Carotid Angioplasty and Stenting

To the Editor:

We read with interest the article by Qureshi, about carotid angioplasty and stenting (CAS) after the EVA3S trial. The author considers that the results of EVA3S are somewhat contradictory to the existing data derived from other studies. To reach this conclusion, Dr Qureshi put together studies that are hardly comparable because of their design (randomized clinical trials (RCTs) versus registries) or the type of patients included (symptomatic versus asymptomatic stenosis, good versus poor candidates for surgery). As clearly shown by landmark RCTs of carotid surgery, natural history on medical treatment and operative risk differ largely between symptomatic and asymptomatic patients. If we focus on RCTs in symptomatic patients, SPACE is the only contemporary trial that can be compared with EVA3S. Both studies show similar results regarding the 30-day rate of stroke or death with CAS: 7.7% (95% CI: 5.7% to 10.1%) in SPACE compared with 9.6% (95% CI: 6.3% to 13.8%) in EVA3S, with a large overlap between confidence intervals. The 30-day rate of severe events (ie, disabling stroke or death) was higher in SPACE (4.8%; 95% CI: 3.4% to 6.8%) than in EVA3S (3.4%; 95% CI: 1.6% to 6.4%), but once again there is an overlap between confidence intervals. Regarding surgery, the 30-day rate of stroke or death was lower in EVA3S (3.9%) than in SPACE (6.5%), which partly explains why there is a statistically significant difference in favor of surgery in EVA3S, but not in SPACE. The SAPPHIRE study mainly involved patients with asymptomatic stenosis at high risk for surgery. These patients were not included in EVA3S. Focusing on recent registries, the 30-day rates of stroke or death in symptomatic patients are quite similar to those reported in EVA3S. For instance, in the CAPTURE registry, the 30-day rate of stroke, death or myocardial infarction was 12% among 483 patients with symptomatic stenosis at high risk for surgery, a much higher rate than that reported in the small symptomatic subgroup of patients included in SAPPHIRE.

Dr Qureshi also recommends placing more premium on rigorous and standardized training criteria for interventionalists performing CAS. Although we agree with him, operator experience was not a determinant factor of the 30-day risk of stroke or death in EVA3S. Among the patients in the stenting group, the 30-day risk of stroke or death was 12.2% in patients treated by interventional physicians who had experience of >50 carotid-stenting procedures (80 to 400), 11.0% in patients treated by physicians who had done 50 or fewer procedures, and 7.1% in patients treated by physicians who were still in procedural training (P=0.49). As previously stated, outcome of CAS in SPACE was not much better (or even worse with regards to disabling stroke or death) than when performed by their French counterparts, despite a greater experience in carotid stenting. Among 3500 patients enrolled in the CAPTURE registry by 353 physicians at 144 sites, the 30-day event rate did not differ among 3 operator experience levels. Moreover, if high hospital or physician volume has been associated with better outcomes across various procedures, the association is weak for carotid endarterectomy and is still unknown for CAS. In addition to operator experience, other factors related to patient characteristics (eg, presence of severe aortic arch atheroma and plaque morphology), and the procedure itself (including medical treatment surrounding the procedure) may have an impact on the risk of stroke after CAS. It is necessary to identify these factors to improve the safety of CAS before it can become an alternative to carotid endarterectomy.

Dr Qureshi also considers that the results of EVA3S are not going to affect the existing recommendations stating that CAS may be an acceptable treatment option in patients at high risk for an endarterectomy (ie, restenosis after endarterectomy, radiation fibrosis, fibromuscular dysplasia, surgically inaccessible stenosis, contralateral carotid occlusion, and significant cardiac or pulmonary disease). We agree with this statement for the simple reason that such patients were not included in EVA3S. This statement rests on the results of the SAPPHIRE trial. It must be stressed, however, that risk factors for complications from CEA are not necessarily risk factors for a higher risk for stroke on medical therapy. Given the high rates of 30-day and 1-year outcomes in both the CAS and CEA arms in SAPPHIRE, patients at high risk for surgery (in particular those with asymptomatic stenosis) may not benefit from carotid revascularization (either by CAS or CEA). Therefore, the safety and efficacy of CAS and CEA in patients at high risk for surgery need to be tested against medical therapy.

In conclusion, current data do not support the preferential use of CAS over CEA in patients with symptomatic or asymptomatic carotid stenosis that are good candidates for surgery. An updated meta-analysis of all RCTs shows a significant 41% relative increase of any stroke and death within 30 days after treatment in the endovascular treatment group compared with the surgical group (odds ratio, 1.41; 95% CI: 1.07 to 1.87; P=0.016). In patients that are not good surgical candidates, carotid stenting might be equivalent to surgery, but whether any carotid revascularization is superior to medical treatment alone remains unsettled.

Disclosures

None.

Jean-Louis Mas, MD
Hôpital Sainte-Anne
Université René Descartes
Paris, France

Gilles Chatellier, MD
APHP, Hôpital Européen Georges Pompidou
Université René Descartes
Paris

for the EVA3S investigators


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Patients with symptomatic severe carotid stenosis. 


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