vascular devices and an overall tendency toward endovascular treatment of complex aortic cases, minimising complications becomes increasingly important. Albeit worldwide clinical usage, there is still a lack of long-term follow-up data for many “second generation” endograft types. Our objective was to identify factors associated with LGO after EVAR.

Methods: Between 2013-2018, all patients undergoing standard EVAR for infrarenal aortic aneurysms at two high-volume Vascular referral centers were included in this study. Cases treated with fenestrated or branched endografts were excluded. Patients were identified through a national registry for Vascular Surgery and all pertinent data was retrospectively collected from patient electronic medical records. LGO was defined as a symptomatic total limb occlusion requiring intervention.

Results: Mean age at primary intervention for the 639 patients included was 75.3 years and 85.5% were men. Three graft manufacturers were predominantly used; Medtronic Endurant (n=274), Cook Zenith (n=243) and Gore Excluder (n=122). All grafts were bifurcated and the majority were deployed in an elective setting (77.5%). Median follow-up time for respective groups was 52, 21 and 25 months. A total of 29 patients presented with LGO (4.5%); 8 patients treated with Medtronic (2.9%), 19 with Cook (7.8%) and 2 with Gore (1.6%). Cox proportional hazard regression models were used to estimate multivariable hazard ratios (HR) with 95% confidence intervals (95% CI) of LGO during follow up. The multivariable HR of LGO was increased more than 6-fold in the Cook Zenith group, compared with Medtronic (2.9%); 19 with Cook (7.8%) and 2 with Gore (1.6%).

Conclusions: In this study, endograft device type was identified as an independent risk factor for LGO after EVAR. Specifically, limbs in the Cook Zenith endografts were observed to occlude at a 6 times higher rate compared with the Medtronic Endurant or Gore Excluder devices.

Disclosure: Nothing to disclose.

O-013 Morphological and Biomechanical Evolution of Abdominal Aortic Aneurysms During Surveillance

Abdominal Aortic Diseases

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Introduction: Diameter growth of abdominal aortic aneurysms (AAAs) is described as discontinuous, erratic and non-linear. The fastest diameter growth in aneurysms does not always occur at the level of the maximal diameter, and volume may be a more sensitive marker of disease progression. Biomechanical parameters, such as peak wall stress (PWS) and peak wall rupture index (PWRI), are suggested as means to improve the estimation of rupture and growth risk in AAAs, but their change over time is largely uncharacterized.

Methods: Patients from the outpatient clinic at our hospital 2012-2013 who had performed ≥3 computed tomography angiograms (CT-As) during surveillance were included. This yielded, in total, 197 CTAs from 47 patients. Thirty-eight patients (81%) were male and 40 patients (85%) were current or former smokers. A median of 4 [IQR 3 - 4.5] CTs were included per patient. The mean follow-up time was 5.2±2.7 years, and the mean time between CT-As was 2.7±1.5 years. CT-As were analyzed with A4Clinics (VASCOPS GmbH) with respect to semi-automatic geometry and biomechanical parameters. Linear mixed-effects models with patient-specific random intercepts and slopes were used to analyze the time-change of morphological and biomechanical parameters.

Results: At baseline Dmax was 42.3±7.7 mm and PWS was 158.3±40.8 kPa. The mean growth of Dmax was 2.74 mm/year. Both PWS and PWRI increased with time, 8.36 kPa/year and 0.03/year respectively. Qualitatively, neither Dmax nor aneurysm volume displayed significant erratic or staccato growth. Intraluminal thrombus (ILT)-volume grew faster than luminal volume for 32 patients (68.1%) (9.15 cm³/year vs 5.48 cm³/year). In a multivariate model, controlling for aneurysm volume, luminal volume growth correlated positively with increasing PWS and PWRI (0.97 kPa/cm³, p<0.001 and 0.002/cm³, p<0.001). ILT-volume growth however, correlated negatively with both PWS and PWRI (-0.94 kPa/cm³, p<0.001, and -0.002/cm³, p<0.001)
Ever smokers, and current smokers had an increased Dmax (0.45 mm/y, \( p = 0.038 \)) and volume growth (5.37 cm³/y, \( p < 0.01 \) and 10.58 cm³/y, \( p < 0.01 \)) compared to non-smokers. There was no difference in growth of Dmax or volume for women compared to men (-0.01 mm/y, \( p = 0.963 \), and -2.93 cm³/y, \( p = 0.134 \)). Statins were associated with a decreased volume growth rate (-4.167 cm³/y, \( p < 0.01 \)).

**Conclusion:** Our results support previous findings that smoking is related to an increased aneurysm growth, and that statins decrease aneurysm growth rates. Interestingly, semi-automatic Dmax and volume growth of AAAs are generally not erratic or discontinuous. The ILT grows faster in a majority of patients with AAAs but increase of luminal volume seems to be more closely related to an increased biomechanical stress.

**Disclosure:** TCG is a scientific advisor for VASCOPS GmbH.

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**O-014 Prophylactic Inferior Mesenteric Artery (IMA) Embolization is Unnecessary Before Endovascular Aneurysm Repair (EVAR)**

**Abdominal Aortic Diseases**

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*Shared Last Position*

**Introduction:** The impact of the patent inferior mesenteric artery (IMA) at the preoperative imaging before endovascular aneurysm repair (EVAR) on the occurrence of type II endoleak is under intense debate. Few studies have concluded that persistent type II endoleak is associated with adverse outcomes such as aneurysm sac growth and rupture and therefore requires often re-intervention. Prophylactic IMA embolization before EVAR has also been suggested but the benefits of this strategy are controversial. The aim of the current study was to compare two different strategies in the treatment of open IMA prior EVAR: According to strategy A an attempt to embolize the patent IMA was left untouched.

**Methods:** All patients who underwent elective EVAR due to infrarenal AAA during 2005-2015 were reviewed retrospectively in two centres. Information on endoleaks, aneurysm or EVAR related re-procedures and secondary sac ruptures were collected case histories and surveillance images. Primary endpoint was re-intervention rate due to type II endoleak and IMA-related re-intervention rate. Secondary outcome measures were overall re-intervention rate, conversion rate, and aneurysm rupture rate. Statistics Finland provided the dates and causes of deaths.

**Results:** In Strategy A group altogether 346 patients were treated. IMA was patent in 234 (67.6%) patients and successful embolization was performed for 148 (42.7%) patients. The mean follow-up was 68 months. The corresponding figures for Strategy B were, 357 patients with 292 (81.8%) patent IMAs of which only 2 (0.6%) were embolized. The mean follow up for group B was 62 months. At the first imaging performed 1-3 months after EVAR 19.9% of the Strategy A patients and 24.8% of the Strategy B patients had an endoleak (\( p = 0.16 \)). Re-procedure rate due to type II endoleak was 10.3% and 8.3% respectively (\( p = 0.3 \)) (1.8/100 person-years (py) and 1.6/100 py respectively). There was no statistical significant difference in the re-procedure rate to occlude a patent IMA (1.7% and 3.0% Strategy A and B respectively, \( p = 0.24 \)).

**Conclusion:** A patent IMA can be detected in most preoperative CT images prior to EVAR. The strategy to routinely embolize the patent IMA doesn’t seem entail any significant clinical benefit and should, therefore, be omitted.

**Disclosure:** Nothing to disclose

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**O-015 Contemporary Results of Elective Open Repair of Juxta- and Suprarenal Aortic Aneurysms**

**Abdominal Aortic Diseases**

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**Introduction:** Endovascular treatment of juxta- and suprarenal aneurysms has gained popularity recently, but there is no unequivocal evidence to support f/bEVAR or chimney technique. The new European guideline on the treatment of aortic aneurysms contains recommendations based on low level of evidence about the ideal operative solution leaving the decision to the individual surgeon based on local experience. Our aim was to analyse the contemporary results of open surgery in a high volume open surgical center with limited access to f/bEVAR.

**Methods:** Single center retrospective analysis was carried out in a tertiary care university center. Ninety-four consecutive cases were included in the study between 2005 and 2017. All patients who were not a candidate for standard EVAR had elective open repair for juxta- and suprarenal aortic aneurysms. We compared the results of two cohorts: cases requiring suprarenal (SR) or supraceliac (SC) aortic clamping. We used Student’s t-test, chi square test, Fischer’s exact test and Kaplan-Meier survival analysis.