Letters to the Editor

Carotid surgery in the octogenarians. Should patients’ age be a consideration in carotid artery endarterectomy?

SIR—The purpose of this study was to determine the safety and efficacy of performing carotid endarterectomy procedures in 80-year-old patients.

There is no doubt that age is a significant factor to the operative mortality for many surgical procedures. If elderly people are denied surgical procedures for reasons of prejudice and not of science, they may justifiably feel that they have been denied surgery on the basis of age alone.

It is a challenge which will be increasingly faced in the future, because the prevalence of arteriosclerosis correlates directly with age and the elderly represent the fastest growing segment of our population. On average, a 65-year-old will live an additional 15 years, a 75-year-old an additional 10 years and an 80-year-old (octogenarian) an additional 10 years [1–7]. As a result, it is projected that approximately 40% of our population will survive until the age of 80 years in the future [1, 2].

Two large multicentre trials: the North American Symptomatic Carotid Endarterectomy Trial (NASCET) and the European Carotid Surgery Trial (ECST) have demonstrated the efficacy of carotid endarterectomy in patients with recent symptomatic severe carotid stenosis (70–90%) in preventing subsequent stroke [3, 5].

The relation between age and risk of peri-operative stroke and death remains uncertain and a surgical decision often remains ambiguous.

Very elderly patients for whom this procedure appears to be most beneficial, have been considered to be inappropriate candidates for carotid surgery [1–7]. In view of this, we reviewed retrospectively our experience with carotid endarterectomy in octogenarians and determined the safety and efficacy of carotid endarterectomy in this population.

The records of 48 carotid endarterectomies (CEA) in 47 patients who were 80 years or older, between 1993 and 2000 at Meir General Hospital, were reviewed. This represents 13.3% of total carotid endarterectomies performed at this time (360 patients). There were 31 males and 16 females with a mean age of 82 ± 2 years at operation. One patient underwent bilateral CEA. The indications for operation included symptomatic carotid stenosis in 24 cases (50%) and asymptomatic carotid stenosis (47%). Preoperative imaging of carotid and vertebral arteries: in one patient arteriography, the other patients were examined by non-invasive Duplex scan ultrasound investigation. All patients – symptomatic and asymptomatic – had high-grade stenosis of internal carotid artery (>70%).

All operations were performed under local anaesthesia in awake patients. This gave us assurances of cerebral protection during carotid artery clamping. Intra-operative monitoring of cerebral function by encephalogram or transcranial duplex was not used in all our operated patients.

Carotid artery shunting was based on clinical impression and neurological status during carotid clamping: deterioration in neurological status, hemiparesis, aphasia and decrease in level of consciousness. Carotid artery shunting was required in only one patient.

In all patients carotid arteriotomies were closed primarily without using vein or synthetic patch using systemic anticoagulation. After completion of the operation under local anaesthesia the patient left the operating room fully awake, moving and talking for monitoring of hemodynamic and neurologic status in an intensive care unit setting for 6–8 h post-operatively.

After discharge from the hospital most of the patients were followed-up in the outpatient clinic: clinical and Duplex US examination regularly.

No operative deaths occurred. Major cardiac complications occurred in three patients (6.2%), including myocardial infarction after operation, and in one patient arrhythmia was treated medically. Peri-operative strokes occurred in two patients (4.1%) with complete recovery within 3 months post-operatively.

Long-term follow-up was available for 45 out of the 47 patients (93.7%) and ranged from 3 months to 86 months (mean 42.2 months). Six patients died during follow-up and the cause of death was cardiac disease in four patients and malignancy in two at 24 months after the operation.

The benefit of carotid endarterectomy in preventing ischemic stroke from carotid artery stenosis for both symptomatic and asymptomatic patients, has been confirmed in a number of multicenter trials [3, 6]. Actually, patients aged 80 years (octogenarians) were excluded from the NASCET and ECAS trials [3, 6]. The safety and efficacy of carotid artery endarterectomy in this group of patients has not been well demonstrated in these prospective trials [6, 7].

The results of our study indicate that carotid artery endarterectomy in the octogenarians can be performed safely. The combined incidence of stroke and myocardial infarction in the peri-operative and early post-operative period was 4.6%. Stroke incidence in follow-up patients was 4.9%.
Based on the results of our study and when reviewing literature we can conclude:

- It seems logical that a considerable part of our elderly population might benefit from carotid endarterectomy.
- Under elective conditions and in patients with well-managed concomitant disease, carotid endarterectomy in symptomatic and asymptomatic patients with high-grade carotid stenosis can be safe and effective.
- Clinical assessment with a pre-operative Duplex scan ultrasound provides appropriate information on which to base carotid endarterectomy and is a safe alternative to the routine use of pre-operative angiography – removing the potential risk of this procedure in elderly patients.
- Carotid endarterectomy can be performed safely under local anesthesia, with its advantage, which enables the surgeon to assess the level of cerebral perfusion in an awake patient, giving greater assurances of cerebral protection during carotid artery clamping.
- Age alone is not a contra-indication for carotid artery endarterectomy: physiologic age, rather than chronological, should be considered when selecting patients for carotid endarterectomy.

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