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times as likely to have any complication and up to 7.3 times as likely to perish within 30 days (Table II). Emergent surgery was associated with an odds ratio for mortality of 14.2 (95% confidence interval, 7.9-25.7; P < .001) and a complication odds ratio of 4.1 (95% confidence interval, 2.8-5.9; P < .001).

Conclusions: Frailty as determined by the RAI was associated with postoperative outcomes in a dose-dependent manner. Frailty was associated with higher rates of major cardiac (myocardial infarction, cardiac arrest), pulmonary (pneumonia, failure to wean vent, reintubation), renal (renal insufficiency, renal failure), overall complications, and death. We recommend the use of this frailty index as a screening tool to guide discussions with patients undergoing endovascular aortic aneurysm repair.

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Effect of Anticoagulation and Antiplatelet Medications on Aortic Remodeling after Thoracic Endovascular Aortic Repair for Type B Aortic Dissection

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Background: To date, few studies adequately evaluate the impact of anticoagulation and antiplatelet medications on aortic remodeling for type B thoracic dissection (TBAD) after thoracic endovascular aortic repair (TEVAR). As such, we assessed the relationship between chronic anticoagulation/antiplatelet medications and aortic remodeling of patients with TBAD after TEVAR.

Methods: Records of the Vascular Quality Initiative TEVAR registry (2011-2019) were reviewed. Procedures performed for dissection-related pathology were included. Primary outcomes included complete false lumen thrombosis, re-intervention-free survival and endoleak at 18 months. Primary outcomes were compared between patients with and without chronic anticoagulants (AC and non-AC). A subgroup analysis was performed to assess the effect of antiplatelet medications (none, single antiplatelet, and dual antiplatelets) in the non-AC group. Cox proportional hazards models were used to estimate the effect of different antithrombotic therapies on primary outcomes.

Results: We identified 1507 patients (mean age, 60.7 ± 12.2 years; 68.3% male) with a mean follow-up of 18.9 ± 13.7 months. Two hundred one (14%) patients were on anticoagulation therapy at follow-up. There were no differences in the mean preoperative thoracic aortic diameter or the number of endografts used. The status of false lumen thrombosis and endoleaks were available in 668 (43%) and 1023 patients (68%), respectively. At 18 months, the rates of complete false lumen thrombosis (51.3% vs 47.5%; P = .182), reinterventions (9% vs 10.6%; P = .757), all-cause mortality (97.6% vs 96.9%; P = .561), and endoleaks (18.8% vs 22%; P = .397) were similar in the AC and non-AC groups, respectively (Fig). Controlling for covariates with the Cox regression method, AC use was not independently associated with a decreased risk of complete false lumen thrombosis (hazard ratio [HR], 0.79; 95% confidence interval [CI], 0.54-1.16; P = .356) or increased risks of reintervention (HR, 1.06; 95% CI, 0.9-1.24; P = .484) and endoleak (HR, 0.97; 95% CI, 0.83-1.14; P = .725). Within the non-AC group, antiplatelet medications did not affect the rates of complete false lumen thrombosis, reintervention, or endoleak.

Conclusions: The use of chronic anticoagulation and antiplatelet medications did not adversely affect the rate of complete false lumen thrombosis and positive aortic remodeling in patients who underwent TEVAR for TBAD. Anticoagulation and antiplatelet medications may be safely used in patients who undergo TEVAR for TBAD.

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Analysis of Outcomes in Acute Limb Ischemia Patients during COVID-19 State of Emergency in Western Massachusetts

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Background: Due to effects on macrovascular and microvascular compromise, the novel coronavirus disease-2019 (COVID-19) renders thrombotic complications in both arterial and venous supply. The clinical outcomes in vascular surgery is an ongoing area of interest. To that aim, we compared severity of patients presenting with acute limb ischemia (ALI) before, during, and after the Massachusetts COVID-19 state of emergency (SOE) declaration. Patient acuity is quantified by anatomic arterial occlusion, Rutherford Score, intervention received, and morbidity and mortality.

Methods: A retrospective cohort study was conducted in a single Massachusetts institution on ALI patients identified by vascular procedure CPT code between December 9, 2019, and March 9, 2020, designated as prior to SOE period, March 10, 2020, and May 10, 2020, designated as SOE period, and May 11, 2020, and July 31, 2020, designated as post-SOE period. Demographics, ALI Rutherford score, anatomic vascular occlusion, vascularization intervention method, COVID-19 testing, and mortality were collected. Analysis was completed using analysis of variance and χ² and differences in characteristics between study groups were presented. Multivariate logistic regression was performed to control for confounding variables.

Results: There was a total of 65 subjects; 25 for pre-SOE, 19 for during SOE, and 21 for after SOE. There was no statistical significant difference between patient demographics and comorbidities in each group (P > .05). Class III Rutherford scores were higher during and after SOE at 36.8% and 38% compared to 8.0% prior to SOE (P < .05); class IIa/IIb decreased during those periods (P < .05). Multilevel arterial disease identified during and post SOE were 26.3% and 42.9% compared to prior to SOE 8.0% (P < .05). Above-knee amputations significantly increased during (15.3%) and after SOE (33.3%), as compared to the pre-SOE period (4%, P < .05). The difference in mortality was not significant among the study groups (P > .05) (Fig). During the SOE, there was also statistically significant increase substance use with 31.6% versus 8.0% prior and 4.8% after (P < .05). Multivariate regression analysis showed SOE to be an independent risk factor for all amputations (odds ratio, 6.39; 95% confidence interval, 1.155-35.349).

Conclusions: COVID-19 manifestations on health care and vascular surgery in particular are of ongoing concern and interest. During COVID-19 SOE, patients are potentially less likely to seek medical attention. When ALI patients do present, however, their acuity is greater as shown by increased involvement of multilevel disease and more likely to require amputations.
Patient-Reported Outcomes of Surgical Management of Functional Popliteal Artery Entrapment Syndrome

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Objectives: Functional popliteal artery entrapment syndrome (FPAES) results in claudication without an identifiable popliteal fossa anatomic abnormality. The aim of this study was to evaluate patient-reported outcomes of surgical management of FPAES.

Methods: Data from consecutive patients undergoing FPAE release with myectomy and/or myotomy of gastrocnemius, soleus, popliteus, and plantaris from 2001 to 2019 were reviewed retrospectively. Demographics, anatomic data, operative details, symptom recurrence, reintervention, and patient-reported outcomes through surveys were analyzed.

Results: Among 57 patients, 70% were female (n = 40) and 67% undertook vigorous physical activity before symptom onset. Symptoms occurred at a median age of 19 years (interquartile range, 16-25 years) and were diagnosed at 23 years (interquartile range, 18-31 years). Symptoms were bilateral in 47, or only right (n = 37). Magnetic resonance imaging (52%) or angiogram (48%) demonstrated dynamic partial (41%) or complete (59%) occlusion of popliteal artery (76%), vein (2%), or both (22%). A total of 102 extremities were treated with partial (41%) or complete (59%) occlusion of popliteal artery (76%), vein (2%), or both (22%). A total of 102 extremities were treated with partial (41%) or complete (59%) occlusion of popliteal artery (76%), vein (2%), or both (22%).

Conclusions: Surgical decompression serves as the mainstay of treatment for FPAES with excellent symptom relief in well selected patients. This allows a return to presymptomatic activity and is associated with excellent quality of life scores.

N-Acetyl-Cysteine Treatment after Lower Extremity Amputation Improves Areas of Perfusion Defect and Wound Healing Outcomes

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Background: Patients with critical limb-threatening ischemia (CLTI) and diabetes are at increased risk of poor major amputation site healing. Preclinical studies have demonstrated that the antioxidant N-acetyl-cysteine (NAC) can augment tissue perfusion and angiogenesis in mice. We hypothesize that perioperative administration of NAC in patients with CLTI improves amputation stump perfusion and healing.

Methods: In a randomized prospective, double-blinded, placebo-controlled, pilot clinical trial, patients with CTLI were recruited at the time of major lower extremity amputation. Patients were randomized to a 5-day perioperative course of intravenous NAC or placebo treatment. Amputation stump perfusion was evaluated on postoperative days (POD) 0, 3, and 5 using noninvasive Laser-Assisted Fluorescent Angiography (LAFA, SPY Elite system). Rate of arterial inflow and peak perfusion were determined using dynamic intensity versus time analysis. Perfusion defects were determined at the time of peak perfusion as a percentage stump surface area (Fig). Amputation stump healing was also evaluated on POD 3, 5, and 30 using modified Bates-Jensen score. Continuous variables were analyzed using the Student t-test. Categorical variables were analyzed using Fisher’s exact test.

Results: A total of 33 patients were enrolled in the study. One patient withdrew consent and eight were excluded for missing or incomplete files. Four patients (three NAC, one placebo) had no perfusion defects. In the remaining 20 patients (7 NAC, 13 placebo) with baseline perfusion defects, NAC-treated patients had a more favorable recovery slope compared to control. From POD 3 to 5, NAC-treated patients had a greater relative reduction in defect size (~53% decrease vs ~71%, P < .05), whereas perfusion defects increased in the placebo group. Patients that received NAC also had superior healing outcomes at POD50 (100% healing for NAC vs 46% for placebo, P < .01; Table). No differences in the LAFA-derived rate of arterial inflow or time to peak perfusion were observed between the study groups.

Conclusions: In patients with CLTI and amputation stump perfusion defects at baseline, perioperative NAC administration may improve short-term perfusion and long-term tissue healing. Intraoperative LAFA may help identify patients with decreased stump perfusion who can benefit from early therapeutic intervention.