

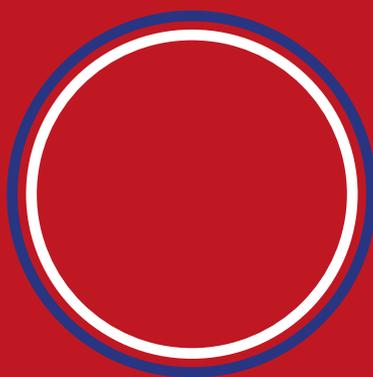
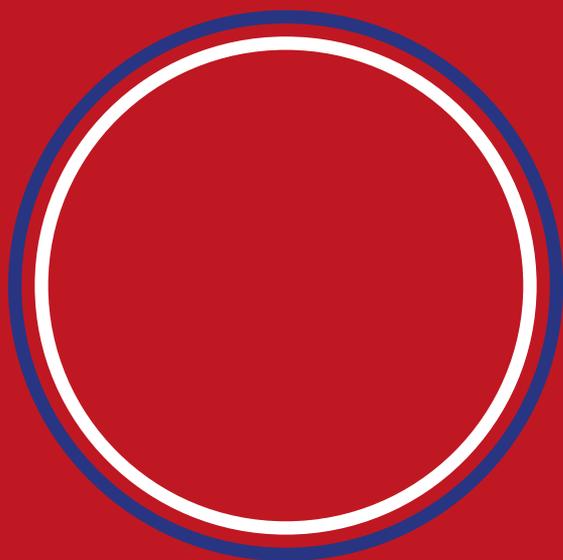
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BOOK OF ABSTRACTS



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Index of authors and co-authors is available at the end of the book.

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ATHEROSCLEROSIS AND CHRONIC PERIODONTITIS – ASSOCIATED PATHOLOGY OR PATHOGENETIC RELATIONSHIP?

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The presence of infectious factors and also of some inflammation markers is suggestive for their role in atherosclerosis. Chronic periodontitis (CP), a chronic infection, may be a related path to the pathogenic process of atherosclerosis.

The aim of this study is to evaluate the interrelationship between subclinical and clinical atherosclerosis and chronic periodontitis (CP), the possible common risk and inflammatory factors.

Material and methods: We selected two equal, homogeneous groups (96 patients/lot) of people, aged 50–70 years, without (lot A), respectively with (lot B) subclinical or/and clinical manifestations of systemic (coronary, neurological, peripheral) atheromatosis. We noted demographic, anamnestic, socio-economic data, blood pressure (BP), presence of diabetes, serum lipids, fibrinogen, C-reactive protein (CRP). Exploration was cardiovascular (echocardiography, carotid and peripheral vascular ultrasound, ankle-arm index) and dental assessing for loss attachment and the presence of periodontal pockets (>3 mm).

Results: Comparing the two lots, in lot B we found the presence of family history ($p=0.020$), smoking ($p<0.001$), a lower diastolic blood pressure ($p<0.01$), higher pulse pressure ($p<0.001$), high cholesterol ($p<0.01$), increased CRP (8 % vs. 21 %) in relation with smoking ($p=0.03$) and family history ($p=0.045$). CP was confirmed in 91.1 % of the total (94.7 % in the group with atherosclerosis, and 70.59 % without atherosclerosis, $p=0.018$). Persons with PC were mainly between 61–70 years and men, 8.5 % with poor socioeconomic status, 31.45 % smokers ($p<0.005$), lower diastolic BP ($p=0.07$), increased pulse pressure ($p=0.009$), low HDL cholesterol

($p<0.0001$). Fibrinogen is increased in CP ($p=0.038$) above a cut-off value of 316 mg/dl, CRP has values 6–12 mg/l in CP and it is normal in 82.3 % of those without CP.

Conclusions: Association between atherosclerosis and chronic periodontitis is indisputable (94 %), as well as the presence of common risk factors: age, sex, smoking, diastolic BP values and diabetes; family history suggests a possible associated genetic mechanisms; involvement of the environmental factors in CP is suggested by a poor socioeconomic status. The moderate inflammation proven by values of CRP is most likely to be the connection element for initiation, maintenance or aggravation of vascular atherosclerosis.

PRINCIPLES OF PSYCHOSOMATIC APPROACH TO CHRONIC LYMPHEDEMA MANAGEMENT

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Introduction: Lymphedema as a medical entity is qualified to be chronic, progressive, life-long disease causing physical as well as psychical burden to the ill (WHO). Therefore, it requires long-lasting integrated treatment of both pt's "body and soul" based on complex decongestive therapy (CDT) and psychotherapeutical support.

Objectives: The purpose of presented study was: (a) to identify decisive psychological items influencing patient's acceptance of long-term treatment, (b) to point out the principles unavoidable for ensuring pt's cooperation and (c) to specify relevant recommendations for lymphotherapeutic team.

Clinical material and methods: Since 10/2005 till 12/2013 in general 683 lymphedema patients in maintenance phase of treatment underwent CDT. Therapeutical outcomes were based on regular checking, educational seminars focused

on pt's adherence in treatment activities, self-treatment, psychological condition and specialized questionnaire evaluation. Collected data evoked consequent cognitions.

Results and relevant recommendations: As decisive main psychological items in pt's management in maintenance phase of chronic lymphedema were identified:

- Optimal communication between lymphology staff, patients and family members. Main goal: pt's feeling of confidence trust and being integrated – as self-responsible member – into the team combating his/her disease. *Training in communication skill needed!!*
- Pt's acceptance of long-termed CDT. His/her attitude is influenced by rational as well as emotional factors (positive/negative). *Identification of these factors and support of positive ones is necessary!!*
- Pt's cooperation. Prospective steps: contact ... communication ... cooperation ... compliance integrating both somato- and psychotherapy ... adherence – targeted level.
- Incorporation of self-treatment into pt's daily regime (skin care, self-applied manual and pneumatic lymphodrainage, self-bandaging, supporting physical and breathing exercises, elevation of the limbs, regular self-measurements of limbs' volume, appropriate sport and free-time activities, nourishment, etc.).
- Depression and anxiety being negative factors decreasing pt's active participation in therapeutical procedures. *In severe cases psychotherapy and pharmacotherapy (anti-depressives) are required, clinical psychological consultation recommended.*

Conclusion: Treatment of lymphedema has to be based on psychosomatic approach to the disease integrating both somato- and psychotherapy.

This study was supported by grant P407/12/06020 of the Grant Agency of the Czech Republic.

REVIVAL OF SOME CLASSICAL METHODS OF VASCULAR INVESTIGATIONS

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Numerous methods of investigation have been used to study the peripheral vascular system. Doppler ultrasound is currently the most widely employed, but several plethysmographic and oscillometric techniques are also currently in use.

Examination of waveforms has been widely used as a means of assessing arterial patency. Doppler ultrasound as a method of detection of pulses has been used to measure the systolic blood pressure in the limbs. The reduction of ankle systolic pressure corresponds well with clinical symptoms.

Air plethysmography is based on volume changes detected by an air-containing compartment or cuff wrapped around part or all of the calf.

Oscillometry is a method that records changes in volume of the limb with each systole. These changes are related to the elastic properties of arteries in the area tested. It was used until the end of the 60's.

Today, some of the older methods are used again for vascular diagnosis.

CARDIOVASCULAR RISK OF PATIENTS BEFORE MAJOR VASCULAR SURGERY – PART II

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In the part I there was discussed cardiovascular risk of patients before major vascular surgery from the point of view of coronary atherosclerosis. The part II analyses this group on the basis of occurrence of atherosclerosis in carotid arteries. The examination of them is a standard part of pre-operative diagnostics.

The history of stroke was found only in 13 of 117 patients, 6 patients underwent carotid surgery or PTA (2 of them bilaterally) because of asymptomatic carotid stenosis in the past.

In 24 cases there were found unilateral or bilateral carotid stenosis 50 % and more, 2 patients had significant stenosis of subclavian artery, 9 of that patients had undergone carotid surgery or PTA before other vascular surgery. The examinations in the remaining cases showed only non-significant changes (stenosis less than 30 %), even in patients with stroke history.

Not surprisingly, the most of patients were smokers or ex-smokers (83 %), diabetes mellitus was present in 30 cases and the most frequent risk factors combination were: smoking + arterial hypertension + hyperlipoproteinaemia.



ARMAND TROUSSEAU AND HIS ASSET TO VASCULAR MEDICINE

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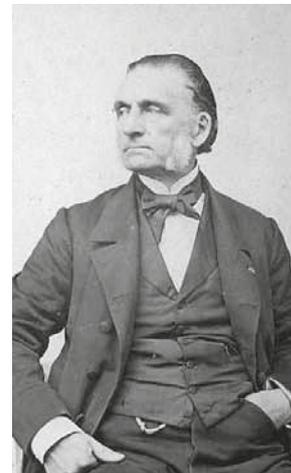
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A close interaction exists between venous thromboembolic disease and cancer. Tumor progression is associated with an activation of coagulation and fibrinof ormation which are both implicated in cancer proliferation and metastasis dissemination. It is believed that Armand Trousseau was the first to notice this link that is connecting thrombosis and cancer. A man who was very gifted in using his potential. Trousseau is a true example of a man of a keen mind. From his young age, he participated in various competitions including rhetoric and philosophy. The range of his interests was wide and he was active in many areas of medicine such as epidemiology, infectious diseases, otorhinolaryngology (editing a book entitled "A Practical Treatise on Laryngeal Phthisis, Chronic Laryngitis, and Diseases of the Voice"), pathology and public health. His journeys led him to the Gibraltar area to investigate Yellow Fever. Later, he became the head of the Department of Internal Medicine at Hôtel-Dieu Hospital in Paris. As a leader of the French renaissance in treating diseases, Trousseau assisted in developing new therapeutic methods of acute obstructive laryngitis – diphtheria. He was the first to come up with the thoracentesis procedure and he managed to refine tracheotomy. A large number of diseases fully curable now were a serious problem in the time of Trousseau. During the devastating epidemic of cholera in March 1832, Trousseau's four patients died in the same bed in Hôtel-Dieu in seven hours due to this "appalling disease" as Trousseau himself characterized this disease. We can safely call him a visionary who was excellent at hospital bedside of his patients as well as at the front of a huge auditorium full of students and among whom many became his followers. Thanks to his ability to carefully watch and listen, he identified the relation between cancer and thrombosis. In a case of patient suffering from abdominal pain and mild leg oedema, he said: "Gentlemen, this oedema is different from that one caused by feverish albuminuria ... it is different because it is caused by venous obliteration that results in phlegmasia alba dolens". (Phlegmasia alba dolens. In: Trousseau A (ed). Clinique médicale de l'Hôtel-Dieu de Paris. Ballière Paris 1865. p. 654–712.) Two years later he noticed similar signs on himself and instantly knew what his diagnosis

was. He said to his students: "I am lost, phlebitis which manifested this night will let no one to question the nature of my disease". He experienced his own observations concerning the relationship between thrombosis and cancer. The memory of Trousseau's effort exists in a great form – one of the legendary trinity of French hospitals carries his name. In another of the three hospitals - Tenon, The Department of Thrombosis and Haemostasis works with the same enthusiasm and attitude as Trousseau did. Part of their research includes paraneoplastic thromboembolic disease as one of the first potential sign of malignancy. Everyone should be aware about the potential acquired hypercoagulable state induced by cancer and be a great "profiler" such as Trousseau.



Armand Trousseau (1801–1867)

PRESSURE SORES OR SIGNS OF CRITICAL LIMB ISCHAEMIA?

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Development of angiology as a field of medicine provides explanation of peripheral vascular issues previously unsolved. It is known that many diabetics suffering from peripheral artery disease never suffer by claudication. Similarly, immobile or poorly mobile patients do not suffer from claudication and so they stay undiagnosed. Emergence of critical limb ischemia (CLI) in these patients is therefore unpleasant surprise to the medical staff.

Our group consisted of 90 patients hospitalized at the of long term ill department of University Hospital Bratislava. 30 patients were mobile without pressure sores, 30 were immobile without pressure sores and 30 immobile with pressure sores. We analyzed the risk factors of atherosclerosis and laboratory parameters of patients. We measured pressure on the arms and ankle pressures ATP and ADP and calculated the

ankle-brachial index. We realized a color duplex sonography and evaluated the degree of atherosclerotic changes in the arteries of the lower extremities.

In mobile patient group we found out 3 patients suffered in serious arterial stenoses but only 1 of them had pressure sores, in 30 immobile patient group with pressure sores we found out that 17 of them suffered in serious arterial stenoses or obliteration (in many patients of this group serious impairment of vessels occurred more than once).

We also present a case report of 84-year old female – patient of long term ill department has been transferred from the Department of Surgery with stage 3 decubitus on her left feet (area of V. metatarsal bone) which originated in nursing house. We performed the ankle brachial pressure index (ABPI) measurement which confirmed severe stenosis of left leg arteries. We added color duplex sonography of arterial system with finding of hemodynamically significant stenosis and obliterations in arteria tibialis posterior area bilateral. This case illustrates inconclusiveness of situation.

Preventive measures in immobile patients are very important (positioning, physiotherapy, pharmacological prevention) to avoid developing decubitus which can be the first sign of CLI. In differential diagnostic process of decubitus it is important to think about peripheral disease (PAD). In both PAD and “normal” pressure sores, defects are a result of ischemia but the cause is different and in many patients they potentiate each other. Pressure sores represent a serious complication that we face in everyday practice. Pressure sores as a sign of CLI in immobile patients becomes sometimes from a very difficult to an unsolvable problem.

Key words – MeSH: peripheral arterial disease, critical limb ischaemia, pressure sores

of the ligated arteriovenous fistula sec Brescia-Cimino. A systemic thrombolysis using Alteplase was successfully performed. He underwent interruption and ligation of the cephalic vein in the elbow pit. The postoperative course was uneventful.

Conclusions: The ligation of the draining vein also centrally to its aneurysmatic dilations should be considered when closing the arteriovenous fistula, or patients should at least be informed so as to avoid the displacement of thrombi out of their vascular haemodialysis accesses.

ETIOLOGY, DIAGNOSIS AND MANAGEMENT OF THE BUDD-CHIARI SYNDROME: SINGLE CENTRE EXPERIENCE

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Definition of Budd-Chiari syndrome (BCS) includes any obstruction of the hepatic venous outflow, wherever since small hepatic veins, large hepatic veins, the inferior vena cava, or a combination of these sites. We analyzed a large cohort of 44 patients (32 females, 12 males, the mean age <35 y. of age) treated with transjugular intrahepatic portosystemic shunt (TIPS) treated in our Internal Department in period 1993–2012. The median of total follow-up was 52 months. The form of BCS syndrome was acute in 8 cases, subacute in 21 patients and chronic in 15 cases. Ascites was found in 35 patients as the most frequent symptom. Etiology was recognised in 38 cases. Ph negative myeloproliferative disease was identified as the most common risk factor (50 %, N=22), especially polycythemia vera. Typically, at the time of thrombosis patients did not fulfill diagnostic criteria of myeloproliferation according to either PVSG or WHO. JAK2^{V617F} kinase positivity was detected in the most of the MPD cases (82.5 %). The second most common etiologic factor was inherited thrombophilia (18 %, N=8). In the non-covered (bare) stent group, we achieved primary patency rates 52.9 % in 1 year and 20 % in 5 years after TIPS creation. In the covered stent group the 1-year primary patency rate was 80 % and 5-year primary patency

AN UNEXPECTED COMPLICATION OF THE LIGATED ARTERIOVENOUS FISTULA

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Background: The arteriovenous fistula and arteriovenous graft can cause pulmonary embolism when treating its thrombosis by surgical thrombectomy or using invasive radiological techniques. A case of pulmonary embolism from ligated AVF has not been published to-date, to our knowledge.

Methods: In this case report, the authors describe such a unique case.

Results: The patient experienced a symptomatic bilateral pulmonary embolism immediately after he had himself centrally massaged the thrombi out of the cephalic aneurysms

rate 33.3 %. The average 5-year reintervention rate per patient was 1.65 procedures in the bare stent group and 0.67 in the covered stent group. Reinterventions were more frequent in MPD patients. All patients were anticoagulated: heparin was introduced at the beginning, switched to vitamin K antagonist. As compared to non-covered stent the use of TIPS-dedicated covered stents led to lower dysfunction rate with lower number of reinterventions. On top of TIPS, a vigorous therapy of underlying disorder is also necessary.

SUBADVENTITIAL RUPTURE OF POPLITEAL ARTERY IN THE CASE OF KNEE JOINT DISLOCATION

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A knee joint dislocation is usually connected with traumatic damage to soft joint tissue and in some cases with damage to the nerve and vascular bundles.

This report presents 2 case studies describing subadventitial rupture of popliteal artery in the case of knee dislocation. In both cases, a failure to recognize the vascular damage in time, during the primary treatment of the dislocation in another medical center, resulted in a long-term limb ischemia connected with the loss of sensibility and motility. CT angiography revealed a closure in the area of popliteal artery. Patients agreed to be transferred to our centre for an urgent vascular surgery. Both patients were implanted popliteo-popliteal bypass and at the same time, large-scale fasciotomies and revisions of the shank compartments muscle groups were completed.

During the post-operative period, a maximum care was given to the correction of impaired laboratory parameters due to a developed reperfusion syndrome, intensive exercise and treatment of large-scale fasciotomies.

Vascular damage in the case of knee dislocation is a rare complication. However, if it is not diagnosed and treated in time, it can lead to a serious limb dysfunction, in a worse scenario to its amputation.

CHRONIC VENOUS INSUFFICIENCY IN PATIENTS WITH DIABETES MELLITUS

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Chronic venous insufficiency (CVI) occurs by age in 5–50 % of the general population. Causal causes of CVI such as lifestyle, overweight/obesity, etc. could be common also with diabetes mellitus (DM). There isn't available real data about the prevalence of CVI in the diabetic population, there are only few studies showing the changes of the venous system in such patients. We hypothesized that the occurrence of CVI could be higher in patients with DM due to the presence of procoagulant, proinflammatory stages and/or changes in the vessel walls that may be induced by chronic hyperglycemia.

The **aim** of our study was to evaluate the incidence of DM in patients with CVI and to compare severity and type of treatment of CVI between diabetic and non-diabetic patients.

Methods: 103 patients with CVI (mean age 64.7±13.5 years, male/female – 44.7 %/55.3 %, BMI 28.8±4.9kg/m²), who have been treated in vascular clinic IKEM were consecutively included into the study. Venous system was properly investigated by duplex ultrasound and the severity of CVI was defined by CEAP classification. Data about DM were obtained from patient medical history.

Results: DM occurred in 16.5 % of patients (95 % CI (0.096–0.264) higher prevalence compared to those of DM in Czech Republic; p=0.0079. Diabetic patients with CVI were significantly older than those without DM (72.1±11.5 vs. 63.2±13.4 years;p=0.009). As the distribution of CVI severity and the incidences of acute/historical deep vein thrombosis, thrombophlebitis or varicophlebitis as the type of CVI therapy did not differ significantly between patients with and without DM.

Conclusions: The incidence of DM in patients with CVI was higher than the prevalence of DM in the Czech Republic. Patients with CVI and DM are older than those without DM, but they don't differ in the severity of CVI and type of treatment.

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STENT-GRAFT INSERTIONS FOR THROMBOSED ARTERIOVENOUS GRAFTS OUTFLOW STENOSIS: FIRST RESULTS

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Introduction: Prosthetic arteriovenous grafts (AVG) are indicated in patients with failed arteriovenous fistula or unsuitable vessels. The major drawbacks include thrombosis, infection risk and steal syndrome. The thrombosis is most due to venous outflow stenosis, that can be managed surgically or by percutaneous methods with/without stenting or stent-graft insertions.

Purpose: To evaluate the efficacy of a stent-graft in the treatment of venous outflow stenosis in thrombosed AVG.

Methods: Stent-grafts were deployed for treatment of failed AVG in case of significant anastomotic venous outflow stenosis after surgical graft thrombectomy. Regular dopplex ultrasound follow-up was scheduled every two weeks after insertion; angiography was in 8th and 20th week. Outcome data was analyzed by Kaplan-Meier analysis.

Results: Over the period 2011–12 fifteen patients with failed AVGs were treated successfully with stent-graft (Viabahn). There was one early thrombosis (6.6 %). The estimated six and 12-month patency were 87.5 % and 63.4 %. Freedom for re-interventions was 80.2 % at 6 months and 62.5 % at 12 months. One patient required re-intervention for arterial inflow stenosis (6.6 %), other AVG had been taken out because of infection (6.6 %).

Conclusions: Stent-grafts can be successfully used to improve patency rates of thrombosed AVGs.

The work was supported by grant NT 14361.

DIAGNOSIS AND MONITORING OF PATIENTS WITH ABDOMINAL AORTIC ANEURYSMS (AAA) IN DISTRICT ANGIOLOGY CLINIC IN SLOVAKIA

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Diagnostic criteria, dispensary and the therapeutic process according to the guidelines of Slovak Angiological Association.

Group of 99 patients consists of two subsets:

- first set (54) consists of patients who have already been diagnosed with AAA abdomen in the past – either CT (21x),

USG (17x) or patients after AAA surgery (15x), 1 patient was sent for monitoring by angio surgeon. Patients were subsequently monitored (and, moreover, have been included for determination of AAA incidence).

- second set (45 patients) who were diagnosed with AAA directly at our clinic.

Group specification: Group consisted of 71 men, 28 women, age range 56–90 years, mean age 71 years.

The AAA incidence of patients examined at our clinic constitutes 1.3 % of all our patients.

Reason for submitting patients with newly diagnosed AAA to our clinic:

PAD (18x), venous disease (15x), lymphoedema (1x), request for an expert examination (2x), without any preliminary diagnosis (2x), all patients were clinically asymptomatic in terms of AAA.

All patients had different stage of PAD, according to this the patients suffered from obliterational-dilatational type of artery disease. In each case (also in urgent cases) we examine, as standard, the magistral, arterial and venous system from the diaphragma to the level of the ankle alternatively to the toes.

Length of the follow-up from the first examination (FE) is up to 8 years, the average length of follow-up is 2.5 years.

Aortic diameter of 39 mm (30–77 mm) after first examination, patients examined more than once: input diameter of 42 mm rose to 48 mm (30–99 mm) among monitored patients.

The whole group contained 15 patients who have undergone surgery due to AAA before the arrival. 23 patients had multi-level disability with the transition to AIC, another aneurysm on AFC, AFS alternatively on AP.

During the follow-up 5 patients underwent 6 surgeries, 2 of these 5 patients died after the surgery because of a rupture of AAA, 3 patients are furthermore monitored in our clinic.

Overall 34 patients died during our 9-year follow up, which makes 34 %, lethality of patients with mono-level disability and multi-level disability is the same.

Patients during follow-up in our clinic:

47 patients are monitored: 5 of them are after first examination, 34 patients died, 5 cannot be reached, 4 patients are monitored by angio surgeon and are not willing to be monitored at two clinics simultaneously, 3 patients moved to unknown destination, 2 went over angiology clinic in their own district, 2 refused the treatment (because according to their declaration “they are actually healthy”).

Case: GB, 70 year old patient examined in our absence by a constitutional radiologist, and then by a radiologist and angio surgeon in the center confirming the suspicion of obliter. flebotrombosis PDK (poplit. – crur. division) – examination of patient's deep venal system PDK only, on examination at our clinic primodiagnostic AAA with subsequent stenosis AA about 54 %, arterial obliteration AFS in the femoral bifurcation bilaterally, confirmed poplit. – crur. obliter. flebotrombosis in the state of recanalization in lege artis anticoagulant treatment. Patient remains in our dispensary and therapeutic monitoring.

Conclusions: In view of the above findings of large percentage of occurrence of asymptomatic abdominal aortic aneurysm in the population and the high risk of rupture and subsequent lethality, ultrasound examination of the abdominal aorta would be useful as a standard procedure at least during the first examination.

The examination of the LL's arterial, vascular and magistral system of both LL would be appropriate for each sonographic examination.

POPLITEAL ARTERY ENTRAPMENT SYNDROME

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Popliteal artery entrapment syndrome is a rare but important cause of lower limb ischaemia. It is caused by an abnormal relationship between popliteal artery and its surrounding musculotendineous structures (anatomic entrapment). Functional popliteal entrapment is differentiated from anatomical by the absence of abnormal popliteal fossa anatomy. The true incidence is unknown, it usually affects young patients, typically men, and is often presented with symptoms of calf claudication, calf cramping, coldness and numbness. CT angiography and MR angiography have become an imaging technique of choice. The management of popliteal artery entrapment syndrome is surgery. If the popliteal artery is undamaged, simple release of the artery by division of the medial head of the gastrocnemius or other abnormal slips is all that is required. In advanced cases with arterial occlusion, stenosis or aneurysmal degeneration, vessel reconstruction with great saphenous vein interposition or bypass is mandatory.

Authors on the basis of case reports describe the clinical course, diagnosis and surgical technique used in the treatment of patients with advanced popliteal artery syndrome.

THE BENEFICIAL ROLE OF HIRUDOTHERAPY IN TREATMENT OF DIFFERENT CHRONIC VENOUS DISEASES

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Hirudotherapy is a biotherapeutic method which uses leeches for the treatment of a wide spectrum of diseases in medicine. In our study, we report the treatment of different chronic venous diseases (CVD), which use a combination of conventional pharmacological therapy and leech therapy. Leech therapy has been an established method for acute treatment of deep leg vein thrombosis and superficial thrombophlebitis. For treatment, we used two species of leeches, *Hirudo medicinalis* and *Hirudo verbana*. In our study, patients were divided into five groups (CVI II–IV CEAP; CVI VI CEAP, Post-thrombotic syndrome, Acute thrombophlebitis, VSM, VSP; Acute phlebothrombosis VP, VTP, VFi). Preliminary results show the benefit of combination therapy to be an improvement of subjective symptoms and objective criteria. The authors, based on literature data and their experience, recommend a combined therapy in indicated cases of patients with chronic venous diseases.

THE CONDITIONS OF WALL'S VIBRATIONS AND COLLAPSE – ANGIOSYNTHESIS OF HUMAN BLOOD VESSEL

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Biomechanical material properties of arteries and veins are investigated experimentally and theoretically. The main goal of the histological research and the developed theory is to formulate the biomechanical conditions (geometrical dimensions, viscoelastic properties of veins and blood flow conditions) at which an unstable behavior or even the vein collapse can occur.

One dimensional fluid structure approximation was a starting point for the theoretical analysis of fluid flow through



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highly elastic collapsible tube. Provided that the Neo-Hook's material model was applied, the analytical formula for the collapse conditions was found. It was proved that for the brain vein contraction about 5 %, the vein collapse can occur even under normal physiological condition into vessels – the angiosynozis.

The fluid structure interaction is studied experimentally on the special experimental line. Latex tubes with variable inner diameter and wall thickness are used as specimens. The fluid structure phenomenon is investigated, both the continuous and pulsatile flow is evaluated by non-invasive optical method and verified by the invasive pressure method. The method is based on optical measurements of radial displacement of the pulsating tube wall. A crash test camera with high frame rate of 1000 Hz (fps) was used. The frame rate of 1000 Hz proved to be sufficient to register the high velocities of the pulse wave at short distances.

The simultaneous clinics observation (histological findings), in vitro experiments and numerical modeling, gives sufficient data to predict biomechanical conditions of the angiosynozis.

Key words: Viscoelastic properties of human blood vessels, bridging vein, neo-Hook's material model, biomechanical collapse condition

IATROGENIC INJURY TO THE SUPERIOR VENA CAVA AND BRACHIOCEPHALIC VEIN

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Purpose: To report serious complications of central venous cannulation and to propose optimal treatment.

Case report: We report two serious complications related to cannulation and angioplasty of the central venous system. In patient 1, superior vena cava rupture occurred in an attempt to dilate a stenosis; in patient 2, perforation of the brachiocephalic vein occurred during the placement of a dialysis catheter. These rare complications are mostly fatal. Our two female patients were treated surgically and both survived despite major blood loss and hemopericardium.

Conclusions: Although iatrogenic injuries to the central venous system are rare, they must be constantly kept in mind since, when undetected and treated late, their outcome is fatal. Of crucial importance is the early detection of venous system perforation, its temporary tamponade, and immediate treatment, preferably surgical.

Key words: vena cava rupture – vena cava perforation – hemopericardium – angioplasty complication

PROLONGED SEATED IMMOBILITY – A NOVEL AND UNDERESTIMATED RISK FACTOR FOR VENOUS THROMBOEMBOLISM

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The role of venous stasis in the pathogenesis of venous thromboembolism (VTE) is well-recognized, as this is one part of a Virchow's triad. Prolonged sitting position is an example of immobility with blood stasis in leg veins. It is the main mechanism of travel-related VTE. However, some other situations are also associated with prolonged seated immobility and, consequently, with an increased VTE risk. Long uninterrupted sitting at work or during recreation is an underestimated risk factor for VTE.

The risk of VTE is increased after all modes of long distance travel (air, car, bus or train). Sedentary occupations are also associated with VTE risk, e.g. managers, IT specialists, technicians, administrative workers. Another risk factor for VTE in the 21st century is the extensive use of computers for work, recreation and personal communication. In the literature, the association of prolonged sitting with VTE has been demonstrated in several studies and case reports. The authors have even proposed novel terms – “seated immobility thromboembolism” (SIT) and “e-thrombosis”.

We performed a retrospective evaluation of 748 patients, treated and followed-up in the department of internal medicine since 2004 to 2013. VTE event was unprovoked in 48.3 % of patients. In 51.7 % of patients we revealed various provoking factors: injury, surgery, hormone therapy, inflammatory disease, malignancy, pregnancy. Long distance travel or seated immobility was reported as a trigger of VTE event in 5.9 %.

Prolonged seated immobility seems to be a common preventable risk factor. It is important to raise the public awareness of this problem, to introduce some preventive measures in occupational activities and to educate the patients, especially those with known thrombophilia.

EVOLUTION OF RADIO FREQUENT INDUCED THERMO-THERAPY (RFITT) DURING ITS SEVEN-YEAR HISTORY

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Introduction: The endoluminal procedures have been more and more popular during the last decades. It is possible to choose between the endovascular thermal ablations (EVLT, RFA techniques, hot steam), chemical ablations (liquid, foam

form with polydocanol or STD) and implantations techniques (cyanoacrylate superglue) at present. RFITT is one of two up-to-date RF techniques with the same length of history since 2006.

Goal: To summarize the evolution of RFITT during the last seven years.

Methods: RFITT for phlebology was developed from RFITT for oncology and otorhinolaryngology during the year 2004. The first clinical experience was accomplished during the year 2006 from Harnoss pilot study, Berlin. This pilot study was used only on demand of Olympus Celon industry. The first published clinical data was presented in the paper by Hnatek, Zlin. The first European multicenter study was published in 2009. The first consensus of RFITT was established in Hamburg in 2011. The comparative study of RFITT and EVLT by Tasmann was published in the same year. The second European multicenter study was published in 2013. Our up to date experience is based on more than 1800 accomplished interventions with RFITT for CVD treatment.

Results: The effectiveness in the pilot study was 96.42 %, the follow up was 1-year. In the paper by Hnatek the effectiveness was 97.9 %, but the follow up was only 3 months. In the first multicenter study the effectiveness of the method was 88 % in total. The follow up was also 1 year. According to the study the usage of lower power setting on generator with slower extraction time of the probe is better than faster extraction time associated with higher power setting on generator. The effectiveness with slower extraction time was even 97 %. In the Tasmann study, the results were similar in both groups – RFITT and EVLT. The effectiveness was 89 % in the RFITT group and 90 % in EVLT group. Follow up was 1 year. In all of these studies the linear energy applied to the vein wall was not considered and the method was not accomplished in accordance with this aspect. But this parameter is included into our last form of the accomplishment of the method. In our last results with 1-year follow up is the effectiveness 96.3 % and in 3-year follow up is 93.7 %.

Conclusions: The RFITT is the effective method for thermal ablation of varicose veins.

CAPILLAROSCOPY FINDINGS AND THE PRESENCE OF AUTOANTIBODIES IN RAYNAUD'S PHENOMENON

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Objective: The aim of the study was a prospective comparison of capillaroscopy findings in patients with Raynaud's phenomenon with the presence of autoantibodies.

Methods: In 2010–2012, 119 patients (91 women, 28 men) with isolated Raynaud's phenomenon duration of 24 months

or more. Patients should perform a standard vascular examination and capillaroscopy for Leica S6D. Immunological examinations were performed. Capillaroscopy findings were classified according to the extent of disability into 5 groups. Capillaroscopy findings with the results of immunological tests were compared.

Results: The evaluation by linear regression was found between the degree of disability capillaroscopy findings and the presence of autoantibodies in patients with Raynaud phenomenon ($P=0.023$). With the worsening capillaroscopy finding patients increased the probability of occurrence of autoantibodies (ANA, RF, Scl70, dsDNA, antiENA, Sm/RNP, SS-A(Ro) and others).

Conclusions: In the pilot group of patients with Raynaud's phenomenon, probability of occurrence of autoantibodies at the deteriorating capillaroscopy findings was observed. The results suggest the need to set autoantibodies in cases of Raynaud's phenomenon with abnormal capillaroscopy findings. At the same time it showed the diversity of types of autoantibodies.

ANGIOGRAPHIC FINDING OF THE ASYMPTOMATIC LUSORIAN ARTERY

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Background: Right aberrant subclavian artery, also called arteria lusoria, is reported to be the most common intrathoracic abnormality of aortic arch, with incidence of 1 to 2 %. Although mostly asymptomatic, the retroesophageal and retrotracheal course of the lusorian artery might result in unspecific thoracic pain, dysphagia, dyspnea, arterioesophageal or arteriotracheal fistulae with hematemesis or hemoptysis, and aneurysmal formation with relevant risk of rupture.

Case report: 64-year-old obese patient suffered from resistant arterial hypertension, dyslipidaemia, chronic vertigo due to degenerative changes of the cervical spine, with the adenoma of the left adrenal gland was admitted to our clinic for exclusion of secondary hypertension. Primary aldosteronism was diagnosed by laboratory tests and treatment with spironolactone has been started. Among other examinations, carotid ultrasound was made to him. During examination, it was not possible to identify the course of the right subclavian artery. Therefore, CT angiographic examination of the aortic arch arteries was performed. The right subclavian artery was originating directly from the aortic arch as the last arterial branch, with its course in the space between the oesophagus

and the spine towards the right upper limb. Subsequently, selective angiography confirmed the tomographic finding of the lusorian artery (Fig. 1) and a provocation manoeuvre for diagnosis of thoracic outlet syndrome was negative. The patient remains in follow up of physicians from our hospital.

Fig. 1

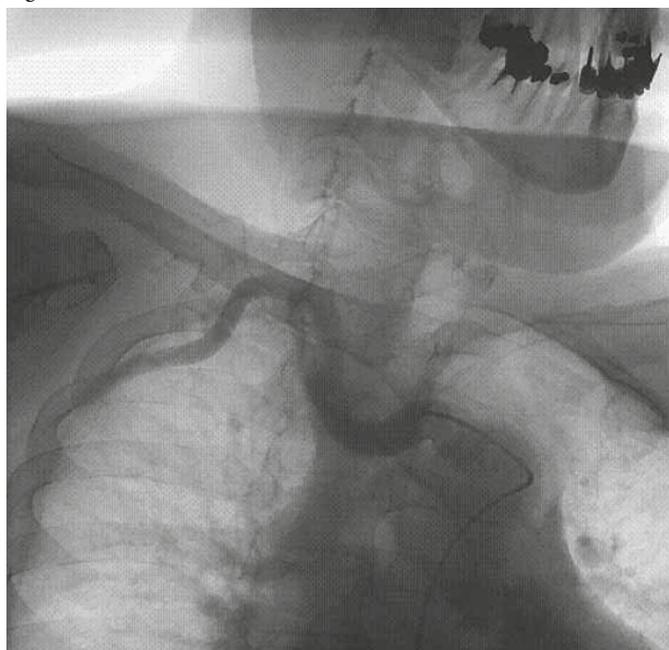


Image resources: archive of authors

Conclusions: Unclear findings in vascular ultrasound of the aortic arch branches should be referred to angiography because of the exclusion of anomalous course of the blood vessels, especially the right subclavian artery. To prevent the serious complications that may arise in patients with this vascular abnormality, the careful follow up of these patients is needed.

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genetic variants not associated with these risk factors. One of them is the rs2943634 marker within the “gene-free” area on chromosome 2.

Only males younger than 65 years were included. Rs2943634 (C → A) variant was successfully genotyped in 1,162 controls (post-MONICA study), 924 consecutive ACS patients (GENDEMIP study) without previous statin treatment and in 472 retrospective patients treated by statins at least one year before the ACS manifestation. ANOVA and chi-square were used for the statistical analysis.

Within the controls, rs2943634 polymorphism was not associated with smoking, obesity, dyslipidemia, diabetes or hypertension. Frequency of the AA genotype was significantly lower among untreated patients than controls (11.7 % vs. 15.9 %, $p=0.005$; OR for AA homozygotes vs. C allele carriers C 0.69; 95 % CI 0.54 – 0.89). In contrast, protective effect of the AA genotype was not significant in statin treated patients (13.9 % vs. 15.9 %, $p=0.26$; OR for AA vs. C allele carriers 0.83; 95 % CI 0.62 – 1.14).

Statins modify association between the rs2943634 marker at chromosome 2 and ACS. Mechanism of the modification is recently unclear, potentially attributed to epigenetic factors.

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RESULTS OF INTERNAL CAROTID ARTERY (ICA) BULBUS STENOSIS TREATMENT IN A RADIOLOGIST'S PERSPECTIVE

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Background and purpose: We analysed results of ICA stenosis treatment at our institution over the last 10 years according to treatment modalities (CEA vs. CAS). Furthermore, we have compared our results of treatment prior to the EVA-3S study being implemented into our practice (2003–2007) and after that (2008–2012).

Methods: During years 2003–2012, a total of 1471 procedures were performed for ICA stenosis. CEA was done in 815 cases and CAS in 656 cases. Primary outcome was disabling stroke (mRS<2) or MI within 30 days after treatment. Secondary outcomes were frequency of TIAs, minor strokes (stroke without impaired ADL) and any other significant complication. Comparisons of the results before and after 2008 were performed.

Results: Major mortality and morbidity were divided according to treatment groups; reached 1.0 % in CEA and

ASSOCIATION BETWEEN MARKER AT CHROMOSOME 2 AND ACUTE CORONARY SYNDROME IS MODIFIED BY STATINS

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Acute coronary syndrome (ACS) is among the most common causes of death in industrial countries and traditional cardiovascular risk factors explain only approximately 60 % of the cases. Therefore, the attention is focused on the

3.0 % in CAS group, $p=0.004$. Minor stroke was recorded at 1.8 % and 2.7 % in the CEA and CAS, $p=0.245$. TIAs in 1.0 % (CEA) and 4.7 % (CAS), $p<0.001$. Any complication in 11.9 % (CEA) and 13.3 % (CAS), $p=0.401$. In overall results (CEA and CAS together) we found in 2008–2012 decrease of incidence of TIAs (from 30/840 to 9/631, $p=0.011$) and any complications (from 120/840 to 64/631, $p=0.017$).

Conclusions: CEA performed in a high-volume centre is a safe procedure in properly indicated patients. In all subgroup analyses CEA fared better or at least of equal benefit as CAS. Since 2008, the frequency of TIAs and other complications have decreased significantly. This study supports an idea of CEA being the first choice of treatment and CAS being reserved for selected cases.

NEGATIVE PRESSURE THERAPY OF VASCULAR GRAFT INFECTION: 5 YEAR EXPERIENCE

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Introduction: Treatment of vascular graft infection with topic negative pressure wound therapy (NPWT) is subject of controversy. Life-threatening complications are feared in such cases, however, complete graft excision may also be a high-risk redo surgery.

Objective: Retrospective evaluation of efficacy and safety of NPWT as primary treatment of deep perivascular infection.

Methods: Twenty five wounds in 22 patients were treated using NPWT for perivascular infection between 1/2009–10/2013. Patients with prosthetic, autovenous or allogeneous conduits and reconstructed native arteries were included.

Results: Mean hospital stay was 23 ± 17 days (7–65 days), mean duration of NPWT was 10 ± 10 days (3–52 days) and mean follow-up was 389 ± 300 days (25 days–3.4 years) respectively. Complete healing was achieved after 39 ± 30 days. Adverse events, such as recurrence of infection was observed in 3 wounds (12.0 %), serious bleeding occurred in 2 patients (8.0 %), limb amputation in 4 patients (16.7 %). Mortality was 13.6 % (3 patients) and overall success rate was 76.0 %.

Conclusions: Treatment of vascular graft infection with topic negative pressure is feasible in selected group of patients. This method is relatively safe. Our outcomes are comparable to published series.

ENDOVASAL TECHNIQUES IN THE TREATMENT OF PATIENTS WITH LOWER EXTREMITY VARICOSE VEIN DISEASE

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Objective: To evaluate the efficacy and tolerability of endovascular techniques (radiofrequency obliteration (RFO) endovenous laser treatment (EVLT), and sclerotherapy) used in the treatment of patients with varicose vein disease of the lower extremities.

Materials and Methods: The study included 40 patients with varicose vein disease of the lower extremities treated with endovascular techniques in the outpatient setting. The patient group included 12 men (30 %) and 28 women (70 %).

The majority of patients were at working age under 60 years ($n=30$), and 10 patients were older than 60 years. In most patients ($n=30$), the disease duration was longer than 10 years (in 7 of them the condition lasted for more than 30 years), and in 10 patients the disease duration was estimated to be less than 10 years. It was found out that in 65 % of patients the disease began at age under 30 years.

According to CEAP classification, most patients had chronic venous insufficiency (CVI) of the 3rd degree ($n=31$).

Before treatment all patients underwent ultrasound angioscanning and evaluation of reflux extent to facilitate the selection of a treatment technique.

Thirty eight patients underwent RFO of the greater saphenous vein (GSV) (1 of these patients had both greater and lesser saphenous veins treated), 2 underwent RFO of lesser saphenous vein (LSV). Thirty three patients had simultaneous RFO and EVLT of incompetent perforating veins. The method of these treatments included constant ultrasound control to avoid healthy veins and not to miss any valvular incompetence (which is inevitable, if ultrasound control is not used). In all cases, varicose tributaries were treated with compression sclerotherapy.

At time of therapy all patients lived a normal life and resumed their usual activities on the day of treatment. Pain was minimal.

The results were evaluated clinically and using ultrasound at six months after treatment. In 100 % of cases, the obliteration of trunks of the major veins was noted with no clinical recurrence of the condition.

In 6 patients the pretreatment examination revealed the incompetence of GSV valves up to the level of the middle third of the thigh; the reflux then affected the distended varicose suprafascial vein running parallel to the GSV. The main trunk of GSV was either reduced or had a small diameter. In all cases, RFO of the suprafascial vein and GSV were performed. Six months later, all 6 patients demonstrated good treatment results with no recurrence of varicose vein disease; the untreated portion of GSV was unremarkable.



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This finding led to a revision of approaches to reflux assessment in superficial veins. In addition to total reflux assessment, independent assessment of reflux in GSV and suprafascial veins running parallel to the main trunk is needed. Subsequent occurrence of reflux in the untreated portion of GSV can be regarded as a recurrence.

Conclusions: 1. Endovasal treatment techniques for patients with varicose vein disease are effective and, unlike surgery, they do not require downtime. 2. During ultrasound examination, blood reflux should be assessed in GSV trunk and suprafascial subcutaneous veins running parallel to the GSV independently, which allows avoiding recurrence in the early post-treatment period after endovasal treatment.

A CASE REPORT OF BILATERAL ARTERIAL THORACIC OUTLET SYNDROME

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A 42 years old woman was examined for cold and white skin in fingers of upper limb. She had had such problems for 11 months which were getting progressively worse, firstly her hands became cold and white in cold environment, then they were like that all the time. Clinically the limb was colder than the opposite one, the pulsations in the periphery were completely missing, the usage of the limb was limited. When elevating the limb in few seconds its colour changed to violet. Moreover it was painful distally from arm. After laying it down the violet colour and pain disappeared in 2 minutes. Clinic exam showed the disability of the left upper limb as well. The patient had milder problems with it, and they appeared in last weeks. In left upper limb the pulsations were present to the periphery, the hand was warm, the colour of the skin was normal but when elevated overhead the pulsations disappeared and the colour became violet. In addition the limb got colder. There was less pain perception in comparison with the opposite one.

In the chest X-ray the cervical ribs were visible. We performed CT angiography of upper limbs arteries with movements- elevation of upper limbs overhead and so the diagnosis of thoracic outlet syndrome was confirmed. On the right side there was an obstruction of subclavian artery and proximal part of a. axillaris, on the left side there was a stenosis of a. subclavia between cervical ribs, scalmi muscles and clavícula, post-stenotic dilatation. We let the patient rehabilitate for one month, without any improvement and so we performed the resection of cervical rib and upper chest sympatectomy on the left side to avoid the embolisation from aneurysm in a. subclavia. After the operation the left hand is warm, there are no problems with using it. We are planning to solve the right upper limb now.

Conclusions: Thoracic Outlet Syndrome (TOS) is not very frequent among the population. In fact, young healthy people, mostly women, suffer from this syndrome. In TOS there are vascular and nervous disabilities. The most common vascular symptoms of TOS are the symptoms due to the venous hypertension with possible result of the venous thrombosis. The arterial disability is mostly manifested with ischemic symptoms. Unilateral defect is typical, in arterial manifestation there are not any ischemic symptoms in other localities. Except the case of the acute vascular event, the therapy must be firstly conservative- rehabilitation and afterwards surgical.

WHAT ARE APPROPRIATE INDICATIONS FOR STEM CELL THERAPY OF THE DIABETIC FOOT?

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Despite the clear successes of therapeutic angiogenesis in diabetic patients with critical limb ischemia (CLI), there has not been unanimity on appropriate indications for and against this therapeutic option. The basic indication criterion is chronic CLI, but its definitions are varied. According to the Inter-Society Consensus for the Management of Peripheral Arterial Disease (PAD), rest pain or gangrene caused by documented arterial occlusions is diagnosed as chronic CLI in all patients with chronic ischemic foot ulcers. Another criterion for indicating stem cell therapy is usually no-option CLI, i.e., patients ineligible for another revascularization procedure who are thus at high risk for major amputation. These patients tend to have an overall poor prognosis for survival, and any lower limb revascularization procedure may lead to limb salvage, pain relief or ulcer healing while usually not extending survival. According to TASC II, 30 % and 25 % of patients with severe PAD (Rutherford 3–5) are at risk of major amputation and death within 1 year, respectively. In light of these data, results of the NAPLES study of autologous stem cell transplantation with 75 % amputation-free survival of patients after 1 year follow-up should be considered a major success. Similarly, patients treated by cultivated stem cells of bone marrow had significantly longer time to treatment failure defined as major amputation, gangrene, death or doubling of surface wounds (P. 038) as compared with a placebo-controlled group in the RESTORE-CLI trial. The three-year survival of patients after intramuscular cell therapy of PAD in the TACT study was 80 %. Our six-year experience showed that the one-year amputation rate of patients treated by stem cells was significantly lower than that of conservatively treated patients (16.1 % vs. 43.5 %, respectively) and comparable with PTA-treated patients (15.6 %), despite more serious angiographic findings. The best indication for cell therapy is thus becoming topical and likely requires revision.

OUR APPROACHES IN THE SURGICAL TREATMENT OF ULCUS CRURIS VENOSUM

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The aim of this presentation is to give some information about surgical treatment of ulcus cruris venosum. Many patients get modern local therapy, but in many cases they do not solve the causal problem. It is the reflux in superficial venous system.

New guidelines of Society of Vascular Surgery and American Venous Forum (2011) clearly showed that ablation of the incompetent superficial veins is recommended in addition to compression therapy (Grade 1A).

We performed 52 procedures on great or small saphenous veins in patients with ulcus cruris venosum from 2011 till 2013. At the beginning, we did only high ligation without stripping (10x), later we performed endovenous laser ablation (42) of stem veins with 1470 nm diode laser by Biolitec. Apart from the two patients, all were healed. In one patient, we noticed the recurrence of ulcus during one year follow up. We did not record any complications such as infection of incision, deep vein thrombosis and pulmonary embolism.

There are three procedures in venous system suitable for surgical treatment of ulcus cruris. High ligation and stripping great or small saphenous veins, high ligation only without stripping and endovenous thermal methods (laser or radiofrequency). From these methods we prefer endovenous laser treatment, because these ones are less radical than stripping and allow shorter return to everyday life and working activities. Patients, who suffer with ulcus cruris, have often lymphatic vessels impairment. Therefore stripping is not a method of choice, because it is too radical for perivenous tissue, where the main lymphatic vessels lie. Furthermore, endovenous methods are possible to do under tumescent anaesthesia. Only high ligation without stripping is reserved for old diseased patients, who could not receive general, but local anaesthesia.

Conclusions: The surgical treatment of superficial venous system must be the basic part of health care in patients with ulcus cruris venosum. The method of choice is endovenous thermal method.

ARTERIA PRINCEPS POLLICIS – FAKE OR REALITY?

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The term “princeps pollicis artery (*arteria princeps pollicis*)” is a long-time used both in anatomy and surgery and has been

already incorporated in the first official Latin anatomical nomenclature, BNA (Basiliensia Nomina Anatomica) and in the International Federation of Societies for Surgery of the Hand Terminology for Hand Surgery. Morphologically, it should be a short thick artery, a terminal branch from the radial artery, supplying majority of the thumb. Surprisingly, no unified definition of this artery exists.

After performing thorough and detailed analysis of both classical and recent anatomical and surgical literature, own anatomical research in cadavers was performed. Quite frequent variants in the blood supply of thumb do not allow stating the principal artery supplying it.

The thumb is supplied dominantly by one source in 85 % of cases: in 66 % by deep system (deep palmar arch or first palmar metacarpal artery), in 13 % by superficial system (superficial palmar arch or superficial branch of radial artery) and in 16 % by dorsal system (first dorsal metacarpal artery). Based on the results, the term princeps pollicis artery is only a functional one and can be applied to the specific patient only, but in no case to the specific anatomical structure throughout the population. That is why we propose to step back from its usage.

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INCIDENCE OF THROMBOPHILIA IN PATIENTS WITH SYMPTOMATIC VENOUS THROMBEMBOLISM (VTE)

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Background: Usefulness of routine screening for thrombophilia in patients with symptomatic VTE is unclear. Comparison with large World RIETE registry may help to understand the problem.

Methods: We compared incidence of thrombophilia in 60 patients presented in our clinic with symptomatic VTE with incidence published in RIETE registry.

Results: 60 patients average age 60.4 year, 34 men average age 57.7 (30–88) and 26 women average age 63.8 (31–88), were diagnosed and treated for VTE. 14 men (41 %) and 10 women (38.5 %) were tested for thrombophilia. Screening for thrombophilia underwent 24 patients (40 %), 14 men and 10 women, with positive result in 13 patients (21.7 %), 8 men (23.5 %) and 5 women (19 %). By comparison, only 17 % patients were tested for thrombophilia and 9.3 % positive in the RIETE registry. Symptomatic PE was present more common in patients without thrombophilia than in patient with Factor V Leiden (FVL) mutation.

Conclusions: As compared with RIETE registry in our group of patients with symptomatic VTE the greater percentage was tested for thrombophilia and positive

result was more frequent. Our patients with FVL mutation manifested pulmonary embolism less frequently than those with thrombophilia.

NURSING INTERVENTION IN PATIENTS WITH ACUTE SEAL – LOCAL THROMBOLYSIS

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Local thrombolysis is an invasive method, which aims to dissolve the blood clot that cause arterial occlusion allow direct blood flow. Thrombolytic agent is administered through catheter with side holes directly into the occluded vessel. The treatment lasts 24 to 48 hours. Ending after angiographic control is performed, according to the result interventions, such as thrombectomy, PTA, alternatively stenting. Patients are hospitalized on the bed of angiology – intensive care unit, where they receive specific care during administration of the thrombolysis.

The lecture focuses on nursing care of the patient before, during and after the intervention presents the indications, contraindications of the intervention and potential complications of local thrombolysis.

Key words: acute lower limb ischemia, nursing care, local thrombolysis

DEEP VEIN THROMBOSIS AND DIRECT NOVEL ORAL ANTICOAGULANTS: A COMPARISON BETWEEN DRUGS AND STUDIES

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Deepvein thrombosis (DVT) is a common disease associated with high rates of mortality and significant morbidity due to possible later development of post-thrombotic syndrome or chronic thromboembolic pulmonary hypertension. The anticoagulation therapy, used to treat DVT in majority of patients, includes low-molecular-weight heparin (LMWH) and vitamin K antagonists (VKAs). The duration of anticoagulation therapy depends on the cause of DVT and patient's clinical profile. Although these conventional therapies are effective, narrow therapeutic index, need for frequent monitoring and various food-drug interactions cause difficulties for patients taking warfarin. New oral anticoagulants have been developed

in recent years to replace warfarin especially. These drugs focus directly on inhibiting either factor Xa (rivaroxaban, apixaban, edoxaban) or thrombin (dabigatran). In contrast to warfarin, these new agents have shorter half-life, substantially fewer drug or food interactions, no necessity for a monitoring and ease of administration. The lecture summarizes current clinical trials in deep vein thrombosis (and stable pulmonary embolism) and new treatment aspects with novel oral anticoagulants.

THE ROLE OF DUPLEX ULTRASOUND IN THE DIAGNOSIS OF RENAL ARTERY STENOSIS

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Screening tests are used to prevent every patient with suspected renal artery stenosis from undergoing digital subtraction angiography (DSA). Therefore for any screening test, the number of DSAs performed unnecessarily (false positives) and the number of cases of renal artery stenosis missed (false negatives) are more important than the number of true positives or true negatives. These parameters depend on the accuracy of the screening tests. Duplex ultrasound is a diagnostic screening test of moderate accuracy compared with the reference standard of DSA for the diagnosis of renal artery stenosis, and has the advantages of utility, low cost and absence of side effects. The only other diagnostic screening tests for renal artery stenosis in wide currency are computed tomography (CT) angiography and gadolinium-enhanced magnetic resonance (MR) angiography, both of which are more costly, of more limited availability and are associated with possible morbidity. All three screening tests are subject to inter-observer variability in interpretation. There is considerable heterogeneity in the accuracy of diagnostic tests for renal artery stenosis among studies. This is due to several factors of which one of the most important is the prevalence of renal artery stenosis in the populations tested. Therefore the decision to undertake screening tests should include an assessment of the prevalence of renal artery stenosis in the population to be screened because in populations where the prevalence of disease is high, diagnostic screening studies appear to be more accurate in detecting disease. Renal artery stenosis screening test selection should also take into account local factors such as expertise, cost and availability of the various testing modalities.

This presentation aims to evaluate the place of duplex ultrasound as a diagnostic test for renal artery stenosis.

HAS SULODEXIDE A POSITIVE EFFECT ON ATHEROSCLEROSIS PROGRESSION IN DIABETIC PATIENTS WITH PERIPHERAL ARTERIAL DISEASE?

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Group of 26 patients with type 2 diabetes mellitus was observed for 2–5 years. Patients were disciplined, with good compliance, non-smokers. Diabetes, arterial hypertension and dyslipidaemia were well compensated.

Atherosclerotic progression was monitored by toe-brachial index, measured by photoplethysmography.

Treatment: patients were treated by sulodexide added to the therapy of acetylsalicylic acid, statins and naftidrofuryl. We use sulodexide in that case, when atherosclerotic process shows progression, despite of usual therapy with acetylsalicylic acid, statins and naftidrofuryl.

According to our results, atherosclerotic process progression can be reduced by sulodexide, added to standard therapy.

ENDOVENOUS LASER THERAPY OF VARICOSE VEINS – AN OVERVIEW AND PERSONAL EXPERIENCES AFTER 11.5 YEARS

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Aims: In last more than 12 years, miniinvasive endovascular therapy of varicose veins has been introduced into clinical practice – one of the first was endovenous laser ablation (EVLA) of venous trunks. Thermal damage of the pathological venous wall leads to contraction and obliteration of the vein and, gradually, to its full resorption. This review describes the principles of the treatment as well as our own results of these procedures.

Material and Methods: During 11 year period we performed, in total, more than 1600 endovenous laser procedures of trunk varicose veins of lower extremities in more than 1200 patients (great, small and accessory saphenous and Giacomini veins). Every patient was preoperatively examined clinically and with color duplex machine. Post-operative follow-up (clinical and duplex ultrasound) was performed after 3–5 days and 1 month, 6 months and yearly thereafter.

The results were evaluated by comparison of CEAP clinical class and quality of life (QoL) pre- and post-operatively and by the percentage of recanalizations and also using Kaplan-Meier life-table method.

Results: Neither thrombosis, nor pulmonary embolism was diagnosed in the post-operative period; from the whole cohort, the postoperative data were available during different time periods in 99 % of cases.

Saphenous occlusion was verified in 97.3 % after 1 month, non-occlusion or early reopening was seen in 2.7 %. Final occlusion rate was 94 %. Mean clinical CEAP classification improved from 2.22 (before operation) to 0.24 (1 month after) and 0.48 (last visit) and also QoL was significantly better in laser group compared to traditional surgery group ($p < 0.001$). The sick leave was also significantly shorter in the laser group (median 0 days) compared to traditional group (median 40 days), $p < 0.001$.

Conclusions: Apart from minimizing recurrence, EVLA is also valuable with respect to its cosmetic effect and gentleness of the procedure, allowing fast return to full activity. The results of the procedure depend mainly on meticulous pre-operative ultrasound examination and technically excellent procedure to administer sufficient amount of energy to the venous wall. The long-term results of these procedures are equal or even better than traditional open surgery.

RUPTURED SPLENIC ARTERY ANEURYSMS

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Visceral artery aneurysms are rare but important clinical entities. Splenic artery aneurysms (SAA) comprise 60 % of all visceral aneurysms. Rupture of a splenic artery aneurysm is accompanied by a high mortality rate above 60 %. Aneurysm of the splenic artery was first reported by Beaussier (1770). Clearly defined and proved aetiological factors are medial degeneration of the arterial wall, mycotic due to bacterial endocarditis, congenital defect in the vessel wall, syphilis and trauma in the case of “false” aneurysms only and also pancreatitis. Reported incidence in the literature vary from 0,1 % to 10,4 %. Women are four times more likely to develop a SAA than men. This reflects an increased propensity for aneurysms associated with physiological changes in pregnancy. Although the majority of splenic artery aneurysms cases are asymptomatic, the signs of rupture can vary from abdominal pain or chest pain, to cardiovascular collapse depending on time the patient reaches the hospital. We present two cases of ruptured SAAs at a young man 47 years old and a second one at a 62 y. old man which was associated with a ruptured aneurysm of abdominal aorta, admitted to our hospital during a month in the last year.

Regardless of age and gender in patients with abdominal pain and hypovolemic shock, it is very important to think of a rupture of splenic artery aneurysm as a possibility.

CURRENT TREATMENTS LIMB ISCHEMIA AND FOLLOW NURSING CARE

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Limb ischemia is an often cause of lower limb disability. Early diagnosis and treatment improves the quality of life of individuals. Mini-invasive therapy is a preferred treatment.

The aim of the work is to describe nursing activities before and after the intervention. Our department focuses on patients with limb ischemia that are candidates for invasive intervention and subsequent nursing care. We would like to highlight the specificities of nursing care during the treatment of limb ischemia.

Key words: lower limb ischemia, diagnosis, treatment intervention

A CONTRIBUTION OF CATHETRISATION OF INFERIOR PETROSAL SINUSES IN DIFFERENTIAL DIAGNOSIS OF CUSHING'S SYNDROME

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Purpose: Differential diagnosis of the etiology of Cushing's syndrome (ACTH-dependent hypercortisolism) is very difficult in some cases. The uncertainty, whether there is a central or ectopic etiology, is also strengthened by the fact, that even magnetic resonance (MR) sometimes does not prove the pituitary adenoma. A more precise differential diagnosis under these conditions was made during the last years, by selective determination of ACTH levels bilaterally in inferior petrosal sinuses (SPI) and by their comparison with the level in peripheral blood. The central etiology's confirmation helps us determine the neurosurgical intervention easier. This intervention, due to the present microsurgery technique, makes it possible to detect otherwise undetectable mikroadenoma and enables its selective excision with maintaining healthy hypophysis tissue and all its functions.

Materials and methods: From the 1988 on, the authors have indicated 28 patients with proved ACTH-dependent hypercortisolism to the determination of ACTH in SPI. Their CT and MR examination did not prove a tumor of hypophysis unequivocally.

Only in one female patient the catheterization was not possible for anomalous vascular bed with aplasia of internal jugular vein on the left and hypoplasia of the internal jugular vein on the right. In 18 patients determination of the ratio of ACTH levels between SPI and periphery (SE-1.38) has shown that even the basal levels indicated central etiology of hypercortisolism. This has been confirmed by the ratio of the values of ACTH after stimulation with corticotrophin releasing hormone (CRH) in 23 patients. The diagnosis was correctly confirmed in three patients with the ectopic form of the hypercortisolism. The ratio of the periphery/SPI levels was correctly below two respectively three, regarding the ectopic form of the Cushing's syndrome. The diagnosis was confirmed in all patients by surgery, by histology and post-operation course.

In agreement with literature this method did not contribute to lateral localization of the tumor. Sensitivity in our study was about 75 % before and 82 % after the stimulation.

Conclusions: The determination of basal levels of ACTH in SPI and levels after CRH stimulation enables to differentiate between central and ectopic overproduction of ACTH in the ACTH-dependent Cushing's syndrome.

PREVENTION OF VENOUS THROMBOEMBOLISM IN PREGNANT WOMEN WITH CONGENITAL THROMBOPHILIAS

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Venous thromboembolism (VTE) is an infrequent, yet serious cause of both maternal and fetal morbidity and death during pregnancy and the puerperium. Women with a prior VTE, a family history of VTE, certain clinical risk factors and thrombophilia are at considerably increased risk for pregnancy-related. Heritable thrombophilias are also important co-determinants of VTE risk in pregnancy. The mechanisms through which pregnancy and hormonal therapies increase VTE risk have not been definitively established, but hormonal effects on levels of coagulation and anticoagulation factors likely play a role. Venous compression and injury also contribute to increased risk during pregnancy and the puerperium. Antithrombotic prophylaxis during pregnancy is mainly based on low-molecular weight heparin (LMWH). This paper discusses, on the set of pregnant women (n=2039) observed in Thrombotic Center, General Teaching Hospital in Prague, Czech Republic, with several gene mutations (A→G506 mutation of factor V, n=759, 39 % and G→20210 polymorphism of prothrombin, n=259, 12,7 %) the

indications, times and modalities for the use of LMWH, during pregnancy (puerperium), together with their side-effects, and maternal and fetal contraindications. The prophylactic antiXa range is recommended that between 0.2–0.4 IU/ml. (Requirement: Blood sampling exactly 4 hours after the dose of LMWH).

Conclusions: Subcutaneous LMWHs have a growing role in prophylaxis and treatment of VTE during pregnancy. They are safe, can be administered during breastfeeding and a single-day administration for VTE prophylaxis is effective. Actually, some agreement exists about LMWH treatment in “very high” and “high” thrombotic risk pregnant women. Only preliminary data are available about “moderate” and “low” thrombotic risk pregnant women. Although prophylactic LMWH appear safe, there are important drawbacks to their use in pregnancy (inconvenience, discomfort of daily injections, risks of bleeding, skin reactions, and thrombocytopenia). Monitoring of the anti-Xa levels is indicated for use in pregnancy because evaluates efficacy and safety of doses of LMWH. The negative correlation between the concentration of D-dimer and the anti Xa levels is evident.

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ONE-STEP SUPRACLAVICULAR APPROACH TO THE TREATMENT OF DYSPHAGIA LUSORIA

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Arteria lusoria is the most common variation of the aortic arch vessels, which occurs in about 0.5–1.0 % of the population. It may cause dysphagia due to compression of the esophagus. We report a case of dysphagia lusoria in a 38-old female. CT scan revealed right aberrant subclavian artery coursing from the left to the right retroesophageally and causing a compression of the esophagus. A one-step supraclavicular approach for the surgical treatment of the aberrant right subclavian artery was used in our patient. This approach allows safe division of the arteria lusoria and its re-anastomosis to the common carotid artery. Patient also benefits from a mini-invasive extrathoracic procedure.

LONG TERM, SINGLE CENTRE EXPERIENCE WITH SIMULTANEOUS AORTOILIAC ALLOGENIC RECONSTRUCTION AND KIDNEY TRANSPLANTATION

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Chronic renal failure is associated with accelerated atherosclerosis. Severe aortoiliac atherosclerosis is often considered to be a relative contraindication for kidney transplantation. In management of those patients possibility of aortoiliac reconstruction with kidney transplantation as one-stage procedure should be discussed. We refer 16 years experience with simultaneous aortoiliac reconstruction with fresh arterial allograft and renal transplantation.

From 1997 till 2013 we refer group of 15 dialyzed patients with occlusive aortoiliac atherosclerosis treated with vascular reconstruction of iliac vessels with fresh arterial allograft in conjunction with kidney transplantation. There were 11 men and 4 women with average age 53±8.6 years. Main reason of renal failure was chronic pyelonephritis (47 %). We performed 9 aortofemoral and 6 iliac reconstructions with fresh arterial aortoiliac allograft as conduit for consecutive renal transplantation. Mean CIT was 11.8±4.6 hours. Allografts were obtained from donors after brain death. Average age of donors was 33.8±11 years. Follow up was 1 till 16 years.

Patency of aortoiliac allogenic reconstruction was 100 %. 5-years patient survival was 87 %. 1 and 5 year graft survival was 87 % resp. 73 %. Average serum creatinine in 1, 3, 6 months and one year after transplantation was 156, 115, 137 resp. 123 umol/l. DGF was in 2 cases (13 %). Lower limb amputation occurred in 2 cases (13 %). There was no case of higher limb amputation.

Simultaneous aortoiliac reconstruction and kidney transplantation is safe and useful advance in specific group of dialyzed patients with severe aortoiliac atherosclerosis. Our experience implies that PAD and renal failure could be successfully treated in one-stage procedure with satisfactory results.



**KAZUISTIKY
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SPIRAL FLOW AND ITS INFLUENCE ON ATHEROSCLEROTIC CHANGES IN HEALTHY ARTERIES AND IN GRAFTS. OUR EXPERIENCE. A MULTICENTRE RETROSPECTIVE STUDY

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Introduction: Spiral Laminar Flow (SLF) is one of the unique qualities of healthy arterial system in human population. "Blood leaves the left ventricle of the heart with a distinctive single spiral flow pattern and is propagated within the arterial system by the spiral configuration of the arterial luminal layers. SLF reduces static wall pressures at intimal layer and if SLF is lacking, arterial disease severity (tendency towards myointimal hyperplasia) is greater" (Lancet Nov 1991,338:1360-1, Stonebridge PA et al.) To verify advantages of the SLF properties in healthy arteries we have used this knowledge in bypass grafting in our patients.

Methods (Materials): Retrospective multicentre structural study. During the period Feb 2010 – Feb 2013 we've collected the data from 72 patients in stage Fontain 2b (severe claudication) and 3 (critical limb ischaemia, ulcer or rest pain). According the TASC's IIB morphological stratification and with the use of duplex ultrasound and CTA in all patients, we scored our patients as level C or D, suitable for surgical revascularization. In all cases, the new concept of grafting was used. There were 61 male and 11 female. In this group 75 bypasses were constructed. 68 % (n=51) were F-P prosthetic bypasses with AK anastomosis, 32 % (n=24) were F-P prosthetic bypasses with BK anastomosis. There were no suitable veins on ipsi or contra lateral leg in BK group. The risk factors we've considered to be involved and scored were smoking, diabetes, hypertension and overweight. ATB prophylaxis was used in all cases; the patients were operated in general or epidural anesthesia. Low molecular heparin was used in all cases postoperatively and next 12 weeks p.o. dual therapy continued.

Results: Technical success was achieved in 100 %. 75 bypasses were constructed, median follow up was 11 months (2-36). In this group, there were 3 occlusions with 2 deaths both due to serious comorbidities in the group of patients with CLL. Risk factors for vascular disease and indications for surgery were similarly distributed in AK and BK bypasses. Primary patency rate was 85 % (11 bypasses occluded), secondary patency 96 % (8 bypasses from 11 occluded were successfully reopened with the use of thrombolysis, PTA or open surgical revision). The patient underwent duplex sonography within 3 months to verify

spiral flow pattern of the flow below the distal anastomosis. There was no bleeding or infections.

Conclusions: We used brand new concept of vascular grafting in the group of patients with peripheral occlusive arterial disease, based on spiral flow properties and advantages which exist in healthy arteries. Unique SLF technology is based on a renewed understanding of blood flow patterns, with respect to healthy arterial system. It is well known, that brachial artery in human population doesn't suffer from atherosclerotic changes in comparison with femoral artery. The unique characteristics of undestroyed spiral flow in brachial artery can explain this paradox, which has been not explained yet on any level of scientific evidence. Existence of spiral laminar flow in healthy arteries is well documented with the use of duplex sonography and there are no doubts that it exists. The crushing of spiral flow properties of blood stream can be seen in arterial tree, on sides of sharp or important branching – like in carotid bifurcation or Y common iliac branching in abdominal aorta etc. The more permanent smooth spiral flow exists, the better prevention for atherosclerotic disease can be expected. The new concept of vascular grafting focuses on this topic to keep spiral flow patterns on the outflow end of the prosthesis.

EFFICACY VARIABILITY OF ANTIPLATELET TREATMENTS

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Dual antiplatelet therapy with clopidogrel and aspirin has been a standard of care for patients with acute coronary syndrome and those undergoing PCI, now since more than 10 years. However, approximately 25 % of those patients experience only a subtherapeutic antiplatelet response. Several mechanisms have been identified to contribute to the observed variability. Clopidogrel is a prodrug, to block the platelet function it must be converted to active metabolite. Cytochrome CYP 2C19 plays crucial role in this transformation. Nevertheless, there are 15 % or more carriers of loss of function allele CYP2C19*2 in the population (depending on race). Less production of the active drug exposes patient to higher risk of CV event. Even more, clopidogrel is also a substrate of the intestinal efflux transport pump P-glycoprotein which is encoded by ABCB1 gene. Patients with two variant alleles TT had a higher rate of CV events. It will be discussed, if the identification of genetic polymorphisms is a way to improve patient's protection. Other clinical and demographic factors (such as diab. mell., renal failure, age) are also influencing response to clopidogrel. New drugs which should avoid the clopidogrel deficiencies are now on the market. Prasugrel effect is less dependent on genetic code of an individual, using more universal P450

cytochromes for biological activation. As showed in Triton-TIMI-38 study prasugrel had a higher efficacy than clopidogrel but for the price of higher incidence of bleeding. Ticagrelor as a definitive molecule for the pharmacological effect is avoiding the necessity to be biologically activated. Superiority over clopidogrel was demonstrated in PLATO study without a higher risk of bleeding. Ticagrelor was not tested directly against prasugrel, however, some indirect comparison shows possibly lower efficacy. Negative effects include dyspnoe e.g. and high price of treatment could be some burden.

IMPORTANCE OF EXTENSIVE CAROTID ENDARTERECTOMY IN THE TREATMENT OF CEREBROVASCULAR INSUFFICIENCY

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Cerebrovascular insufficiency on the basis of atherosclerosis carotid arteries is the most common disease that greatly enhances its complications morbid – mortality of patients. Surgical treatment of cerebrovascular insufficiency on the basis of carotid lesions is still relevant, even if endovascular intervention techniques within the vascular radiology significantly impact on the indication.

Conventional (classical) carotid endarterectomy, with or without angioplasty, gradually replaced eversion carotid endarterectomy (CEA – E), which are currently the most common surgical procedure for carotid revascularization at the brain. These are the most commonly indicated for short ICA stenosis and bifurcation ACC and also kinking of ACI. However, there are sometimes situations where stenosis atherosclerotic changes in ACC and ACI are extensive that we are forced to do advanced (extensive) carotid endarterectomy for ACC in length from 10 to 12 cm and at the same time intervene in the internal and external carotid simultaneously. The author reports just about this method of extensive carotid endarterectomy.

ATHEROSCLEROTIC RENAL-ARTERY STENOSIS IN TERMS OF CURRENT TREATMENT

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Atherosclerotic renal-artery stenosis is a common problem in the elderly often in combination with peripheral arterial or

coronary artery disease. Renovascular disease may result in hypertension, ischemic nephropathy, and multiple long-term complications. The elevated blood pressure on the basis of hemodynamics significant stenosis or occlusion of the renal artery is present in 1 to 5 % of people with hypertension. Often occurs to the progression of renal-artery stenosis, which accompanies the shrinking size of the affected kidney with the decline of renal function, less often to the complete closure of the artery. Two randomized trials, including ASTRAL (Angioplasty and Stenting for Renal Artery Lesions (ASTRAL) and STAR (Stent Placement and Blood Pressure and Lipid-Lowering for the Prevention of Progression of Renal Dysfunction Caused by Atherosclerotic Ostial Stenosis of the Renal Artery), had no clinically significant effect of revascularization on checking blood pressure, mortality, and even on the cardiovascular and renal prognosis. The last randomized trial CORAL (Cardiovascular Outcomes in Renal Atherosclerotic Lesions) shows that, when added to a background of high-quality medical therapy, contemporary renal-artery stenting provides no incremental benefit to the rate of the composite primary end point or any of its individual components, including death from cardiovascular or renal causes, stroke, myocardial infarction, congestive heart failure, progressive renal insufficiency, and the need for renal-replacement therapy. The medical therapy included the combination of antihypertensive agents, antiplatelet therapy, and atorvastatin for management of lipid levels.

In summary, renal-artery stenting did not confer a significant benefit with respect to the prevention of clinical events when added to comprehensive, multifactorial medical therapy in people with atherosclerotic renal-artery stenosis and hypertension or chronic kidney disease.

THROMBOEMBOLIC COMPLICATIONS AS A RESULT OF INAPPROPRIATE DRUG COMBINATION (CASE STUDY)

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The therapy of atherosclerotic complications requires a broad spectrum of drugs, and the risk of their interactions grows proportionally to their number. It is therefore necessary to consider carefully every indication, with respect to its possible impact on pharmacokinetics and dynamics of effect of all the other administered drugs. The aim of this case study is to describe a risk of interaction between essential antiplatelet drugs and supportive pharmacotherapy.

Introduction of antiplatelet substances into the therapy is indicated in patients with ischemic heart disease, after percutaneous coronary intervention with stent implantation and/or in patients with a high risk of the development of serious cardiovascular complications. In many cases, it is a combination of two substances – clopidogrel and acetylsalicylic acid. The risk of hemorrhagic complications (GI tract, brain, urinary tract) increases significantly in connection with this therapy; the incidence up to 4.5 % of patients after a year of therapy. To minimize this adverse effect, proton-pump inhibitors (PPI, i.e. omeprazole, lansoprazole, pantoprazole and esomeprazole) are preventively administered. However, a growing number of clinical studies imply an association between thromboembolic complications and the PPI and clopidogrel co-medication.

ENDOVENOUS TREATMENT OF VARICOSITIES IN LOWER EXTREMITIES IN ADVANCED STAGE OF CHVI

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Ultrasound diagnosing with determining points of insufficiency and reflux path and endovenous treatment of varicosities in tumescent anesthesia has become a standard procedure in the authors' practice. They present patients with stem varicosities who have been treated with radio-frequency ablation. This technique is preferred not only for its good cosmetic effect, but also for its minimal invasion in high risk, overweight patients, and in advanced stadium of venous insufficiency with leg ulcers. Complications have not occurred. Their results are compared with conventional operations and studies results.

MALPRACTICE IN TREATMENT OF CHRONIC VENOUS DISEASE

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Chronic venous disease can be treated conservative or invasive. Both of these procedures should be interconnected. Treatment decision should be based on symptoms, clinical signs and ultrasound examination. In common clinical practice there is little or no compliance to this approach as shown in two cases.

56-year-old woman was unsuccessfully treated for active venous ulceration 21 years after the stripping of the great

saphenous vein in the left leg. Ultrasound examination revealed insufficiency and dilation of the small saphenous vein. After the stripping of the small saphenous vein the venous ulceration healed during six weeks.

48-year-old man was present with early recurrence, during few months, after the surgery for varicose veins on the left leg. Ultrasound examination had been performed before surgery and primary insufficient sites were localized, but the reason of recurrence was technical failure when ultrasound venous mapping of the leg was not taken into account.

CORONARY MICROVASCULAR DYSFUNCTION IN PATIENTS WITH HEART FAILURE AND PRESERVED EJECTION FRACTION

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The term "Stable Microvascular Angina" (SMVA) defines a condition in which the patient has angina, there are findings attributable to myocardial ischemia during stress test and there are normal coronary arteries on angiography in absence of any other cardiac disease, such as variant angina, cardiomyopathy, valvular disease and so on.

We studied microcirculation through angiographic indices such as Gibson's index (TIMI Frame Count and Myocardial Blush Grade) and Yusuf's index (Total Myocardial Blush Score). This last one is a predictive index of microcirculation alteration. Besides, we used another index, based on the same principle Yusuf used for its own index, the Total TIMI Frame Count (TTFC). This index is obtained summing up the TFCs of the three coronary arteries. The inclusion criteria were chest pain, positive stress test and coronary arteries free from stenosis at coronary angiography; furthermore, patients underwent also myocardial perfusion scintigraphy. We studied a population of patients who had *heart failure with preserved ejection fraction (HFPEF)* and those who had not. HFPEF follows to cardiovascular processes that contribute to diastolic dysfunction. They include left ventricular hypertrophy, concentric remodeling, inappropriate calcium handling and abnormal relaxation. We studied 286 patients – first with echocardiogram and secondly through coronary angiography. One hundred and fifty-five patients had HFPEF, while the other 131 patients had not (EF>50 %, no dyskinesia alterations). HFPEF was diagnosed according to ESC and

AHA guidelines through echocardiography and biomarker assessment (NT-proBNP). In this population the frequency of diabetes mellitus was significantly higher in patients with HFPEF than non-HFPEF patients. Also the prevalence of hyperlipidemia was significantly higher in HFPEF than non-HFPEF. So there was a significant higher incidence of metabolic syndrome in HFPEF patients compared to non-HFPEF patients. A significant difference was not showed about hypertension and family history of coronary artery disease in these patients. The angiographic indices we used were the same: TFC, MBG, TMBS and TTFC. TFC values showed a longer TFC of the three major coronary arteries in HFPEF patients than non-HFPEF patients. This indicated slow flow in HFPEF coronary microcirculation. As regards microcirculation perfusion, there were lower MBG values on the three coronary arteries and TMBS values as well, in HFPEF patients than non-HFPEF patients. We highlighted that in patients with HFPEF diabetes, dyslipidemia and obesity were more spread than non-HFPEF patients. In particular there is a higher incidence of metabolic syndrome in HFPEF patients. So HFPEF patients have a greater involvement of microcirculation than non-HFPEF patients. TFC, MBG, TMBS and TTFC also in this case may be a useful

tool to evaluate coronary microvascular alterations. HFPEF patients should be followed with a careful follow-up paying attention especially to those who have metabolic syndrome, which is often present in these patients. So it is necessary to keep total cholesterol lower in HFPEF patients than non-HFPEF patients.

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KAZUISTIKY V ANGIOLOGII

MANAGEMENT OF PAIN CAUSED BY DIABETIC PERIPHERAL NEUROPATHY FROM THE PERSPECTIVE OF A CLINICAL PHARMACOLOGIST

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Pain caused by diabetic peripheral neuropathy is a major health, economic, and societal challenge. Neuropathy-related pain is experienced by some 10–20 % of patients with diabetes. Diabetic neuropathy is responsible for almost 11 % of chronic pain of non-tumor etiology, with its mechanism still poorly understood. Its successful management depends on an early diagnosis and choice of appropriate pharmacotherapy. Neuropathic pain poorly responds to therapy, with pain relief reported in only a third of treated patients. Most symptomatic patients fail to respond to analgesic-based therapy. Use of opiates remains a major concern in everyday practice. The widely accepted current policy is combination therapy with adjuvant analgesics, primarily antidepressants and anticonvulsants. Combination therapy is associated with an increased incidence of side effects and complications, whose management poses a considerable burden on the health-care budget. Involvement of the clinical pharmacologist and adherence to the principles of personalized medicine, monitoring of the therapeutic effect, and prevention of side effects all have a major impact on the course of therapy and quality of life of the patient.

VASA VASORUM OF THE PORCINE CORONARY ARTERIES

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Introduction: The aim of the study was an anatomical study of the architectonical arrangement of the coronary vasa vasorum (VV) and of their inner structure in the normal porcine heart. Contemporarily, the results obtained should verify the validity of either classical opinion of S. T. Sömmering (1800), that all blood vessels approach the vascular wall from the adventitia or of the recently valid theory of Gössl et al. (2003), affirming that some parts of the arterial system of VV originate directly from the lumina

of coronary arteries and ramify in the arterial wall from its inner side.

Methods: Fresh hearts of twenty normal six months old pigs (120–140 kg) were used for the study. The coronary arteries were either injected (India ink, Dentacryl, Mercor Resin) or processed histologically. Samples were analyzed by microscope, dissection magnifying glass, scanning electron microscope and microCT.

Results: Analysis of the injected specimens as well as of the histological sections univocally demonstrated that the blood supply of the walls of the coronary arteries ensure in the whole extent only the adventitial VV, approaching the arteries from the close neighborhood. Arterial branches of the VV system which originate directly from the arterial lumina and participate on the supply of the inner layers of the arterial wall were not detected in any case. All parts of the VV system, e.g. arteries, capillaries and veins, are distributed only in the adventitia and in the outermost thin layers of the media of coronary arteries. Finally, a richness of valves closing the lumina of all veins of VV was described.

Conclusions: It can be concluded that on the supply of the walls of porcine coronary arteries participate only the adventitial VV, while the arteries entering the arterial walls from their lumina directly were not detected. The results obtained can be used in further studies, oriented on the architectonics and structure of the VV of the coronary arteries of human heart, too.

ENDOVENOUS STEAM ABLATION

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The endovenous steam ablation is the newest thermal technique in the treatment of varicose veins. The vein wall is destroyed by micropulses of superheated steam. Standard procedure is focused on trunk veins while steam is delivered by long catheter. Temperature of steam at the tip of the catheter is about 120°C. Post-treatment ultrasound and histological findings are comparable to findings after laser and RF procedures. Middle term results show more than 90 % occlusion rate. Recently, it is possible to treat also side branches. In this case, steam is delivered either by special short catheter or directly through cannula. The procedure can be performed under tumescent local anaesthesia (with or without sedation). Frequency of complications is very low and tolerability is good.



**KAZUISTIKY
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TELEMEDICAL SCREENING OF ISCHEMIA OF THE LOWER LIMBS

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Our presentation shows the system reliable detection of ischemia of the lower limbs, based on telemedicine application. Its operation is very simple, but detection of pathological cases is nearly 100 %. The system use fully automatic air plethysmograph own production. For patient comfort, investigating is rapidly implemented, as if testing the performance of venous reflux and venous muscle pump. The curve passes through a rather demanding mathematical analysis. This eliminates errors in the examination and provides a range of parameters. For their connections, we determine the degree of probability of ischemia of the lower limbs and divide examined persons into three basic groups: Normal – suspect – clearly pathological.

The curve is automatically sent in encrypted form to a central storage.

Suspect a pathological curve is automatically forwarded to an experienced algologist, who recommends next actions.

Currently over 1,000 people were examined, most suspicious and pathological cases were examined by triplex ultrasound. Indicated cases were investigated by angiography followed by interventions.

Devices on the principle of telemedicine work reliably only in the Czech Republic but also in Brazil, Portugal and Switzerland.

We believe that our system can significantly contribute to the detection of early stages of peripheral arterial disease and prevent many complications, including amputation.

INTRAMURAL FIBRIN COLLECTION AS A CAUSE OF EPTFE BYPASS OBLITERATION

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Introduction: Infringuinal prosthetic bypass using ePTFE prosthesis with or without external spiral support belongs among the gold standards of surgical treatment of chronic lower limb ischemia most often in femoropopliteal, femorofemoral (including crossover bypass) and axillofemoral position. Cause of graft obliteration in a medium term horizon (within one year) is most often myointimal hyperplasia in anastomosis area. Late obliteration (after more than two years) occurs most often due to progression of atherosclerotic process in inflow or outflow bypass which leads to decrease of flow through the graft and after falling below the critical closing flow leading to graft thrombosis.

Case reports: Authors in their presentation include 3 cases of late obliteration of ePTFE femoropopliteal bypass due to intramural fibrin collection or thrombus collection in the wall of ePTFE graft with external support leading to graft thrombosis. In two cases the finding was evident in femoropopliteal position and in one case occurred in the femorofemoral crossover bypass.

Discussion: The cause of intramural organised thrombus is quite disputable. It is possible that it is a process similar to the periprosthetic seroma or blood leak which can occur within a graft imprinting the body of the graft and thus leading to occlusion. External trauma (blunt injury in the area of the graft), breach in integrity of prosthesis wall either during implantation or as an internal iatrogenous trauma caused during endovascular invasive procedures or during indirect surgical catheter thrombectomy using Fogarty catheter, all being able to cause breach in integrity of internal or external layers of the graft with blood collection between these layers, cannot be excluded as well.

DYSLIPIDEMIA IN PERIPHERAL ARTERY DISEASE WITH RESPECT TO PRESENCE/ABSENCE OF SMOKING AND DIABETES MELLITUS (MOET STUDY)

J. Pítha, D. Karetová, B. Seifert, J. Vojtíšková, K. Roztočil for the MOET group

Background: The main manageable risk factors for peripheral artery disease (PAD) are smoking, diabetes mellitus and dyslipidemia. We speculated that in non-smoking non-diabetic patients lipid parameters should be strong causative factor for PAD.

Methods and results: We analyzed data from the Monitoring of Effective Therapy in PAD study. For statistical analysis we used unpaired t-test. The mean values of lipid parameters including calculated non-HDL cholesterol (=total cholesterol – HDL cholesterol) in non-smoking non-diabetic women (n=460, mean age 69.3 ±10.0 years) were as follows: LDL cholesterol 3.8±1.1, triglycerides 2.1±1.0, HDL cholesterol 1.5±0.4, and non-HDL cholesterol 5.0 ±1.2 mmol/l. In smoking diabetic women (n=186, mean age 66.2±8.0 years) the values were as follows: LDL cholesterol 3.7±0.9, triglycerides 2.4±1.2, HDL cholesterol 1.3±0.5, and non-HDL cholesterol 4.8±1.1 mmol/l. Triglycerides were significantly higher (p=0.0009) and HDL cholesterol significantly lower (p<0.00001) in smoking diabetic women despite lower age (p=0.0002). In contrast, non-HDL cholesterol was higher in non-smoking non-diabetic women (p=0.067). No significant difference was found for LDL cholesterol (p=0.133). The mean values in non-smoking non-diabetic men (n=458, mean age 66.3 ±11.0 years) were as follows: LDL cholesterol 3.6±1.0, triglycerides 2.0±1.1, HDL

cholesterol 1.4±0.5, and non-HDL cholesterol 4.7±1.2 mmol/l. In smoking diabetic men (n=488, mean age 65.2±8.5 years) the values were as follows: LDL cholesterol 3.5±1.0, triglycerides 2.6±1.4, HDL cholesterol 1.3±0.6, and non-HDL cholesterol 4.8±1.2 mmol/l. Triglycerides were significantly higher (p<0.00001) and HDL cholesterol significantly lower (p=0.003) in smoking diabetic men. No significant difference was found for age (p=0.114), LDL cholesterol (p=0.456) and non-HDL cholesterol (p=0.311).

Conclusions: In non-smoking non-diabetic women causative factor for PAD could be non-HDL cholesterol despite seemingly more favorable traditional lipid parameters.

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CHRONIC VENOUS INSUFFICIENCY AND DIABETIC FOOT SYNDROME

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Aim: We evaluated retrospectively the influence of chronic venous insufficiency on healing of diabetic foot ulcerations and comparison with patients without chronic venous insufficiency.

Methods: 6 patients (all patients Type 2 diabetes, 2 women, mean age 59.7±10.6 year, mean duration of diabetes 13.2±8.5 years, mean HbA_{1c} value 67±20 mmol/mol, mean ulcer area 6.4±3.6 cm²) with severe chronic venous insufficiency (CEAP 5 or 6) were treated in diabetic foot clinic with diabetic ulcerations. All patients suffered from diabetic neuropathy. Significant peripheral ischemia was excluded in all patients (ABI 1.21±0.22, TBI 0.76±0.14). We evaluated retrospectively the healing of the ulcerations using standard treatment (offloading, antimicrobial treatment – if necessary, debridement, appropriate local therapy). We assessed the healing duration. Then we chose a group of 6 similar patients (= age + HbA_{1c} + ulcer size “nearly matched” patients) without chronic venous insufficiency (all Type 2 diabetic patients, 2 women, mean age 61.1±11.9 year, mean duration of diabetes 15.1±7.2 years, mean HbA_{1c} value 71±18 mmol/mol, mean ulcer area 6.9±3.1 cm², all with diabetic neuropathy and without significant peripheral ischemia – ABI 1.1±0.31, TBI 0.82±0.24)(all values p=n.s.) and retrospectively evaluated the ulcer healing duration. All ulcerations in both groups were located in plantar area.

Results: The mean treatment period (assessed as time to healing) was 243.8±47.9 days in the group of patients with chronic venous insufficiency and 138±51.3 days in patients without chronic venous insufficiency (p<0.001).

Conclusions: The coincidence of chronic venous insufficiency in patient with diabetic foot ulcerations could

significantly deteriorate the healing process, although this fact is not listed in the risk factors for limited ulcer healing in diabetic patients. The possible mechanism could be affection of microcirculation. We are planning to follow more patients with chronic venous insufficiency prospectively.

MANAGEMENT OF VENOUS LEG ULCERS FROM THE SURGEON'S PERSPECTIVE

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Diseases of the venous system of the lower extremities are common in our population: according to various sources, the frequency ranges from 10–60 %; the generally accepted incidence is 20 %. It affects women more. Varicosities of the lower extremities are associated with venous insufficiency of varying degrees. The most severe manifestations are venous ulcers – these occur in about 1 % of the population. Even if they heal spontaneously; which is rare, they will probably reoccur (30–60 % in the first year). A venous leg ulcer is a serious problem from both the medical and the social-economic aspect. The only solution is complex therapy, including topical, compressive, pharmacological and surgical therapy. The surgical approach to management of the disease is not united and virtually every method has its supporters and opponents.

The underlying mechanism of chronic venous insufficiency is venous hypertension. The venous hypertension establishes itself on the basis of structural or functional abnormalities of the venous system. We can see various stages of CVD from cosmetic telangiectasia to serious complications – venous leg ulcers. The most common causes of CVD include: 1) primary abnormality of the venous walls and valves, 2) secondary changes as a result of previous thrombosis of the venous system. These lead to venous reflux from the deep to the superficial venous system, venous drainage obstruction, or both. As a result of the venous drainage disorders listed above, varicosities/changes in the large veins of the superficial system are formed. Varicosities of the lower limbs are either primary or secondary according to the etiology. In later stages microcirculation failure, eczematization and ulceration develop. The pathological-anatomical correlate is dilatation, prolongation of the skin capillaries with subsequent thrombosis of the capillaries. This results in precapillary fibrosis, which is a predisposing factor for ulceration.

Before determining the management strategy, a thorough clinical and paraclinical examination is necessary. Even the clinical examination itself can indicate the etiology of the venous ulcer. We can see varicose conversion of the large hidden vein with gradation in the distal direction on the inner side of the leg. Often we identify incompetent converging veins of Cockett's group. Skin changes are of varying intensity from hyperpigmentation, eczematization, and dermatoliposclerosis

to the florid, open leg ulcer. The ultrasonography of reflux points and the condition of the deep venous system are among the most important aspects of paraclinical examination. Digital photoplethysmography determines the type of chronic venous insufficiency (epi- or subfascial).

It is necessary to consider ulcers of mixed etiology, which may contribute to trophic changes and an impaired arterial system.

The treatment of venous leg ulcers must always be complex. At the beginning, especially in the case of florid leg ulcers, we always initiate full conservative therapy – pharmacological therapy, compressive therapy, topical wound care and regimen changes. Treatment of venous leg ulcers and varicosities in general focuses on the consequences of the disease. We are not able to treat the cause.

The drugs we use include vasodilators, venoactive drugs, and antibiotics. Venoactive drugs are used because we require a reduction in venous hypertension and oedema, and improved microcirculation. The venoactive potent substances that meet these requirements include the micronized purified flavonoid fraction MPFF[®] (trade name Detralex[®], Servier). According to the latest recommendations of the International Phlebologic Union (UIP, Boston 2013 consensus meeting in Cyprus, November 2012) MPFF[®] is currently the only recommended pharmacological therapy (grade of recommendation – 1B) for additional treatment of primary venous leg ulcers. The recommendations are based on broad evidence on the increase in the number of completely healed ulcers, shortened treatment time and relief of the symptoms of CVD after adding Detralex to classical venous leg ulcer therapy. An integral part is use of compressive therapy: in florid leg ulcers a short bandage, and in healed ulcers compression stockings. Antibiotics are generally applied according to the microbial flora colonising the wound. The microbial flora is detected using cultures. Topical therapy is applied according to the principles of surgical treatment of chronic wounds.

Surgical therapy is based on the assumption to improve the microcirculation at the site of the venous ulcer. It includes surgery on the insufficient venous riverbed and supportive surgery on the sympathetic nervous system. During surgery we consider therapy of the sites with venous reflux as crucial:

- a) High bulbar ligation of the proximal end of the stem of the vena saphena magna, stripping the proximal section of the VSM (just to the level of the Dodd, maximally to the Boyd's perforator due to risky preparation in the medial portion of the lower leg with trophic changes);
- b) We also perform: high ligation of the stem orifice of a small hidden vein; residues in the basin of VSP can be managed by subsequent sclerotherapy with Fegan's or Sigg's technique;
- c) Therapy of incompetent perforators, mostly from Cockett's or Boyd's Group.

Opinions differ on the benefit of this procedure, and the anatomical regularity of these structures is often contradicted. According to some sources the Cockett's perforators are

present in a “classic” localization in only 7 % of cases. We have good experience with their treatment. Therapy of Cockett’s perforators with the direct technique in trophically altered terrain is risky, and is performed only rarely. The interruption is performed with half-closed subfascial discision.

An incompetent perforator, which was possibly omitted, can be managed with targeted Fegan’s sclerotherapy. In some cases we perform ipsilateral lumbar sympathectomy. We expect a vasodilatory effect (this also leads to a reduction in venous resistance by increasing the arterial flow).

These therapeutic measures often lead to venous ulcer healing. We may accelerate the process with autologous dermo-epidermal transplantation.

Conclusions:

- 1) The incidence of CVD in our population is approximately 50 %; 20 % of cases manifest clinically, and 1–5 % cases occur in the most serious form – leg ulcers.
- 2) CVI with its complications – leg ulcers – represents a serious medical and socio-economic problem.
- 3) Up to 90 % cases benefit from the positive effect of surgery on the superficial venous system. Saphenectomy has demonstrable benefits; the benefits of surgery on perforators are questionable and have to be indicated individually.
- 4) Surgical treatment accelerates the healing of the ulcer.
- 5) The surgeon addresses only the consequences of the disease, not the cause.
- 6) The surgery must be followed by full-fledged conservative therapy and proper compression. Medication includes venoactive potent drugs to improve microcirculation, oedema, arterial blood flow and to improve vein tone (Detralex meets all the requirements).
- 7) Targeted and proper surgical treatment is possible only if a thorough preoperative examination is done (Doppler).
- 8) The severe complication of CVI can be managed only with full interdisciplinary collaboration of the internal medicine physicians – angiologists, dermatologists, radiologists, sonographers and surgeons.

ENDOVASCULAR THERAPY OF LIVER TRAUMA

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Introduction: The main principle of the trauma therapy is damage control, that means emergency bleeding control, skeleton stabilization, cavities decompression and decontamination. Emergency department role is volume resuscitation, blood supply and control of coagulation. Clinical exam by traumatology specialist, urinary bladder catheter application and angiography CT scan exam are indicated.

Subsidiary steps decisions according to the emergency importance are followed in 15–45 min:

| | |
|---|--|
| Urgent patient (without reaction to resuscitation) | Urgent surgery procedure (sonography?) |
| | Laparotomy (definitive, tamponade + second look) |
| Acute patient (positive reaction to continuing resuscitation) | Angio CT scan – procedure according to the result |
| | Laparotomy Angiography + embolization |
| Stabilised patient (stabilised after initial resuscitation) | Angio CT scan – procedure according to the result |
| | Conservative approach laparotomy angiography + embolization |

Methods: Embolization procedures should be done in by well-established and experienced team with 24/7 control service. Therapy with stent-grafts and stents for peripheral vascular trauma should be available. Embolization therapy is obviously used in the area of pelvic, retroperitoneal vascular trauma and specific parenchymal organs. From 2003 to 2012 48 patients (Mean age 42.9 (18–71y) were treated for vascular trauma with endovascular therapy. In 2013 three patients were treated for severe liver trauma and emergency endovascular embolization was used.

Results: Three patients (40y-male, 28y-female, 11y-female), were embolized after emergency surgical procedure with liver sutures, splenectomy, diaphragm suture. Super-selective angiography of coeliac trunk and superior mesenteric artery was necessary which confirmed the bleeding point of hepatic artery branch trauma. Micro-catheter technique with super-selective coils embolization was applied. Immediate circulatory stabilization was observed in all three cases. Subsidiary drainage from liver trauma area was continued according the CT follow-up and bilioma was drained. Supportive blood and plasma supply was extensively used in all three patients.

Conclusions: Endovascular therapy is an effective tool for vascular trauma therapy of parenchymal organs, for the second look, therapy is better than surgical revision of trauma area. 24h/7 days endovascular team service is absolutely necessary.

TIME-OUT PROCEDURE IN PERIOPERATIVE CARE OF THE PATIENTS WITH ENDOVASCULAR PROCEDURES IN CATHLAB

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Introduction: Safety of the patients going to endovascular cathlab procedure is the main criteria of the perioperative care and the basic factor, which is followed before the treatment. It is one of the priorities, which is actively

contributed by all the medical staff in the vascular cathlab department. Time-out is the collection of the standard processes, which can prevent most of the adverse events and is therefore protection of all endovascular therapeutic procedures against complications.

Methods: The aim of the time-out procedure is mostly patient's substitution prevention, operating site substitution prevention, allergic reaction prevention and adverse event by technology protection. Also the tools or drapes oblivion is protected by this technique. This operating standard supports safe and effective diagnostic and therapeutic care administration in the health care. It is a simple procedure, which takes several minutes and information is stored in the specific dedicated form.

The time-out procedure is provided directly in the cathlab to all patients going for endovascular therapy procedure. It has three steps that include: patients identification before the procedure, signing of the interventional procedure approach site and the main time-out, which is done directly on the table.

This last step has three phases: personal verification, instruments and implantable devices control and the personal paper-documentation check.

After the procedure the drapes and tools count check is provided. Cutaneous allergy reaction due to the contrast media, disinfection or medication is investigated. Time-out procedure is done by interventional specialist, anesthesiologist and the cathlab nurse.

Conclusions: The main advantage of this procedure is the short and limited time; the parts of this standard are pre-defined in dedicated special form. It is a systemic control tool, which must be done in all patients before all endovascular therapy interventions. It is focused on the most critical steps during endovascular therapy and finally it lowers all main procedural complication risks in the hospital.

LEG ULCER ORIGIN, AGE AND GENDER – IMPORTANT FACTORS INFLUENCING QUALITY OF LIFE

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Aim: The aim of this study was to identify most important factors that influence quality of life of the patients with chronic leg ulcers.

Methods: A special set of questions focused on quality of life of patients with chronic leg ulcers was developed. Questions were divided in 6 parts – pain, physical, social and psychological impact, daily activities and aspects of treatment. 100 patients (38 men and 62 women) with chronic leg ulcers of venous (53 patients) or mixed (47 patients) origin were included in the study, with mean age 68.5 years. Mean ulcer size was 41.1 cm². Mean ulcer duration was 26.8 months. All data

were evaluated statistically (ANOVA, Pearson's correlation, general regression model).

Results: Leg ulcer origin was determined as an important factor influencing quality of life of our patients (patients with mixed leg ulcers used more pain killers and reported more negative influence on daily activities than patients with venous leg ulcers). Other factors influencing the quality of life were also statistically significant: age (negative influence on daily activities and aspects of treatment), gender (women suffer more than men because of their leg ulcers), pain intensity (influence on physical and social aspects) and leg ulcer size (influence on psychological, social and physical impact, pain intensity and daily activities). Leg ulcer duration was not statistically significant.

Conclusions: Leg ulcer origin, age and gender are important factors that influence quality of life of the patients with chronic leg ulcers.

IS THERE A RELATIONSHIP BETWEEN HEIGHT AND VARICOSE VEINS?

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Aim: Ambulatory venous hypertension is the main cause of chronic venous insufficiency. Venous pressure depends also on subject's height. We studied relationship between height and severity of varicose veins.

Methods: We assessed severity of venous diseases by CEAP clinical classification, by photoplethysmographic investigation and by venous reflux detected by ultrasonography. We examined outpatients without venous thrombosis with suspicion of chronic venous disease.

Results: We investigated 1026 lower extremities, average age of patients was 54.7 years, height 170.1 cm, CEAP clinical classification 1.75, refilling time (To) 25.4 s, venous pump power (Vo) 4.4 % and reflux in 32 %. We found correlation between age and CEAP classification and weak negative correlation between CEAP classification and To resp. Vo. We found no correlation between height and CEAP classification, To, Vo and present of venous reflux.

Conclusions: We found no correlation between height and severity of varicose veins.

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MECHANICAL THROMBECTOMY USING THE ROTAREX CATHETER IN THE TREATMENT OF ACUTE AND SUBACUTE OCCLUSIONS OF PERIPHERAL ARTERIES AND BYPASSES – ANALYSIS OF FAILURES AND COMPLICATIONS

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Although mechanical thrombectomy using the Rotarex catheter represents a well-established method in the treatment of acute and subacute occlusions of peripheral arteries, failures and complications might be also associated with this technique.

We have performed 116 procedures using the Rotarex catheter in patients with acute occlusions (duration of symptoms <14 days) and subacute occlusion (duration 14–90 days) of peripheral arteries. The primary (angiographic, immediate, technical) success defined as a successful recanalisation of occluded arteries with residual stenosis <30 % was achieved in 91 %. Failures appeared in 9 % (10/116 procedures). Failures included: Irreversible rethrombosis during the procedures with null effect of thrombolysis and percutaneous aspiration thrombectomy (PAT) – in 6 cases. Further, repeated embolism to crural arteries that could not be resolved during the same session appeared in 3 procedures. In one case breakage of the tip of the catheter happened and the tip had to be extracted surgically.

Transitory complications, which could be treated in the same session, involved: Embolism into crural arteries resolved with PAT or with a combination of PAT and IIb/IIIa antagonists infiltration in 3 cases. Further, a reocclusion of the artery following PTA of residual stenosis after Rotarex recanalisation occurred in 2 procedures – a new successful Rotarex passage was performed. Reocclusion after FP bypass recanalisation arose in one case – it was treated with PAT and IIb/IIIa antagonists infiltration. Minor perforation of the proximal segment of the crural arteries caused by the Rotarex catheter happened in 3 cases – it was managed conservatively. Rotarex catheter unrelated complications included pseudoaneurysm of the common femoral artery in one procedure – it was removed by ultrasound probe compression. Retroperitoneal bleeding after one procedure has been operated.

Analysis of above mentioned failures and complications is given in this presentation and possibilities how to avoid these potentially dangerous situations are discussed.

THE USE OF VENOACTIVE DRUGS IN SEMI-INVASIVE TREATMENT OF CVD

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The authoress opens her presentation by a short review of the chronic venous disease, its patho-physiology and evaluation of the disease severity according to the internationally acknowledged CEAP classification. Many clinical studies carried out over the world show that eight out of ten patients suffer from the chronic venous disease. The most frequent symptom is the pain in lower extremities, the sensation of “heavy” legs, oedemas, itching and burning skin etc. The chronic venous disease is a progressive inflammatory disease and therefore it is vital to commence therapy in the very first stages. The authoress points out possible therapies in the individual stages. Inflammation is present right from the beginning and therefore it is necessary to react by therapy immediately. Excellent therapeutic results have been achieved in the first stages with liquid or foam sclerotherapy. The paper reviews studies which declare effects of micronised purified flavonoid fraction (MPFF) in combination with sclerotherapy and show that skin complications accompanying the procedure have been reduced. Teleangiectasis does not represent solely an aesthetic problem – many times it may be the source of pain or burning sensation in the given location and haematomas may occur as well and – last but not least – it may cause social isolation of such patients. The presentation brings interesting case studies of patients who regard their troubles from various points of view. The authoress present her own therapeutic scheme in which MPFF is commenced 2–3 weeks before sclerotherapy in combination with compression therapy, thanks to which the achieved outcomes are better as early as two weeks after the procedure and with a significantly lower risk of hyper pigmentations which is positively assessed by satisfied patients. These own findings are complemented by clinical studies conducted in other countries. Pursuant to international recommendations it is advisable to administer venoactive drugs in stage C0s, when symptoms without apparent objective signs of CVD occur and use them in the long term.

The authoress concludes her paper by highlighting the fundamental therapy of chronic venous disease (before as well as after the invasive or semi invasive procedures) which is the compression therapy, strict adhering to the treatment regime and a long term use of venoactive drugs.

SECONDARY VASCULITIDES ASSOCIATED TO CONNECTIVE TISSUE DISEASES

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Secondary vasculitides usually accompany various common and rare conditions. Most frequently, parainfectious, drug-related and paraneoplastic vasculitides are described, less frequently vasculitides in connective tissue diseases, after radiotherapy or transplantation.

In patients with connective tissue diseases we commonly observe vasculitis in rheumatoid arthritis, systemic lupus erythematosus, Sjogren syndrome, systemic sclerosis, dermatomyositis, rheumatic fever, relapsing polychondritis and mixed connective tissue disease.

The diagnosis of vasculitis is usually based on pathological findings from biopsy. Management of secondary vasculitis is based on treatment of underlying disease and in more severe cases combined immunosuppression should be introduced.

SCREENING FOR LIPOPROTEIN(A) IN LOW/INTERMEDIATE CARDIOVASCULAR DISEASE RISK POPULATION OF EASTERN SLOVAKIA

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Lp(a) is a causal risk factor for premature coronary artery and cardiovascular (CV) disease demonstrating atherogenic and thrombogenic properties. The association is continuous without a threshold, but further increased in those with high LDL-, low HDL-C levels or diabetes.

Aims: In low/intermediate CVD risk population of Eastern Slovakia to screen for Lp(a), to assess its multiplicative effect on CVD risk confirmed by detection of subclinical atherosclerosis (AS).

Subjects and methods: We examined 198 subjects in primary prevention, 79 males and 119 females, at the age of 45±5 years. We evaluated traditional risk factors for atherosclerosis (AS), Lp(a) level, as well as instrumental markers of subclinical AS (carotid artery intima-media thickness-CIMT, AS plaques, ankle-brachial index, aortic pulse-wave velocity-PWV and brachial artery augmentation index-Aix).

Main results: 19.2 % of subjects in primary prevention revealed elevated Lp(a) level (>50mg/dl): (mean

32.86±36.28 mg/dl). In 13 % of subjects with elevated Lp(a) level we confirmed AS plaque on carotid arteries, but only in 5 % pathological CIMT. In our study, arterial stiffness seemed to be the most frequent marker of subclinical AS in association with high Lp(a) level (55 %).

Conclusions: Our results indicate a relatively high prevalence of elevated Lp(a) level in subjects at low/intermediate 10-year risk of fatal CVD and underline the need to screen subjects for subclinical AS.

ENDOVASCULAR TREATMENT OF TRUE THORACIC ANEURYSM – ONE CENTER EXPERIENCE

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Despite progress in diagnostic and treatment, aneurysm of descending thoracic aorta still remains a challenging problem. Among different types the most frequent true aneurysm is described. It is often caused by degenerative process in lamina media, coexisting with hypertension, hyperlipidemia and pulmonary obturatory disease. Rupture of untreated aneurysm is in 90 % fatal due to massive bleeding and hypovolemic shock.

Between 2000–2013 in General and Thoracic Surgery Dept. 138 patients were operated on due to true aneurysm of thoracic aorta with transverse diameter greater than 55 mm.

Among them 70.2 % were men. According to ASA classification 57 % were ASA 3. 71 % patients presented hypertension, 31.1 % suffered from chronic heart failure – 11.6 % had myocardial infarct in the past. In 23.9 % patients, abdominal aortic aneurysm was diagnosed.

All patients were operated after CT was done, 57.2 % under spinal, 34.1 % in local anaesthesia. Only 8.7 % patients were operated under general anaesthesia mainly due to advanced dyscopathy or coagulopathy. In 81.2 %, stentgraft was inserted from right common femoral artery exposed surgically. In 5.1 % cases, because of heavy stenosis in calcified iliac vessel, for safety passing stent-graft surgical cuff was performed. In 59.4 % patients, stent-graft was deployed below LSA but in 20.2 % origin of LSA was covered due to insufficient proximal neck.

In 17.4 % patients CSF drainage was provided to minimize risk of spinal cord ischemia and paraplegia.

Results: In all patients stentgraft was placed as planned. In control angio performed during operation the complete exclusion of aneurysm was confirmed with no sign of endoleak.

In early postoperative period in 1 patient distal migration of stent-graft was recognized with coeliac trunk occlusion.

Among 28 patient with covered LSA 1 stroke occurs (3.5 %), also in group with noncovered LSA 1 stroke was diagnosed (0.9 %)

In 3 patients after operation acute ischemia of the limb from the access site was found.

In 2 patients despite CSF drainage ischemia of the spinal cord occurs.

6 patients died in postoperative period but only 2 deaths can be related to performed operation.

68.8 % patients are followed.

18 endoleaks in 16 patients were diagnosed, they required stent-graft extensions.

9 patients had abdominal aortic aneurysm stent-graft operations.

In 3 patients further reconstructive operations were performed due to limb ischemia

11 patients died. 1 death was due to rupture of thoracic aorta – patient refused further treatment of endoleak type III.

Conclusions: Endovascular treatment of thoracic aorta aneurysm is the method of choice. The risk of endovascular operation is lower than in classical open procedures. Post-operative death is not connected with endovascular operation but often as a result of coexisting atherosclerotic changes in other vessels.

EXPANDED OPTIONS FOR THE TREATMENT OF EXTENSIVE AORTIC DISEASE. THREE CASE REPORTS

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Introduction: Non-pharmacological treatment of arterial diseases has immensely developed during the last 20 years. Endovascular interventions have become the first option in the treatment of many conditions and also surgery has developed towards the less invasive laparoscopic and robotic techniques. A combination of open and endovascular procedures enables us to treat patients who we would not have operated before because of high risk.

Cohort and methods: In 2013 we treated three such patients.

Case report no. 1:

Man 67 y. old, smoker, coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), hypertension (HT). Thoracoabdominal aneurysm. A. lusoria with severe aneurysmal dilatation. Abdominal aneurysm ruptured during pre-operative investigation 7 years before and aorto-iliac bifurcated replacement was done. Post-operative course was complicated by pancreatitis, renal and respiratory failure. Tubular stent graft (SG) was implanted into thoracic aorta 6 years before, covering ostia of the left subclavian and lusoria arteries. At the same time, right upper extremity was revascularized by the right carotid-subclavian bypass. Same year, symptomatic subclavian steal on the left side developed

and therefore the left carotid-subclavian bypass was done. Finally last year, the left arm of an abdominal bifurcated prosthesis was extended by tubular SG because of a new aneurysmal dilatation of the left hypogastric artery.

Case report no. 2:

Man 75 y. old, smoker, CAD with atrial fibrillation, COPD, HT. A tubular SG was implanted to descending aorta with left subclavian artery coverage because of acute B dissection complicated by severe hypertension and right leg ischemia eight years before. At the same time, an isolated tubular SG into the right hypogastric artery was implanted. An open prosthetic replacement with visceral branches from the terminal end of the SG to the aortic bifurcation was done 4 years before because of progressive dilatation of the visceral aorta. Last year, a pseudoaneurysm developed in the distal prosthetic anastomosis in aortic bifurcation and it was treated by the implantation of a bifurcated SG, proximally anchored to the prosthesis and distally to both hypogastric arteries.

Case report no. 3:

Woman 65 y. old, HT, COPD, chronic malnutrition, cachexia. Abdominal aneurysm was replaced 12 years before, descending thoracic aneurysm was replaced 10 years before. New visceral aorta dilatation was diagnosed 4 years before, but due to high risk she was not repeatedly indicated for surgery. The visceral segment progressively dilated to 90 mm and painful symptomatology has appeared. Therefore last year, a hybrid procedure was done. First, branched extra-anatomical bypass from abdominal prosthesis to both renal, upper mesenteric and coeliac arteries was done by open surgery. After that, a tubular SG from the original thoracic to the abdominal prostheses was implanted covering the visceral aneurysm and also the native arterial origins.

Results: All three patients are presently followed up at out-patient service.

Conclusions: These vast aortic impairments would not be possible to treat under reasonable intervention risk without contemporary technical options.

TROMBOSIS OF SUBCLAVIAN VEIN ASSOCIATED WITH THORACIC OUTLET SYNDROM (TOS)

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Thoracic outlet syndrome is a term used for a group of diseases occurring when compressed, injury or irritation of

the nerve or blood vessel (vein, artery) running in the space between the clavicle, the first rib and deep layers of the neck muscles. TOS manifestations vary with the component that is compressed in a tight space. While the most frequently occurring neurogenic TOS is a relatively benign disease, vascular compression may result in serious patient injury to his disability. In my paper I will discuss the issue of subclavian vein thrombosis associated with TOS, its complex endovascular and surgical treatment in the group of patients treated in our department in 2013.

Key words: thoracic outlet syndrome – thrombosis of subclavian vein – catheter controlled thrombolysis – I.rib resection.

TRANSCRANIAL DOPPLER ULTRASOUND IN THE CURRENT ERA OF CAROTID ARTERY STENTING

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Since its introduction in 1982, transcranial Doppler ultrasound (TCD) has become an important diagnostic and monitoring tool and its usefulness has been well established in many clinical applications. However, in carotid artery stenting (CAS), TCD has mostly been reserved for optimization of emboli protection devices. Despite a relatively lengthy learning period, we believe that TCD may provide the operator with invaluable insight into patients' hemodynamic status and embolic load and may predict complications before clinical symptoms develop. Moreover, TCD may help in selection of patients with higher risk for the development of a stroke or periprocedural complications. Therefore, we suggest that TCD should be more commonly performed.

CARDIOVASCULAR RISC OF PATIENTS BEFORE MAJOR VASCULAR SURGERY – PART I

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Major vascular surgery (pelvic vascular reconstruction and aortic surgery) are associated with high risk of cardiac

complications. Patients with peripheral arterial disease (PAD) or abdominal aortic aneurysm (AAA) have often multiple atherosclerosis with coincident ischemic heart disease, which hasn't been diagnosed yet.

The authors retrospectively evaluated the results of the cardiac examination including stress test in patients before the pelvic vascular reconstruction or aortic surgery. 117 patients (64 patients with PAD and 53 patients with AAA) were examined in our department during 2013. Cardiac history, results of cardiac examination including stress test (stress computer tomography, dobutamine stress echocardiography, stress myocardial scintigraphy and bicycle ergometry) and eventual coronary angiography and the consequent next steps (revascularization of myocard, contraindication of vascular surgery etc.) and possible perioperative complications were monitored. The data are discussed. It was found that almost 40 % of patients with negative cardiac history had a positive stress test and about 30 % of patients with positive stress test had significant atherosclerosis of the coronary arteries, which claimed coronary revascularization before vascular surgery. The study confirms that patients with PAD and AAA are the high-risk patients and before vascular surgery require a comprehensive evaluation of their cardiac status including stress test.

MYCOTIC ANEURYSM – A CASE REPORT

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An infectious inflammation of the aortic wall at the time of antibiotic treatment is rare (incidence among the European population is known to be 1–2 %), but potentially very dangerous. The diagnosis is associated with a high risk of rapid progression and rupture. Salmonella is the contributing pathogen in one third of the cases. The symptoms ensue from the disease itself, but sometimes they can be nonspecific and often present only with increased temperature and undefined abdominal or back pain.

We report the case of a 51-year-old man with a known abdominal aortic aneurysm that had a short history of acute diarrhea accompanied with elevated temperatures both resolving spontaneously after 2 days. Within the following days the fever recurred, lab values showed increased inflammatory markers together with positive blood culture for Salmonella Enteritidis. On heart ECHO a finding on the mitral valve

could not exclude endocarditis, CT screening showed enlarged lymph nodes and an inflammation of the aortic wall greatest at the aneurysm. The patient was treated with parenteral antibiotics. At day 13 of treatment the patient developed abdominal pain, thus a checkup CT was done, that showed a progression of aneurysm diameter and leakage. Therefore an acute AAA resection and aorto-aortic replacement with Silvergraft was performed.

TAKAYASU ARTERITIS – A RARE DISEASE OF YOUNG WOMEN

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Takayasu arteritis (TA) is a rare primary systemic granulomatous vasculitis of unknown etiology affecting mainly young women involving predominantly the aorta and the large vessels branching from aorta.

The clinical presentation ranged from asymptomatic to catastrophic with stroke or aortic occlusion. There are two clinical stages of the disease – 1) early inflammatory stage and 2) chronic occlusive stage. In the first stage there are nonspecific general symptoms, such as fever, weight loss, fatigue. In chronic occlusive stage there are symptoms connected with tissue ischemia – visual disturbances, neck pain, intermittent claudication and extremity pain, arterial hypertension, abdominal pain, chest.

The diagnosis is based on the presence of three or more American College of Rheumatology classification criteria of TA:

- 1) onset at age less than 40 years,
- 2) claudication of an extremity,
- 3) decreased brachial artery pulse,
- 4) blood pressure difference more than 10 mm Hg in systolic blood pressure between arms,
- 5) a bruit over the subclavian artery or aorta, and
- 6) arteriographic evidence of narrowing or occlusion of the aorta, its primary branches or large arteries in the upper or lower extremities, not related to atherosclerosis, fibromuscular dysplasia or other type of vasculitis.

There are no specific diagnostic laboratory tests for TA. From imaging methods duplex ultrasound, conventional angiography, magnetic-resonance angiography and positron emission tomography are used. Thickening of the vessel wall, arterial narrowing, stenosis, occlusion and arterial aneurysms are the most common vascular lesions.

The treatment of TA is still difficult. The goal of TA treatment is to suppress the inflammation and to prevent the irreversible damage of the vessels and tissues. In the treatment corticosteroids, DMARDs (disease modifying antirheumatic

drugs), anti-TNF (tumor necrosis factor) agents are used for suppression of the inflammation.

TREATMENT OF HIGH-PROTEIN EDEMA PARTIALLY DUE TO CHRONIC VENOUS DISEASE (CVD)

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Chronic venous disease (CVD) contributes to various extents to the formation of high-protein edema resulting from insufficient lymphatic drainage. This type of edema is in principle determined by the accumulation of congestive proteins and oncologically bound water in the interstitium of the epifascial area in the subcutis of fibrous tissue.

With the exception of lymphedema which is caused by direct primary or secondary affection of the lymphatic system and is manifested already at the stage of its physiologic load, the cause of formation of other types of hyperosmolar edema is a long-term excessive lymphatic burden and subsequent lymphodynamic insufficiency of the lymphatic system which is without abnormalities. High-protein edemas belong to this category partially due to chronic venous disease (CVD).

The aim of the treatment of this type of edema is to reduce the excessive amount of liquid and proteins in the interstitium and decrease subsequent degenerative changes of the skin and the subcutaneous tissue and induction of physiologic condition of the subcutis. Because of the interdependence of the venous and lymphatic systems, it is necessary to ensure timely and adequate treatment of the venous disease and promote lymph flow and lymph circulation. Compressive therapy and manual lymph drainage form the basis of a comprehensive decongestants therapy that also offers a number of supportive methods and allows reduction of edema and subsequent maintenance of favorable condition in the subcutaneous tissue. Ultimately, this treatment can block the progression of patomorphological changes in the affected tissue, and alternatively also in both peripheral circulation systems.

OBESITY PARADOX IN FEMALE PATIENTS AFTER STENT IMPLANTATION FOR CAROTID ARTERY DISEASE

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Background: There is a growing body of evidence that obese or overweight patients have better prognosis compared with normal weight counterparts. This phenomenon has been called the “obesity paradox”. This study examined the

relationship between body mass index (BMI) and long-term survival after carotid artery stenting (CAS).

Methods: A retrospective, single-centre study. We included all consecutive patients treated by CAS between September 2005 and December 2013.

Results: In a total of 413 consecutive patients (69±9 years, 33 % symptomatic, body mass index (BMI) 28.4±4.1, 36 % females), we treated 505 significantly stenosed carotid arteries using implantation of 512 stents. No patients were lost to follow-up. The median follow-up period was 4.1 years (1–8.3 years; 1631 patient-years), there had been 103 deaths (25 % of total population) at the conclusion of study period. Patients were divided into 4 groups according to sex and BMI (≤25 and >25). Among the groups, there was the only significant difference between survival of female patients with BMI ≤25 vs. >25 (log rank test $p=0.035$). In female patients, a backward stepwise multiple Cox's regression model identified BMI ≤25 as the only significant predictor of all-cause death (HR 0.47, 95 % CI, 0.23–0.96, $p=0.039$).

Conclusions: To our knowledge, it is the first study dealing with the long-term outcome of post-CAS patients considering BMI. Notwithstanding several inherent limitations of this study, the results suggest that better long-term survival in patients with baseline BMI >25 as was previously demonstrated in patients with coronary atherosclerosis might extend also in female patients after CAS.

MONITORING THE DEVELOPMENT OF VENOUS INSUFFICIENCY ON THE OPERATED AND NON-OPERATED PATIENTS FOR VARICOSE VEINS ON GSV

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Introduction: Venous insufficiency is a common medical condition. Endovenous laser/radiofrequency ablation is a minimum invasive procedure that treats reflux in the great saphenous vein and short vein, even on elderly patients and patients with co-morbid disease. But not everyone can afford this treatment.

The aim of study: To compare the development of the disease from the clinical point of view, on the patients indicated for endovascular surgery of the superficial venous system, who the operation was made on, and for those where the operation was not made.

Methods: From 01/01/2012 to 31/06/2013, 745 patients were indicated to endovenous laser ablation for upper vein disorders with signs of chronic venous insufficiency. 340 were operated. 405 were not operated (280 for economic reasons,

125 for other reasons). All patients were followed up from 6 to 24 months.

Results: 340 Patients who underwent endovenous laser ablation had no incidence of the complications related to laser ablation. There was a significant improvement of venous insufficiency, and the quality of life, and the comfort increased. 405 patients treated conservatively had 46 % worsening signs of venous insufficiency, but 76 % of these patients failed to comply strictly with compression therapy.

Conclusions: Patients with severe signs of venous insufficiency were appropriate for endovenous laser ablation, after the procedure we registered improvement. Without treatment the progress of disease increased relatively quickly, especially if patients do not abide a compression therapy.

VALUE OF SAPHENOUS VEIN DIAMETER AND THE REFLUX DETECTION ASSOCIATED WITH SEVERE SIGNS OF VENOUS INSUFFICIENCY AND VARICOSE VEINS AS AN INDICATION FOR SURGERY OF THE VENOUS SYSTEM

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Background: Venous insufficiency is a common medical condition difficult to objectively describe. Objectification of the severity of the disease is important for the decision to perform surgery on veins.

The aim of study: To find a correlation between saphenous vein (GSV, SSV) diameter and the presence of reflux and other signs of venous insufficiency as an indication for surgery of superficial venous system.

Methods: from 1/1/2012 to 31/1/2013 1177 patients were examined for venous insufficiency. The diameter of the GSV and SSV was measured by B mode imaging, reflux was quantified using the doppler. Data was compared with clinical signs.

Results: Based on examination, the endovenous laser ablation was performed on 357 patients, 306 pts GSV, 54 pts SSV, 3 pts GSV and SSV. Affected vein diameter was GSV 11.8±1.9 mm and SSV 7.2 mm±1.6 mm, the findings were always associated with pathologic reflux signs of venous insufficiency and, varicose veins. Patients who were not indicated for laser ablation had smaller dimensions of saphenous vein, and no reflux.

Conclusions: Duplex ultrasound measurements of saphenous vein diameter, and the reflux detection correlated with varicose veins and venous insufficiency signs are a good and objective parameter to perform endovenous laser vein ablation.

RADIOFREQUENCY ABLATION OF VARICOSE VEINS (VENEFIT™) – CURRENT STATE OF THE ART AND OUR RESULTS

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Objective: The reduction of the symptoms associated with chronic venous insufficiency and improvement of quality of life remain the main goal of varicose veins surgery. In the last decade, development of endovenous thermal tumescent methods, such a laser, radiofrequency or superheated steam, has been noticed.

Methods: Prospective nonrandomized trial was carried out in two vascular units, included 130 consecutive patients treated with radiofrequency ablation (Venefit™, Covidien). All patients were examined at 7 days and 6 months with a duplex examination. Occlusion of the treated vein and complications at both time intervals were recorded. Patients were included in the study if they had evidence of saphenofemoral valve reflux seen on duplex ultrasound imaging (>0.5 sec), all treated patients were in stage C2 to C4 CEAP clinical classification.

Results: At the 1-week follow-up, 96.2 % (5/130) of the treated veins were occluded, and at the 6-months follow-up, the closure rate was 94.7 % (7/130). We haven't noticed deep venous thrombosis or skin burns. Temporary hyperpigmentation was noticed in 6 cases, paresthesia was noticed in 2 cases (in 1 case lasting after 6 months). In 1 case we have locally treated extensive reaction (flebitis).

Conclusions: Radiofrequency ablation of saphenous vein reflux with Venefit™ (Covidien) is one of the minimally invasive endovenous treatment with results fully comparable to results of other endovenous methods. Our short- and midterm results are in accord with previously published data from other authors. In correctly selected patients and in experienced surgeon's hands, all endovenous methods bring the benefits for patients.

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USE OF VENOACTIVE DRUGS IN SURGICAL MANAGEMENT OF CHRONIC VENOUS DISEASE (CVD)

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Introduction: Traditional and new mini-invasive surgeries for varicose veins are time-proven procedures with relatively good results. As with any surgery, however, the procedures are associated with more or less expressed common post-operative effects, such as postoperative pain, local swelling or haematoma. These effects are conditioned by inflammation of the vein and by the degree of perivenous tissue trauma. CVD is a chronic disease characterised by progression and despite the new mini-invasive techniques there is a tendency for the disease, or respectively the varicose veins, to reoccur. Patients should wear compressive stockings on a long-term basis and use the effective venopharmacs that reduce their symptoms and prevent disease progression. Effective venopharmacs (especially micronized purified flavonoid fraction, MPFF; available in the Czech Republic as Detralex) are used to treat symptoms of CVD (pain, cramps, or the sensation of heavy legs), as well as to speed up the healing of venous ulcers. These beneficial effects are the result of their mechanism of action, which involves increased venous tone, improved capillary hyperpermeability and lymphatic drainage, inhibition of leukocyte adhesion to the endothelium, transmigration of leukocytes into the venous wall, and inhibition of specific mediator release that causes activation of the venous nociceptors.

Methodology: A review of the results of several recent European studies (e.g. DESICION, DEFANCE) was made. The studies assessed the benefits of MPFF in combination with traditional (stripping) and endovenous techniques (laser, radiofrequency, foam sclerotherapy) in the elimination of varicose veins. The tools to evaluate the effect of administering the venopharmacs included quality of life questionnaires (CIVIQ-14), a scoring system using a visual analogue scale of pain (VAS), assessment of the clinical severity of the venous disease and assessment of the objective signs (haematoma size).

Results: In studies with endovenous methods, there was a statistically significant reduction of venous clinical severity score (VCSS) in the group treated with MPFF versus the control group after two to four weeks from intervention. Both the groups showed a significant improvement in quality of life following the endovenous therapy. However, there was a rapid improvement of quality of life in the MPFF group, which indicates better recovery. In the studies with stripping, the patients in the MPFF group reported less severe pain in the first week after surgery compared to the patients in the control group. Both the studies showed a statistically significant

reduction in the formation of postoperative haematomas in the MPFF group.

Conclusions: All the presented studies demonstrate that a combination of MPFF with conventional interventions on surface veins reduces postoperative morbidity, improves the patient's quality of life and accelerates the return to normal life.

Invasive therapies do not address the cause of CVD and surgical management of varicose veins does not cure the patient with CVD. Therefore it seems appropriate to persevere with the long-term administration of effective venopharmacs (pre-, peri- and post-surgical), in particular with the aim of suppressing inflammatory changes and preventing further disease progression.

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CLOSURE OF MAIN ARTERIES OF THE LOWER LIMB DURING ANEURYSM OF THE POPLITEAL ARTERY. WHEN THE VOTE ENDOVASCULAR AND SURGICAL SOLUTIONS? CASE REPORT

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The development of endovascular techniques in vascular surgery brings undoubted benefit to patients mainly because of its minimal invasiveness and less perioperative morbidity. Their development has among other things resulted in a decrease in the absolute number of surgical arterial reconstruction procedures. Both treatment methods, however, have not only advantages but also pitfalls. They should not compete, but complement each other properly. Only a correct indication of endovascular, surgical or hybrid procedure leads to goal of successful treatment.

The authors present the case report of active 60 years old man with severe angiographic findings closure of the superficial femoral, popliteal, posterior tibial and peroneal artery during the popliteal artery aneurysm. Primarily, the patient was attempted endovascular procedure. The desobliteration of

arteries with subsequent application of a total of 6 stents was done. The patient was at risk of periprocedural closure the only feasible artery – anterior tibial artery. Intervention does not lead to success, it has since early closure. The patient was indicated for femorocrural bypass and aneurysm exclusion. The reconstruction was necessary with reparation of common femoral artery pseudoaneurysm after vascular intervention. After the procedure, the patient healed primarily, reconstruction was patent.

The next course was the 9 months follow-up found within the stenosis in the proximal third of the bypass. The patient was indicated primarily to endovascular solutions. Trying to PTA was partially successful. Residual stenosis of bypass after intervention around 50 % was solved by surgical procedure. The resection of the stenotic segment after designation and its autovenous substitution was done. Patient after the surgery was healed primarily, reconstruction is patent.

EMOTION AS A KEY DETERMINANT OF HEALING – ONE CASE REPORT FOR ALL

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The main aim of this presentation is to show how important the position of both sides (patient and medic) in healing process is.

The first focus of attention will be on the healthcare worker role. The way how an experienced medic worker can change a passive patient to a cooperating partner will be demonstrated.

The second part of the presentation analyzes the status and the role of a patient in a process of healing and shows the method how a patient can support healing.

The third part presents so-called indicators of efficiency which help us to indicate retrospectively efficiency measure of interventions made by healthcare workers and patients. Practical demonstration of specific methods is the final part of the lecture.

The medic is perceived here as an educator and a teacher. First of all his/her possibility to work with patient's emotions is emphasized. The art of work with proper emotions and patient emotions is the key condition of successful education. However, the main condition is the absolute stability, serenity and experience of medic himself/herself.

The patient is perceived as an active partner of a medic, as a human being with his/her worries, pleasures, experience, knowledge and first of all with his/her system of values. The cooperation with patient is based on mutual respect and openness. Besides other things Quantum Entrainment method is mentioned.

Considered indicators of care efficiency are:

- an extent of a wound (damage)
- edema
- quality of life

The final case report (with photos) presents 6-months home care for 53 years old man with 7-year-old bilateral varicose ulcers.

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RARE CASE OF GASTRODUODENAL ARTERY ANEURYSM

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Gastroduodenal artery aneurysm is an extremely rare condition. They account for 1.5 % of all splanchnic artery aneurysms. Men are affected more often than women by nearly 4:1. Common causes include trauma, pancreatitis, infection, autoimmune disorders, vascular intervention and surgery. Most patients with aneurysms get symptoms of epigastric discomfort or pain with radiation to the back. Nearly 22 % of cases present as clinical emergencies, including 8.5 % which result in death. Reported mortality of ruptured aneurysms reaches 50 %. CT is the most valued diagnostic tool in evaluation of these aneurysms. Treatment of gastroduodenal artery aneurysms includes surgery, endovascular techniques or observation. Embolization is a feasible option for some gastroduodenal artery aneurysms and pseudoaneurysms. We report 56-year old woman with over 10 years long-term observation and corticoid drug treatment for autoimmune hepatitis. She was admitted to our institution with mild recurrent epigastric pain. Computed tomography of the abdominal aorta and visceral branches showed a multiple round aneurysms of visceral arteries. Unlike with comparison last CT noticed a significant growth of gastroduodenal artery aneurysm (diameter 27mm, some 8mm growth). Treatment of choice was successful embolisation with coils. Such treatment was chosen due to the risk of rupture, which often has a fatal profile; an aggressive approach is also advisable. Arteriography, in this case, permitted the definitive diagnosis as well as an excellent treatment of a gastroduodenal aneurysm.

PERCUTANEOUS ENDOVASCULAR ABDOMINAL ANEURYSM REPARATION (PEVAR)

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Aim: Presentation of basic principles of method, results of PEVAR study and results and experiences from own department.

Method: Introduction of PEVAR to praxis became possible thanks creation of percutaneous closure devices. In our department, in accordance with PEVAR study results, we use solely closure device Perclose ProGlide. For procedures are selected patients with wide enough common femoral artery without heavy calcifications and without scarring in groin region. We use only local groin anesthesia. Anesthetic application and artery puncture is always guided by ultrasound. At the end of procedure both groins are weighted by compression bandage, patient remains in rest in the bed until next day morning.

Results: In PEVAR study in categories “major adverse events and major access site vascular complications” at 30 days significant statistical difference in favor of PEVAR with closure device ProGlide in comparison with open access was achieved. In our department PEVAR was realised first in 2011. In this way we, now, implant 75 % bifurcated stentgrafts. We achieved these results: primary technical success 96 %, MAE 4 %, major and minor local access vascular complications 0 % and 4 %. Hospital discharge occurs usually 2nd postoperative day.

Conclusions: PEVAR is an effective, safe and really least invasive technique for bifurcated stentgraft implantation. Good results can be achieved under the condition of careful patient selection. For selected group of patients this method may become standard kind of care in the near future.

LASER DOPPLER DIAGNOSTICS OF SECONDARY RAYNAUD'S PHENOMENON

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For differential diagnostics of Raynaud's Phenomenon (RP) we use Laser Doppler Flowmetry (LDF) guided by Intravital Capillaroscopy (IC) more than five years. The complete examination for this purposes means to do the battery of functional tests as well. This standard testing covers: Venoarteriolar test (VART) Cold test (Ct) and Rewarming test (Rt). Recently we extended our examination of these patients with RP by Lased Speckle Contrast Imager technique (LSCI) or Laser Doppler Perfusion Imaging (LDPI).

LSCI produces a map of perfusion at a total measurement depth 1–2 mm therefore assessing thermoregulatory microvasculature accounting for around 90 % of blood flow within phalange. Therefore it is ideally situated to investigate Vibration White Finger disease (VWF).

Our first experience with this new equipment and results are discussed. Firstly: LSCI is very quick and accurate procedure which we can use for scanning both hands together. It does not replace IC but it can help in another way to easily focus on the region with the worst microcirculation defect. In this area we can use the battery of LDF testing. Secondly: the examination of the workers with symptoms like secondary RP caused VWF, we started to use the Manchester protocol (Cooling both hands in the iced water for 60 seconds) which seems to be very effective.

RISKS AND CONTRAINDICATIONS OF SCLEROTHERAPY

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Sclerotherapy is a minimally invasive and safe method of treatment of varicose veins. Nevertheless, there are some **risks** of this treatment: deep vein thrombosis and pulmonary embolism (in our material 0), allergic reaction (in our material 0,03 %), inadvertent intra-arterial injection, resulting in gangrene (in our material 0), varicophlebitis (8 % in our patients), pigmentations (15 %), skin necrosis (0,09 %), migrenous attack (0,01), short term visual disturbances (0,05 % in our patients).

The **contraindications** of this method are: immobility of the patients (absolute), paretic extremity, ankle stiffness, thrombophilia (relative), lactation, pregnancy (actually unnecessary).

There are also some popular **myths**: patients on long term anticoagulation, and patients with so called “secondary” varicose veins should not be operated.

The author emphasizes the possibilities and methods to reduce the risk of arising of some complications. The author also mentions mechanical (e.g. electrostimulation) and medical (anticoagulants) measurements, enabling us to perform sclerotherapy safely in risky and relatively contraindicated patients as well.

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