catheterised and perfused. The in-hospital mortality rate was 9% (3/33). Transient spinal cord ischaemia was diagnosed in 4/33 (12%) patients, and permanent paraplegia in one (3%). The median follow-up period was 11 months (range 1–33 months). Endoleaks were identified in 5/33 (15%) patients: type II in four patients and a type III endoleak in one patient which required the only secondary intervention. During follow-up, two patients died: one from stroke and the other from myocardial infarction 9 and 29 months respectively after the procedure.

Conclusion: This preliminary study, which includes our learning curve, confirms the feasibility and safety of the endovascular repair of TAAA in high-risk patients. Meticulous follow-up to assess sac behaviour and visceral perfusion is critical in order to ensure optimal results of these complex endovascular repairs requiring numerous mating components.

The Proximal Fixation Strength of Modern EVAR Grafts in a Short Aneurysm Neck. An *In Vitro* Study

Bosman W.M.P.F., Steenhoven T.J.v.d., Suárez D.R., Hinnen J.W., Valstar E.R., Hamming J.F. Eur J Vasc Endovasc Surg 2010;30:in press

Objectives: The study aims to measure the strength of the proximal fixation of endografts in short and long necks.

Design: Three types of endografts were compared: Gore *Excluder*®, Vascutek *Anaconda*® and Medtronic *Endurant*®.

Materials and methods: The proximal part of the stent grafts was inserted in bovine arteries and the graft was then attached to a tensile testing machine. The force to obtain dislodgement (DF) from the aorta was recorded for each graft at proximal seal lengths of 10 and 15 mm.

Results: The median DF (interquartile range, IQR) for the Excluder, the Anaconda and the Endurant with a seal length of 15 mm was: 11.8 (10.5–12.0) N, 20.8 (18.0–30.1) N and 10.7 (10.4–11.3) N. With the shorter proximal seal of 10 mm, DF was, respectively: 6.0 (4.5–6.6) N, 17.0 (11.2–36.6) N and 6.4 (6.1–12.0) N.

Conclusions: The proximal fixation of the Anaconda is superior to the Excluder and the Endurant at short necks of 10 and 15 mm in an experimental set-up. There is a statistically significant decrease of proximal fixation for the Excluder stent graft, when decreasing the length of the proximal neck from 15 to 10 mm.

The Influence of Different Types of Stent Grafts on Aneurysm Neck Dynamics after Endovascular Aneurysm Repair

van Keulen J.W., Vincken K.L., van Prehn J., Tolenaar J.L., Bartels L.W., Viergever M.A., Moll F.L., van Herwaarden J.A. Eur J Vasc Endovasc Surg 2010;30:in press

Objective: Dynamic imaging provides insight into aortic shape changes throughout the cardiac cycle. These changes may be important for proximal aortic stent graft fixation, sealing and durability. The objective of this study is to analyse the influence of different types of stent grafts on dynamic changes of the aneurysm neck.

Methods: Pre- and postoperative electrocardiography (ECG)-gated computed tomographic angiography (CTA) scans were obtained in 30 abdominal aortic aneurysm (AAA) patients, 10 each from three different types of stent grafts (10 Talent, Endurant, and Excluder). Each dynamic CTA dataset consisted of eight reconstructed images over the cardiac cycle. Aortic area and radius changes during the cardiac cycle were determined at two levels: (A) 3 cm above and (B) 1 cm below the lowermost renal artery. Radius changes were measured over 360 axes, and plotted in a polar plot. An ellipse was fitted over the plots to determine radius changes over the major and minor axis for assessment of the asymmetric aspect and most prominent direction of distension.

Results: Baseline characteristics did not differ significantly between the three groups. Preoperatively, the aortic area increased significantly ($p < 0.001$) over the cardiac cycle in all patients at both levels: (A) mean increase 8.3 ± 4.1% (2.0–17.3%); (B) mean increase 5.9 ± 4.2% (1.9–12.4%). The postoperative aortic area increase over the cardiac cycle did not differ significantly from preoperative increases: (A) mean increase 9.9 ± 2.2% (4.4–20.0%); (B) mean increase 7.7 ± 2.4% (3.8–12.4%). The difference between radius change over the major and minor axis was significant both pre- and postoperatively for all three stent grafts, indicating asymmetric distension. Suprarenal, the distension showed a tendency to right-anterior and infrarenal to left-anterior. The distension and direction of the aortic expansion was preserved after stent grafting. There were no differences between the three types of stent grafts regarding their impact on the aortic distension or direction of this distension.

Conclusion: The aorta expands significantly and asymmetrically throughout the cardiac cycle. After implantation of abdominal aortic stent grafts, the aortic distension and direction of distension remain equally preserved in all three groups. The three stent graft types studied seem to be able to adapt to the asymmetric dynamic aortic shape changes.

Diabetes and the Abdominal Aortic Aneurysm

Shantikumar S., Ajjan R., Porter K.E., Scott D.J.A. Eur J Vasc Endovasc Surg 2010;30:in press

Objective: The aim of this review is to delineate the association between abdominal aortic aneurysms (AAAs) and diabetes mellitus. Mechanisms for the underlying association are then discussed.

Methods: A systematic review of the English-language literature using PubMed, EMBASE and Cochrane databases was undertaken up to September 2009. Studies reporting appropriate prevalence data were identified and a meta-analysis performed.

Results: Eleven studies were identified. The prevalence of diabetes mellitus in studied patients with AAA ranged from 6% to 14%. The prevalence of diabetes in control patients without AAA ranged from 17% to 36%. Pooled analysis suggested a reduced rate of diabetes amongst people with AAA compared to those without (OR 0.65, 0.60–0.70, $p < 0.001$).

Conclusions: Studies so far suggest a protective role for diabetes on the development of AAA. Further research is required to demarcate the underlying mechanisms for this possible association.

Poor Inter-observer Agreement on the TASC II Classification of Femoropopliteal Lesions

Kukkonen T., Korhonen M., Halmesmäki K., Lehti L., Tiitola M., Aho P., Lepäntalo M., Venermo M. Eur J Vasc Endovasc Surg 2010;30:in press

Objectives: This study aims to evaluate the reproducibility of femoropopliteal TASC II classification and to analyse the influence of an educational intervention on inter-observer agreement.

Design: This is a validation study.

Materials: This study included 200 consecutive angiograms of femoropopliteal arterial lesions.

Methods: Seven investigators evaluated the first 100 angiograms, independently aided by the available TASC guide. Thereafter, the intervention included a discussion of the 25 most problematic cases, initially by a panel of 22 vascular surgeons, and later by the seven investigators to clarify grading principles. In the second stage, the 100 remaining cases were evaluated independently. A multi-rater variation of Brennan and Prediger's free-marginal kappa (κ_{free}) was used to calculate inter-observer agreement.

Results: There were lesions not fitting any of the TASC classes. Total agreement among all seven investigators was reached in 7% and 19% of the cases before and after the intervention, respectively. In the first stage, κ_{free} was 0.32 between all observers (range between two observers $\kappa_{free} = 0.11$–0.54). The intervention increased the agreement to $\kappa_{free} = 0.49$ (range: 0.20–0.56). Agreement between the two observers was 38–69% (mean 49%) before the intervention and 51–73% (mean 61%) thereafter.

Conclusions: TASC II classification for femoropopliteal lesions allows individual interpretations, and the common use of this classification as a basis for decision making and reporting outcomes could therefore be questioned.

Modified Ankle–brachial Index Detects More Patients at Risk in a Finnish Primary Health Care

Oksala N.K.J., Viljamaa J., Saimanen E., Venermo M., on behalf of the ATTAC study group Eur J Vasc Endovasc Surg 2010;30:in press

Objectives: Despite peripheral arterial disease (PAD), defined as ankle–brachial index (ABI) ≤ 0.9, being an independent predictor of cardiovascular morbidity and mortality, it is rarely used in the primary care. Various definitions for PAD (i.e., ABI ≤ 0.9 or ABI ≤ 0.95) exist. In addition, a modified ABI (ABI_{mod}) using the lowest ankle pressure improves identification of patients at risk. The prevalence of PAD in primary care and association of different ABI calculations with atherosclerotic disease burden is not known.

Design: The research was conducted as a prospective cross-sectional study. Finnish health centres and 99 general practitioners were selected and trained for ABI measurement. Consecutive patients were recruited using inclusion criteria: age 50–69 years and one or more cardiovascular risk factors or age ≥70 years or calf pain during exercise. A total of 817 patients were recruited.

Methods: Research methods included interview and Doppler measurement of brachial and ankle pressures.

Results: An $ABI_{mod} \leq 0.9$ yielded the highest prevalence of PAD (47.7%), had the best sensitivity and identified the highest number of patients with coronary artery disease (CAD), cerebrovascular disease (CVD), PAD, CAD/CVD/PAD and polyvascular disease (PVD) at the cost of reduced specificity. All ABI calculations were independently associated with atherosclerotic disease burden. Interestingly, ABI ≥ 1.4 had the strongest association with CVD.

Conclusions: PAD is highly prevalent among patients presenting to primary care. ABI_{mod} calculation detects more number of patients at risk at the cost of reduced specificity. The association of high ABI with CVD noted in this study warrants future research for validation.