

emboli-protection devices have become available. The SAPPHERE study investigated their use in patients with severe carotid artery stenosis who were at an increased surgical risk.

This multicenter, noninferiority trial included 334 patients with a symptomatic or an asymptomatic carotid artery stenosis (of at least 50% or 80% of the luminal diameter, respectively). All patients also had at least one coexisting condition (for example, clinically significant cardiac disease or age >80 years). The patients were randomized in a 1:1 ratio to carotid artery stenting using a nickel-titanium stent with an emboli-protection device, or to endarterectomy.

At 1 year, the cumulative incidence of major cardiovascular events was lower in the stenting group (12.2%) compared with those who were assigned to surgical treatment (20.1%). This difference was statistically significant for noninferiority ($P=0.004$); although statistical significance was not reached for the secondary finding of superiority ($P=0.053$), the authors note that a larger sample size might have supported this.

Concluding that this method of stenting was not inferior to endarterectomy in these patients, the authors caution that the findings might not apply to patients at lower surgical risk.

Original article Yadav JS *et al.* (2004) Protected carotid-artery stenting versus endarterectomy in high-risk patients. *N Engl J Med* 351: 1493–1501

Lipid lowering following PCI

Patients undergoing percutaneous coronary intervention (PCI) remain susceptible to major adverse cardiac events (MACE) after revascularization. Lipid-lowering treatment with statins has been shown to reduce this risk. The Lescol intervention prevention study (LIPS) showed a reduced risk of MACE in patients with average cholesterol levels who were treated with fluvastatin at hospital discharge, after a first PCI. Since little is known about the potential benefits of statins in patients with unstable angina, Lee *et al.* have carried out a subgroup analysis, comparing outcomes in patients with unstable angina ($n=824$) or stable angina ($n=834$).

Following PCI, approximately half of the patients in each group were randomized to

fluvastatin 40 mg twice daily, and the remainder received placebo. During a median follow-up of 3.9 years, there was a similar incidence of MACE in both angina groups. Compared with placebo, treatment with fluvastatin was associated with a significant reduction in the risk of MACE in patients with unstable angina (relative risk 0.72, 95% CI 0.47 to 0.90; $P=0.03$). A treatment-status interaction analysis revealed that outcomes were similar in the stable angina group. Cholesterol lowering with fluvastatin was comparable in patients with unstable or stable angina.

The authors conclude that long-term treatment with fluvastatin was beneficial in all patients, irrespective of anginal status. They recommend that lipid-lowering treatment should be started at hospital discharge in all patients undergoing PCI.

Original article Lee CH *et al.* (2004) Beneficial effects of fluvastatin following percutaneous coronary intervention in patients with unstable and stable angina: results from the Lescol intervention prevention study (LIPS). *Heart* 90: 1156–1161

Sirolimus eluting stents in unselected patients

Sirolimus eluting stents (SES) have proved useful in preventing in-stent restenosis, at least in selected patients with *de novo* lesions. It is unclear, however, whether this approach is similarly effective in treating more complex cases of in-stent restenosis. Saia and colleagues have investigated this in their recent study of routine SES implantation.

Forty four consecutive patients from the RESEARCH registry were treated for in-stent restenosis using the CYPHER SES (Cordis Europa NV, Roden, The Netherlands). Baseline angiograms showed a broad range of restenotic lesions, including total occlusions and very long lesions. Patients with small vessel size, bypass grafts and bifurcation were also included.

The overall rate of post-SES binary stenosis was low, reaching only 14.6% at 6-month follow-up; binary stenosis were associated with longer lesions requiring more stents. No repeat stenosis was seen in focal (<10 mm) lesions and the restenosis rates were similar among the higher risk cases. Of 43 patients available

GLOSSARY

SAPPHERE

Stenting and Angioplasty with Protection in Patients at High Risk for Endarterectomy

RESEARCH

Rapamycin eluting stents evaluated at Rotterdam cardiology hospital