of the proposed scheduled follow-up are minimal if the initial CTA shows no abnormalities.

Disclosure: Nothing to disclose

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O-006 Radiation Exposure Associated with Endovascular Aortic Repair and the Lifetime Risk of Malignancy

**Abdominal Aortic Diseases**

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**Introduction:** The risks associated with low dose ionising radiation exposure to patients during endovascular aortic interventions and with lifelong follow-up imaging are unknown. We examined these exposures and estimated the associated malignancy risk.

**Methods:** Cumulative radiation dose to individual organs after infra-renal (IEVAR), fenestrated (FEVAR) and branched endovascular aortic repair (BEVAR) was calculated using PCXMC Monte Carlo Modelling. Any radiation exposure related to re-interventions and CT imaging was also included. Input data included, dose area product (DAP), field size, x-ray energy spectra, and beam angle. Lifetime cancer risk was estimated using the online risk estimation tool RadRAT.

**Results:** 147 patients (IEVAR n=60; FEVAR n=57; BEVAR n=30, operated between 2015-2018) were included. Their median age was 77 (range: 53-90) years and median body mass index was 27.1 (15.7-44.7). The median DAP was 73 458 (3 777-482 901) Gycm², 118 758 (5 030 - 666 293) Gycm², and 155 159 Gycm² (2 677-777 360) per IEVAR, FEVAR and BEVAR, respectively (IEVAR vs. BEVAR p < 0.05).

The median cumulative effective dose was 42.1 (3.2 - 316.6) mSv, 67.8 (15.3 - 380.9) mSv and 77.6 (17.1 - 400.9) mSv per IEVAR, FEVAR and BEVAR, respectively (IEVAR vs. FEVAR p < 0.01, IEVAR vs. BEVAR p < 0.01).

Overall, BEVAR was associated with the highest excess lifetime malignancy risk: leukaemia 1 in 1176 (90% CI 1 in 4991-362), lung cancer 1 in 1338 (90% CI 1 in 2354-628) and colon cancer 1 in 1503 (90% CI 1 in 1947-362). The risk for leukaemia after IEVAR was 1 in 2320 (90% CI 1 in 5919-484) and for colon cancer 1 in 4694 (90% CI 1 in 3008-963). For FEVAR the associated leukaemia risk was 1 in 2380 (90% CI 1 in 9637-587), colon cancer 1 in 3745 (90% CI 1 in 4440-134) and lung cancer 1 in 4385 (90% CI 1 in 7704-1555).

Modelling using this strategy suggests that for a 60-year male the excess lifetime risk at 5 and 15-year follow-up after BEVAR, respectively are: leukaemia 1 in 147 (90% CI 1 in 578 - 67) and 1 in 143 (90% CI 568 -65), kidney cancer 1 in 168 (90% CI 1 in 1594 - 66) and 1 in 167 (90% CI 1 in 1583-65), colon cancer 1 in 209 (90% CI 1 in 389 - 127) and 1 in 198 (90% CI 1 in 370-120), and lung cancer 1 in 260 (90% CI 1 in 549-146) and 1 in 240 (90% CI 1 in 513-133).

**Conclusion:** Recent reports suggest a raised incidence of malignancy in patients after endovascular as opposed to open aortic repair. Our modelling work demonstrates that this risk is likely to be small for the majority of repairs but rises significantly for the younger patient who has an extensive intervention, such as BEVAR, and requires lifelong CT follow up. Such modelling tools could be used to identify individuals at particular risk from radiation exposure and may provide information that impacts treatment choice.

Disclosure: Nothing to disclose

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O-007 The Influence of Gender on Outcomes Following Elective Repair of Asymptomatic Large Abdominal Aortic Aneurysms

**Abdominal Aortic Diseases**

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**Introduction:** Vascular Services Quality Improvement Program (VSQIP) was introduced in the United Kingdom in order to reduce mortality from elective repair of AAA. Prior to introduction of VSQIP women had lower survival rates from AAA repair (1). This study examines the influence of gender on perioperative outcome and post operative survival following elective repair of AAAs in the 10 years after implementation of the (VSQIP) in a regional vascular surgery center in the United Kingdom.

**Methods:** Patients who underwent elective repair of AAA in a specialist vascular center between 1st January 2008 and 31st March 2018 were included. All patients were assessed using the nationally agreed Vascular Services Quality Improvement Programme care pathway for AAAs. The VSQIP pathway involved anesthetic assessment prior to intervention which included cardiopulmonary exercise testing as well as contrast enhanced CT scan of aorta. This was followed by multidisciplinary assessment to plan each patient’s treatment. Each CT scan was examined to assess
the morphology of AAA. Patients were stratified by age, gender, AAA morphology and preoperative anaerobic threshold. Postoperative survival was assessed using Kaplan-Meier analysis. Multivariate logistic regression analysis was used to determine predictors of perioperative mortality.

Results: A total of 702 patients underwent elective repair of AAA of whom 632 were men and 70 were women. The mean age of study cohort was 73.5 years (std. dev: 7.3) and mean AAA diameter was 62 mm (std. dev.: 9.9). Two hundred and forty four patients underwent open repair, 402 underwent standard infra renal EVAR and 56 underwent complex EVAR with perioperative and 30 day mortality of 1.13%. Anaerobic threshold < 8 (HR: 95%CI: 2.01 (1.09-3.32)), complex aneurysm morphology [HR (95%CI): 4.55 (1.51-7.33)] were independent risk factor for perioperative mortality, whilst female gender [(HR (95%CI): 0.98 (0.92-1.68)] was not. There was no difference in post-operative survival between men and women who underwent elective repair of AAA (Log rank: 1.82 P=NS)

Conclusion: Following the implementation of VSQIP female gender is no longer a significant risk factor for perioperative mortality or postoperative reduced survival following elective repair of large asymptomatic AAA.

Disclosure: Nothing to disclose