Statins Protective in Carotid Endarterectomy

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WASHINGTON — Perioperative statin use may significantly reduce the incidence of cerebrovascular events and mortality in patients undergoing carotid endarterectomy, Bruce A. Perler, M.D., reported at a conference for science reporters sponsored by the American Medical Association.

Dr. Perler and his associates conducted a retrospective analysis of 1,566 patients who underwent carotid endarterectomy (CEA) between 1994 and 2004 at Johns Hopkins Hospital. Those who had been taking a statin for at least 1 week prior to the procedure had a threefold reduction in stroke and fivefold reduction in death in the subsequent 30 days, compared with those not on a perioperative statin. The effects were independent of other risk factors, and both were highly significant. "The results were quite remarkable to us, really eye-opening," Dr. Perler, professor and chief of vascular surgery at Johns Hopkins University, Baltimore.

"Because this was a retrospective study and not designed to establish clinical practice, I can't make a blanket statement … that everybody ought to be on a statin before they have a carotid endarterectomy. But one can certainly speculate that it's a reasonable thing to do," Dr. Perler said.

Results of the study, which was not industry funded, were published in November (J. Vasc. Surg. 2005;42:829-36).

Of the 1,566 patients, 92% underwent solitary CEA; the other 8% had simultaneous coronary artery bypass grafting (CABG). Mean age was 72 years, and 63% were male. Indications for CEA were symptomatic disease in 42% (14% with a history of stroke and 28% with transient ischemic attacks) and asymptomatic stenosis in 58%.

Forty-two percent of the patients had been using statins for at least 1 week prior to the procedure. The most commonly used statins were atorvastatin (51%) and simvastatin (29%), both at a mean dose of 20 mg/day. Although the duration of statin therapy was unknown, most of the patients had been taking them for quite a bit longer, Dr. Perler noted.

At 30 days after CEA, the incidence of stroke among the 657 statin users was 1.2%, compared with 4.5% of the 909 not on statins. Mortality among patients on statins was 0.3% versus 2.1% in patients not taking the agent. Perioperative MIs were also less frequent among the statin users (1.2% vs. 2.1%), a nonsignificant difference. Although overall statin use increased with time over the 10-year period, differences between statin users and nonusers remained significant throughout, he said.

After adjustment for all comorbidities found to be associated with stroke (symptomatic carotid disease, chronic atrial fibrillation, hyperlipidemia, use of intraluminal shunt and patch grafting, and combined CEA/CABG), statin use remained associated with a threefold reduction in the 30-day risk for stroke (odds ratio 0.29).

Although this study is the first ever to investigate the impact of statin use on CEA outcome, there have been several previous clinical trials supporting the use of statin therapy to reduce complications after other vascular procedures, including CABG (Circulation 2000;110[suppl. 2]:1145-9 and Am. J. Cardiol. 2000;86:1128-30).

The fact that statins reduce the risk of stroke in individuals with both normal and elevated cholesterol levels—and that no similar effect has been seen with nonstatin cholesterol-lowering agents—suggests the mechanism is related to the statins' non–lipid-mediated actions. These include stabilization of atherosclerotic plaques and improvement of endothelial function, along with antithrombotic, anti-inflammatory, and antioxidant effects.

Given their plaque-stabilizing potential, it would be reasonable to assume statins would have a similar protective effect as adjunctive therapy for patients undergoing carotid angioplasty and stenting, as well. "It certainly ought to be considered—although that's pure speculation, because our study didn't address that," Dr. Perler said in response to a reporter's question.

But what this study does point to, he noted, is a potential way to enhance the safety of CEA, the most commonly performed of all noncardiac vascular procedures. Although still considered the "gold standard" for treating occlusive carotid disease, that status is now being challenged by data suggesting that the minimally invasive alternative of carotid stenting is not inferior with regard to outcomes (N. Engl. J. Med. 2004;351:1493-501). ■