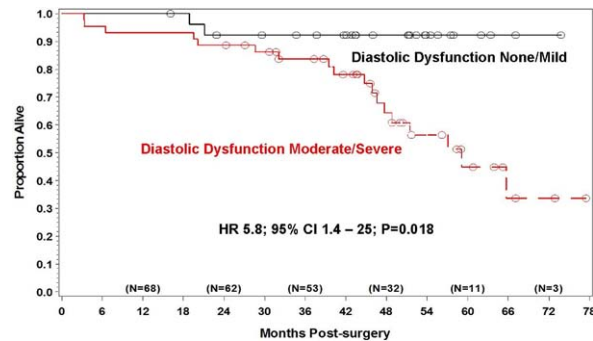


transmitral flow velocity (E), the atrial transmitral flow velocity (A), and the mitral annular tissue doppler velocity (e'). Patients were divided into two groups of diastolic dysfunction as either none/mild ($E/A \leq 0.75$, $E/e' < 10$) or moderate/severe ($E/A > 0.75$, $E/e' \geq 10$). Perioperative and long-term mortality was determined from a prospective vascular database and the National Death Index. Descriptive statistics were calculated. Post-operative survival was estimated by product-limit methods. Associations between preoperative and perioperative factors and long-term survival were examined using proportional hazards regression models. A backwards variable elimination procedure was used to select a 'best' model to predict long-term survival.

Results: Seventy-six patients were followed for an average of 41.9 months after renal revascularization. Within this group, 47/76 (61.8%) patients were identified as having moderate or severe diastolic dysfunction. Systolic function was preserved. The mean ejection fraction for the entire group was $58.3\% \pm 11.1\%$. Diastolic dysfunction had no apparent association with abnormal systolic function. The mean ejection fraction for those with moderate/severe diastolic dysfunction was $57.7\% \pm 11.5\%$. When comparing the moderate/severe and none/mild groupings of diastolic dysfunction, there was a significant difference in left ventricular mass index (151.9 ± 48.9 vs 125.3 ± 31.7 , $P = .0087$). There were five deaths in the perioperative period and 20 deaths on follow-up. Among survivors, hypertension was cured or improved in 82% of the none/mild group and 53% of the moderate/severe group ($P = .012$). Renal function was improved in 32% of the none/mild group and 26% of the moderate/severe group ($P = .54$). Multivariate analysis among 71 perioperative survivors demonstrated a significant and independent association between diastolic dysfunction and survival (HR 5.1, 95% CI 1.1-23.6, $P = .037$) (Fig 1). Ejection fraction did not have a significant effect on long-term survival. Backward elimination resulted in a final model that included diastolic dysfunction (HR 5.8, 95% CI 1.4-25, $P = .018$) and history of stroke/TIA (HR 2.5, 95% CI 0.9-7.1, $P = .092$) as the only significant predictors of long-term survival.

Conclusions: Diastolic dysfunction, but not systolic function, was frequent in patients with renovascular disease. After renal revascularization, diastolic function had a significant and independent association with long-term survival. Preoperative assessment of diastolic function should be considered in patients prior to surgical repair.



Treatment of Proximal Vertebral Artery Disease

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Background: Vertebral arterial disease (VAD) is a less commonly recognized and treated source of cerebro-vascular ischemia compared to carotid artery disease. Patients are often referred for treatment after they have developed symptoms in the form of TIA or have had a posterior hemispheric stroke. Traditional treatment of VAD has been surgical. More recently, endovascular treatment of VAD has been utilized.

Methods: We performed a retrospective review of our institutional experience in treating proximal VAD from 2001 to 2010. After obtaining IRB approval, 53 patients were identified for review. Hospital and office record data from the Division of Vascular Surgery and the Department of Radiology was reviewed.

Results: Thirty-six patients had surgery and seventeen patients had endovascular therapy. All patients in the surgical arm were symptomatic. Symptoms included: ataxia (56%), dizziness (19%), syncope (11%), visual symptoms (13.8%), and major stroke (8.3%). Fifteen of the patients in the endovascular arm were symptomatic. Symptoms included: major stroke (40%), visual symptoms (13.3%), dizziness (13.3%), ataxia (6.7%), and syncope (6.7%). Demographics of the surgical and endovascular patients were similar for: age (68.3 vs 62.2 years), CAD (58% vs 65%), HTN (78% vs 76%), DM (41% vs 53%), and history of tobacco use (75% vs 70%). Incidence of major stroke prior to treatment was lower in the surgical group (8.3% vs 40%). In the surgical group: average length of stay was 2.1 days. There were

major complications in two patients (5.6%). Complications included: bleeding requiring re-intubation and surgical evacuation, and myocardial infarction (which caused the one death [2.8%]). Symptoms were relieved completely in 86%, partially in 5.6% and not at all in 8.3% of patients. In the endovascular group, average length of stay was 5.8 days. There were no major periprocedural complications, however, 6-week mortality was 11.7%. Symptoms resolved completely in 27%, partially in 63%, and not at all in 9% of symptomatic patients.

Conclusions: For treatment of proximal VAD, perioperative morbidity was lower for the endovascular group than the surgical group, but the 6-week mortality was higher for this treatment modality. Complete resolution of symptoms occurred more frequently with surgery than with endovascular therapy (86% vs 27%). Therefore, in general, surgical reconstruction appears to be preferable to angioplasty and stenting for the treatment of proximal vertebral artery occlusive disease.

Outcomes of Acute Surgical Conversion during Endovascular Aortic Aneurysm Repair

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Background: Acute surgical conversion during endovascular aortic aneurysm repair (EVAR) is uncommon. Outcomes and predictors of intra-operative conversion are unknown. This report examines EVAR conversions using the American College of Surgeons National Surgical Quality Improvement Program Database for years 2005-2008.

Methods: Conversion cases occurring during elective EVAR were identified using CPT codes. Nonemergent EVAR and primary open surgical repairs of infrarenal aneurysms were also examined for comparison. Perioperative morbidity was categorized as: wound, pulmonary, venous thromboembolic, genitourinary, cardiovascular, operative, and septic. Mortality, overall morbidity, and length of stay (LOS) were also examined. Differences among repair groups for descriptive and outcome variables were evaluated using χ^2 tests, and linear or logistic regressions. Predictors of conversion were also evaluated using logistic regression.

Results: Seventy-two conversions, 2414 open repairs, and 6332 EVARs were identified. Demographics and comorbidities were generally similar among operative groups. Mean operative time for conversion cases was 274 ± 113 minutes compared to 226 ± 93 minutes for open repair and 162 ± 74 minutes for EVAR cases (conversion vs EVAR and open repair vs EVAR ($P < .0001$ for each), and conversion vs open repair $P = .0014$; analysis on rank operative time). Sixty-nine percent of patients undergoing conversion required red blood cell transfusion with a mean volume of 6.0 ± 6.3 units vs 73% of open repairs (mean volume 3.3 ± 3.3 units), and 12% of EVAR (mean volume of 2.6 ± 2.5 units) ($P < .0001$ for each pair-wise comparison; analysis on rank number of units among those transfused). Major morbidity occurred in 28% of conversions, 28% of open repairs, and 12% of EVARs. Mortality was 4.2% for conversions, 3.2% for open repairs, and 1.3% for EVARs. Median (Q1, Q3) LOS was 7 (5, 9) days for conversion and open repair, and 2 (1, 3) days for EVAR. Morbidity and mortality were significantly higher for conversion and open repair vs EVAR (OR [95%CI] for morbidity 2.9 [1.7, 4.8] and 2.8 [2.5, 3.2], for conversion and open repair, respectively [$P < .0001$ for both]; OR [95% CI] for mortality 3.4 [1.0, 10.9] $P = .0437$ and 2.5 [1.9, 3.5] $P < .0001$, for conversion and open repair, respectively). Morbidity and mortality were similar between conversion and open repair (OR [95% CI] 1.0 [0.6, 1.7] $P = .9780$ and 1.3 [0.4, 4.3] $P = .6445$ for morbidity and mortality, respectively). A similar pattern among repair groups was demonstrated for log-LOS, with similar LOS for conversions and open repair which were significantly longer than that observed for EVAR. No significant demographic or medical risk factor predictors of conversion were identified.

Conclusions: Conversion was a rare complication affecting 1.1% of EVAR cases with no broadly identifiable at-risk population. When conversion did occur, morbidity and mortality paralleled those observed for elective open repair.

A Single Center Experience Comparing Tibial Bypass with Heparin-Bonded ePTFE vs Saphenous Vein

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Background: Several series have reported that heparin bonded PTFE (HePTFE) grafts perform in an equivalent manner to saphenous vein (SVG) for tibial bypass. This series reports a single center, US experience for tibial bypass using the HePTFE and SVG over a contemporaneous time period.

Methods: A retrospective analysis of prospectively collected data was conducted for 112 tibial bypasses performed from November 2006 to January 2009 including 62 HePTFE and 50 SVG. Patient demographics