Patients with substantial carotid stenosis (60-99%) are at increased risk of suffering a disabling or fatal ischemic stroke in the carotid territory of the brain. Although modern medical management with antithrombotic, lipid-lowering, and antihypertensive medicines has reduced overall stroke risk, there is a significant long-term residual risk from established severe carotid stenosis. Carotid endarterectomy (CEA) can remove arterial narrowing, but the surgical procedure itself involves some immediate risk of perioperative death of stroke. Moreover, even successful CEA might not permanently eliminate all thromboembolic risk. Therefore, the balance of stroke and long-term benefit had been required to establish, particularly for fatal and disabling stroke.

During past 2 decades, two large randomized trials have shown that CEA will reduce future stroke in patients with tightly asymptomatic carotid stenosis ≥60% diameter in reduction [1,2]. The Asymptomatic Carotid Atherosclerosis Study (ACAS), patients with ≥1 significant asymptomatic carotid stenosis were randomized to have either medical treatment or CEA. The aggregate risk over 5-year for any stroke and death was estimated to be 5.1% for operated patients and 11.0% for medically-treated patients. The ACAS concluded that CEA with aggressive management of modifiable risk factors had benefit in 5-year risk reduction of ipsilateral stroke if CEA performed with less than 3% perioperative morbidity and mortality, whereas the results for women are less certain [1]. The Asymptomatic Carotid Surgery Trial-1 (ACST-1), larger trial, patients with ≥1 significant asymptomatic carotid stenosis were randomized to medical treatment alone or to CEA and indefinite deferral of operation on that artery. CEA significant reduce 10-year stroke risk (10.8% vs. 16.9%), half of this benefit involving disabling or fatal strokes [2,3]. The perioperative risk of stroke or death was 3%, but taking this into account, absolute stroke risk reduction was about 6% for men and women ≥75 years of age at trial entry, and importantly, for those already in lipid-lowering therapy [2,3].

Progression of asymptomatic carotid stenosis to occlusion is unpredictable and can be disastrous; at the time of occlusion, disabling stroke may occur in 20% of patients, and thereafter in 1.5% to 5% annually [4-6]. However, no large prospective studies have investigated stroke risk when severe carotid stenosis progresses to occlusion. Recently, ACST-1 reported the incidence of new carotid occlusion and stroke in patients with significant asymptomatic carotid stenosis [7]. From 1993 to 2004 information was collected on 3120 patients with tight asymptomatic carotid stenosis ≥60% diameter in reduction were randomly assigned to medical treatment alone or to CEA and appropriate medication. The aims of this study were to determine the risk of new carotid occlusion and associated stroke and to evaluate patient risk factors predisposing to the development of occlusion.

Patients with contralateral occlusion at trial entry (n=276) or incomplete duplex follow-up (n=137) were excluded. Risk of occlusion and stroke in patients with occlusion was estimated by Kaplan-Meier analysis. Cox proportional hazard regression models were used to determine risk factors for developing new occlusion and stroke. Median follow-up in 2707 patients was 80.0 months. New carotid occlusion occurred in 197 patients (1.1% per annum), and were more likely to occur in arteries with tight stenosis and in unoperated patients. Overall risk of stroke was 7.6% (95% confidence interval [CI], 6.6-8.7) and 15.5% (95% CI, 13.6-17.4) at 5 and 10 years, respectively; for patients with new occlusion, this significantly increased to 17.0% (95% CI, 11.6-22.4) and 20.8% (95% CI, 14.1-26.2), respectively (P<0.001). Stroke was significantly more likely to occur in patients developing occlusion (hazard ratio, 1.78; 95% CI, 1.26-2.51) irrespective of allocated treatment [7].

In this study, long-term follow-up shows that occlusion and stroke were commoner in patients who did not undergo CEA or in whom there was a stenosis ≥70% stenosis before occlusion. Occlusion is an independent prognostic risk factor for the occurrence of stroke [7]. New carotid occlusions were less infrequent in this cohort of asymptomatic patients (about 1% to 2% per annum) than that were recognized previously. The annual risk of stroke after developing an occlusion was 2.3%. It is important that new occlusion also occurred in arteries with mild stenosis under modern medical management. This study helps us to understand of the natural history of operated and unoperated severe carotid stenosis.

REFERENCES

1. [No authors listed] Endarterectomy for asymptomatic carotid...


