

**Objective:** Thoracic Endograft (TAG) placement has become an acceptable treatment alternative to open surgical repairs. It has been shown that risk factors for developing a stroke during TAG are obesity, blood loss and vascular embolization. Manipulation of the aortic arch during cardiac catheterization has likewise been identified as a source of cerebral embolization. The influences of endograft placement on cerebral embolization and flow is not well described. As such, our aim is to quantify the number of microembolic signals (MES), velocities (VEL), and pulsatility index (PI) detected by Transcranial Doppler (TCD) during different stages of the endograft placement and correlate them with landing zones, subclavian revascularization and number of devices used.

**Methods:** Twenty (20) patients were monitored with TCD during endovascular repair of the thoracic aorta. Imaging and medical parameters were entered into a combined database. We recorded middle cerebral artery (MCA) velocities, pulsatility index (PI) and embolic count.

**Results:** TCD monitoring was successful in all patients. The highest MES counts were generated by the pig tail catheter during the diagnostic stage (DS) and by device placement during deployment phase (DP). Embolic count to right/left (Rt/Lt) sides were the same overall. In DS an average of 8.65 MES were seen Rt/Lt, while during DP 45.40 and 42.68 MES were seen respectively for Rt and Lt. Baseline MCA velocities were similar for Rt and Lt and increased significantly from baseline during balloon inflation from (Rt. 33.5 to 50.2 p-value 0.02; Lt 32.5 to 47.2 p-value 0.001). Similarly, the pulsatility index increased from 0.95 (Rt) and 1.02 (Lt) to 1.43 (Rt) and 1.38 (Lt) (p-value 0.0005 and 0.0009 respectively for Rt and Lt). There was no correlation between post-operative stroke TIA, arch type, landing zone or coverage of the subclavian artery and number of MES.

**Conclusions:** The ability of TCD to detect cerebral emboli and alterations in flow patterns is important to reveal which steps of thoracic endografting are most likely to provoke emboli and hemodynamic changes. It also has a potential to compare endografts and their capacity to generate emboli.

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#### PP18.

##### The Effect of Ethnicity and Insurance Type in the Early Adoption of Thoracic Endovascular Repair (TEVAR)

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**Background:** Mortality and complication rates for open thoracic aortic aneurysm repair have declined but still remain high. Recently with the introduction of TEVAR morbidity and mortality have improved, but in a large general population are unknown. The purpose of this study is to determine the influence of ethnicity and insurance type on procedure selection and outcome following TEVAR.

**Methods:** Using the Nationwide Inpatient Sample (NIS) database ethnicity and insurance type were evaluated against the outcome variables of mortality and complications associated with thoracic aneurysm repair.

**Results:** Between 2001-2005, a total of 875 patients undergoing TEVAR were analyzed with a significantly greater proportion of Caucasians over African Americans and Hispanics (650, 104, and 49, respectively) with 72 patients categorized as other. The majority of subjects in all races were male and most of the procedures were elective. The overall mortality was 13.3% (n=117) and spinal cord ischemia was 0.8% (n=7) with no difference between ethnicity and insurance type. Significant differences were notable in all demographic characteristics among races including gender (p=0.003), income (p<0.0001), hospital region of surgery (p<0.001), hospital bed size (p=0.013), and insurance type (p<0.001). Variations in demographic characteristics were also present in the univariate analysis associated with insurance classifications with significant differences in gender (p<0.001), surgery type (p=0.009), income (p=0.003), race p<0.0001 and comorbidity index (p<0.0001). Bivariate analysis by race resulted in few statistically significant differences except for infection (p=0.007) and other complications (p=0.003) with African Americans and Hispanics having a higher incidence respectively. Bivariate comparison by insurance resulted in a greater number of significant differences including nonroutine discharge (p=0.009), intestinal ischemia (p=0.039), and transfusions (p=0.003).

**Conclusions:** There is a significant difference in ethnicity in the repair of thoracic aneurysms but no difference in mortality among groups. The incidence of spinal cord ischemia is very low with no difference between groups. Ethnicity and type of insurance is associated with a higher risk of complications with TEVAR.

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#### PP19.

##### TEVAR in Female Patients: Increased Aortic Coverage is Associated with a Higher Risk of Spinal Cord Ischemia

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**Background:** There is a paucity of literature regarding thoracic endovascular aneurysm repair (TEVAR) in women. We report our institutional experience with TEVAR in women.

**Methods:** A retrospective chart review was performed. Case planning was done with CTA. Patients with small access vessels received a 10mm common iliac artery (CIA) conduit. Patients received a CTA 30-days post-operatively. Post-operative stroke was diagnosed clinically and by cerebral imaging. Spinal cord ischemia (SCI) was diagnosed clinically with negative cerebral imaging.

**Results:** TEVAR was performed in 51 patients for a variety of aortic pathologies; of these 29 (56%) were female. The mean age of women was 73.5 years. Mean TAA diameter was larger for women than for men (5.9 cm vs. 4.7 cm). TEVAR was performed more often on an urgent basis in women as compared to men (20.7% vs. 9.5%, p= NS). There was a trend towards pain as the predominant presenting symptom in women as compared to men (44.8% vs. 22.7%, p= NS). There was a statistically significant difference in the need for a CIA conduit in women compared to men (48.3% vs. 20.0%, p<0.05). This was not associated with an increase in peripheral ischemic complications or an increase length of stay (LOS). There were no differences in endoleak rate, stroke, or post-operative death. Although not statistically significant, there was a concerning trend towards an increase in paraplegia in women, 10.3% versus 4.8%. This may be related to the statistically significant increase in the total length of aortic coverage required in women compared to men, 18.2 cm versus 15.2 cm (p<0.05).

**Conclusion:** Our data suggests that TEVAR in women is safe and effective. Women presented more frequently with indications for urgent intervention. As expected, women require a conduit more often due to smaller access vessel size, but this does not increase the rate of peripheral ischemic complications or LOS. The length of aortic coverage is greater in women than in men, and this may be related to their being treated for larger aneurysms and more advanced or diffuse disease. The increase in length of coverage appears to be associated with a concerning increase in postoperative paraplegia. Female patients undergoing TEVAR should be considered for prophylactic maneuvers to prevent SCI, including minimizing length of coverage.

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#### PP101.

##### Carotid Angioplasty and Stenting: Treatment of Post CEA Restenosis is at Least as Safe as Primary Stenosis Treatment

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**Objectives:** To compare Transcranial Doppler (TCD) and outcome of Carotid Angioplasty and Stenting (CAS) in post Carotid Endarterectomy (CEA) restenoses versus primary atherosclerotic stenoses.

**Design:** Retrospective analysis of prospectively accumulated database.

**Material and Methods:** 812 CAS procedures were divided into two groups: group 1: 72 restenoses; group 2: 740 primary stenoses. Clinical endpoints: cerebral ischemic events and death. TCD endpoints: numbers of isolated micro emboli and micro embolic showers, during five procedural phases. Mann-Whitney U test and  $\chi^2$ -test were used. To test for independence of variables the Mantel-Haentzel test and univariate regression analysis were performed. P<.05 was regarded as statistically significant.

**Results:** Groups were evenly matched for demographic data (median age: 70 vs. 71 years, male: 44/72 [61%] vs. 525/740 [71%], symptomatic 14/72 [19%] vs. 147/740 [20%]). There were 7 fatalities (0.9%), 10 major (1.2%) and 21 minor (2.6%) strokes, all occurred in group 2 (P=0.049), which was independent from CPD use. After correction for the difference in CPD use between groups (17/72 [24%] vs. 345/740 [47%]), no statistically significant differences were found in numbers of isolated emboli and embolic showers in any of the procedural phases, nor for the entire procedure. No statistically significant differences were found for TCD data between early and late restenoses analysing 2 and 3 years as cut off points.

**Conclusions:** CAS for restenosis after CEA has a complication rate lower than primary CAS; time interval between CEA and CAS did not influence micro embolic load.