conclusions. rivaroxaban is an effective medicine for EHIT treatment. The other investigations are needed to point its efficacy and safety.

Key words : *endovenous heat-induced thrombosis, rivaroxaban*

PIUA43

11 Years Experience With Endovenous Laser Ablation of Varicose Veins

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Introduction. The authors of the retrospective study present 11 years outcomes with endovenous laser ablation of the varicose veins.

Material and method. Endolaser surgery of varices has been performed since 2004, firstly with the instrument of 980nm wavelength; and exclusively with 1470 nm wavelength laser beam since 2008. All procedures were performed only in " One day surgery " mode. At the beginning we used general anaesthesia and later we preferred combination tumescent anaesthesia and analgaesia. The big tributary veins we often performed phlebectomy or the endovenous laser during the procedure on the main vein. In our patients the procedure is always performed under the protection of LMWH, in accordance with other authors.

Results. 834 patients, who passed the total of 921 ELVeS procedures in the period from 2004 till 2015, were assessed in this study. 102 of the procedures were bilateral; the great saphenous vein was treated in 724 patients, the small saphenous vein in 103 patients and accessory saphenous vein in 77 patients . The reflow in the great saphenous vein occurred in 5.88%, and in the small saphenous vein in 8.82 %. The long lasting paraesthesia occurred in 2.6 % of patients. We noted only one deep vein thrombosis and no pulmonary embolism.

Conclusion. The introduction of endovenous thermal methods was a very significant progress in venous surgery during past decade. We did not find the differences in an efficacy between 980 and 1470 nm wavelength. We confirm , that endovenous laser ablatio is the successful and safety procedure.

Key words : *endovenous laser ablation, venous surgery*

PIUA50

Protocol for passive Pharmacovigilance of intravenous administration of sulodexide at 60 mg bid for patients with broad spectrum chronic venous disease, arterial disease, deep vein thrombosis and venous eczema.

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The present essay is a phase IV pharmacological study for the intravenous administration of sulodexide in a 60mg per dose BID in patients with a broad spectrum of chronic venous disease, arterial disease, deep vein thrombosis, and venous eczema, in the period between June 2015 to March 2016 in patients of the Angilology and Vascular Surgery Department of the Hospital General de Mexico "Dr. Eduardo Liceaga".

Since the approval of the drug, there have been various pharmacological safety studies to create a biosafety profile and determine adverse reactions to the drug. Multiple clinical essays indicate a wide safety profile, none the less this studies have been focused in the evaluation of adverse reactions in oral and intramuscular administration of the drug. In our study we look forward to contribut to the safety profile by report intravenous administration of the drug.

Mauro, G in 1993, evaluated the drug and its pharmacodynamic and kinetic characteristics, without finding adverse reactions in the administration to healthy volunteers. Andreozzi, in 2012, mentioned that frequent adverse reactions included cutaneous rash, diarrhea, epigastric pain, pruritus, and headache; found in a total of 23 cases in 230 patients, with oral administration of the drug. All of these adverse reactions, were considered mild, and remitted with the suspension of the drug or decrease in dosage. To this day there has not been an evaluation of adverse reactions with the intravenous administration, motive why we chose to continue with the safety profile.

A total of 48 patients with an age range between 23 to 88 years, median of 49.9 years were included. Of a total of 342 doses of intravenous sulodexide, three adverse reactions were seen, attributable to the drug, causality was analyzed using Naranjo algorithm. One case of pruritus in administration site, and two cases of muscle cramps in the extremity were the drug was administered were seen. None of the reactions were considered as severe. Concluding that a frequency of 0.9% in non severe adverse reactions of the total administered doses, which allows us to consider the use of the drug safe in a population like the one we treat in our institution, establishing that to the date, the intravenous administration is associated with less development of adverse reactions compared to what has been seen with oral or intramuscular use.

Key words : *adverse reactions, sulodexide*
Conflicts of interests : Anyting

PIUA51

Variability of clotting times with intravenous administration of sulodexide at doses of 60 mg in patients with chronic venous disease C2-C6, deep venous thrombosis and venous eczema in Angiology and Vascular Surgery Department of the Hospital General de Mexico

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Study realized from June 2015 to March 2016 in patients in the Angiology and Vascular Surgery Department of the Hospital General de Mexico "Dr. Eduardo Liceaga". We seek to establish a possible variation in coagulation time essays with the administration of intravenous sulodexide with a dose of 60mg every 12 hours, during 5 days for the treatment of patients with chronic venoous disease CEAP C2 – C6, deep venous thrombosis.

Multiple in vivo and in vitro essays have been performed, with evidence that the use of sulodexide an increase prothrombin time and partial thromboplastin time. Agiduzel in 2009 postulated that administering equivalent doses of enoxaparin and sulodexide, coagulation parameters (activated partial thromboplastin time) are modified, dose depending, being necessary the administration of 6.25mg/ml as a minimum to produce an increase in the PTTa in plasma. In the same study it was determined that high concentrations of sulodexide are necessary to produce an elevation of PT, considering that this produces a modulation of the intrinsic pathway of coagulation. It was also observed that sulodexide is more potent for the inhibition of the intrinsic pathway of coagulation due to the higher molecular weight of the drug and a higher interaction with heparin cofactor II.

In our study, 24 patients, with ages between 23 – 85 years, with a median of 51.6 +- 16.9 years, who fitted inclusion criteria, were administered with 10 doses of IV sulodexide. Coagulation time essays were evaluated, finding 9 cases where PTTa was prolonged to 55.7 +-32.3 seconds and PT to 32.42 +- 19 seconds. It is worth mentioning that in three cases PT value was non coagulating, returning to normal values after suspension of the drug, and in none of the patients clinical signs of bleeding were seen.

So far we conclude that the alterations in coagulation, caused by the use of intravenous sulodexide, can be screened with rutinary laboratory essays, and in cases where there is an alteration, no clinical signs of bleeding are present, with values returning to normal parameters with the interruption of the drug, which coincides with findings in other studies.

Key words : *clotting times, ntravenous administration sulodexide*
Conflicts of interests : Anything

CerebroVascular Disease

PIUA44

Intraoperative ultrasound examination of hemodynamic changes during surgical treatment for internal carotid artery elongation.

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Introduction.The relationship between the internal carotid artery (ICA) elongations and cerebrovascular insufficiency has been reported from 5 decades. Since then available reports describe the reduction of neurological symptoms by revascularization of ICA elongations. Assessment for revascularization of symptomatic ICA elongations is connected with reduction of symptoms, stroke prevention or carotid occlusion and improvement of brain perfusion.
Aim of the current study is to investigate the hemodynamic changes during surgical correction for symptomatic ICA elongations.

Material and methods. For a period of nine years (2006 – 2015) we performed 638 carotid interventions. 167 of them were due to symptomatic ICA elongations in 159 patients. Partial resection of ICA elongation and reimplantation to common carotid artery (CCA) was presented in all cases. Transcranial Doppler (TCD) monitoring was performed aiming hemodynamic assessment of blood flow in the middle cerebral artery (MCA) during surgeries. In 88 cases we performed flowmetry to assess blood flow in the operated carotid artery. Most patients were discharge on the 2nd day after surgery. Postoperatively patients were followed up on the first and third month after the discharge from the hospital. The results were analyzed.

Results. The examination of TCD monitoring showed increase of the blood flow in the MCA after surgery in 141 (84.4%) cases. Carotid flowmetry found that ICA blood flow velocities (Vmax) significantly increased in the end of intervention, while the values of puls index (PI) at the begining and in the end of procedure remain the same from a statistical point of view. Increase in ICA blood flow velocity was observed in 98% of cases, and decrease - in only one. In the early postoperative period in 1 (0.6%) patient was established ICA occlusion, leading to ipsilateral stroke and death of the patient. We registered also transient ischemic attacks (TIA), reperfusion syndrome and myocardial infarction in 3 cases. During follow-up in 158 (94.6%) cases was observed reduction of neurological symptoms to their complete resolves on the third month.

Conclusion. Revascularization of isolated, symptomatic carotid elongation is safe and effective procedure for preventing stroke and reducing the symptoms of cerebrovascular insufficiency. Adequate intraoperative assessment of brain hemodynamic plays an important role for better results.

Key words : *carotid elongation, hemodynamic changes*

PIUA45

Free-Floating Thrombus of the Carotid Artery – Clinical Cases with Five Years Follow-Up

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Free-floating thrombus of the carotid artery is a rare disease which causes embolic ischemic stroke. We present our experience with a 5-year-follow-up of two patients with free-floating thrombus of the carotid artery. The diagnosis was made by using Color-coded Duplex Sonography in the acute phase of the ischemic stroke and was confirmed with multi-slice CT angiography of the supra-aortic brain arteries. Urgent carotid endarterectomy was performed. Postoperatively, patients were taking long-term dual antiplatelet therapy. Both patients were tested for hyper coagulation status and thrombophilia. Patients were followed regularly by using CDS for a period of 5 years. Both patients relapsed fixed thrombus in the operated area after the first year. One of the patients was symptomatic and had a thrombophilia and the other was asymptomatic. Anticoagulant therapy was started, so that thrombus underwent devolution within six months. Anticoagulant therapy continues till this moment in combination with an antiplatelet drug. Surgical treatment should be initiated after careful consideration in cases of very large and flexible free-floating thrombus with high emlilogenic risk. Prolonged anticoagulant therapy should be considered in cases with free-floating thrombus of the carotid artery.

Key words : *free-floating thrombus, anticoagulant therapy*

Aortic aneurysms

PIUA46

Hemodynamic analysis of endoleak with multiple types after endovascular abdominal aortic aneurysm repair by using four-dimensional flow-sensitive magnetic resonance imaging.

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Endoleak is a common complication and may be associated with aneurysmal growth and aneurysm rupture after endovascular abdominal aortic aneurysm repair (EVAR). This study used 4-dimensional flow-sensitive magnetic resonance imaging (4D-flow) to assess the hemodynamics of endoleak types. Between January 1, 2013 and October 31, 2014, 66 patients with abdominal aortic aneurysm(AAA) underwent elective with EVAR. 36 patients with normal renal function received nitnol-based stentgrafts. 4D-flow identified endoleak in 22

patients (61 %), while CTA identified endoleaks in 16 patients (44%). 4D-flow identified concomitant multiple endoleaks in 8 (36.4 %) patients, 4D-flow identified type Ia+II+III endoleak in 2 patients, type Ia+Ib+II endoleak in 1 patient, type II+III endoleak in 3 patients, type II+IV endoleak in 2 patients. 4D-flow analysis can detect the instantaneous velocity vector field. 4D-flow analysis differentiate between sonsomitant multiple endoleak types in a single patient. It may help predict the fate of the aneurysm.

Key words : *endoleak, hemodynamics*

PIUA47

A five year single centre results of conventional repair of ruptured abdominal aortic and iliac aneurysms.

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Background. Abdominal aortic aneurysm is a common degenerative vascular disorder associated with sudden death due to aortic rupture and is associated with high mortality. The hospital admission rate is approximately 10 per 100.000. Several factors have been implicated as risk factors that influence survival like increasing age, gender, hypertension, chronic obstructive pulmonary disease (COPD), dislipidaemia and CRP. The objective of this study was to highlight and identify unmodifiable risk factors that influence survival following conventional aortic and iliac aneurysm repair.

Materials and Methods. The study was a retrospective analysis of all the ruptured abdominal aortic and iliac aneurysm (rAAA) patients admitted to Riga Eastern Clinical University Hospital (ECUH) during years 2011-2015. The data: age, gender, blood analysis and co morbidities were collected from patients records. Only patients with conventional aortic and iliac aneurysm repair were included in the study. Computed tomography (CT) and ultrasound images taken at the time of admission were used for the measurement of the aneurysm diameter. Statistical analysis were calculated with SPSS 16 statistical programm.

Results. A total of 70 (55 men/15 women) patients diagnosed with rAAA were admitted to Riga ECUH during the 5 year period. 66 of patients diagnosis was confirmed by CT scan. The mean age at the time of rupture was 72.1 years +/- 9.1 years, range 39-89 years. Fifty nine patients had aortic aneurism (mean diameter 8.1 +/- 1.8 cm) and eleven patients had iliac aneurism (mean diameter 6.7 +/- 1.8 cm). Fifty nine patients were operated, of them mortality rate was 35.6 % (overall mortality 45.7 %). Younger patients and male gender had better clinical outcome (p=0.001). 12 out of 14 patients younger than 65 years survived the surgery, all of them male. COPD correlated with worse clinical outcome (p=0.001) and

patients with higher CRP had better clinical outcome (p=0.015). There was no correlation between clinical outcome and the aneurysm diameter, operation time, aortic occlusion time, haemoglobin level before or after operation, hypertention, time spent in the intensive care unit and time from onset of symptoms till hospitalization.

Conclusions. The data from this study supported previous findings and indicated, that screening age for AAA in men should be fixed earlier than 65 years. It also supports the evidence that female gender, COPD and CRP significantly influence survival following AAA repair. The presence of these factors might assist in clinical decision making during discussion with patients regarding repair mode.
Key words : *Ruptured aortic aneurysms, Atherosclerosis*

PIUA48

Late dissecting aneurysm complicating a postcoarctation repair in a patient with bovine arch anomaly

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Introduction. Coarctation of thoracic aorta is common and comprises 5% to 8% of all congenital heart diseases and late anastomotic complications after surgical repair that usually necessitates urgent treatment. According to recent studies, endovascular treatment methods in this group seems like a life saving treatment option, because of high mortality and morbidity rates of open surgical repair.

Case report. A 55-year-old man with aortic coarctation was initially treated at the age of 13 years through a left thoracotomy with end-to-end anastomosis of the ascending and descending thoracic aorta. At the age of 30 years, he was reevaluated due to fatigue and headaches, at which time an aortogram revealed hypoplasia of the thoracic aorta together with bovine arch and underwent to operation again and was repaired by the same technique without using graft or patchplasty via median sternotomy.
The patient later presented with severe uncontrolled hypertension. CT revealed a 8 cm wide saccular aneurysm with a acute dissection just distal to the left subclavian artery origin. With diagnosis of dissection and aneurysmal sac, patient underwent an urgent intervention after replacement of external lumbar brain spinal fluid drainage catheter. Under strict sterile technique, with general anesthesia, right femoral cutdowns were performed.28 mm-150 mm measured thoracic stent graft (Medtronic) was introduced over an extra-stiff wire (Medtronic) via the right femoral artery and deployed just distal to the origin of the patient's bovine type left subclavian artery. Completion angiography revealed he did not developed an endoleak necessitating any additional intervention. Angiograms showed a decrease and stabilization of

the size of the aneurysm sac and disapperance of intimal fleb. The length of hospital stay was 4 days.
In the immediate postoperative period, patient had no complaints and clinical signs of any complications. Follow-up CT angiography obtained 3 months after procedure revealed no evidence of migration, stenosis, kink, or endoleak. His prior severe hypertension was under control with a single agent (a small single dose of oral beta blocker daily) and he had no hemoptysis after the intervention.

Discussion. Open surgical repair has been considered the gold standard for the treatment of aortic coarctation due to its poor natural history. Untreated pseudoaneurysms and aneurysms at the site of coarctation have a 100% rupture rate within 15 years. Prevalence of BAA (bovine arch anomaly) was seen in 1% to 27.4% of imaging studies. In recent years, BAA had emerged as a novel marker or risk factor for thoracic disease because of the higher prevalence and the increased aortic growth rate. Wanamaker and colleagues analyzed arch anomalies in thoracic aortic dissections and found an incidence of 24.2% of BAA in patients with acute type A dissections and 35.4% in type B dissections.

Conclusion. TEVAR may be an efficacious alternative in the treatment of aneurysm formation after coarctation repair, with good long term results and is appealing patients with existing aortic arch anomalies.

Key words : *bovine arch anomaly, postcoarctation tevar*
Conflicts of interests : None

PIUA49

Endovascular treatment of complicated thoracoabdominal aortic aneurysm by Thoracic aortic stent-graft combined with Octopus technique

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Objective: to analyze the safety and feasibility of treatment of thoracoabdominal aortic aneurysm by thoracic stent graft combined with octopus technique.

Methods: a 47 year-old male thoracoabdominal aortic aneurysm patients received completely endoscopic treatment by thoracic aortic stent combined with octopus technology. Isolated aortic aneurysm and reconstruced bilateral renal artery, mesenteric arterial blood flow, patients had no complications and recovered smoothly.

Results: patients did not occur paraplegia, intestinal ischemic complications postoperation, postoperative CT examination showed bilateral renal artery, superior mesenteric artery blood flow was normal and aneurysm had no leakage.

Conclusion: Treatment of thoracoabdominal aortic aneurysm by this new method is safe and feasible, we need more treatment experience and long-term follow-up observation.

Key words : *aorta; stent graft; octopus;, endovascular; thoracoabdominal aortic aneurysm*
Conflicts of interests : No

PIUA52

Postoperative management of patients after endovenous laser ablation

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Objective: Endovenous laser ablation (EVLA) of incompetent truncal veins has been proposed as a minimally invasive alternative to conventional surgery for varicose veins. We have had experience in treatment of about 2600 patients by this method and suggest the following strategy.
Method: Within the period from January 2008 to April 2016 in Clinic of St. Petersburg state University (Federal state institution "Saint-Petersburg multi-center" of the Ministry of health of the Russian Federation) by endovenous laser ablation treated 2590 lower extremities of 2010 patients. Among them 1359 (67.6%) were women and 651 (32.4%) men. We used the diode laser with emission wavelength 1470 nm. The procedure was executed under tumescent local anesthesia by 0.05% Lidocaini solution and under the duplex scanning control. In addition miniphlebectomy or foam sclerotherapy was performed if it was required. Anticoagulant therapy was used as a prevention only for those patients, who had a high risk of thrombosis.

Results: Right after the intervention all the patients had a constant compression on the operated low extremity for 24 hours. Second class compression hosiery was used. During 2-3 weeks, the compression therapy need to be worn daily, except time for taking shower and sleeping. Compression hosiery helps to compress the vein to form postcoagulatory thrombus, to reduce risk of paraphlebitis and inflows phlebitis, to reduces postoperative discomfort and to prevent deep vein thrombosis. We strongly recommend to walk during 90-120 minutes immediately after operation, without standing or sitting. Pain may occur in cases when EVLA is combined with miniphlebectomy. A single dose of nonsteroidal analgetic is enough. The first examination of the patient after EVLA occurs in 1-2 day. We examined the trunk of the coagulated saphenous vein and condition of the sapheno-femoral/popliteal junction. Blood flow should not be in the obliterated vein. If blood flow does not stop in 2-3 weeks, we will repeat the procedure or accomplish scleroobliteration foam. Sometimes we visualized

prolapse of thrombus in the femoral/popliteal vein. This prolapse develops after an incorrect positioning of the laser fiber, when the working end of the fiber is positioned too proximal. The criteria for a successful impact in duplex scanning of the following: 1 week - incompressible GSV/SSV with thick echogenic walls, the absence of blood flow in the lumen of the vessel according to the color mapping. After 3-6 months - GSV occluded with a significantly reduced diameter (not less than 50%). After 1 year and later - the complete absence of the GSV or minimal residual band of fibrous tissue with no signs of blood flow. The standard for the evaluation of patients after EVLO is control clinical examination in 1-2 days and 1 month after procedure, then 3, 6 and 12 months and annually. During follow up we had no case of deep vein thrombosis in the early postoperative period (1 month after surgery).

Conclusions: EVLA is a minimally invasive, safe and effective treatment of varicose veins with minimal risk of deep vein thrombosis. An essential requirement is strict implementation of the algorithm of post-operative treatment.

Key words : *endovenous laser ablation, Postoperative management*

Others

PIUA34

CRP and fibrinogen imply prognosis of patients with diabetic vascular disease

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The paper aimed to determine inflammatory markers CRP and fibrinogen in patients with diabetic vascular disease and establish its influence on the prognosis of patients with coronary artery disease (CAD) and type 2 diabetes (T2D). Sixty two patients with T2D and CAD were included in a 3 year prospective cohort study.
Results revealed that fibrinogen value >4 g/L does have atributive risk for onset of peripheral artery disease (PAD), followed by value of ABI index, when markers CRP, lipid fractions, weist circumpherence, BMI, diabetes duration and age were put in a ROC curve. Hovewer, increased CRP value (> 3 mmol/L) has an additive risk for new angina. When the same parameters were put into a multivariate analysis, together with significant carotid stenosis, increased CRP levels revealed as an independent predictor for cardiovascular death.

Key words : *diabetic vascular disease, inflammatory biomarkers*
Conflicts of interests : None

PIUA35

Early outcome of forearm reinforced PTFE arteriovenous graft using inflow and outflow from above elbow vessel

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Objective: To study about the patency and feasibility of forearm (arteriovenous graft) AVG for hemodialysis using inflow and outflow from above elbow vessels.

Method: The novel forearm AVG was performed in the ESRD patients with non-suitable forearm vein to create conventional forearm AVG (small, thrombosed or previous created forearm AVG). The procedure is used the reinforced PTFE anastomosis between brachial artery and basilic or brachial vein at above elbow vessel. Follow-up six-month patency rates, timing to first cannulation, measuring satisfaction of the patients and hemodialysis nurses, and complication of this configuration AVG.

Result: There were fourteen ESRD patients with a mean age of 61 years (39-84 years). Seven patients had previous AVG at the same forearm. Five brachial veins (size 3.48 ± 0.64 mm.) and nine basilic veins (size 3.48 ± 0.63 mm.) are outflow vessel. Median Duration to first cannulation 28 days. six-month primary patency 78.6% and secondary patency 92.8%. All of the patients and hemodialysis nurses were satisfied. Complication: two cases of AVG thrombosis and one steal syndrome.

Conclusion: This AVG configuration shows acceptable outcome in six-month patency and complication when compare with conventional forearm AVG. However, the long term patency of AVG should be followed.

Key words : *arteriovenous graft for hemodialysis, forearm arteriovenous graft*

PIUA36

Surgical treatment of the varicose veins following 3rd degree burns

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Background. Varices evolving after grave skin burns and after skin grafts represent a special phlebologic event with certain characteristics which determine therapeutic difficulties.

The purpose of this study is to present my experience in treating patients with varicose veins which evolved after 3rd degree burns located at different levels of the inferior limbs.
The study includes 6 cases (1 woman and 5 men). Five of the cases where work related accidents and 1 was a result of a domestic accident.
The surface of the burned skin areas ranged between 34% and 76%. In all the cases skin graft procedures were performed.
All 6 patients developed varicose veins after the healing of the skin burns.

Treatment method. In all the cases I used an ambulatory minimally traumatic surgical method called VANST (Varices' Ambulatory Non-stripping Surgical Therapy) for the treatment of these varicose veins.
VANST is a procedure of taking the varicose veins out of the venous circuit through the interception of the channels of their filling up; both the venous flux and reflux are eliminated. The varices remain in place but they become just empty collapsed non-functional tubes.
The steps of the procedure are:
A.-The marking on the skin of the places of the future incisions
B.-The surgical intervention:

- local anesthesia with 1% lidocaine
- incisions of 1-3 mm.
- through very gentle dissection the varicose veins (including saphenous trunks) are intercepted, sectioned and ligated; the same procedure is applied for insufficient perforant veins
- a non-compressive bandage is applied.

C.-The patient is immediately mobilized after the operation and leaves the clinic after 30 minutes
D.-Postoperative check-ups (24 hours, 7 days, 60 days and every 6 months).

Results. Postoperative closing up of the varices took place in 100% of the cases.
Due to the small incisions and the minimally invasive procedure per primam cicatrisation occurred in 92% of the incisions despite the weak state of the skin.
One case was in C6 CEAP classification stage and the leg ulcer healed in 14 days after the operation without any ulterior relapses.

Conclusions.
1. Treatment difficulties of varices following skin burns are:

- abnormal anatomical disposure (mostly non-saphenian)
- extremely tortuous aspect
- firm adherence of the veins to the surrounding tissues
- hypertrophic or retractile scars
- high risk of the cicatrisation failure due to the poor quality of the skin (scars, skin grafts).

2. The employment of VANST in cases with skin burns related varicose veins proved a high degree of efficiency.
3. If correctly treated skin burns related varices show a minimal recurrence rate.

Key words : *varicose veins, skin burns*