Comparative Determinants of 4-Year Cardiovascular Event Rates in Stable Outpatients at Risk of or With Atherothrombosis

Conclusion: Patients with vascular events are those at highest risk for future cardiovascular death, myocardial infarction, and stroke.

Summary: Clinical trials of pharmacologic agents in patients with atherosclerosis often report event rates in placebo groups lower than projected (Bhatt DL, N Engl J Med 2009;361:2330-41). Some authors hypothesized that low anti-Xa levels would be found in critically ill, surgical intensive care unit patients with associated trauma. Anti-Xa levels were drawn after the third dose. A trough level of 10% to 15% was noted in half of surgical intensive care unit patients with associated trauma.

The authors analyze the effects of prior ischemic events, polyvascular disease (n = 19.1%), patients with stable coronary, cerebrovascular, or peripheral artery disease (n = 15,264) had a lower risk (12.2%; 95% CI, 11.4%-12.9%). Patients with risk factors without established atherothrombosis (n = 8073) had the lowest risk (9.1%; 95% CI, 8.3%-9.9%; P < .001 for all comparisons). In multivariable modeling diabetes (hazard ratio [HR], 1.44; P < .001), an ischemic event in the previous year (HR 1.71; P < .01), and polyvascular disease (HR, 1.99; P < .001) all were associated with increased risk of the primary end point.

Comment: The data indicate polyvascular disease and a history of ischemic events, particularly in the last year, are strongly associated with cardiovascular death, myocardial infarction, and stroke. Many vascular surgical patients fall in to the high-risk groups. This perhaps explains, in part, the high mortality rates of vascular surgical patients over time and somewhat cynically may explain why vascular surgery patients tend to be "repeat customers." Once a patient with vascular disease has a cardiovascular event they are much more likely to have additional events.

Standard Prophylactic Enoxaparin Dosing Leads to Inadequate Anti-Xa Levels and Increased Deep Venous Thrombosis Rate in Critically Ill Trauma and Surgical Patients

Conclusion: Standard prophylactic dosing of enoxaparin leads to low anti-Xa levels in half of surgical intensive care unit patients with associated increased risk of deep venous thrombosis (DVT).

Summary: DVT rates of those untreated intensive care unit (ICU) patients range from 13% to 31% and up to 70% in severely injured patients. There were no differences between those with normal and low anti-Xa levels with respect to age, injury severity score, creatinine clearance, body mass index, prevalence of high-risk injuries, and ICU/ventilator days.

Comment: The data provide at least a partial explanation for the continued high rates of VTE complications in the injured patient despite protocols of chemical and mechanical VTE prophylaxis. It remains to be seen whether prophylactic dosing of LMWH stratified for anti-Xa levels would be both effective and cost effective in reducing VTE complications in the injured patient or critically ill surgical patient.

Randomized Clinical Trial of Mesh versus Sutured Wound Closure After Open Abdominal Aortic Aneurysm Surgery

Conclusion: Routine mesh placement reduces the rate of postoperative ischemic bowel after open abdominal aortic aneurysm (AAA) repair and is not associated with increased complications.

Summary: There appears to be an increased risk of incisional hernia in patients undergoing aortic surgery for aneurysm compared with those undergoing aortic surgery for occlusive disease (Takagi H, Eur J Vasc Endovasc Surg 2007;35:177-81). Rates of incisional hernia after AAA repair may be as high as 38% (Hollander AJ, Eur J Vasc Endovasc Surg 1996;12: 196-206), and patients with AAA have a greater risk of developing bowel ischemia, the primary outcome measures were cardiovascular death, myocardial infarction, and stroke.

The authors performed a randomized trial to see if mesh closure after AAA repair would result in fewer incisional hernias. Patients undergoing open AAA repair were randomized to routine abdominal wall closure or to prophylactic placement of polypropylene mesh with abdominal wall closure. The study included 85 patients (91% men) with a mean age of 73 years (range, 59-89 years). There were five peripertoneal deaths; none related to mesh. Hernia was determined by clinic examination or by ultrasound study. During follow-up, incisional hernia developed in 16 patients in the control group and in 5 in the mesh group (hazard ratio, 4.1; 95% confidence interval, 1.7-9.82; P = .002). Hernia development occurred between 170 and 585 days in the control group and between 336 and 1122 days in the mesh group. A minority of the hernias were repaired: four in the control group and one in the mesh group (P = .375). There were no mesh infections, but mesh was removed in one patient after seroma formation.

Comment: There are significant concerns regarding placement of prophylactic polypropylene mesh. Certainly, mesh has been associated with infection and adhesion to underlying bowel. Although these complications were not noted in this series, the number of patients is small. The study does confirm a high rate of hernia formation in patients undergoing midline incisions for AAA repair and suggests hernia formation can be reduced by prophylactic mesh replacement. The clinical significance of this is unclear because the number of actual hernia repairs was not statistically different in the patients undergoing routine mass closure vs those undergoing prophylactic mass closure, implying many of the hernias perhaps were small or did not trouble the patient.

Diabetes Mellitus, Fasting Blood Glucose Concentration, and Risk of Vascular Disease: A Collaborative Meta-Analysis of 102 Prospective Studies

Conclusion: Diabetes confers a twofold excess risk for a wide range of vascular diseases. This is independent from other conventional risk factors. Fasting blood glucose concentration in people without diabetes is also modestly, but not linearly, associated with risk of vascular disease.

Summary: The authors used data from 121 prospective studies of vascular risk factors involving individual records of 1.27 million adults. All studies had accrued >1 year of follow-up. They used these data to produce estimates of the association of diabetes and fasting blood glucose concentrations with fatal or first ever nonfatal incident vascular disease (and deaths from other vascular disorders) under a wide range of conditions.

Analyses included data for 698,782 people. There were 52,765 nonfatal or fatal vascular outcomes under study. Adjusted hazard ratios (HRs) for diabetes were 2.00 (95% confidence interval [CI],