Optimal management of patients with asymptomatic carotid stenosis

Prior trials have shown that carotid endarterectomy (CEA) is superior to nonoperative management of asymptomatic carotid stenosis.1,2 More recent trials have shown surprisingly better outcomes for stroke patients managed with maximal medical therapy.3,4 As such, a number of experts have called for revisiting clinical trials of both CEA and carotid stenting for patients with symptomatic and asymptomatic carotid stenosis using modern medical therapy. Given the current substantial equipoise within the field, modern studies seem reasonable. A number of ongoing trials aim to address current areas of equipoise, but enrollment in these studies has been slow.

The recently published results of Stenting versus Surgery for Asymptomatic Carotid Stenosis Trial (ACT 1) and the follow-up data from the Carotid Revascularization Endarterectomy vs Stenting Trial (CREST) demonstrate low rates of strokes in patients receiving any intervention for extracranial carotid artery stenosis. As these trials did not include patients randomized to best medical therapy and citing lower stroke rates in patients over time, some authors called for a moratorium on all carotid revascularization procedures outside of randomized trials.7 In the current issue of Neurology, Heck et al.8 argue that this approach would exacerbate the situation, instead of fostering an environment where the procedure can both benefit particular patients as well as fulfill its promise through proper physician training and improved technology.

The demonstrated benefits of both CEA and carotid stenting for select patients warrant continued use of these interventions until we have narrower guidelines on optimal patient selection and management strategies backed by solid evidence. We must remain diligent and enroll patients in trials, but this does not mean withholding treatment for all patients who may benefit from intervention outside of a trial.

Aside from the trials on the treatment of asymptomatic patients, other smaller trials and studies seek to improve both our selection of patients and their outcomes. A number of tools seek to stratify high- and low-risk asymptomatic carotid stenosis patients based on alterations in cerebrovascular reserve, select MRI sequences to detect unstable plaque, PET to assess inflammation, and transcranial Doppler to detect embolus.9 Aside from the fundamental question of whether CEA or carotid stenting is better than optimal medical therapy for a broad spectrum of patients, these additional studies should help determine the best means to substratify patients for optimal therapies.

Physician excellence and training underlie the impressively low perioperative risk of stroke following carotid stenting in CREST and ACT 1. Halting carotid stenting for all patients will deplete opportunities for ongoing maintenance of procedural excellence and training. Following the results of 3 initial large randomized clinical trials that failed to show benefit over medical therapy, there were similar calls for a moratorium on endovascular stroke treatment outside of trials. The Food and Drug Administration had approved thrombectomy devices for the treatment of large vessel occlusion for acute ischemic stroke based on preliminary studies and reimbursement for thrombectomies allowed physicians to gain further experience in this area. Economic potential along with improvements in physician techniques and training led to 5 additional trials with new devices that definitively demonstrated the benefit of thrombectomy for acute ischemic stroke in large vessel occlusion. These early studies and failures were pivotal to improving patient selection, physician training, and the development of better technology.

A moratorium on intervention for patients with carotid stenosis would have concerning effects. Currently, there are a number of novel stent systems, balloons, and proximal and distal protection devices that might improve the way we treat these patients. Other technologies for carotid stenting are being developed and assessed in preliminary studies. Halting all treatment for these patients outside of the current NIH-supported large randomized clinical trials would remove the economic impetus for improved technology that might lead to even better outcomes.

Studies on CEA have shown the superiority, time and time again, of carotid stenting for the primary
outcome of decreasing the future risk of stroke. Again, this does not mean that we should call a complete moratorium on carotid stenting. Carotid stenting is better than CEA for select patients and overall composite outcomes of stroke, myocardial infarction/troponin leak, and death were similar in a number of studies. As such, the goal is not to abandon one option completely, but to continue research and clinical studies to determine the optimal treatment strategy based on individual patient- and disease-specific characteristics. Thus a complete moratorium is not just, as there is current equipoise over the optimal management: CEA vs carotid stenting and intervention vs maximal medical therapy. In the setting of prior proven benefit, further studies are indicated to help stratify patients, maintain physician levels of excellence, train the next generation of doctors, and provide the impetus for improvements in medication, technology, surgery, and interventions.

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DISCLOSURE
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REFERENCES