Abstracts from the 2013 New England Society for Vascular Surgery Annual Meeting

Contemporary Comparison of Supra-Aortic Trunk Reconstructions for Occlusive Disease: Transthoracic Reconstructions Versus Extrathoracic Reconstructions

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Objectives: Open surgical reconstruction for supra-aortic trunk persists despite advances in endovascular therapy. Although extrathoracic reconstructions (ETR) developed as a safer alternative to transthoracic reconstructions (TTR), contemporary national data evaluating relative rates of operative outcomes are lacking.

Methods: Using the National Surgical Quality Improvement Program (NSQIP; 2005-2011), patients who underwent TTR or ETR were evaluated. Patients with nonocclusive indications were excluded. The primary outcome was a composite endpoint of cerebrovascular accident (CVA)/myocardial infarction (MI)/death. Secondary outcomes were 30-day postoperative complications. Univariate and multivariable regression analysis were performed.

Results: Overall, 83 (10.7%) patients underwent TTR and 692 (89.3%) underwent ETR. Vascular surgeons performed most TTR (96%) and ETR (97%). Most common ETR were carotid-subclavian (68%), carotid-carotid (14%), and subclavian-transposition (7%). Less commonly, axillary-axillary (6%), subclavian-axillary (2%), subclavian-subclavian (1%), and carotid-transposition (1%) were performed. Ten percent (TTR) and 8% (ETR) patients had a concurrent CEA at time of operation ($P < .60$). Baseline characteristics are presented in table. Analysis of 20+ characteristics showed the groups did not differ significantly. The two groups had similar rates of CVA (1.2% in TTR group vs 2.2% in ETR; $P > .99$), MI (0% vs 1.3%; $P = .61$), death (2.4% vs 1.3%; $P = .33$), and CVA/MI/death (3.6% vs 3.8%; $P > .99$). TTR patients had longer hospital stays (6.3 days vs 4.0; $P < .0002$), received more transfusions (8.4% vs 2.5%; $P < .0096$), and had more septic (3.6% vs 0.3%; $P < .01$) and venous thromboembolic complications (3.6% vs 0.4%; $P < .02$). After adjustment for other factors, including surgical approach, CVA/MI/death was significantly associated with postoperative pneumonia (odds ratio, 11.0; 95% confidence interval, 2.07-58.72; $P < .005$), and postoperative return to operating room (odds ratio, 4.2; 95% confidence interval, 1.37-12.71; $P < .012$).

Conclusions: At U.S. hospitals, ETR is the more common reconstruction for supra-aortic trunk occlusive disease. Both approaches carry acceptably low rates of death, MI, and stroke. TTR results in more resource utilization due to its postoperative complications and greater complexity.

Readmissions and Reinterventions After Revascularization for Mesenteric Ischemia

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Background: Percutaneous angioplasty ± stenting (PTA/S) is increasingly employed for acute (AMI) and chronic (CMI) mesenteric ischemia. Compared with open revascularization (OR), PTA/S is associated with increased restenosis/reintervention. It is unclear whether rising PTA/S numbers represent treatment of new patients vs reinterventions in the same patients.

Methods: Using the California and Florida 2006-2009 Healthcare Cost and Utilization Project State Inpatient Databases/State Ambulatory Surgery Databases, we identified patients with AMI and CMI undergoing OR and PTA/S. Revisits included subsequent ambulatory PTA/S or admissions with/without reintervention.

Results: There were 554 repairs for AMI (51% OR, 49% PTA/S) and 955 for CMI (17% OR, 83% PTA/S [30% ambulatory]). For AMI patients undergoing an index OR, revisit rates at 1/2/3 years were 0.7/1.1/1.1% for repeat OR, 0.0/0.4/0.7% for subsequent PTA/S, and 5.9/8.1/8.4% for readmissions without repair. Revisits after PTA/S for AMI were 0.8/1.5/1.9% for OR, 1.9/2.3/3.8% for re-PTA/S, and 8.0/10.6/11.0% for readmission without repair. For CMI patients undergoing OR, revisit rates were 1.4/2.8/2.8% for repeat OR, 3.5/4.9/5.6% for subsequent PTA/S, and 4.9/4.9/5.6% for readmissions without repair. Revisits after PTA/S

Figure. Number of mesenteric revascularizations performed for CMI in California and Florida for both acute and chronic mesenteric ischemia, including and excluding revisits.

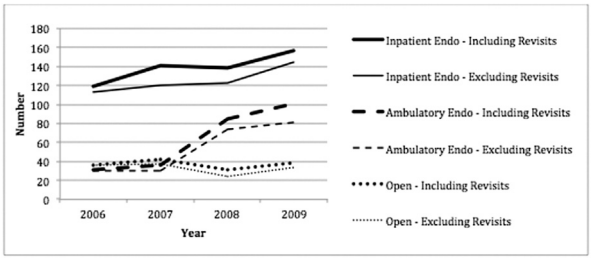

Fig.

Table. Demographic and clinical characteristics of entire cohort

Variable	*Overall, % (n = 775; 100%)*	*Transthoracic, % (n = 83; 10.7%)*	*Extrathoracic, % (n = 692; 89.3%)*	P *value*
Male gender	44.8%	32.5%	46.2%	.04
Caucasian race	92.4%	92.2%	92.4%	.95
Current smoker	45.9%	44.6%	46.1%	.80
Dialysis-dependent	1.3%	4.8%	0.9%	.02
History of transient ischemic attack or CVA	35.6%	36.3%	35.6%	.90
History of angina or MI	5.4%	3.8%	5.6%	.79
Previous percutaneous coronary intervention	17.6%	12.1%	18.2%	.33
Previous cardiac surgery	18.1%	7.2%	19.4%	.02
History of revascularization or amputation for peripheral vascular disease	17.8%	16.9%	17.9%	.90
History of severe chronic obstructive pulmonary disease	15.4%	10.8%	15.9%	.23
History of congestive heart failure	1.3%	0%	1.5%	.61
Functionally independent prior to surgery	95.4%	97.6%	95.1%	.41

CVA, Cerebrovascular accident; *MI,* myocardial infarction.