

asymptomatic patients. Data was collected from 2,500 patients from 188 medical centers who were at high risk for surgery. The study found that 94.3% of asymptomatic patients were free from major complications (death, stroke or MI) after 30 days, which is higher than numbers reported previously from surgical trials. Octogenarians had the highest event rates at 8.9%, whereas younger patient event rates were almost halved at 4.8%. Low volume operators appeared to have similar results to high volume operators and safety was more dependent on the appropriate case selection.

To increase the odds of a successful procedure, Dr. Gray recommends the following strategies:

- Pre-procedure: acetylsalicylic acid and thieneopyridine
- Intra-procedure: anticoagulation therapy
- Post-procedure: discontinue anticoagulant therapy, continue antiplatelet therapy
- For the management of carotid body stimulation, early ambulation appears to be important

For stroke prevention in carotid stenting procedures, Dr. Gray emphasizes the following;

- Appropriate patient/lesion selection (type III arches, and retroflexed LCCAs are probably not good candidates for stenting due to decreased anatomical access)
- Use of appropriate anticoagulant
- Careful access technique
- Adequate embolic protection (when patients were predilated without embolic protection, the risk of experiencing an event increased)

Given the right patient and the right operator, this minimally invasive procedure could improve outcomes in patients with CAS.

Preventing Vascular Events with New Endovascular Therapies

Carotid Stenting and Stroke Prevention

To determine if carotid stenting reduces the risk of stroke, surgical and medical therapy trials must be compared to stenting trials, since no data directly comparing the procedures are available. Although this strategy is “a little imperfect,” says William Gray, MD, Associate Professor of Clinical Medicine at Columbia University, “it’s all we have.”

	% Recurrent stroke per year	Trial
Natural history-symptomatic patient	13	NASCET
Natural history-asymptomatic patient	2.5/7.5	ACST/ACSRS
Medical therapy-symptomatic patient	2.5	SPARCL
Medical therapy-asymptomatic patient	N/A	N/A
Endarterectomy-symptomatic patient	4	NASCET
Endarterectomy-asymptomatic patient	1-3	ACST/ACAS
Carotid stenting-symptomatic + asymptomatic patient	1-2	SPARCL/ ARCHER/ SECURITY *Note: High-risk patients

These data show that surgery is able to prevent stroke better than medical therapy. Additionally, comments Dr. Gray, “carotid artery stenting has demonstrated equivalent stroke prevention efficacy compared to endarterectomy.” Recently published EVA-3S trial in Europe, however, found higher incidence of stroke in symptomatic patients treated with stenting than with endarterectomy

(Jean-Louis Mas et al. *NEJM* 2006; 355:1660-1671)
The TACIT trial, currently under proposal, aims to directly compare medical therapy, endarterectomy and stenting.

Renal Failure Prevention

Progressive renal artery stenosis (RAS) is a problem, according to Chris White, MD, Chairman of the Department of Cardiology and Director of the Ochsner Heart & Vascular Institute in New Orleans, "I think it's actually quite dangerous to sit here and watch RAS progress." He adds that conservative medical therapy could lead to progression and eventually occlusion. Indeed, in the DRASTIC (Dutch Renal Artery STenosis Intervention Cooperative) trial, balloon angioplasty and medical therapy in RAS lead to 0% and 16% of patients suffering from occlusion, respectively. Finally, occlusion typically leads to renal failure. Renal artery stenosis has high prevalence in patients with coronary artery disease and confers additional mortality, making a case for screening high risk patients undergoing cardiac catheterization for presence of renal artery stenosis (White CJ et al. *Circulation* 2006; 114(17):1892-1895).

Patient selection is important for success in preventing RAS. Murray et al demonstrated that the more rapid the decline in renal function, the more likely the patient is to benefit from revascularization (Murray S et al. *Am J Kidney Dis* 2002; 39:60). Additionally, to avoid complications, embolic protection devices are recommended (though none of the devices are approved for use in renal arteries).

"Benign neglect of RAS is not benign," summarizes Dr. White, "you cannot treat patients with medical therapy and assume that because you are controlling the blood pressure you are not losing renal function."

Aortic Stenting and AAA Rupture Prevention

"Life really changed in September of 1999 when the FDA approved two graft prostheses," says Alan Lumsden, MD, Professor and Chief of the Division of Vascular Surgery at Baylor College of Medicine in Houston, when referring to the Guidant Bifurcated Endograft and the AneuRx Stent Graft System. Since then, many devices have emerged around the same concept and have shown significant promise.

In the US AneuRx trials, freedom from rupture was 98.4%, and freedom from aneurysm related death was 96.9%. The key to success, says Dr. Lumsden, is patient selection, with the single most important criteria being neck diameter (≤ 26 mm). Problems arise when a patient presents with a short, tapered neck. Therefore, pre-procedure planning involving a CT scan of the abdomen to calculate neck diameter, is critical.

"Good anatomy equals good results when you're treating patients with a stent graft," says Dr. Lumsden, adding, "We must understand and respect anatomical limits, practice careful follow-up, and understand the nuances of each device."

Improving Cardiovascular Risk Prediction in Women

Based on 2003 mortality data, 1 in 3 women are at risk for cardiovascular disease (CVD); this translates into more lives claimed by CVD than the next 5 leading causes of death combined. Currently, the best tool available for estimating a woman's risk factor is the Framingham risk score, yet most women under 70 years of age are classified as low risk using this method. These observations have prompted clinicians to incorporate other factors, such as family history and obesity (not