other covariants the mean disease-specific quality of life score was slightly worse after treatment with foam than after surgery ($P = .006$) but was similar in the laser and surgery groups. There were no significant differences between the surgery group and the foam or laser group in measures of generic quality of life. The frequency of procedural complications was similar in the foam group (6%) and the surgery group (7%) but was lower in the laser group (1%) than in the surgery group ($P < .001$). The frequency of serious adverse events was approximately 3% and was similar among the groups. Most of the clinical success were also similar among the groups, but successful ablation of the main trunks of the saphenous vein was less common in the foam group than in the surgery group ($P < .001$).

**Comment:** The three groups had similar improvements in venous clinical severity score at 6 months, however ablation of the great saphenous vein at 6 weeks occurred significantly less often after foam treatment (complete ablation 55%, partial ablation with a patent segment and no reflux 23%) than after either surgery (complete ablation 84%; partial ablation 6%) or laser treatment (complete ablation 86%, partial ablation 8%). Long-term follow-up therefore will be required to determine the durability of these treatments and the frequency of patients seeking retreatment after each of these forms of therapy of primary varicose veins. See also Abstract 5, "Patient-Reported Outcomes 5-8 Years After Ultrasound-Guided Foam Sclerotherapy for Varicose Veins" in this issue of the Journal.

### Retrograde Aortic Dissection After Thoracic Endovascular Aortic Repair


**Conclusions:** Retrograde type A aortic dissection (RTAD) after TEVAR is an uncommon complication, but with a high mortality rate. It occurs more frequently in patients treated for acute and chronic type B dissection, and when the endograft is significantly oversized.

**Summary:** Thoracic endovascular aortic repair (TEVAR) is utilized for treatment of a wide variety of thoracic aortic pathologies. A potential lethal complication of this procedure is RTAD. So far, data with respect to etiologic factors associated with RTAD are few and hampered by data quality and reporting parameters. The European Registry of Endovascular Aortic Repair Complications reported 63 cases of RTAD among 4750 TEVAR procedures (Eggebrecht H et al, Circulation 2009;120:276-81).

**Comment:** The three groups had similar improvements in venous clinical severity score at 6 months, however ablation of the great saphenous vein at 6 weeks occurred significantly less often after foam treatment (complete ablation 55%, partial ablation with a patent segment and no reflux 23%) than after either surgery (complete ablation 84%; partial ablation 6%) or laser treatment (complete ablation 86%, partial ablation 8%). Long-term follow-up therefore will be required to determine the durability of these treatments and the frequency of patients seeking retreatment after each of these forms of therapy of primary varicose veins. See also Abstract 5, "Patient-Reported Outcomes 5-8 Years After Ultrasound-Guided Foam Sclerotherapy for Varicose Veins" in this issue of the Journal.

**Activities of Daily Living Is a Critical Factor in Predicting Outcome After Carotid Endarterectomy in Asymptomatic Patients**


**Conclusions:** A patient’s inability to perform basic activities of independent living is associated with adverse postoperative outcomes after carotid endarterectomy (CEA) for asymptomatic lesions.

**Summary:** The randomized trials of carotid endarterectomy both in North America and Europe assessing the efficacies of CEA for asymptomatic disease generally excluded patients with a number of comorbid medical conditions such as congestive heart failure, unstable angina, diabetes, cerebrovascular disease, atrial fibrillation, or uncontrolled diabetes. However, specific measures of functional status were not utilized in patient stratification in these trials. The authors point out therefore that conventional models of stroke prevention after CEA in asymptomatic patients have not been developed to accurately predict outcomes in patients who are unable to perform activities of daily living (Bekelis K et al, Stroke 2013;44: 1085-90). In this current study the authors sought to assess the effect of preoperative functional status on postoperative outcomes following CEA in asymptomatic patients. The hypothesis was that preoperative functional disability would be associated with worsened postoperative outcomes and in turn impaired survival of the patients. Aided from the National Surgical Quality Improvement Project, a national data set including data from more than 300 hospitals was utilized in this study. Patients were identified by Current Procedural Terminology (CPT) codes and divided into three categories based on functional status: independent, partially dependent and dependent. Thirty-day postoperative stroke, death and other postoperative complications were identified as the study endpoint using multivariate logistic regression analysis.
was used to estimate odds ratios for outcomes controlling for sex, race, diabetes, cardiovascular disease, smoking, and other confounders. There were 19,748 patients with CEA analyzed of whom 19,348 (97.97%) were functionally independent. 377 (1.99%) were functionally partially dependent and 23 (0.12%) were functionally dependent. In the functionally independent group there were 196 (1.01%) strokes, 84 (0.43%) deaths, and 1416 (17.17%) other complications. In the functionally partially dependent group, there were 14 (3.71%) strokes, 10 (2.65%) deaths, and 80 (21.22%) other complications. In a multivariable risk-adjusted model using functionally independent as a reference, functionally partially dependent was associated with death (odds ratio, 3.3; 95% CI, 1.6-6.8; P < .001), stroke (odds ratio, 3; 95% CI, 1.7-5.4; P < .001), and other complications (odds ratio, 2.5; 95% CI, 1.9-3.2; P < .001).

Conclusion: The complication rates in the patients with inability to perform activities of daily living fall outside guidelines from the Society of Vascular Surgery and the American Heart Association. It appears that activities of daily living are a critical factor in predicting outcomes after CEA in asymptomatic patients and, in combination with improved medical management of asymptomatic carotid stenosis, suggests that in patients with high-grade asymptomatic carotid stenosis, aggressive medical management may be the best option for patients with impaired activities of daily living and high-grade asymptomatic carotid stenosis. In patients considered for CEA for asymptomatic lesions functional status should be vigilantly assessed as an aid in risk stratification along with other objective factors for potentially identifying increased risk of adverse outcome after CEA.

Volume of Carotid Artery Ulceration as a Predictor of Cardiovascular Events

Conclusions: With three-dimensional ultrasound volume of carotid ulceration accurately predicts cardiovascular events.

Summary: Ulcerated carotid plaques have been associated with plaque rupture, intraplaque hemorrhage, and overall decreased plaque stability. In addition, ulceration tends to be associated with greater plaque thickness and plaque volume (Homburg PJ et al, Stroke 2011;42:367-72, and Riccio SA et al, Cardiovasc Ultrasound 2006;4:44). There also appears to be an increased stroke risk with ulcerated plaques (Eliaszw M et al, Stroke 1994;25:304-8). Studies of plaque ulceration in the past have characterized the atherosclerotic plaque as complex with (irregular morphology with ulcers) or smooth or by quantifying the number of ulcers observed in a region of interest. In this study the aim was to quantify carotid total ulcer volume by three-dimensional ultrasound to investigate the relationship of total ulcer volume to vascular events (stroke, transient ischemic attack, myocardial infarction, revascularization, or death because of cardiovascular reason). There were 349 at-risk subjects who provided written informed consent for carotid three-dimensional ultrasound and whose plaques were then analyzed for ulcerations. Ulcer volume was defined as a distinct discontinuity in an atherosclerotic plaque, with a volume of ≥1.00 mm³ as measured using manual segmentation. The sum of the volumes of all ulcers seen in both carotids was the total ulcer volume. Participants were monitored for 5 years for outcomes including cardiovascular events and death. Kaplan-Meier survival analysis demonstrated that subjects with total ulcer volume ≥5 mm³ experienced significantly higher risk of developing stroke, transient ischemic attack, or death (P = .009) and of developing stroke/transient ischemic attack/death/myocardial infarction/revascularization (P = .017). Lower ulcer volumes did not predict events and ulcer depth did not predict events.

Comment: Intuitively it makes sense that at some level characteristics of the carotid plaque ought to have something to do with its propensity to induce neurologic events. The authors take this concept a bit further in that they have demonstrated that volume of ulceration can be measured with three-dimensional ultrasound and that this variable correlates with risk for a variety of cardiovascular events. The implication is that the atherosclerotic process in some patients may have a tendency to produce more unstable plaques conferring greater risk for cardiovascular events to the patient and that this risk can somehow be assessed through the use of three-dimensional ultrasound of the carotid plaque.

Aspirin for the Prevention of Recurrent Venous Thromboembolism: The INSPIRE Collaboration

Conclusions: Aspirin after anticoagulation treatment for venous thromboembolism (VTE) reduces overall risk of reoccurrence by more than a third in a broad cross-section of patients with a first unprovoked VTE without significantly increasing risk of bleeding.

Summary: Unprovoked VTE has a high risk of reoccurrence after discontinuation of vitamin K antagonist therapy. The risk is approximately 10% within the first year and 5% per year thereafter (Boutitie P et al, BMJ 2011;342:i3036). The new oral anticoagulants can lower the risk of recurrent VTE as part of initial or extended therapy. They are effective alternatives to warfarin but also carry bleeding risk and are expensive. Aspirin is a potential low-cost and relatively safe means of preventing further VTE events in the patient with an unprovoked VTE initially treated with anticoagulants. Aspirin has been recently evaluated in the Aspirin for the Prevention of Recurrent Venous Thromboembolism Warfarin and Aspirin (WARFASA) and the Aspirin to Prevent Recurrent Venous Thromboembolism (ASPIRE) trials (Becattini C et al, N Engl J Med 2012;366:1959-67, and Brightson TA et al, N Engl J Med 2012;367:1979-87). These trials demonstrated aspirin reduced the risk of recurrent VTE but were not individually powered to detect moderate treatment effects for particular outcomes or subgroups. Combined patient-level analysis of WARFASA and ASPIRE was planned, and a protocol for the project was developed before publishing and unblinding of the results of either trial. The purpose of the INSPIRE analysis was to more accurately estimate the effects of aspirin treatment; overall, on individual outcomes and in prespecified subgroups of patients. Individual patient data analysis of these trials was performed to assess the effect of aspirin, vs placebo on recurrent VTE, major vascular events (recurrent VTE, myocardial infarction, stroke, and cardiovascular disease death) and bleeding, overall and within predefined subgroups. The primary analysis for VTE was, by intention to treat using the time-to-event data of 1224 patients, 193 had recurrent VTE over 30.4 months median follow-up. Aspirin reduced recurrent VTE (7.5%/yr vs 5.1%/yr; hazard ratio [HR], 0.68; 95% confidence interval [CI], 0.51-0.90; P = .008), including both deep-vein thrombosis (HR, 0.66; 95% CI, 0.47-0.92; P = .01) and pulmonary embolism (HR, 0.66; 95% CI, 0.41-1.06; P = .08). Aspirin reduced major vascular events (8.7%/yr vs 5.7%/yr; HR, 0.66; 95% CI, 0.50-0.86; P = .002). The major bleeding rate was low (0.4%/yr for placebo and 0.5%/yr for aspirin). After adjustment for treatment adherence, recurrent VTE was reduced by 42% (HR, 0.58; 95% CI, 0.40-0.85; P = .005). Prespecified subgroup analyses indicate similar relative, but larger absolute, risk reductions in men and older patients.

Comment: While extended anticoagulation therapy is still the most effective means of preventing recurrent VTE following unprovoked VTE, such therapy is impractical and undesirable for most patients with initial VTE events. The data here show that aspirin is a cheap, safe alternative to reducing VTE risk following an initial period of anticoagulation for an unprovoked initial VTE event. As such, it seems there is no reason to leave patients completely unprotected for recurrent VTE events following an initial period of anticoagulation. Aspirin reduces the risk of another VTE event and is a safe treatment for these patients. Additional data will be needed to know how long to continue aspirin in such patients and whether the safety profile continues over a longer periods of time.