Carotid Angioplasty With Stenting and Carotid Endarterectomy for High-Risk Patients

To the Editor:

I have read with interest the article by Fox et al1 with regard to carotid angioplasty and stenting. I feel that the article might be a further contribution toward evaluating this procedure. Despite the limited experience on 42 cases of symptomatic carotid stenosis, the article is important particularly because it shows the long-term results of carotid angioplasty and stenting, and the effectiveness of the procedure as compared with conservative treatment.

Moreover, the article suggests some other concerns about carotid angioplasty.

The technique involves some issues that need to be debated at the present time: indications, cerebral protection, immediate and long-term results. I would like to focus on indications for the technique. With regard to this point, the study by Fox et al suggests using carotid angioplasty on poor surgical candidates, including those with concomitant morbidities, restenosis, stenosis after cervical irradiation, and anatomic characteristics of the carotid stenosis.

From this point of view, carotid angioplasty is an alternative to carotid endarterectomy, and the two should be compared. In comparing these procedures, we have to take into account the current results of carotid endarterectomy. I agree with Fox et al2 regarding a preference for carotid angioplasty in postirradiation stenosis, restenosis, and anatomic characteristics (stenosis involving distal extracranial internal carotid artery, etc.). With regard to the subgroup of patients with comorbidities, I feel that some caution is needed when considering carotid angioplasty. In the report by Fox et al1 carotid angioplasty was followed by important complications in 4/42 (9.5%) cases. Carotid endarterectomy can be carried out after noninvasive diagnostics (duplex scanning and, in some cases, angio-CT or angio-MRI) under local anesthesia. This avoids complications caused by arteriography, which is necessary for carotid angioplasty, and that caused problems in 3/42 (7.1%) patients. Local anesthesia has significant advantages over general anesthesia, such as neurologic monitoring, lower incidence of stroke,2,3 stable cardiovascular conditions,4–7 and better cerebral perfusion during carotid occlusion.8

These observations are supported by the experience at my institution.9 The cumulative incidence of perioperative stroke and mortality was 0.7% in a series of 147 cases (including symptomatic and asymptomatic stenoses) operated on under local anesthesia (0% in the symptomatic subgroup). This series included numerous patients with comorbidities, including contralateral carotid artery occlusion (20%), heart disease (41%), hypertension (72%), etc.

In conclusion, currently carotid endarterectomy is considered the gold standard for treating symptomatic carotid stenosis ≥70%,10–11 and asymptomatic carotid stenosis ≥60%.15 Carotid angioplasty should be regarded as a valid option only if it gives equal or better results as compared with carotid endarterectomy. Undoubtedly, carotid angioplasty has some advantages, such as being less invasive, less time-consuming, and having lower incidence of cranial nerve injuries. However, carotid endarterectomy (following noninvasive diagnostics, and under local anesthesia) can provide better results in the subgroup of patients with comorbidities.

Presently, carotid angioplasty should be preferred for the treatment of restenosis caused by myointimal hyperplasia, postirradiation, and long or distal stenoses. In the future this procedure may replace carotid endarterectomy for all patients if technical progress and experience increase the safety and results of carotid angioplasty.

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Response

We appreciate the comments of Dr Lucertini. Our preliminary data provide support for the use of angioplasty and stenting over best medical therapy for patients with symptomatic carotid stenosis who are poor surgical candidates.1 We recognize that one major difficulty with the interpretation of our data is that the definition of a poor surgical candidate is multi-factorial and problematic. Furthermore, this definition will vary among physicians. Consequently, it is not possible to compare data from case series of “high-risk” patients and arrive at firm conclusions regarding the relative roles of angioplasty and surgery in this poorly defined population. At present, patients who are good surgical candidates should undergo surgical endarterectomy, given the strong evidence for stroke risk reduction and durability from NASCET and ECST.2,3 The role of angioplasty and stenting for patients who are good surgical candidates will be determined by randomized clinical trials. The data from the CAVATAS and as yet unpublished SAPPHIRE trials are promising but not yet conclusive.4 Angioplasty and stenting should be considered as an option for symptomatic patients in whom surgical endarterectomy is considered to be either very high-risk or not possible.

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