Asymptomatic Carotid Stenosis

To the Editor:

The recent publication of ACST confirmed the findings from a previous randomized controlled trial that carotid endarterectomy reduces the number of strokes in patients with asymptomatic carotid stenoses.1,2 These findings could be interpreted as a basis for screening for carotid artery stenoses and the widespread expansion of carotid interventions in patients with asymptomatic disease. The report by Goessens and colleagues highlights important issues in the management of such asymptomatic arterial stenoses.3 The authors identify ≥50% carotid artery stenoses in 8% of patients with symptoms of arterial disease at other sites. Carotid artery narrowing was predictive of vascular death and myocardial infarction but not ischemic stroke during subsequent follow-up. In the 221 patients with ≥50% carotid artery stenoses the authors report 51 deaths, 28 myocardial infarctions and only 6 ischemic strokes during mean follow-up of 4 years. Thus, only 7% of the serious clinical events were strokes in patients with ≥50% carotid artery stenoses. In fact, the incidence of ischemic stroke was similar in those patients without ≥50% carotid artery stenoses. The authors state that this low rate of stroke was achieved despite no patients undergoing carotid intervention. I note from Table 3 of the study by Goessens et al that 22 patients had some form of carotid intervention presumably because of symptom development.3 Pathology studies from the coronary and to a lesser degree from the carotid circulation suggest that atherothrombotic events result from rupture or erosion of the fibrous cap which can occur in minimally as well as severely stenotic atheroma.4 Examination of data from ACST and NASCET emphasizes the importance of symptoms in the selection of patients for carotid intervention1,5 (Table). The data emphasizes the higher risk of stroke associated with symptomatic carotid atherosclerosis even if the stenosis is not significant (<50%). The actual risk associated with symptomatic carotid atherosclerosis is likely to be higher than depicted in the Table because in the North American trial patients were enrolled if they had experienced a neurological event within 6 months.5 Population studies suggest that up to 32% of patients with ≥50% carotid stenosis have a stroke within 12 weeks of a neurological event and before carotid intervention.6 These data and that presented by Goessens et al suggest that the main health measures that will substantially improve the prognosis of patients with carotid atherosclerosis are: (1) more urgent presentation and management of symptomatic carotid atherosclerosis; (2) optimization of medical management of atherosclerosis in order to reduce the risk of myocardial infarction and vascular death. Continued efforts to identify imaging or blood findings which predict plaque rupture in asymptomatic patients are also warranted.

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None.

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Table. Relationship Between Symptoms, Stenosis Severity and Stroke at 5 Years

<table>
<thead>
<tr>
<th></th>
<th>Medical</th>
<th>Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASCET</td>
<td>n</td>
<td>Stroke*</td>
</tr>
<tr>
<td>&lt;50%</td>
<td>690</td>
<td>18.7%</td>
</tr>
<tr>
<td>50%–69%</td>
<td>428</td>
<td>22.2%</td>
</tr>
<tr>
<td>70%–99%</td>
<td>305</td>
<td>28%</td>
</tr>
<tr>
<td>ASCT</td>
<td>n</td>
<td>Stroke†</td>
</tr>
<tr>
<td>&lt;50%</td>
<td>60%–79%</td>
<td>643</td>
</tr>
<tr>
<td>50%–69%</td>
<td>430</td>
<td>15.7%</td>
</tr>
<tr>
<td>70%–99%</td>
<td>314</td>
<td>13%</td>
</tr>
<tr>
<td>90%–99%</td>
<td>462</td>
<td>8.1%</td>
</tr>
</tbody>
</table>

NASCET indicates North American Symptomatic Carotid Endarterectomy Trial; ASCT, Asymptomatic Carotid Surgery Trial.1,2 Stenosis severity was measured differently in each trial. ACST used ultrasound based criteria.1 NASCET used angiographic criteria.2

* ipsilateral stroke; † any stroke. The results assume a perioperative rate of stroke of 1.6% in ACST equal for each subgroup. Other perioperative complications are not included.
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