women with sphingomyelin levels of ≥60 mg/dL than in women with sphingomyelin levels of <39 mg/dL. This association did not remain significant after multivariant adjustment for standard cardiovascular risk factors. Men with sphingomyelin levels of >60 mg/dL had higher calcium scores (135 vs 99 Agatston units, $P = .01$) than men with sphingomyelin levels <39 mg/dL.

Comment: Sphingomyelin accumulates in atheromas in animal models and in human atheroma. Much sphingomyelin found in arteries arises from synthesis within the arterial tissue (Circulation 1961;23:370-5). However, synthesis of sphingomyelin within arterial tissue appears slow compared with the total amount accumulated, suggesting plasma levels of sphingomyelin may also contribute to accumulation of sphingomyelin within arterial tissue. The unadjusted data from this study provide some support that plasma sphingomyelin is a component of a pathway that mediates risk for subclinical disease attributable to traditional cardiovascular risk factors.

Results of endovascular repair of the thoracic aorta with the Talent Thoracic stent graft: the Talent Thoracic Retrospective Registry

Fattori R, Nienaber CA, Rousseau H, et al. J Thorac Cardiovasc Surg 2006;132:332-9.

Conclusion: The Talent thoracic stent graft appears effective in the treatment of both acute and chronic diseases of the thoracic aorta.

Summary: This report derives from the Talent Thoracic Retrospective Registry. It includes treatment of patients in seven major European referral centers during an 8-year period. The Talent thoracic stent graft was used to treat thoracic aortic pathology in 457 consecutive patients, of which 113 were emergent cases and 344 were elective. Median follow-up was 24 ± 19 months (range, 1 to 85.1 months). Follow-up was based on clinical and imaging findings. Adverse events were included, and all adverse events were reviewed by a single physician.

In-hospital mortality was 5% (23 patients). Mortality was 8.5% during follow-up of the 422 patients who survived the initial procedure. Thirty-six patients died, and 11 of the deaths were related to aortic disease. Specific procedure-related complications included stroke in 3.7%, paraplegia in 1.7%, and local vascular access-site complications in 3.3%. Two patients died of aortic rupture during placement of the device.

Persistent endoleak was documented in 64 cases, of which 43 demonstrated primary endoleak present at the end of the procedure, and 21 endoleaks were discovered during follow-up. There were 7 patients with persistent endoleak with aortic rupture during the follow-up period. Aortic rupture associated with persistent endoleak occurred from 40 days to 35 months. All patients with aortic rupture associated with persistent endoleak died. Stent graft migration occurred in seven cases, graft fabric failure in two, and known modular disconnection in three. Survival was 90.97% at 1 year, 85.36% at 3 years, and 77.49% at 5 years. Freedom from a second procedure, endovascular, or open conversion, at 1, 3 and 5 years was 92.41%, 81.3%, and 70.0%, respectively.

Comment: These are registry data and are thus subject to all the limitations of such data. Patients were treated for a variety of acute and chronic conditions. Although patients were acquired during an 8-years period, only 95 patients had >3 years of clinical and imaging follow-up available. The data suggest the Talent thoracic aortic stent graft can be deployed with a reasonable rate of complications for a variety of thoracic aortic pathologies. Further follow-up is obviously required to establish long-term efficacy.

A prospective analysis of fenestrated endovascular grafting: intermediate-term outcomes

O'Neill S, Greenberg RK, Haddad F, et al. Eur J Vasc Endovasc Surg 2006;32:115-23.

Conclusion: Abdominal aortic stent grafts can be placed with graft material incorporated around visceral arteries with effective prevention of aneurysm rupture and minimal loss of visceral artery patency.

Summary: The study included patients with abdominal aortic aneurysm (AAA) with short proximal necks who were considered high risk for open repair and unacceptable for conventional endovascular repair. Fenestrated devices were individually designed from reconstructed computed tomography (CT) data using the Cook Zenith graft as the device platform. The design of each graft required knowledge of the ostial diameter of each visceral vessel, relative distances from a fixed landmark (usually the superior mesenteric artery), and radial orientation of the visceral ostial. Small fenestrations were placed between stent struts and could be used in conjunction with a visceral artery stent. Larger fenestrations (8 to 12 mm in diameter) could be placed with a stent strut crossing an ostium and were not intended for use with visceral artery stents. Scalped fenestrations, hemi-oval in shape, were in the most proximal portion of the fabric. Patients were followed-up with CT scan, duplex ultrasound imaging, and plain abdominal radiographs at hospital discharge, at 1, 6 and 12 months, and then annually thereafter.

Between 2001 and 2005, 119 patients were treated. Their mean age was 75 years, and the mean aneurysm size was 65 mm. There were 302 visceral vessels inferior to the fabric seal, with a mean of 2.5 vessels per patient. Fifty-eight percent of the grafts incorporated two venal arteries and the superior mesenteric artery. There was no acute visceral artery loss at the time of the graft implantation. Mean follow-up was 19 months (range, 0 to 42 months). One death occurred ≤30 days of device implantation. Survival by Kaplan-Meier analysis at 1, 12, 24, and 36 months was 99%, 92%, 83%, and 79%, respectively. There were no conversions, and no known aneurysm ruptures have occurred. There were 11 type 1 endoleaks at discharge. The endoleak rate was 10% at 30 days, and all were type 2. At 2 years, fenestrations had decreased >5 mm in diameter in 77% of cases. During follow-up, 10 of 231 renal artery stents occluded, with three occlusions before discharge. There were 12 additional renal artery stent stenoses. Three patients had permanent dialysis.

Comment: Outside of a few selected centers, progress has been slow in the development of fenestrated endovascular grafts. This is likely because the grafts must be individually designed and a high level of technical skill is required for successful placement. Acceptance of this technology will also require conclusive evidence that the graft body itself does not migrate. As pointed out by the authors, even minimum migration of a fenestrated graft will result in significant renal and mesenteric artery complications.

Endarterectomy versus stenting in patients with symptomatic severe carotid stenosis

Mas J-L, Chatellier G, Beyssen B; and the EVA-3S Investigators. New Engl J Med 2006;355:1660-71.

Conclusion: Compared with carotid artery stenting (CAS), carotid endarterectomy (CEA) in patients with symptomatic carotid stenosis of >60% to 99% provides lower rates of stroke and death at 1 and 6 months.

Summary: This was a randomized, publicly funded, noninferiority trial conducted in 10 nonacademic and 20 academic medical centers in France. Eligible for the trial were patients with symptomatic carotid stenosis, defined as retinal or hemispheric transient ischemic attacks or a nondisabling stroke occurring ≤120 days from study enrollment, and who had >60% to 99% carotid stenosis. Confirmation of stenosis was by contrast angiography or a combination of duplex scanning and magnetic resonance angiography. Patients had to be suitable candidates for either CEA or CAS. All evaluations were performed by neurologists at 48 hours, 30 days, and 6 months after treatment, and every 6 months thereafter. The primary end point was stroke or death ≤30 days of treatment.

The Data Safety and Monitoring Committee stopped this trial after inclusion of 527 patients for reasons of both safety and futility. The 30-day incidence of any stroke or death after CEA was 3.9% (95% confidence interval [CI], 2.0% to 7.2%). After stenting, the 30-day incidence of stroke or death was 9.6% (95% CI, 6.4% to 14.0%). The relative risk of any stroke or death after stenting was 2.5 times that of CEA (95% CI, 1.2 to 5.1). There was a 1.5% incidence of disabling stroke after CEA (95% CI, 0.5% to 4.2%) and a 3.4% incidence of disabling stroke after CAS (95% CI, 1.7% to 6.7%). The relative risk of disabling stroke in stented patients vs patients undergoing CEA was 2.2 (95% CI, 0.7 to 7.2). The incidence of any stroke or death >6 months was 6.1% after CEA and 11.7% after stenting ($P = .02$). CAS had more local major complications, and CEA had more systemic major complications (mainly pulmonary). Differences were not significant. Cranial nerve injury was more common after CEA than after CAS.

Comment: This was a publicly funded, prospective, randomized trial. It has the great benefit of not being tainted by industry sponsorship. There was a lower-than-predicted stroke and death rate for CEA and a higher-than-predicted stroke and death rate for CAS. A criticism of the trial will obviously be a possible learning curve effect in the stented patients and the continuing evolving of CAS techniques and devices. This study is far cleaner than the SAPPHIRE trial (New Engl J Med 2004;351:1493-501) that was used to generate United States Food and Drug Administration approval of CAS for symptomatic high-risk patients. At the very least, the current trial raises serious concern about the relative safety of CAS in symptomatic patients of standard surgical risk. Given current data, it remains that the only patients who should undergo CAS outside of a clinical trial are very high-risk patients with symptomatic stenosis. Determination of high surgical risk should be by a multidisciplinary team that is able to evaluate perioperative systemic and surgical risk. It is not acceptable or ethical for high surgical risk to be determined by individuals who are only capable of performing carotid stents or who have financial incentives to participate in industry-sponsored trials.

D-dimer testing to determine the duration of anticoagulation therapy

Palareti G, Cosmi B, Legnani C, and the PROLONG Investigators. N Engl J Med 2006;355:1780-9.

Conclusion: An abnormal D-dimer level 1 month after discontinuation of anticoagulation for a first time episode of venous thromboembolism (VTE) is a marker for increased risk of VTE recurrence that can be reduced by reinstituting anticoagulation.

Summary: There is a trend towards individualization of duration of anticoagulation for VTE. Patients are now stratified to whether the VTE episode was provoked, such as after trauma or surgery or another known risk