Methods: During a 5-year period, 148 patients underwent FEVAR. Upper extremity access for FEVAR was used in 98 (66.2%) patients. The median number of vessels fenestrated was 3 (interquartile range, 2-4), with a total of 457 vessels stented. Twelve were percutaneous (12.2%) and 86 (87.8%) were open. All patients that required a sheath size >7F underwent high brachial open access, with the exception of 1 patient who underwent percutaneous axillary access with a 12F sheath. The median sheath size was 12F (interquartile range, 10-12), which was advanced into the descending thoracic aorta allowing multiple wire and catheter exchanges.

Results: One (1/98; 1.0%) hemorrhagic stroke in the upper extremity access group and one (1/54; 1.9%) ischemic stroke in the femoral-only access group occurred ($P = .67$). The stroke in the upper extremity access group occurred 5 days after FEVAR and was related to uncontrolled hypertension, whereas the stroke in the femoral group occurred on postoperative day 3. Neither patient had signs or symptoms of a stroke immediately after FEVAR. The right upper extremity was accessed six times without a stroke (0/6; 0%), compared with the left being accessed 92 times with one stroke (1/92; 1.1%) ($P = .8$). Four (4.1%) patients had complications related to upper extremity access; one (1.0%) required exploration for an expanding hematoma after manual compression for a 7F sheath, one (1.0%) required exploration for hematoma and neurologic symptoms after open access for a 12F sheath; and two (2.0%) patients with small hematomas did not require intervention. Two (2/12; 16.7%) of these complications were in the percutaneous access group, which were significantly more frequent than in the open group (2/86; 2.3%) ($P = .02$).

Conclusions: Upper extremity access appears to be a safe and feasible approach for patients undergoing FEVAR. Open exposure in the upper extremity may be safer than percutaneous access during FEVAR. Unlike chimney and snorkel grafts, upper extremity access during FEVAR is not associated with an increased risk of stroke, despite the need for multiple visceral vessel stenting.

Bedside Vena Cava Filter Placement Using Intravascular Ultrasound: A 5-Year Experience in Critically Ill Patients

Roan J. Glocker, Oluwafunmi Awonuga, Zdenek Novak, Benjamin Pearce, Thomas Matthews, Mark Patterson, William Jordan Jr, Marc Passman. University of Alabama at Birmingham, Birmingham, Ala

Objectives: Initial experience with a prospectively implemented algorithm for bedside vena cava filter placement with intravascular ultrasound (IVUS) has previously been shown to be a safe and effective technique especially for critically ill patients. The purpose of this study is to evaluate the effectiveness of IVUS guided filter placement in critically ill patients with experience now extending out 5 years from implementation.

Methods: All patients undergoing bedside IVUS-guided inferior vena cava (IVC) filter placement from 2008-2012 were identified. Records were reviewed based on IVC filter reporting standards. Outcome data including technical success, complications, and mortality were analyzed at 30 days.

Results: Three-hundred ninety-eight patients underwent bedside IVC filter placement with IVUS. Overall technical success was 97.9% with inability to place filter due to poor visualization (2), and malpositioned filters either above or below the intended infrarenal position (11). An optional filter (Gunter Tulip or Celect) was used in 374 (93.9%) and a permanent filter (Greenfield) in 24 (6.1%). Single puncture technique was performed in 388 (97.4%) with additional dual access required in 10 (2.6%). Periprocedural complications were rare (3.0%) and included malpositioning requiring retrieval and repositioning or additional filter (3), filter tilt $\geq 20^\circ$ (4), arteriovenous fistula (2), insertion site thrombosis (2), and hematoma (1). Comparison of the first and last 100 procedures in the sample population showed that there was a trend toward improved complication rates in the later experience (7.0% vs 2.0%; $P = .08$, respectively). There were no deaths related to pulmonary embolism or filter related problems.

Conclusions: Based on a 5-year experience with bedside IVC filter placement in critically ill patients, IVUS-guided filter techniques continue to be a safe and effective option in this high risk population with a time-dependent improvement in outcome measures.

C-Reactive Protein and Brain Natriuretic Peptide as Predictors of Adverse Events Following Lower Extremity Endovascular Revascularization

Patrick A. Stone, Haley Schlarb, Stephanie Thompson. West Virginia University, Charleston, WVa

Objectives: High sensitivity-C-reactive protein (CRP) and brain natriuretic peptide (BNP) have been shown to be independent predictors of adverse cardiovascular outcomes and potentially increased risk of secondary interventions or limb loss in patients with peripheral arterial disease (PAD). To assist clinicians in predicting postprocedure mortality and morbidity and decision-making regarding treatment approaches, we retrospectively examined patients with preprocedure CRP and BNP levels who underwent elective angioplasty and/or stent placement for lower extremity PAD.

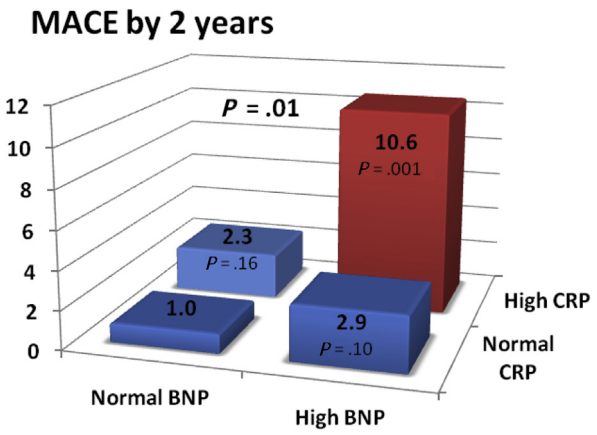

Fig.

Methods: The study period included patients treated between 2007 and 2012. Minimal required follow-up was at least one postoperative ankle brachial index or duplex imaging of the treated limb. Events of interest included clinical limb failure (loss of patency, target vessel revascularization, decrease in ankle brachial index >0.15 or limb amputation) by 1 year and MACE (stroke, myocardial infarction or death) by 2 years. Elevated/abnormal values for our biomarkers of interest were established by the upper limited of our institution's clinical laboratory reference range hs-CRP (<0.80 mg/dL), BNP (<100 pg/mL).

Results: A total of 159 limbs in 118 patients were included in analysis (42% male, mean age 64 ± 11 years). All limbs were symptomatic (Rutherford classification, 2-5). Iliac artery revascularization without other adjunct lower extremity intervention was performed in 60% of the limbs. High CRP levels (>0.80 mg/dL) were present in 32 (27%) patients and high BNP values (>100 pg/mL) in 24 (20%) patients. Kaplan-Meier analysis with log-rank comparison demonstrated that elevated CRP levels associated with clinical limb failure but only in limbs receiving interventions distal to the external iliac artery ($P < .01$). High BNP levels did not affect limb failure (0.91). Conversely, high BNP levels associated with a statistically elevated MACE rate at 2 years of 36% vs 14% in patients with normal BNP levels ($P = .01$). Patients with high CRP trended toward having higher rates of MACE (33% vs 14%) but failed to meet statistical significance ($P = .053$). Patients with high preintervention values of CRP and BNP were 10.6 times (95% confidence interval, 2.6-42.6; $P < .01$) more likely to experience MACE than patients with normal CRP and BNP values.

Conclusions: Preprocedure biochemical markers in endovascular interventions for PAD can aide in predicting future limb related complications and late cardiovascular events. Potentially, improving biochemical markers prior to intervention could improve outcomes.

The Impact of Personality Type on Objective Ambulatory Measures in Patients with Intermittent Claudication

Daniel J. Torrent, Mandy R. Maness, Timothy W. Capps, Frank M. Parker, Charles S. Powell, William M. Bogey, Jill N. Zink, Samuel F. Sears, Amanda L. Whited, Michael C. Stoner. East Carolina University, Greenville, NC

Objectives: A type D (or distressed) personality is associated with negative affectivity and social inhibition and is an independent predictor of morbidity and mortality in patients with cardiac disease. There is little data on this personality type in patients with intermittent claudication (IC). The purpose of this study is to evaluate the difference in objective measures of ambulation in patients with IC stratified by personality type.

Methods: Over a 1-year period, routine history, and physical, ankle brachial index (ABI), and pulse volume recording were performed on IC patients. Questionnaires assessing personality type, psychosocial factors and perception of disease severity were recorded (Vascular Quality of Life, Walking Impairment Questionnaire, Hospital Anxiety and Depression Scale, Positive Health Expectations, and Type D Scale). A 6-minute walk test (6MWT) was performed measuring distance to symptoms, total distance