Abstracts

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Association Between Serum Lipoproteins and Abdominal Aortic Aneurysm

Golledge J, van Bochxmeer F, Jamrozik K, et al. Am J Cardiol 2010;105: 1480-4.

Conclusion: High-density lipoprotein is the most important lipid in predicting the risk of development of an abdominal aortic aneurysm (AAA).

Summary: The relationship between dyslipidemia and development of AAA is unclear. Some studies have reported an association between low-density lipoprotein (LDL) or high-density lipoprotein (HDL) and AAA; others have found no association. Previous studies have not used consistent definitions of dyslipidemia, have not stratified the current use of lipid modifying medications, and often have not adjusted for other determinants of AAA. The result has been confusion regarding the role of dyslipidemia in the development of AAA.

The current study was designed to examine the association of serum concentration of lipids and AAA in a population screening study. Data were adjusted for known clinical determinants of AAA and use of lipid-modifying medications. The study analyzed 3327 men aged 65 to 83 years. Analysis was adjusted for established risk factors of AAA and the presence of prescriptions of lipid-modifying agents. At the time of fasting lipid measurement, 1043 men (31%) were receiving lipid-modifying therapy; statins in >98% of the cases. Serum HDL concentrations were lower in patients with AAA. HDL concentration was independently associated with a decreased risk of an AAA in men not receiving lipid-modifying therapy (odds ratio, 0.72; 95% confidence interval, 0.56-0.93 per 0.4-mM increase) as well as in the total cohort (odds ratio, 0.76; 95% confidence interval, 0.63-0.91 per 0.4-mM increase, adjusted for lipid-modifying therapy). Levels of triglycerides and LDL were not associated with the presence of AAA.

Comment: The authors have demonstrated a consistent association between a low serum HDL concentration and the presence of AAA in a population prone to aortic dilatation. The fact that the association was present in subgroups not receiving lipid-modifying medications and in men after adjusting for other risk factors, including lipid-modifying medications, is evidence modification of HDL levels may be a therapeutic target in the prevention of AAA.

Atheroembolic Disease—A Frequently Missed Diagnosis: Results of a 12-Year Matched-Pair Autopsy Study

Fries C, Roos M, Gaspert A, et al. Medicine 2010;89:126-32.

Conclusion: Vascular interventions are the most important risk factor for atheroembolic disease.

Summary: Vascular embolism was first described by Flory in 1944 (Flory CM. Am J Pathol 1944;21:549-58). In cholesterol embolization, cholesterol crystals are released into the circulation through erosion of an atherosclerotic plaque. Plaque contents are flushed into the distal arterial beds and lodged into vessels 150 to 200 μm in diameter. The microemboli trigger an inflammatory reaction that eventually occludes the artery (Keen RR, et al. J Vasc Surg 1995;21:773-81). Diagnosis of atheroembolic disease is hampered because atheroembolic disease is associated with multiple symptoms and has only nonspecific laboratory findings. To better characterize this disorder, the authors sought to determine the relative frequency of autopsy-proven atheroembolic disease during a 12-year period. They sought to identify risk and precipitating factors and to identify factors that facilitate diagnosis of atheroembolic disease by identifying laboratory and clinical features potentially suggesting the disorder.

The authors screened 2066 autopsy reports from 1995 to 2006 for evidence of atheroembolic disease. For each case of atheroembolic disease, a control patient without atheroembolic disease was matched for autopsy year, sex, and age. Records were analyzed for therapeutic and diagnostic interventions in the last 6 months before death as well as laboratory and clinical parameters during the last hospitalization before death.

They identified 51 patients with atheroembolic disease, and only 6 (12%) had been diagnosed clinically. The most frequently affected organs were the lower gastrointestinal tract (22%), the spleen (37%), and the kidney (71%). The frequency of clinically suspected and biopsy-proven atheroembolic disease remained constant over time. Clinical signs increased in patients with atheroembolic disease were livedo reticularis and blue toes compared with patients without atheroembolic disease (33% vs 14 %; $P = .04$). There was a trend for higher incidence of proteinuria and eosinophilia in the atheroembolic disease patients. A vascular intervention ≤6 months before death was highly associated with atheroembolic disease (55% vs 29%; $P = .01$). After multivariable analysis, only a previous vascular intervention was identified as a significant risk factor for atheroembolic disease.

Comment: Atheroembolic disease has been associated with blue toe, livedo reticularis, renal failure, pancreatitis, muscle pain, gastrointestinal bleeding, hypertension, peptic ulcer, inflammatory bowel disease, prostatitis, and hemorrhagic cystitis (Mollenaar W, et al. Am J Gastroenterol 1989;84:1421-2; and Mollenaar W, et al. Arch Intern Med 1996;156:653-7). The current study confirms the widespread distribution of affected organs and that atheroembolic disease is missed premorbidly in >80% of the cases. Given the plethora of potential clinical manifestations of atheroembolic disease and that vascular interventions are the major risk factor for atheroembolic disease, it is likely the complication rate of vascular interventions is higher than suspected based on clinical criteria alone.

Bleeding Complications With Dual Antiplatelet Therapy Among Patients With Stable Vascular Disease or Risk Factors for Vascular Disease: Results From the Clopidogrel for High Atherothrombotic Risk and Ischemic Stabilization, Management and Avoidance (CHARISMA) Trial

Berger PB, Bhatt DL, Fuster V, et al. Circulation 2010;121:2575-83.

Conclusion: There is an increased risk of bleeding with long-term dual antiplatelet therapy. The increased risk is greatest in the first year. Moderate bleeding is associated with mortality.

Summary: It is known that dual antiplatelet therapy using clopidogrel and aspirin is effective in reducing thrombotic events in patients with acute coronary syndromes and those undergoing placement of bare and drug-eluting coronary stents. In the original CHARISMA study, on a background of aspirin therapy, clopidogrel was compared with placebo for a median of 28 months for its ability to reduce thrombotic events. On this background of aspirin therapy, clopidogrel did not reduce thrombotic events in the overall study population (Bhatt DL, et al. N Engl J Med 2006;354:1706-17). However, in patients with stable vascular disease, clopidogrel added to aspirin led to a 12% relative decrease in cardiovascular death, myocardial infarction, or stroke vs those who were treated for risk factors only, where there was a 20% increase in these events (Bhatt DL, et al. J Am Coll Cardiol 2007;49:1982-88). Because the source of this increased risk in patients with risk factors only may be bleeding, the authors sought to determine if bleeding risk was sufficiently high to argue against dual antiplatelet therapy even in patients with stable vascular disease who appear to benefit from dual antiplatelet therapy.

The authors analyzed 15,603 patients enrolled in CHARISMA. This was a double-blind, placebo-controlled, randomized trial comparing clopidogrel (75 mg/d) vs placebo on a background of aspirin therapy (75 to 162 mg/d). Patients in CHARISMA were classified as having stable vascular disease or multiple risk factors for vascular disease without established disease. Median follow-up was 28 months. On this background of aspirin therapy, severe bleeding occurred in 1.7% of the clopidogrel group vs 1.3% of those treated with aspirin and placebo ($P = .087$), and moderate bleeding occurred in 2.1% vs 1.3%, respectively ($P < .001$). The primary risk of bleeding was during the first year. Patients without severe or moderate bleeding after 1 year were no more likely than placebo-treated patients to have subsequent bleeding. Bleeding frequency was similar in patients with risk factors only and in those with established vascular disease. The relationship between moderate bleeding and all-cause mortality was strong (hazard ratio [HR], 2.55; 95% confidence interval [CI], 1.71-3.80; $P < .0001$). Strong relationships were also between moderate bleeding and myocardial infarction (HR, 2.92; 95% CI, 1.71-3.8; $P < .0001$) and stroke (HR, 4.20; 95% CI, 3.05-5.77; $P < .0001$).

Comment: For the vascular surgeon who frequently treats his or her patient with dual antiplatelet therapy, the bottom line is that such therapy will be associated with a risk of moderate or severe bleeding of approximately 4%, and that this risk is greatest in the first year of therapy. In addition, further analysis of the CHARISMA trial has indicated that in dual antiplatelet therapy, lower-dose aspirin administered with clopidogrel has a lower risk of bleeding than higher doses of aspirin (Steinhubl SR et al, Ann Intern Med 2009;150:379-86). Overall, dual antiplatelet therapy administered to patients with established vascular disease lowers the risk of future cardiovascular events with a small but measurable increased risk of bleeding that, if it occurs, will adversely affect mortality.

Blunt Traumatic Thoracic Aortic Injuries: Early or Delayed Repair—Results of an American Association for the Surgery of Trauma Prospective Study

Demetriades D, Velmahos GC, Scalea TM, et al. J Trauma 2009;66:967-73.

Conclusion: Delayed repair of stable blunt thoracic aortic injury provides improved survival over emergent repair, irrespective of the presence of major additional associated injuries.