Results: Of 16,043 patients undergoing CEA in 2012–13, 276 received at least one transfusion prior to discharge (1.7%). 42% of transfusions occurred on the day of surgery. Patients receiving a transfusion had worse clinical 30-day outcomes: stroke (6% vs. 1% for control group, $P < 0.001$); myocardial infarction (8% vs. 1%, $P < 0.001$); mortality (6% vs. 0.6%, $P < 0.001$) (Fig.1). Preoperative hematocrit < 30% (Odds ration OR: 57.4; 95% confidence interval CI: 29.6-111.1), dependent functional status (OR: 2.7; 95%CI: 1.5-5.1), coagulopathy (OR: 2.5; 95%CI: 1.7-3.6) and creatinine ≥ 1.2 mg/dl (OR: 2.3; 95%CI: 1.6-3.3) among other risk factors predicted transfusion (Fig.2). A risk prediction model based on these data produced a C-statistic of 0.861; application of this model to the validation set demonstrated a C-statistic of 0.850. 97% of patients in the validation set received a score of 4 or less corresponding to an individual predicted transfusion risk of 5% (Fig.3). Omitting a T&S in these patients would generate a potential annual cost saving for NSQIP hospitals of over $5,400,000 based on our institutional cost.

Conclusion: While T&S is commonly performed for patients undergoing CEA, transfusion following CEA is rare and well predicted by a transfusion risk score. Avoidance of T&S in this low-risk population provides a substantial cost-saving opportunity without compromise of patient care.

Use of the STAT (Sutureless Telescoping Anastomosis Technique) to facilitate supraaortic revascularization: Mid-term Results:

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Objective: We report the mid-term results of use of a sutureless telescoping anastomosis technique (STAT), the modification of technique initially described as VORTEC, for revascularization of supra-aortic vessels.

Methods: Between January 2009 and December 2004, 55 patients (37 males) with an aortic arch lesion underwent trans-sternal debranching with sutureless telescoping anastomosis. The underlying aortic pathologies were: isolated aortic arch aneurysm (10 patients), aortic arch aneurysm extending to ascending or descending aorta (26), subclavian artery aneurysm (3), traumatic aortic rupture (1), aortic dissection (10), and other arch pathologies as aortic ulcer of floating thrombus (5). Follow-up included computed tomography angiography at 1, 3, and 6 months postoperatively, and then annually.

Results: Overall, 148 supra-aortic vessels in the 55 patients were revascularized: 127 by STAT and 21 by sutured surgical anastomosis. Immediate technical success was 100%. There was no early graft occlusion and late graft occlusion was detected in two patients. Perioperative mortality was 7.3% (one postoperative bleeding, one retrograde dissection, one MOF (multi-organ failure) and one cerebral bleeding). Mean follow-up (FU) at June 2015 was 45.12 months: 45 patients with FU more than 2 years, 36 more than 3years and 23 more than 4 years. Patients' cumulative survival at 4 years was 84%. There were no difference in patency rate between STAT and sutured anastomosis.

Conclusion: Sutureless telescoping anastomosis technique (STAT) reduces technical difficulties and invasiveness of aortic surgery (reduces ischemia time, no clamping or circumferential dissection). This technique allows performing anastomosis where sutured anastomosis is challenging (dissection, intramural hematoma). Mid-term results confirm that sutureless anastomosis is safe and reliable alternative to sutured one.

Modern fixed imaging systems reduce radiation exposure to patients and providers

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Objective: Endovascular therapy for aortic and peripheral interventions is increasingly becoming the first line treatment modality for a wide array of disease processes. High definition fluoroscopic imaging is required to perform these procedures, which are furthermore growing in complexity resulting in high radiation exposure to patient and providers. This is of particular importance for training institutions as residents and fellows despite instruction in ALARA principles tend to have high radiation exposures. Recently, there was an upgrade of the fixed imaging system at our institution. We used this opportunity to compare radiation exposure to patients and providers before and after the upgrade.

Methods: We performed a retrospective analysis of consecutive EVAR and SFA interventions at our institution in the years 2013–14 and created two cohorts: pre and post upgrade. We analyzed BMI, fluoroscopy times (FT) and air kerma (AK), and then matched 1:1 based on fluoroscopy times as well as BMI. We also analyzed individual surgeons' badge readings. The fixed imaging system was Allura Xper FD20 and was upgraded to Allura Clarity FD20 (both Philips Heathcare).

Results: We identified a total of 76 EVARs (53 pre, 23 post) and 123 SFA interventions (99, 24) yielding cohorts of 23 patients each for EVAR analysis and of 24 patients each for SFA analysis. Complete data are shown in table 1. There was a 52% reduction in AK for EVAR and 72% for SFA interventions, respectively ($p < 0.001$ for both). 5/6 surgeons experienced a reduction in their average monthly badge readings after system upgrade (Figure 1), most notably the fellow from 512 to 109 mrem ($p = 0.0032$).

Conclusion: Aortic and peripheral endovascular interventions can be performed with reduced radiation exposure to patients and providers employing modern fixed imaging systems. This is of particular importance in light of more complex procedures such as fenestrated and branched endografting that will require substantial fluoroscopy to perform.

Treatment effect of preemptive embolization of the inferior mesenteric artery prior to endovascular aortic repair

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Objective: The early postoperative benefits after endovascular aneurysm repair (EVAR) need to be balanced against late complications and re-intervention rates. The role of type II endoleaks (EL) and their treatment unclear. The aim of this study is to report the treatment effect of preemptive embolization of the inferior mesenteric artery (IMA) prior to EVAR.

Methods: We analysed all patients treated with elective EVAR between January 2001 and December 2012. Size and patency of the IMA were assessed from the latest preoperative CT-angiography. Preemptive embolization had been performed if the IMA-diameter was ≥3mm. To maximize comparability between patients' measurements, we linearly interpolated diameters in time to obtain two-year endpoints for patients not having CT-scans at 24 ± 1 month. Study endpoints included aneurysm diameter change after 24 months, type II EL and re-interventions as well as overall survival. Follow-up controls were performed with CT angiography at 1 month, 6 months, 12 months and annually thereafter.

Results: During this period 251 patients underwent EVAR for abdominal aortic aneurysm. 42 patients with preoperatively occluded IMA were excluded. Of those with patent IMA, 46/209 (22%) underwent preemptive IMA embolization. Mean follow-up time was 6.2 years (range 1.5-13.4 years). At baseline as well after 24 months, there was no significant difference regarding aneurysm diameter between the embolized and the non-embolized group, (56.9 ± 8.9mm vs. 56.6 ± 9.8mm, $p = 0.88$ and 52.6 ± 17.2mm vs. 50.8 ± 17.7mm, $p = 0.55$ respectively). Type II EL due to patent IMA was higher in the non-embolized 36/163 (22%) vs. 1/46 (2%) in the embolized group ($p \leq 0.001$). Three (1.8%) late embolizations of the IMA were needed because of aneurysm sac progression in the non-embolized group and no re-intervention was needed in the embolized group. No difference in mortality rate was detected at any time between both groups (0.6% vs 0.0%, $p = 0.594$ after 30-days; 5.5% vs. 4.3%, $p = 0.753$ after 1 year; 16.8% vs. 11.6%, $p = 0.425$ after 3 years and 38.3% vs. 23.3%, $p = 0.116$ after 5 years follow-up, respectively).