cost effectiveness strategies. Clearly, however, there is still no clearly accepted optimal treatment for intermittent claudication.

Metabolic Syndrome Predicts Restenosis After Carotid Endarterectomy


Conclusions: Metabolic syndrome is an independent predictor for restenosis after carotid endarterectomy (CEA).

Summary: In modern studies, restenosis after endarterectomy for symptomatic carotid artery stenosis occurs at a rate of 5% at 3 years (Arquizan C et al, Stroke 2011;42:1015-20). Other studies suggest that at 15 years after CEA rates of stroke associated with restenosis may be as high as 50% (Fluri F et al, Cerebrovasc Dis 2008;26:654-8). Obviously restenosis after CEA therefore has the potential to lead to additional interventions and adverse outcomes. Factors predicting restenosis after CEA however, are poorly understood. The purpose of this study was to examine which risk factors are potentially associated with restenosis after CEA. This is a retrospective study that examined the records of all patients who underwent CEA at the Veterans Affairs Connecticut Healthcare System during a 4-year period. Metabolic syndrome was defined as the presence of 3 or more of the following: hypertension as defined by a blood pressure ≥130 mmHg; serum triglycerides ≥150 mg/dl; high-density lipoprotein ≤40 mg/dl; BMI ≥25 kg/m²; and fasting blood glucose ≥ 10 mg/dl. Major adverse events were defined as stroke, death or MI. Restenosis was defined as ≥50% stenosis on follow-up imaging studies. There were 78 patients who underwent 79 CEAs during the study period. All patients were male and 76% were Caucasian. Mean age was 72.6 years. Mean duration of follow-up was 5.2 years. 67% of patients had metabolic syndrome. Patients with metabolic syndrome were comparable with those without metabolic syndrome in demographics and preoperative comorbidities except for increased hypertension and diabetes, as expected, and in chronic renal insufficiency (P = .05). There was no significant difference in long-term survival or freedom from major adverse events between patients with and without metabolic syndrome. However, restenosis was significantly higher in patients with metabolic syndrome (P = .02) and occurred 2 years after CEA in patients with metabolic syndrome only, with a large increase in restenosis after 5 years (P = .018). In a multivariable analysis metabolic syndrome remained an independent predictor of restenosis (P = .01).

Comment: Most studies examining the rate of restenosis following carotid endarterectomy have shorter periods of follow-up than exhibited here. Although in this small study the authors were unable to demonstrate a difference in major adverse events in the patients with metabolic syndrome vs those without metabolic syndrome, an anatomic goal of carotid endarterectomy is to maintain patency of the artery without restenosis. The data does not allow it to be determined whether control of the individual components of the metabolic syndrome around the time of endarterectomy would reduce late restenosis. It appears patients with metabolic syndrome at the time of CEA are at risk for restenosis and thus could constitute a group of patients for whom more frequent and/or long-term surveillance is warranted. In addition such patients may serve as a target for even more intense medical management of the individual components of their metabolic syndrome at the time of their original operation.

Preventable Readmissions to Surgical Services: Lessons Learned and Targets for Improvement


Conclusions: A minority of readmissions may potentially be preventable. Policies aimed at penalizing reimbursements based on readmission rates should use clinical data to focus on inappropriate hospitalization as a measure to promote high quality patient care.

Summary: Vascular surgical patients have overall high readmission rates compared to many other types of patients. As a measure of health care quality, readmissions are a current prominent focus currently. The Center for Medicare and Medicaid Services (CMS) proposes using readmission rates as a benchmark to improve care, including targeting them as non-reimbursable events. The study here was designed to describe potentially preventable readmissions after surgery and identify targets for improvement. The study focused on patients discharged from a surgical service over 8 consecutive quarters (Q4 2009 to Q3 2011). A working group of attending surgeons defined terms and created classification schemes. Thirty-day readmissions were identified and reviewed by a 2-physician team. Readmissions were then categorized as preventable or non-preventable, and as targets for future quality improvement intervention. Overall readmission rate was 8.3% (315 of 3789 admissions). The most common indication for initial admission was elective surgery. Among admitted patients in the sample, 28% did not undergo an operation during their index admission. Only 21% (55 of 258) of readmissions were likely preventable based on medical record review. Of the preventable readmissions, 38% of patients were discharged within 24 hours and 60% within 48 hours. Dehydration occurred more frequently among preventable readmissions (P < .001). Infection accounted for more than one third of all readmissions. Potential targets for improvement included closer follow-up after discharge (49%), management of the outpatient setting (42%), and avoidance of premature discharge (9%).

Comment: It is very likely that the complexity of medical care will preclude total elimination of readmissions. Many readmissions actually reflect clinically appropriate care delivery and of course some reflect unnecessary or inappropriate care or discretionary events. This paper is a step in the right direction in that it indicates that treating all readmissions as unavoiable events is likely not practical or realistic. Efforts should be geared towards distinguishing preventable from unpreventable readmissions to promote the overall goal of delivery of high-quality care.

Intra-plaque Hemorrhage, Fibrous Cap Status, and Microembolic Signals in Symptomatic Patients With Mild to Moderate Carotid Artery Stenosis: The Plateau At RISK Study


Conclusions: In patients with symptomatic mild to moderate carotid artery stenosis, intra-plaque hemorrhage (IPH) and the status of the fibrous cap (FC) are not associated with microembolic signals (MES) as determined by transcranial Doppler (TCD). MRI and TCD therefore likely provide different information on plaque vulnerability.

Summary: The primary way of estimating risk of a carotid artery plaque is the degree of stenosis. However, there are other plaque characteristics that may be important as well. Detection of plaques which are prone to rupture, so-called vulnerable plaques, may help to determine the best therapeutic approach to patients with carotid stenosis, especially patients with mild to moderate carotid artery stenosis. In patients with mild to moderate symptomatic carotid artery stenosis increased risk of stroke or recurrent stroke has been associated with IPH and a thin/ruptured FC as evaluated by MRI and MES detected with TCD. In this study the authors sought to determine whether the presence of MES differs in patients with and without IPH and a thin/ruptured FC vs patients with only a thin/ruptured FC but without IPH. This is a multicenter, diagnostic cohort study. Patients (n = 113) with recent transient ischemic attack (TIA) or minor stroke in the carotid territory and ipsilateral mild to moderate carotid artery plaque were included. IPH and FC status were dichotomously scored. TCD data was analyzed blinded to results of MRI. TCD measurements were feasible in 105/113, with an average recording time of 219 minutes. A total of 26 MES were detected in 8 of 105 patients. In 44 of 105 plaques IPH was present. In 92 of 105 plaques FC status was assessable and 36 of these had a thin/ruptured FC. There was no significant difference in the prevalence of MES between patients with and without IPH (P = .46) or those with thick vs thin/ruptured FC (P = .48).

Comment: The study differs from a previous study that correlated a significant relationship between MES occurrence and the presence of a vulnerable plaque on MRI. Patients in that study (Alfat N, et al. Radiology 2011; 258:538-545) had high-grade carotid stenosis compared to mild to moderate carotid artery stenosis in the patients in the current study. It maybe, that the microembolic potential of a vulnerable plaque is enhanced by the flow effects induced by high-grade carotid stenosis. One wonders whether the “vulnerable” plaque in isolation in the carotid circulation is really all that important and only becomes important when associated with significant stenosis. Longer term data focusing on clinical outcomes rather than just analysis of MES signals is needed to answer this sort of question.

Long-Term Follow-Up Study of Endarterectomy Versus Angioplasty in Patients With Symptomatic Severe Carotid Stenosis Trial


Conclusions: The long-term risk-benefit of carotid stenting (CAS) vs endarterectomy (CEA) for symptomatic carotid stenosis favors CEA and the difference is driven by lower risk of procedural stroke after CEA compared to CAS.

Summary: This study presents long-term follow-up of patients included in the endarterectomy vs angioplasty in patients with symptomatic severe carotid artery stenosis (EVA-3S) trial. This is a randomized control trial of CAS vs CEA in 527 patients who had recently symptomatic severe carotid stenosis. The trial is conducted in 30 centers in France and