# Carotid Stents Associated With Greater Risks Than Surgery

For patients with blockages in the carotid artery that supplies blood to the brain, stenting (a non-surgical treatment) appears to be associated with an increased risk of both short- and long-term adverse outcomes when compared with surgical treatment (carotid endarterectomy), according to a meta-analysis of previously published studies that was posted online and will appear in the February 2011 print issue of *Archives of Neurology*, one of the JAMA/Archives journals.

"Carotid artery stenting has emerged as an alternative to carotid endarterectomy for the treatment of carotid artery occlusive disease," the authors write as background information in the article. The therapy, which involves threading a catheter through the femoral (groin) artery to the carotid artery, inflating an angioplasty balloon to compress plaque, and inserting a stent to keep the artery open, is endorsed by the American Heart Association/American Stroke Association guidelines as a reasonable strategy and recommended by the European Society of Vascular Surgery in certain circumstances. However, its safety and efficacy, as compared with carotid endarterectomy (surgery to remove the inner lining of the diseased blood vessel), is controversial.

Sripal Bangalore, M.D., M.H.A., of New York University School of Medicine, New York, and Harvard Clinical Research Institute, Boston, and colleagues conducted a meta-analysis of 13 randomized clinical trials comparing the two treatments conducted through June 2010 and involving 7,477 patients with carotid artery disease. They assessed the risk of death, heart attack (myocardial infarction) and stroke within the periprocedural period (within 30 days of the procedure) as well as intermediate and long-term outcomes.

In the first 30 days, carotid artery stenting was associated with a 65 percent increased risk of death or stroke and a 67 percent increased risk of any stroke. However, the stent procedure was associated with a 55 percent lower risk of heart attack and 85 percent reduction in cranial nerve injury in this timeframe when compared with carotid endarterectomy.

Intermediate to long-term outcomes were assessed using a composite involving death, any strokes or strokes on the side of the brain with carotid blockage (ipsalateral stroke) within 30 days or thereafter. Carotid artery stenting, as compared with carotid endarterectomy, was associated with a 19 percent increase in the risk of such an outcome, as well as an increased risk of various combinations of strokes, ipsilateral stroke and death. Stenting was also associated with a 180 percent increase in the risk of restenosis (repeat narrowing of the carotid artery).

"In this largest and most comprehensive meta-analysis to date using outcomes that are standard in contemporary studies, carotid artery stenting was associated with an increased risk of both periprocedural and intermediate to long-term outcomes, but with a reduction in periprocedural myocardial infarction and cranial nerve injury," the authors conclude. "Strategies are urgently needed to identify patients who are best served by carotid artery stenting vs. carotid endarterectomy."

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