A reassessment of needs and practice patterns in pharmacologic prophylaxis of venous thromboembolism following elective major surgery


Conclusion: Physician judgment should be used in determining susceptibility to venous thromboembolism (VTE) and the need for VTE prophylaxis in patients undergoing major elective abdominal surgery.

Summary: There were an estimated 900,000 VTE events in U.S. hospitalized patients in 2005 (Heit JA, et al. American Society of Hematology Annual Meeting Abstract 2005;106: Abstract 910). However, many patients die after CAS or CEA is more equivalent. The authors sought to assess relationship between procedural angiograms. The implication is decreasing periprocedural rates of CAS would make the procedure more attractive because long-term stroke prevention has passed, CAS and CEA both appear effective in preventing midterm stroke. The authors queried the University Health System Consortium database from 2004 and also found a very low rate of VTE complication in patients undergoing elective operations (Surg 2008;144:654-660). It is possible, however, that American College of Chest Physicians (ACCP) recommendations may have altered practices of VTE prophylaxis in elective surgical patients, and rates of fatal and non-fatal PE could be influenced by changing indications for VTE prophylaxis. The authors' study was designed to assess and compare rates of VTE prophylaxis and PE from an 18-month consecutive period in 2003 to 2004 with an identical period of observation in 2007 to 2008. Their hope was to determine the impact of the ACCP recommendations advocating an increase in VTE prophylaxis.

The authors queried the University Health System Consortium database comprising data from 123 academic teaching hospitals. They identified patients undergoing colorectal resections, total hip replacement, total knee replacement, and hysterectomies from two consecutive 18-month periods: 2003 to 2004 and 2007 to 2008. VTE rates ranged from 0.6% to 3.2%, and PE rates ranged from 0.28% to 1.09%. There was an increased use of VTE prophylaxis for all procedures between 2003 to 2004 and 2007 to 2008, except for hysterectomy. Comparing the two periods, the authors found VTE rates were among significantly elevated patients who received pharmacologic prophylaxis and actually decreased in patients who did not receive any pharmacologic prophylaxis, despite an absence of significant change of severity of illness in the patient populations.

Comment: The authors' arguments are a step backward from routine prophylaxis to an approach where “the need for prophylaxis would be assessed on an individual basis, based on retrospective data, expert consensus, and clinical judgment.” The authors have actually found that in a practice where VTE prophylaxis is encouraged and withheld for specific reasons, the rate of VTE complications, specifically fatal PE, is low. It does not follow that the same results can be obtained with the approach of withholding VTE prophylaxis unless one judges it to be specifically required in individual cases.

Anatomical and Technical Factors Associated With Stroke or Death During Carotid Angioplasty and Stenting Results From the Endarterectomy Versus Angioplasty in Patients With Symptomatic Severe Carotid Stenosis (EVA-3S) Trial and Systematic Review


Conclusion: There are technical and anatomical factors, especially extreme angulation of the carotid artery, that impact the risk of carotid artery angioplasty and stenting.

Summary: It seems clear, at this point, that large randomized clinical trials will show that death and stroke rates from CAS and ECA are both equivalent in preventing midterm stroke. The implication is decreasing periprocedural rates of CAS would make the procedure more attractive because long-term stroke prevention has passed, CAS and ECA both appear effective in preventing midterm stroke. The authors sought to assess relationships between anatomical and technical factors and 30-day risk of stroke and death after CAS. The authors included patients from the EVA-3S study where carotid stenting was attempted. Two radiologist blinded to clinical data independently assessed the aortic arch and the carotid arteries on procedural angiograms. The authors then also performed a systematic review of studies of CAS that reported 30-day stroke or death risk in relation to anatomy and technique. End points were stroke or death and stroke occurring ≤30 days of CAS. In the EVA-3S trial, 262 patients fulfilled the inclusion criteria, including 12 patients in whom stent insertion failed. The 30-day risk of stroke or death in these patients was 9.5% (n = 25). The risk of stroke or death was higher in patients with internal carotid artery common carotid artery angulation ≥60% (RR, 4.96; 2.29-10.74). Risk was lower in patients treated with cerebral protection devices (RR, 0.38; 0.17-0.85).

The authors included 56 studies and 34,398 patients in a systematic review. Risk of stroke or death was higher in patients undergoing carotid CAS (RR, 1.29; 1.05-1.58, P < .02). Risk of stroke or death was also higher occurring with inter-ex-eria common carotid artery angulation (RR, 3.41; 1.52-7.63, P < .001) and when the target ICA carotid stenosis was >10 mm in length (RR, 2.36; 1.28-3.83, P = .01). There were nonsignificant trends toward increased risk with CAS in patients with type III aortic arch (RR, 1.82; 0.97-3.41, P = .06), in patients with highly calcified lesions (RR, 1.62; 0.99-2.64, P = .05), and in patients with an aneurysm of the ICA stenosis (RR, 1.75; 0.99-3.11, P = .06). Also, in the systematic review, cerebral protection devices were associated with a lower risk of stroke or death (RR, 0.55; 0.41-0.73, P = .02). For the end point of stroke alone, lesion length >10 mm, aortic arch calcification, ostial location of the stenosis, and stenosis >90% all were associated with increased risk of CAS (all P < .05).

Comment: Patient selection is important in reducing the risk of any procedure. This report by the EVA-3S investigators is therefore an important contribution to the CAS literature. Unfortunately, many of the anatomic risk factors for CAS identified will only be discovered during the course of the angiogram accompanying the procedure. Perhaps the incidence of 30-day stroke or death associated with CAS could be decreased if operators were willing to back out of the procedure when anatomic risk factor for an adverse outcome is identified during the preliminary angiogram.

Angiotensin II Type 2 Receptor Signaling Attenuates Aortic Aneurysm in Mice Through ERK Antagonism


Conclusion: The selective angiotensin I receptor blocker losartan prevents aneurysm progression in a mouse model of Marfan disease with full protection requiring angiotensin II signaling.

Summary: The most common mutation in people with Marfan syndrome involves a cysteine substitution. The authors demonstrated that al-though enalapril and losartan both attenuated TGF-β–mediated activation of ERK, extracellular signal regulated kinase. The data indicate that the protective nature of losartan, an angiotensin II receptor blocker. The authors demonstrate in this work that losartan, an angiotensin II expression accelerates the aneurysm process in the mouse model of Marfan syndrome. They found full protection of aneurysm degeneration in the mouse model of Marfan syndrome intact angiotensin II receptor signaling. Enalapril, an angiotensin-converting enzyme inhibitor, limits angiotensin signaling for both angiotensin I and angiotensin II receptors and was less effective in decreasing the aneurysmal degeneration of the aorta in fibrillin-1 mutated mice. The authors demonstrated that although enalapril and losartan both attenuated TGF-β signaling in the aorta, only losartan inhibited TGF-β–mediated activation of ERK, extracellular signal-regulated kinase. The data indicate that the protective nature of angiotensin II signaling is necessary for angiotensin-converting enzyme inhibitors to potentially decrease the aneurysmal degeneration of the aorta in mice with fibrillin-1 deficiency.