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I declare no competing interests.

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Periprocedural events dominate outcomes of carotid stenting and endarterectomy

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In the past, the risk of stroke or death from symptomatic carotid stenosis was very high, approximately 10% per year. Historical guidelines have recommended that if surgery or stenting can be performed with a risk of stroke or death of less than 6%, it was indicated. However, since 2005, with much better medical therapy, the risk has declined so much that it has been suggested that for some patients with symptomatic carotid stenosis, intensive medical therapy would be reasonable.[1] The 6% benchmark for risk of intervention in patients with symptomatic carotid stenosis is now obsolete. Similarly, the 3% benchmark for intervention in patients with asymptomatic carotid stenosis is also now obsolete because the annual risk of stroke or death in patients with asymptomatic carotid stenosis with intensive medical therapy is about 0·5%.[2] Since 2005, the risk of surgery has declined substantially, as has the risk of stenting. However, most studies have shown that the periprocedural risk of stenting is about twice that of endarterectomy.

In *The Lancet Neurology*, Thomas Brott and colleagues[3] present within-patient results from a pooled analysis of individual patient data from four major trials of carotid endarterectomy (CEA) versus carotid artery stenting (CAS) for symptomatic carotid stenosis in 4754 patients. The authors report periprocedural outcomes (risk of stroke or death within 120 days) and long-term outcomes (risk of ipsilateral stroke up to 10 years). The median length of follow-up ranged from 2·0 to 6·9 years. As in previous reports,[4,5] long-term outcomes were similar for CEA and CAS but, when periprocedural risks and long-term outcomes were combined, CEA was superior, with treatment differences between CEA and CAS for risk of stroke or death or subsequent ipsilateral stroke ranging between 2·8% (95% CI 1·1–4·4) and 4·1% (2·0–6·3) at various follow-up times up to 10 years.

Brott and colleagues[3] express the hope that improvements in CAS will reduce periprocedural risks, but passing catheters through stiff, tortuous, and craggy arteries that have a high plaque burden is hazardous and probably explains the higher risk of stenting in older patients (>70 years).[6] Microemboli can be detected on transcranial Doppler during the transit of a catheter through the ascending aorta and during placement of a stent in the stenosis (figure). Microemboli during stenting are associated with small infarctions detected on diffusion weighted imaging (DWI) and are common: in one study,[8] DWI lesions were detected in 80% (24/30) of patients after stenting. The median DWI count was four lesions (IQR 7), and two (6·7%) of 30 patients had new or worsening clinical deficits after CAS; the size of the emboli was associated with infarction.[8]

Improvements to approaches that use catheters inserted from a femoral or brachial artery are unlikely to further reduce the risk of periprocedural events. It is possible that self-expanding stents might be safer than stenting combined with angioplasty, though the scarce literature does not support that conclusion.[9] Stenting via the carotid artery with flow reversal to prevent embolisation of atheromatous debris is an approach that is more likely to achieve results similar to CEA.[6,10] Further research is needed in this area.

The key message that clinicians should take from Brott and colleagues' report[3] is that CEA is superior to

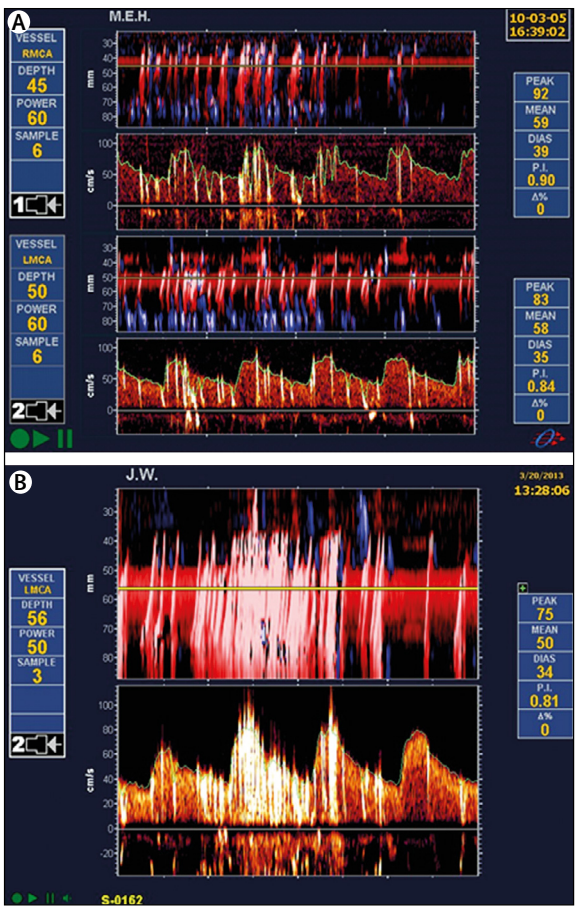

Figure: **Microemboli during carotid stenting**
Showers of microemboli occur commonly during carotid stenting. (A) Microemboli in both middle cerebral arteries while crossing the aortic arch during stenting of a carotid artery. (B) Microemboli in the ipsilateral middle cerebral artery during stenting of the stenosis. Reproduced from Bogiatzi C and Spence JD,[7] by permission of Springer Nature.

CAS, so CAS should be reserved for selected patients. Factors that would favour CAS could include younger age, specific anatomical features (such as a stenosis that is in the very distal internal carotid artery), lack of tortuosity of the arteries leading to the stenosis, absence of or only minimal plaque calcification,[11] presence of local tissue scarring due to previous surgery or radiation, and conditions conferring a high medical risk for surgery (such as congestive heart failure, myocardial ischaemia, or severe pulmonary disease). Patients receiving anticoagulation for indications such as atrial fibrillation might also be more suitable for CAS because the time when the patient is not taking anticoagulants would be shorter. Patients are likely to prefer a less invasive procedure, so they should be informed that outcomes with CEA are generally better than with CAS.

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An unparalleled assessment of the global burden of epilepsy

The risk of mortality is known to be higher in people with epilepsy than in the general population. Epilepsy is also responsible for considerable disability. In *The Lancet Neurology*, the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2016 Epilepsy Collaborators provide an unparalleled global assessment of the mortality and morbidity in people with epilepsy of unknown cause.[1]

The modelling procedures used by the GBD Collaborators enable estimates for prevalence, mortality, and