Impact of Aortic Arch Anatomy on Contemporary Outcomes of Transfemoral Carotid Artery Stenting vs Transcarotid Artery Revascularization

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INTRODUCTION: Transcarotid artery revascularization (TCAR) and transfemoral carotid artery stenting (TFCAS) are the 2 leading methods of minimally invasive treatment of carotid artery stenosis, with TCAR being associated with lower risk of postoperative stroke. This study aimed to examine whether aortic arch morphology could explain the differences in outcomes of TCAR and TFCAS.

METHODS: We examined all subjects who underwent TFCAS or TCAR in the Vascular Quality Initiative between 2016 and 2020. Patients were grouped according to aortic arch type (I vs II or III). Multivariable logistic regression and Cox regression were used to compare adjusted postoperative and 1-year outcomes between the 2 procedures within each group.

RESULTS: Of 11,873 patients, 5,248 (44.2%) underwent TFCAS and 6,625 (55.8%) underwent TCAR. There were a total of 207 strokes (1.7%), 76 deaths (0.6%), and 62 MIs (0.5%) postoperatively. At 1 year, there were 180 (1.5%) ipsilateral strokes and 480 (4.0%) deaths. Mean follow-up duration was 0.99 years. As shown in the Table, in patients with type I arch TCAR was associated with lower odds of postoperative and 1-year death. In patients with type II or III arch, TCAR was associated with lower odds of postoperative and 1-year death and postoperative stroke, but not 1-year ipsilateral stroke.

CONCLUSIONS: The advantage of TCAR over TFCAS in stroke reduction is mainly seen in difficult arch anatomy. However, the benefit in reducing mortality is seen in all arch types.

Incidence of Immediate and Late Complications after Inferior Vena Cava Filter Insertion

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INTRODUCTION: Literature supporting the efficacy of IVC filters is limited and controversial. Here we evaluate the predictors and rates of complications after IVC filter insertion in a national database.

METHODS: The Vascular Quality Initiative registry was retrospectively reviewed (2013 to present). Immediate complications were defined as venous injury requiring treatment, placement complication (failure to open, deployed >20 mm from site, embolized to heart), angulation >20 degrees, or access complications. Late complications were defined as migration, angulation >15 degrees, fracture, caval/iliac thrombosis, filter thrombus, fragment embolization, or vein perforation. Chi-square, multivariate logistic regression, Cox hazard regression, and survival analysis were performed.

RESULTS: There were 14,784 patients with mean follow-up of 0.9 years included; 1.8% and 3.1% developed immediate and late complications, respectively. Angulation (1.2%) was the most common immediate complication and filter thrombosis (1.6%) was the most common late complication. Logistic regression analysis revealed that renal vein visualization was associated with a 50% (adjusted odds ratio 0.50; 95% CI, 0.27 to 0.92; p = 0.027) reduction in odds of immediate complications, and female sex and abnormal anatomy were associated with a 41% (adjusted odds ratio 1.41; 95% CI, 1.08 to 1.85; p = 0.013) and 3.4-fold (adjusted
INTRODUCTION: From 2003-2020, there were 60,588 arterial bypass surgical indication/urgency, procedure length, and estimated blood loss. Models adjusted for patient demographics, health history, medications, cardiovascular events, and long-term mortality in patients undergoing unilateral infrainguinal arterial bypass procedures. The Vascular Quality Initiative was queried for patients with symptomatic PAA who underwent OPAR or EPAR from January 2010 to October 2020. Kaplan-Meier estimates, log rank tests and multivariable logistic and Cox regression were used to study outcomes. Outcomes were 30-day mortality, amputation-free survival and overall survival.

RESULTS: A total of 2,527 patients were studied, of which 74.7% (n = 2,324) were treated with OPAR. Patients treated with OPAR were younger, current smokers, less likely to have coronary artery disease and chronic kidney disease, but more likely to present with acute ischemia. Compared with EPAR, OPAR was associated with decreased odds of 30-day mortality (0.9% vs 1.9%, adjusted odds ratio 0.46; 95% CI, 0.23 to 0.92; p = 0.028), better amputation-free survival (93.9% vs 89.6%; p < 0.001) (Fig. 1), and overall survival (95.0% vs 91.5%; p = 0.001) within 1 year after the index procedure. After multivariable adjustment, OPAR was associated with decreased risk of amputation/death (adjusted hazard ratio, 0.61; 95% CI, 0.44 to 0.84; p = 0.002) and mortality (adjusted hazard ratio, 0.66; 95% CI, 0.46 to 0.94; p = 0.001) in 1 year.

CONCLUSIONS: In this multi-institutional study of symptomatic popliteal aneurysms, OPAR was associated with significantly lower odds of 30-day mortality and better amputation-free survival and overall survival.

Open Repair Outperforms Endovascular Repair in the Treatment of Symptomatic Popliteal Artery Aneurysms

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Obesity Paradox Exists for Mortality, but Not Wound Complications after Lower Extremity Arterial Bypass Surgery

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INTRODUCTION: Previous literature has demonstrated an obesity paradox after cardiac and other surgical procedures. However, it is unclear what the relationship is between BMI and in-hospital and mortality outcomes in patients undergoing major open lower extremity arterial revascularization.

METHODS: We used logistic and cox regression in the Vascular Quality Initiative to assess associations of BMI with wound complications and need for early reoperation, the J-shaped association of BMI with mortality persisted.

RESULTS: Immediate and late IVC filter complications were 1.8% and 3.1%, respectively, and were not associated with increased mortality. Female sex and abnormal anatomy were associated with increased immediate complications. Late complications, including filter thrombosis, might have been reduced with aspirin use and expeditious retrieval.

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