Conclusions: In our institution’s experience with a large number of iliac interventions (CIA and EIA), race, age, and EIA occlusion all impacted primary patency. This study emphasizes the underappreciated effect of patient demographics and lesion severity on stenting outcomes.

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Redefining the Operative Threshold in Women With Abdominal Aortic Aneurysms
Afshin Skibba, James Evans, Steven Hopkins, Heesuk R. Yoon, Daniel Rush. East Tennessee State University, Johnson City, Tenn

Introduction: Rupture of an abdominal aortic aneurysm (AAA) is a usually fatal event best prevented by timely diagnosis and surgical intervention. Evidence is accumulating that women tend to rupture AAAs at smaller sizes than men, are often at higher risk because of age and comorbidities, and have poorer outcomes. In the past, women were often excluded from lower-risk endovascular aortic aneurysm repair (EVAR) because of inadequate iliac vascular access. Furthermore, current elective operative recommendations for asymptomatic AAA repair of >5.5 cm do not distinguish possible differences between men and women regarding the advantages of earlier treatment with respect to the risk of rupture relative to AAA size.

Methods: All patients evaluated with International Classification of Diseases-9th Revision diagnosis codes for AAAs at a single institution between 2000 and 2012 were identified for retrospective analysis under Investigational Review Board approval.

Results: A total of 3800 patients were identified with a diagnosis of AAA. Of these, there were 3686 patients (97%) with nonruptured AAAs and 114 patients (3%) with ruptured AAAs. The male-to-female ratios for nonruptured and ruptured AAAs were similar (2.9:1 and 2.5:1, respectively) as were the percentages of ruptured AAAs for men and women (2.9% and 3.4%, respectively). Also similar were hospital mortality rates for ruptured AAAs in men (42.0%) and women (42.4%). AAA diameter at the time of rupture was determined in 75 patients (54 men and 21 women). The mean ruptured AAA diameter was 7.9 ± 1.6 cm (range, 4.5–12.0 cm) for men and 6.5 ± 1.5 cm (range, 3.6–9.0 cm) for women. Of the ruptured AAA patients, 97.3% were treated with emergency open AAA repair and 2.7% by emergency EVAR. The percentage of patients with a ruptured AAA <5.5 cm in diameter was 28.6% for women and only 3.7% for men (Fig). Also similar were hospital mortality rates for ruptured AAAs in men (42.0%) and women (42.4%). AAA diameter at the time of rupture was determined in 75 patients (54 men and 21 women). The mean ruptured AAA diameter was 7.9 ± 1.6 cm (range, 4.5–12.0 cm) for men and 6.5 ± 1.5 cm (range, 3.6–9.0 cm) for women. Of the ruptured AAA patients, 97.3% were treated with emergency open AAA repair and 2.7% by emergency EVAR. The percentage of patients with a ruptured AAA <5.5 cm in diameter was 28.6% for women and only 3.7% for men (Fig).

Conclusions: Although this single-institution experience is small, these results strongly indicate that AAAs in women tend to rupture at smaller diameters than men. Mortality for elective EVAR has dramatically decreased AAA operative risk, and the newer low-profile delivery systems have made this technology routinely available for women. Current recommendations for elective operative intervention for AAAs should be reconsidered and stratified by gender.

The Correlation Between Computed Tomography (CT) and Duplex Evaluation of Vein Bypass Grafts and Their Relationship to Graft Failure
Jonathan Rehliuss, Yong He, Bradley Schmit, Peter Nelson, Scott Berclci, Salvatore Scali. University of Florida, Gainesville, Fla

Background: Infrapopliteal vein graft bypass has 5-year patency rates between 45 and 80%, and the optimal post-operative approach to graft surveillance is not clear. The current study was designed to evaluate the relationship between physiologic (duplex scanning) and anatomic (CT scan) methodologies for assessment of vein graft stenosis and evaluate the relationship of these observed abnormalities to vein graft failure.

Methods: Fifty-four patients who underwent infrapopliteal autogenous vein graft bypass for disabling claudication or tissue loss at the Malcolm Randall Veterans Affairs Medical Center in Gainesville, Florida were included in our study. These patients were followed with concurrent duplex U/S and CT imaging at intervals of 1 week, 1 month, 6 months, and 12 months postoperation. For each of the “zones” within the bypass graft (we divide the leg into six zones), and U/S peak-systolic velocity and mean CT cross-sectional area were calculated. Thus, our initial data set consisted of both an U/S velocity measurement and a CT cross-sectional area measurement for each zone per patient, at each of the four time points for a total of 656 patient*zone*time points (Fig 1, A). We also transformed these 656 sets of CT and U/S data into CT percent stenosis and U/S velocity ratios.

Results: A CT stenosis less than 50% was extremely highly correlated with success (0% failure), while a velocity ratio > 3.5 was correlated with a 67% failure rate (Fig 1, B; Table). Interestingly, even high degrees of CT demonstrated stenosis were still more likely to succeed than not, with those in the >80% group having only a 25% failure rate (Table). These zones with moderate graft stenosis, identified as a duplex-derived velocity ratio in the 2.0 to 3.5 range, tended to improve with time as 78% showed a reduction in the velocity ratio at the next time interval (Fig 2). Importantly, within this group only a 12% failure rate was seen, thus demonstrating the relatively benign nature of this degree of stenosis (Table).

Conclusions: The correlation between CT and duplex methodology for evaluation of infrapopliteal vein bypass grafts is quite robust, with a CT stenosis of <50% clearly associated with success (0% failure) and a duplex-derived velocity ratio >3.5 associated with a 67% failure rate. These zones with moderate graft stenosis, identified as a duplex-derived velocity ratio in the 2.0 to 3.5 range, showed a reduction in the velocity ratio at the next time interval, indicating a favorable outcomes. Importantly, within this group only a 12% failure rate was seen, thus demonstrating the relatively benign nature of this degree of stenosis (Table).

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