Incidence of New Brain Lesions After Carotid Stenting With and Without Cerebral Protection

To the Editor:

Kastrup and colleagues describe their experience with carotid angioplasty and stenting (CAS) both with and without distal protective devices. They performed CAS on patients with ipsilateral symptoms within the last 6 months and ultrasound documented ≥70% stenosis (57%). They also performed procedures on asymptomatic patients with ≥90% stenosis (43%). Using a combination of clinical end points and imaging end points, they were able to document their complication rate. Postprocedure strokes were considered “minor” if they increased the National Institutes of Health Stroke Scale (NIHSS) by <3 at the end of 30 days and major if the NIHSS was increase by >3. No mention was made of how a patient was classified if the NIHSS increased by 3. Of the 353 consecutive patients who had the procedure in a 38-month period, 206 were included in the analysis. Thirty-nine percent were asymptomatic. Of the symptomatic patients, 10% had only transient monocular blindness. The remainder had a stroke or transient ischemic attack within 6 months. The authors did not indicate how many, if any, of their patients were not candidates for carotid endarterectomy.

The authors are to be congratulated for obtaining pre- and postprocedure diffusion-weighted imaging (DWI). The DWI documented 639 new lesions in their 206 patients after CAS, with over half the patients having at least one new lesion. Enlargement of a prior lesion was not counted as a new lesion. The finding of 639 new DWI positive lesions should give pause to anyone performing this procedure. There is potential for “asymptomatic” lesion burden to be associated with cognitive decline. Using much more primitive imaging technology, Owens and colleagues demonstrated that small “asymptomatic” lesions after carotid endarterectomy were associated with measurable cognitive decline.

The authors report a 5.3% clinical stroke or death rate within 30 days of the procedure. Based on prior randomized endarterectomy trials, the data indicate that there is little to be gained by repairing an asymptomatic stenosis if the complication rate exceeds 3% and a symptomatic stenosis if the complication rate exceeds 5%. Although the authors did not report the complication rate for asymptomatic patients and symptomatic patients separately, it is reasonable to assume that the overall 5.3% complication rate represents a higher than acceptable rate for each category. Analysis of data from the symptomatic carotid endarterectomy trials indicate that the maximum benefit is gained when the surgery is done within 2 weeks of the symptoms. The benefit drops greatly when the repair of the stenosis is delayed 6 months. The authors did not indicate the mean delay between symptoms and the CAS procedure.

The authors focus their conclusions on the potential benefit of a distal protection device and the potential role of DWI to quantify injury after CAS procedures. Another potential conclusion from these data are that, with a clinical stroke rate in excess of 5% in a mixed symptomatic and asymptomatic population, the performance of 10 CAS per month to repair carotid stenosis in patients who may also candidates for carotid endarterectomy may be premature at this time. The DWI data from their study suggest that long-term cognitive testing should be part of future trials assessing the efficacy of CAS.

Disclosures

None.

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