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## 9. Sailersymposium, 12.–13. Juni

### 2014, Graz - Akzeptierte Abstracts

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# 9. Sailersymposium

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12.–13. Juni 2014, Graz

Akzeptierte Poster-Abstracts in alphabetischer Reihenfolge  
(nach Erstautoren)

Kongressorganisation: PD Dr. Thomas Gary, Ass. Dr. Klara Belaj, Graz

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### Risk Score for Occurrence of Critical Limb Ischemia in Patients with Peripheral Arterial Occlusive Disease

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**Introduction** There are several prediction scores that can be used to identify people at high risk for developing cardiovascular events like myocardial infarction or stroke. Most of them contain typical atherosclerotic risk factors and laboratory parameters.

For critical limb ischemia (CLI), which is a severe complication in patients with peripheral arterial occlusive disease (PAOD) and associated with high rates of limb amputation and death, risk estimation algorithms are missing so far. In our study we wanted to develop a score, which can be applied easily in all patients with PAOD, to evaluate the risk of occurrence of CLI.

**Methods** We included 1000 patients with PAOD who were treated at our clinical department between 2003 and 2007 in a retrospective data analysis to develop the prediction score. Clinical symptoms and Fontaine stage of PAOD, comorbidities, medical treatment, and laboratory parameters were documented. We calculated odds ratios of different possible risk factors for CLI by means of a binary logistic regression analysis.

In a second step we included a total of 1124 patients with PAOD who were treated between 2007 and 2011 to verify our score. By adding together the points of the underlying conditions we calculated the score and evaluated the association of the different score levels with CLI.

**Results** In the first patient group the strongest risk factors for CLI were age over 75 years (OR 2.0), type II diabetes (OR 3.1), prior myocardial infarction (OR 2.4) and therapy with low molecular weight heparin (2.8). For those conditions we calculated two points each. One point was given for age between 65 and 75 years (OR 1.6) as well as for use of cardiac glycosides (OR 1.9). As statin therapy was associated with an OR of 0.5 we subtracted one point in those patients.

In the second group we could prove that frequency of CLI was significantly higher in patients with a high prediction score.

**Conclusion** We developed a simple risk stratification scheme, which is based on conditions that can be assessed from medical history, without need of laboratory parameters. This score might help to identify PAOD patients who are at high risk for CLI and might prevent irreversible tissue damage of the affected extremity due to early induced therapy.

### Progressive Jugular Vein Thrombosis in Cutaneous Extramedullary Plasmacytoma

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**Introduction** A 67-year-old woman with a 5 year history of idiopathic thrombosis in the right internal jugular vein presented at our department with progressive skin lesions in her face, progressive thrombosis in the right internal jugular vein, and a newly found thrombosis in the left internal jugular vein despite sufficient oral anticoagulation. Monoclonal gammopathy of undetermined significance IgG Lambda was diagnosed 5 years prior to admission. Physical examination revealed massive vein convolutes spread from head over neck to the chest. Bone marrow biopsy showed no pathological findings. Magnetic resonance venography showed massive soft tissue expansion in the face with low contrast enhancement infiltrating the wall of superior caval vein and reaching the right atrium in form of a cone. Upon this structure appositional thrombus formation was found. Punch biopsy samples taken from maculous skin lesions in the face clinically suspicious of angiosarcoma revealed vascular malformation without evidence for malignancy. To get a more representative specimen deep biopsy was done. Histology showed a cutaneous plasmacytoma expressing IgG Lambda. Chemotherapy with Dexamethason, Doxorubicin and Bortezomib was scheduled. Before specific treatment was started the patient died of acute heart failure.

The autopsy showed no evidence of acute pulmonary embolism, but tumor thrombi in both jugular veins and the superior caval vein with an extension up to 19 centimetres. In face and neck an extended cutaneous tumor infiltration could be found. The bone marrow showed no evidence of infiltration. Accordingly the patient suffered from a primary cutaneous manifestation of an extramedullary plasmacytoma.

**Discussion** Cutaneous plasmacytomas are frequently diagnosed in dogs with an excellent prognosis. In humans extramedullary cutaneous plasmacytomas are scarce and little is known about treatment and progression of this malignant plasma cell tumor. Remarkable 5-year survival rates (93–98%) for primary extramedullary plasmacytomas involving skin and lymph nodes were published recently.

To make this rare diagnosis deep tissue biopsy is indispensable which reveals the characteristic pattern of densely packed atypical plasma cells in the absence of coexistent myelomatous bone marrow disease.

### Evaluation of Exoseal Vascular Closure Device in Antegrade Approaches

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**Purpose** To evaluate the effectiveness and safety of the Exoseal vascular closure device (Cordis Corporation, Bridgewater, NJ) for puncture site closure in antegrade endovascular procedures in peripheral arterial occlusive disease (PAOD) patients. For several years now, arterial closure devices have been successfully applied in the area of the femoral access site for the purpose of hemostasis. Exoseal is a bio-absorbent device based on a plug consisting of polyglycolic acid available in the sizes 5-F, 6-F, and 7-F.

**Material and Methods** In this retrospective study, a total of 168 consecutive patients who underwent an interventional procedure due to their symptomatic PAOD, were included. In each case, an antegrade peripheral endovascular procedure in Seldinger technique via the common femoral artery using Exoseal 5-F, 6-F or 7-F for access site closure took place. The primary endpoint was a technically successful application of Exoseal. All complications at the access site within 24 hours were registered as secondary endpoint.

**Results** In a group of 168 patients (64.9% men, average age 71.9 ± 11.9 years), the technical application of Exoseal was successful in the case of 166 patients (98.8%). Within the first 24 hours subsequent to the procedure, 12 complications (7.2%) were recorded. Thereby, 3 pseudoaneurysms (1.8%) and 9 hematomas (5.4%) were objectified. None of the complications required surgical intervention.

**Conclusion** Exoseal is to be rated safe and efficient with high technical success and acceptable complication rates for access site closure in case of antegrade peripheral endovascular procedures.

### The Value of FDG-PET in the Diagnosis of Thromboangiitis obliterans – A Case Series

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**Purpose** Thromboangiitis obliterans (TAO) is an inflammatory vascular disease affecting dominantly the vessels of the extremities and is etiologically strongly associated with tobacco consumption. Different imaging techniques are generally used to exclude potential differential diagnoses. We retrospectively investigated the value of <sup>18</sup>F-fluorodeoxyglucose positron emission tomography (<sup>18</sup>F-FDG-PET) in the diagnosis of TAO.

**Methods** We retrospectively analyzed all patients with diagnosed TAO between 11/2001 and 11/2003 at our institution who underwent <sup>18</sup>F-FDG-PET in the diagnostic workup. Whole body scans were conducted after a fasting period of at least 6 hours and blood-glucose levels < 180 mg/dl. The primary endpoint was defined as significantly increased vascular FDG uptake. Tracer uptake was visually determined and, in accordance with strength, divided into grade 0 to 3.

**Results** In total, 10 patients were statistically evaluated. The median patient age at the date of the first <sup>18</sup>F-FDG-PET was 41.5 years. Repetitive FDG-PET imaging was performed in 7 out of 10 patients (70%). The endpoint was objectified in a single of the initial examinations (10%), and in another one out of 7 follow-up scans (14.3%).

One positive <sup>18</sup>F-FDG-PET was observed in the pelvic vessels and the other in the infrapopliteal arteries. Therefore, increased tracer uptake could be observed in 2 examinations on 2 different patients (both with grade 3 tracer uptake) out of 17 conducted <sup>18</sup>F-FDG-PETs in total.

**Conclusion** The <sup>18</sup>F-FDG-PET was not a suitable investigative procedure for the diagnosis of TAO in the present patient cohort.

### Aortic Aneurysm in Giant Cell Arteritis – The value of D-Dimer

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**Introduction** Giant cell arteritis (GCA) is an autoimmune disorder affecting medium- and large sized arteries. The most common symptoms are related to ischemic cranial involvement. Nevertheless, asymptomatic aortic involvement may cause aneurysm and dissections. D-Dimer was discussed as a potential biomarker in the evaluation of aortic aneurysms and dissections. The aim of the study was to evaluate D-Dimer and aortic diameters measured by CT-angiography (CTA) in a cohort of GCA patients.

**Material and Methods** All patients with diagnosed GCA at least 2 years prior to enrolment underwent CTA of the thoracic and abdominal aorta. D-Dimer was assessed in all patients prior to the CT-scans.

**Results** 119 Patients with GCA (90 female) were included. 103 patients (80 female) were eligible for statistical analysis. Mean age of GCA patients was 74.0 ± 7.9 years, included 54.8 ± 33.8 months after GCA diagnosis. Mean thoracic aortic diameters (values/m<sup>2</sup> BSA) were 34.41 ± 4.69 mm (19.76 ± 3.16 mm/m<sup>2</sup>), 28.08 ± 3.67 mm (16.09 ± 2.40 mm/m<sup>2</sup> BSA) and 25.61 ± 3.37 mm (14.68 ± 2.33 mm/m<sup>2</sup> BSA) at the ascending aorta (AAT), the aortic arch (ART) and the descending aorta (DAT) respectively. Aortic ectasias, defined as aortic diameter above the 90% quartile of age adjusted reference values were present in 17 GCA patients (16.5%) at the AAT and in 16 patients (15.5%) at the DAT. Abdominal aortic ectasias were present in 31 patients (35.9%). D-Dimer was above the cut-off value of 0.5 mg/l in 62 GCA patients (60.2%). Elevated D-Dimer was present in 11 (64.7%) patients with ectasia of the AAT and in 9 (56.3%) patients with ectasia of the DAT (p = 0.790 and 0.785 respectively). Pulmonary arterial embolism was excluded in all patients by CT-angiography.

**Discussion** Recent data suggest that the risk developing aortic aneurysms after GCA diagnosis might be overestimated. D-Dimer failed to identify patients at risk for aortic dilatation secondary to giant cell arteritis. Reference values for D-Dimer are to be discussed in such a cohort of elderly patients suffering from a chronic inflammatory disease.

### HbA1c und Reobstruktion nach PTA der A. femoralis superficialis bei Diabetes mellitus Typ 2

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**Hintergrund** Diabetes mellitus ist ein wesentlicher Risikofaktoren für die Entwicklung der peripheren arteriellen Verschlusskrankheit. HbA1c ist der etablierte Parameter bei der Diagnosestellung sowie im Verlauf des Diabetes zur Kontrolle des Therapieerfolges. Atherosklerotische Läsionen in der Arteria femoralis superficialis sind von großer praktischer Bedeutung, da diese nach endovaskulärer Therapie eine hohe Reobstruktionsrate aufweisen.

Das Ziel unserer Untersuchung war die Evaluierung der Entstehung einer Reobstruktion nach PTA der Arteria femoralis superficialis in Abhängigkeit der HbA1c-Werte bei Diabetikern sowie Nicht-Diabetikern.

**Material und Methoden** Eingeschlossen wurden insgesamt 218 Patienten (130 [59,6 %] Männer, 88 [40,4 %] Frauen), davon wurden

159 Patienten mit PTA und 59 mit PTA und sekundärer Stentimplantation der A. femoralis superficialis behandelt. Der HbA1c-Wert wurde am Tag vor der Intervention bestimmt. Die Reobstruktion wurde nach 3, 6 und 12 Monaten mittels Duplex-Sonographie ermittelt, ein hämodynamisch relevanter Stenosegrad wurde mit >50%iger Obstruktion festgelegt.

**Ergebnisse** Als Indikation für die Intervention bestand bei 41 Patienten eine kritische Extremitätenischämie, bei 177 eine limitierende Claudicatio intermittens (PAVK IIb).

Bei 115 Patienten (52,8 %) war ein Diabetes mellitus Typ 2 diagnostiziert, bei 198 (90,8 %) lag eine arterielle Hypertonie als Risikofaktor vor.

Insgesamt entwickelten 55 Patienten eine Reobstruktion im PTA-Gebiet innerhalb eines Jahres.

Bei den Patienten, die eine Reobstruktion entwickelten, betrug der HbA1c-Wert im Median 5,9 % (25. und 75. Perzentile 5,7–6,4), ohne Reobstruktion 5,8 % (25. und 75. Perzentile 5,5–6,6). Der Unterschied zwischen diesen Werten war nicht signifikant (Mann-Whitney-U Test,  $p = 0,1$ ).

**Schlussfolgerung** Nach Leitlinien wird bei Diabetikern ein HbA1c-Zielwert von < 6,5 % angestrebt. Ob eine intensive Senkung eine Risikoreduktion in Bezug auf das kardiovaskuläre Risiko bedeutet, wird in aktuellen Studien kontrovers diskutiert.

In unserem Patientengut lag der durchschnittliche HbA1c-Wert bei < 6 %, ein signifikanter Unterschied bezüglich der Reobstruktion nach PTA konnte nicht gezeigt werden. Eine weitere Intensivierung der antidiabetischen Therapie bei Diabetikern mit manifester Atherosklerose im Bereich der unteren Extremitäten und stattgehabter PTA – um eine Senkung der HbA1c-Werte < 6 % zu erreichen – scheint keinen relevanten Einfluss auf eine längere Offenheitsrate im PTA-Gebiet zu haben.

## Elevated Blood Urea Nitrogen is Associated with CLI in PAOD Patients

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**Background** Chronic kidney disease is not only a vascular endpoint in atherosclerosis patients, but also accelerates atherosclerosis per se, thus leading to a vicious cycle. We therefore investigated the association of blood urea nitrogen (BUN) with the co-existence of critical limb ischemia in peripheral arterial occlusive disease (PAOD) patients after exclusion of hemodialysis patients.

**Methods and Findings** We evaluated 1521 PAOD patients without hemodialysis treated at our institution from 2005 to 2010. BUN was measured and the cohort was divided into tertiles according to the BUN. An optimal cut-off value for the continuous BUN was calculated by applying a receiver operating curve analysis to discriminate between CLI and non-CLI.

In our cohort occurrence of CLI significantly increased with an increase in BUN (13.1% in the 1<sup>st</sup> tertile, 18.7% in the 2<sup>nd</sup> tertile, 29.0% in the 3<sup>rd</sup> tertile,  $p$  for trend < 0.001). As an optimal cut-off a BUN of 17.7 mg/dl was identified. Two groups were categorized, 1 containing 636 patients (BUN < 17.7) and a 2<sup>nd</sup> group with 885 patients (BUN > 17.7). CLI was more frequent in BUN > 17.7 patients (342 [38.6%]) compared to BUN < 17.7 patients (134 [21.1%],  $p < 0.001$ ), as were prior myocardial infarction (45 [5.1%] vs. 15 [2.4%],  $p = 0.007$ ) and congestive heart failure (86 [9.7%] vs. 31 [4.9%],  $p < 0.001$ ). A BUN > 17.7 was associated with an OR of 1.6 (95%-CI: 1.3–1.9,  $p < 0.001$ ) for CLI even after adjustment for other established vascular risk factors like age > 75 years and type 2 diabetes.

**Conclusions** An increased BUN is significantly associated with a high risk for CLI and other vascular endpoints. The BUN is an easily determinable, broadly available and cheap marker, which could be used to highlight patients at high risk for vascular endpoints.

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