IF16.

Cranial Nerve Injury Is Significantly Associated With Dual Antiplatelet Therapy Usage and Neck Hematoma Occurrence Following Carotid Endarterectomy

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Objectives: This study was conducted to determine predictors of cranial nerve injury (CNI) after carotid endarterectomy (CEA).

Methods: Consecutive CEAs during a 5-year period were enrolled in this prospective study. Outcomes analyzed were 30-day major adverse event (MAE) rate (composite of stroke, death, and myocardial infarct [MI]), death, stroke, disabling stroke, MI, neck hematoma, and CNI rate, reoperation, and readmissions in-hospital at 30-day.

Results: The study included 1258 CEAs; 1168 (93%) performed using the eversion technique. A total of 340 (27%) patients were symptomatic. For 30-day outcomes, there were no deaths, 23 MAEs (1.8%), 11 strokes (0.9%: 9 minor, 2 major), 12 MIs (0.9%), 41 neck hematomas (3.3%), 9 reinterventions (0.7%). and 30-day in hospital readmissions (0.8%). The CNI rate at discharge was 2.3% (n = 29). Two patients (9%) had more than one nerve affected. The facial nerve was most frequently involved (n = 16 [52%]), followed by the hypoglossal (n = 9 [29%]), the vagus (n = 4 [13%]), and the accessory (n = 2 [6%]) nerve. These CNIs were transient in 94%; only the two accessory lesions were persistent CNI at their follow-up visit (median, 32 months; range, 8-72 months). Significant predictors for CNI were diabetes (OR; 2.5, 95% confidence interval [CI], 1-6.2, $P = .048$), severe hematoma (OR, 41.7; 95% CI, 13.8-125.4; $P < .001$), and dual-antiplatelet therapy (OR, 4.4; 95% CI, 1.7-11.4; $P = .002$).

Conclusions: CNI is mostly a benign complication and is significantly associated with dual-antiplatelet therapy usage and neck hematoma occurrence. Scrupulous attention to hemostasis might reduce the incidence of CNP.

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S1. William J. von Liebig Forum

SS1.

Treatment and Outcomes of Aortic Endograft Infection

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Objectives: This study examined the medical and surgical management and outcomes of patients with abdominal (EVAR) or thoracic (TEVAR) aortic endograft infection.

Methods: Patients diagnosed with infected aortic endografts after EVAR/TEVAR between January 1, 2004, and January 1, 2014, were reviewed using a standardized, multi-institutional database. Demographic, comorbidity, medical management, surgical, and outcomes data were included.

Results: An aortic endograft infection was diagnosed in 202 patients (EVAR, 176; TEVAR, 26) a mean of 716 days after implant. Symptoms included pain (54%), fever/chills (47%), and weight loss (20%). Twenty-nine patients were initially managed medically with antibiotics; 21 ultimately underwent surgical management after a mean of 86 days. In situ aortic replacement was performed in 183 patients (91%; Dacron, 46; Cryoartery, 47; polytetrafluoroethylene [PTFE], 36; Dacron soaked in antibiotic, 26; NAIS, 21; Cryovein, 7), and 11 underwent axillary-(bi) femoral bypass with PTFE. Graft cultures were primarily polymicrobial and fungal. Mean hospital length of stay was 24 days with early complications of renal failure in 37, persistent sepsis in 24, myocardial infarction in 9, recurrent infection in 9, and pneumonia in 8. Perioperative 30-day mortality was 11%. Nineteen replacement grafts were explanted after a mean of 540 days, and were most commonly associated with Dacron graft material not

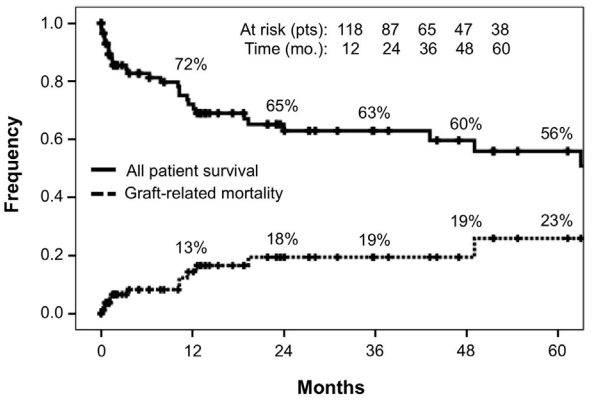

Fig.

soaked in antibiotic ($P < .05$); persistent sepsis was associated with both Dacron and PTFE grafts ($P < .05$). Mean follow-up was 20 months, with life-table survival and graft-related mortality estimates of 56% and 23%, respectively, at 5 years (Fig).

Conclusions: Aortic endograft infection can be eradicated by excision and in situ or extra-anatomic replacement but is often associated with early postoperative morbidity and mortality and occasionally a need for late removal for reinfection. Prosthetic graft replacement after explanation is associated with higher reinfection and graft-related complications.

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Table. Demographics of patients undergoing type 2 and 3 thoracoabdominal aortic aneurysm (*TAAA*) repair

	Total (N = 354)	*Type2 (n = 128)*	*Type 3 (n = 226)*	P *value*
Male gender	270 (76.3%)	82 (64.1%)	188 (83.2%)	<.001
Age (years)	73.5 ± 8.4	71.9 ± 8.0	74.4 ± 8.4	.003
Smoking status				.765
Never	27 (8.1%)	11 (9.2%)	16 (7.5%)	
Former	248 (74.5%)	90 (75.0%)	158 (74.2%)	
Current	58 (17.4%)	19 (15.8%)	39 (18.3%)	
Cardiac disease	155 (43.8%)	43 (33.6%)	112 (49.6%)	.004
Diabetes	52 (14.7%)	14 (10.9%)	38 (16.8%)	.133
Renal failure				.459
Hemodialysis	9 (2.5%)	2 (1.6%)	7 (3.1%)	
CRI	66 (18.6%)	21 (16.4%)	45 (19.9%)	
COPD	109 (30.8%)	42 (32.8%)	67 (29.6%)	.535
Prior aneurysm				
Surgery	153 (43.2)	58 (45.3%)	95 (42%)	.55
EVAR	18 (5.1%)	2 (1.6%)	16 (7.1%)	.023
TEVAR	25 (7.1%)	21 (16.4%)	4 (1.8%)	<.001
AAA	95 (26.8%)	30 (23.4%)	65 (28.8%)	.277
TAA	27 (7.6%)	14 (10.9%)	13 (5.8%)	.077

AAA, Abdominal aortic aneurysm; *CRI,* chronic renal insufficiency (creatinine >2.0); *EVAR,* endovascular abdominal aortic aneurysm repair; *TAAA,* thoracic aortic aneurysm; *TEVAR,* thoracic endovascular aortic aneurysm repair.

SS2.

Fenestrated and Branched Endovascular Aneurysm Repair (F/B-EVAR) Outcomes for Type II and III Thoracoabdominal Aortic Aneurysms (TAAAs)

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Objectives: The aim of this study was to evaluate technical and clinical outcomes of fenestrated(F)/branched (B) endovascular aneurysm repair (EVAR) for extensive thoracoabdominal aortic aneurysms (TAAAs).

Methods: Data from 354 high-risk patients (Table) enrolled in a physician sponsored-investigational device exemption trial (2004-2013) undergoing F/B-EVAR for type II and III TAAA were evaluated. Technical success, perioperative clinical outcomes, and midterm outcomes (36 months) for branch patency, reintervention, aneurysm-related death, and all-cause mortality were analyzed. Data are presented as mean ± standard deviation and assessed using Kaplan-Meier, univariate, and multivariable analysis.

Results: F/B-EVARs incorporating 1305 fenestration/branches were implanted, with 96% of target vessels successfully stented. On completion aortography, 3.7% patients had a type I or III endoleak (EL). Procedure duration (6.0 ± 1.7 vs 5.5 ± 1.6 hours, $P < .01$) and hospital stay (13.1 ± 10.1 vs 10.2 ± 7.4 days, $P < .01$) were longer for type II TAAA. Perioperative mortality trended higher in type II repairs (7.0% vs 3.5%, $P = .14$). Permanent spinal cord ischemia and renal failure requiring hemodialysis occurred in 4.0% and 2.8% of patients, respectively. Eighteen branches required reintervention for stenosis; and celiac, superior mesenteric artery and renal artery patency at 36 months was 97% (95% confidence interval [CI], 0.94%-0.99%), 99% (95% CI, 0.97%-1.0%), and 96% (95% CI, 0.94%-0.99%), respectively. Forty-two patients required reintervention for a branch-related EL, four for type Ia EL, and three for type Ib EL. At 36 months, freedom from aneurysm-related death was 91% (95% CI, 0.88%-0.95%), and freedom from all-cause mortality was 57% (95% CI, 0.50%-0.63%). Aneurysm extent ($P < .01$), age ($P < .01$), and chronic obstructive pulmonary disease ($P < .05$) negatively affected survival.

Conclusions: F/B-EVAR is a robust treatment option for patients at increased risk for conventional repair of extensive TAAAs. Technical success and branch patency are excellent, but several patients will require reintervention for branch-related endoleak. Aneurysm extent portends higher risk of perioperative and long-term morbidity and mortality. Additional efforts are needed to improve outcomes and understand the utility of this treatment option in the general TAAA population.

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SS3.

The PROTAGORAS Study to Evaluate the Performance of the Endurant Stent Graft for Patients With Pararenal Pathologies Treated by the Chimney/Snorkel Endovascular Technique

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