for surveillance of the aortic endografts. It is estimated that use of CT may be associated with 2% of all cancers. Society for Vascular Surgery (SVS) guidelines call for additional research into redefining the surveillance protocols. We will report on the estimated risk of radiation associated malignancy in patients undergoing routine surveillance CTA using Biological Effects of Ionizing Radiation (BEIR VII) model created by US National Institute of Science.

Methods: This is a retrospective study of patients who had EVAR .Included in the study were patients (n=101) who had at least a 4 year follow-up with CT using existing protocols (CT at 1, 6, 12, 18,24,26,48 months). Radiation dose administered to the patient were calculated in Sieverts. Excess relative risks (ERR) of malignancy was determined using the BEIR VII method, where ERR = β_s D exp {γe^*} $(a/60)^{\eta}$, where β_s, γ, and η are data derived parameters, e is age at exposure and e^* = (e-30)/10 for e < 30 and zero for e ≥ 30, a is attained age, and D is dose in Sieverts. We calculated dose weighted ERR's to look at the difference with respect to cumulative risk of malignancy between using a CT at all time points (0,1, 6, 12, 18, 24, 36, and 48 months) versus replacing CT with ultrasonography(USG) at 6, 18, and 24 months. Statistical analysis was performed with paired t-tests.

Results: There were significant differences between dose weighted cumulative ERR of malignancy in group of patients using CT at all time points as against replacing a few with USG ($P < .0001$). There is an increased life time risk for acquiring new malignancy secondary to radiation risk due to CTA (Fig, *A*). The risk of cancer from radiation is higher in younger people. The differences in cumulative ERRs was highest at the 50-55 age group, at 1.11, and lowest at the 80+ years age group, at 0.60 (Fig, *B*).

Conclusions: Routine surveillance CTA imaging following EVAR carries significant risk for acquiring new onset of malignancy which can be reduced by replacing the evaluation with ultrasonography. The results of the study suggest an acute need for reducing the frequency of CT studies and replacing with alternate imaging modalities.

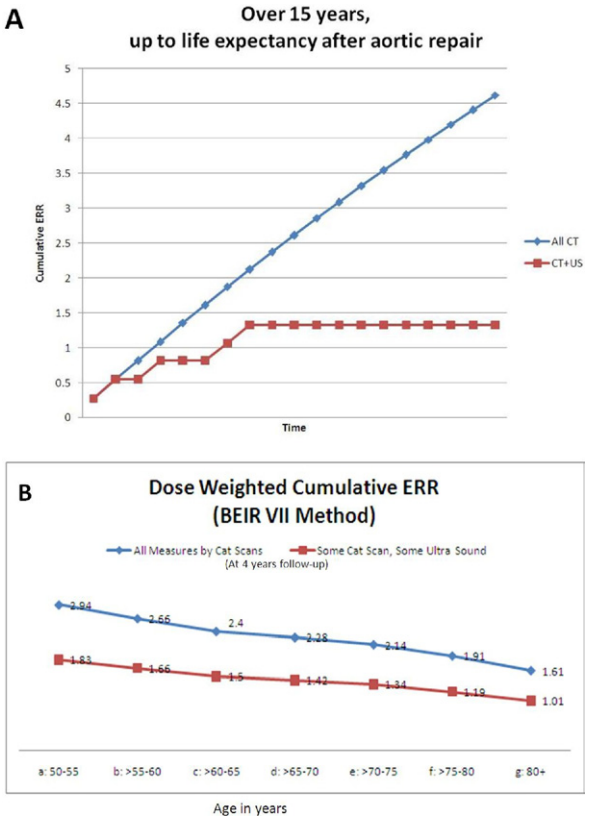

Fig.

Evaluation of Trends in the Management of Abdominal Aortic Aneurysms at a Single Institution: Cases from 2000 - 2010

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Objective: To evaluate, amongst patients undergoing elective repair of infrarenal abdominal aortic aneurysms (AAA), the longitudinal trends in surgical techniques (open vs. endovascular (EVAR)), factors associated with the choice of surgical technique, and differences in the rate of in-hospital mortality.

Method: This cohort study used data from the prospectively collected London Health Sciences Centre vascular surgery database for all patients undergoing elective repair of an infrarenal AAA between June 2000 and May 2010. Data were collected on surgical techniques, demographics, and outcomes. Data were analyzed using univariate statistics and multivariable logistic regression with data presented as odds ratios (OR) and 95% confidence intervals (CIs).

Results: A total of 1942 patients underwent AAA repair over the study period, 1067 (54.9%) via open and 875 (45.1%) via EVAR. The proportion of patients undergoing EVAR was significantly higher in the latter half of the study period (32% vs 60%, $P < .001$). Results of logistic regression comparing open and EVAR repair can be found in Table 1. The overall mortality rate in both groups was low (1.8% for EVAR and 3.5% for Open), and after adjustment for ASA and age, there was no significant difference in mortality between the two groups (OR 1.4, 95% CI 0.7 - 2.6).

Conclusions: Our analysis shows a significant shift towards an endovascular approach in the repair of infrarenal AAA. There is also a demonstrable increased use in higher-risk patient populations with no resultant increase in mortality.

Table 1. Results of logistic regression comparing patients who received open vs. endovascular repair of infrarenal AAA

	Open (n = 1067)	*EVAR (n = 875)*	*Odds ratio (95% CI)*
Age in years, mean (SD)	71.3 (8.05)	74.7 (8.04)	0.94 (0.92 – 0.95)
Female, n (%)	189 (17.7)	109 (12.5)	1.46 (1.01 – 2.11)
ASA Score, n (%)			0.04 (0.03 – 0.06)
I	0 (0)	0 (0)	
II	4 (0.4)	8 (0.9)	
III	1028 (97.2)	227 (26.2)	
IV	25 (2.4)	633 (72.9)	
Length of hospital stay in days, mean (SD)	9.26 (9.14)	5.03 (9.71)	1.16 (1.11 – 1.20)
Need for ICU, n (%)	86 (8.1)	32 (3.8)	1.42 (0.75 – 2.68)
Timing of repair, n (%)			0.61 (0.47 – 0.88)
2000 – 2005	688 (68.5)	316 (31.5)	
2006 – 2010	379 (40.5)	559 (59.6)	

Acute Type B Dissection: Intervention for Rupture or Impending Rupture

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Objective: Operative procedures for acute type B aortic dissection (ABAD) are usually performed in the setting of complications. This study focuses on outcomes for repair of ABAD for indications of rupture or impending rupture.

Methods: Of the 383 patients admitted with ABAD (1995-2010), 41 (10.7%) underwent open (DTAR, 18) or endovascular aortic repair (TEVAR, 23) for rupture or impending rupture at a median of 3.5 days following presentation. Indications for intervention included rupture (17) or factors portending rupture including rapid expansion (11), uncontrolled pain (13), aortic size >5.0 cm (13) or refractory hypertension (2). 11 patients had multiple indications. Isolated intramural hematoma was present in 10. Extent of repair included arch (32, 78%) or total descending aorta (16, 39%). Selection of therapy was based upon age and extent of comorbidities. TEVAR, though available since 1993, was preferentially used since 2007. Patients undergoing TEVAR were older and more frequently had prior MI, renal failure, tobacco use history, or Debakey IIIA ABAD (all $P < .05$).

Results: 30-day mortality was 17% (n = 7). Morbidity included stroke (3), renal failure needing dialysis (3), or permanent paraplegia (3). Independent correlates of a composite outcome of mortality and these morbidities included presentation with rupture ($P = .02$, OR 7.6) or active tobacco use ($P = .02$, OR 9.8), but not treatment strategy ($P = .18$). 8 yr Kaplan-Meier survival was 49.4%. Independent predictors of late mortality included occurrence of perioperative stroke or presentation with aortic rupture during late follow-up (both $P < .002$). 8 yr freedom from aortic rupture or reintervention was 76.6%. When compared to open repair, TEVAR had a similar late survival (3 yr 67.1% vs. DTAR 72.2%, log rank $P = .8$), and rate of false lumen thrombosis ($P = .56$). 3 yr freedom from aortic reintervention or rupture was higher after open repair (DTAR 94% vs. TEVAR 61%, log rank $P = .16$).

Conclusion: Intervention for acute type B dissection complicated by rupture or impending rupture remains associated with significant rates of early and late morbidity and reintervention. Understanding the baseline differences in the treatment groups presented in this study, these data support the use of an endovascular approach for this indication in acute dissection.