The controversy over the operative indication in atherosclerotic disease of the carotid bifurcation is with us for nearly four decades. Previous studies showed fairly convincingly the usefulness of surgical treatment in symptomatic carotid disease but in patients whose carotid stenosis did not induce clinical symptoms, the question of appropriateness of carotid endarterectomy was left open.

Despite the above, based on statistically unsupported logic and on surgical intuition, the lion's share of vascular surgeons continued to operate severe (>70–80%) carotid stenoses, symptomatic or not. This view was certainly not shared by the entire spectrum of our profession. In an unpublished survey we conducted 5 years ago among members of respective specialties, only two out of 10 neurologists, about five out of 10 neurosurgeons but eight out of 10 vascular surgeons were in favour for surgery in clinically asymptomatic but anatomically severe carotid bifurcation disease. The debate heated up considerably during the past few years when several attempts were made by different insurance companies to disqualify surgical services for asymptomatic carotid patients.

In an apparent attempt to settle the matter for “once and for all,” the National Institute of Neurological Disorder and Stroke, National Institutes of Health established the Asymptomatic Carotid Atherosclerosis Study (ACAS) headed by James F. Toole, Teagle Professor of Neurology, Bowman Gray School of Medicine. The charge of the Study Committee, which based its findings upon data collected in 18 institutions of large operative volume and of professional excellence was to “determine whether the addition of carotid endarterectomy to aspirin plus risk factor modifications affect the incidence of ipsilateral transient ischaemic attack, amaurosis fugax, and retinal and cerebral infarction in patients with asymptomatic haemodynamically significant carotid stenosis?” The study applied two validation programs; Doppler/angiogram correlation and transient ischaemic attack/stroke questionnaire. Secondary objectives were: (1) to determine surgical success rate, (2) to review the fate of the atherosclerotic plaque in the medically treated patients, and (3) to examine the rate of other cardiac and vascular events. By November, 1988, 145 patients with asymptomatic carotid stenosis (>60%) have been randomized between medical and surgical treatment and the goal was to randomize a total of 750 patients in each study group. To participate in the study, a surgeon must have performed an annual minimum of 12 carotid endarterectomies with a morbidity/mortality rate no greater than 3% in the last 50 cases.

While ACAS expected to run for several additional years, on September 28, 1994 the National Institutes of Health issued an Advisory which recognised the superiority of carotid endarterectomy over conservative management by the “reduction of 5.8% in the risk of the primary end point of stroke within 5 years and a relative risk reduction of 55%.” The Advisory continued with the warning by the ACAS Data Monitoring Committee to all physicians participating in the study to immediately re-evaluate their patients included in the “medical management” leg of the project as potential candidates for surgical treatment. This Advisory effectively terminated the ACAS trial.

While the detailed results of the ACAS study have not been released yet, one may indeed draw some conclusions:
The profession owes indeed gratitude to the participants of the ACAS, particularly to the principal investigator, James Toole, not only for their bold approach which led to the long overdue solution of a very important clinical problem. On the other hand, as may be not optimal from a “pure” scientific viewpoint, we do have to understand those, who convinced of the appropriateness of surgery in the “clinically asymptomatic but anatomically severe” subgroup, and were reluctant to participate in the ACAS project as not to jeopardise their patients by randomisation.

Second, it has to be emphasised that the now terminated ACAS project puts the surgical indication in clinically asymptomatic but anatomically severe carotid disease on a firm scientific base, that this conclusion is based on the presumptive professional excellence, especially on the low operative morbidity and mortality of the operating surgeons. Unless we can match such standards identified, we are not justified to use the ACAS as the base of our treatment recommendations.

Acknowledging the great merits of ACAS, we also intend to call attention to a shortcoming which should, however, not change the final conclusion.

We believe that 60% non-complex stenosis used by the ACAS investigators as the trigger point of inclusion may not be a significant enough threat to the patients health, and that a more stringent end-point, like 70% narrowing would have been more proper. One may also speculate that such a 70% study entry-point would have further widened the difference in the outcome between the medically and the surgically treated groups, and would have even further emphasised the advantage of surgery.

Considering all of the above, one should consider the following based on the ACAS study as recommendations for consideration for surgical intervention in occlusive extracranial carotid artery disease:

1. In absence of special contraindications, carotid arterial stenosis, if anatomically significant and clinically symptomatic, should be operated on.
2. Patients with > 60% obstruction to the internal carotid flow should undergo carotid endarterectomy, even if they are asymptomatic, given experienced vascular surgical facilities with low morbidity and mortality rates.

The author of this editorial, however, expresses some reservation on this 60% “trigger” value of asymptomatic obstruction and views a somewhat tighter stenosis, i.e. 70% more appropriate. In addition to the above, we also believe that:

1. Patients with small ulcers in the carotid bifurcation suspected of causing transient ischaemic attacks may receive a trial of antiplatelet therapy (aspirin and/or Persantine), but should be operated on if evidence suggests repeated embolisation while on such medication.
2. Presence of large, complex ulcers at the carotid bifurcation represent surgical indication per se.
3. Patients with moderate (50-60%) carotid artery stenoses may be considered as candidates for surgery regardless of their asymptomatic or symptomatic state, if the contralateral internal carotid artery is completely occluded.
4. We strongly recommend that patients with moderate (< 60%) asymptomatic carotid stenosis, and those who have no known carotid disease but who have evidence of severe arteriosclerosis in the other organs systems, should undergo yearly non-invasive studies for carotid artery disease.

*Accepted for publication 11 July 1995*