INVITED COMMENTARY

"Screen Test"

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This paper raises issues that were considered during preparation of the European Society for Vascular Surgery (ESVS) guidelines on carotid disease[1] and the European Society for Cardiology (ESC)/ESVS guidelines on peripheral arterial disease (PAD).[1,2]

First, developing evidence based recommendations for antiplatelet (APRx) and statin therapy in patients with asymptomatic carotid stenoses (ACS) is complicated. There are no randomised controlled trial (RCT) data supporting the use of APRx/statins in patients with a > 50% ACS, never mind 0—50%.[1,2] This is because historical RCTs reported that APRx didn't prevent late stroke, or because no statin RCTs had been done in ACS patients. The ESC/ESVS recommend aspirin and statin therapy in ACS patients with > 50% stenoses (to reduce late cardiac mortality), but there is uncertainty about APRx in patients with 0—50% NASCET stenoses. Because Hogberg et al.[3] adopted the European Carotid Surgery Trial (ECST) method for defining moderate (50—79%) and severe (80—99%) stenosis, their study effectively looked at five year outcomes in patients with mild/moderate ACS (12—60%) and moderate/severe ACS (60—99%) using the NASCET measurement method, which is now a worldwide standard. Accordingly, many of Hogberg's "moderate-ACS" cohort will have < 50% (NASCET), stenoses and this may explain the variable approach to prescribing APRx/statins in their patients.

Second, Hogberg et al.'s definition of regression/progression involved moving from one disease category to the next. Accordingly, a 5—10% change in stenosis severity (within the limits of error with duplex) may lead to false positive progression/regression data. Stenosis progression > 20% was adopted by ESVS/ESC as being an imaging criterion when considering CEA, but even this is only associated with an increase in annual stroke from 1% to 2%.[1,2] Accordingly, simply crossing the threshold from "50—79%" to "80—99%" may be unreliable in selecting "high risk of stroke" patients in routine clinical practice.

Population based screening has not been recommended by either the US Preventive Services Task Force[4] or ESVS,[1] although the latter envisaged a possible role for selective screening in patients with multiple vascular risk factors (to optimise risk factor control and medical therapy to reduce late cardiac mortality), rather than for identifying candidates for carotid interventions.[1] Given Hogberg's findings, such a strategy seems sensible and pragmatic, but which "high risk" subgroup would you screen? Would it be Hogberg's 65 year old male, aortic aneurysm screening patient, where the yield for identifying a NASCET 65—99% ACS was only 12 out of 3,057 (0.4%), so definitely not cost effective. Or, would you adopt the Society for Vascular Surgery (SVS) criteria, which screens patients with PAD (at any age) or > 65 years with a history of ischaemic heart disease, smoking, or hypercholesterolaemia.[5] Thapar et al.[6] modelled the SVS criteria and predicted that the SVS based screening programme could only prevent about 0.2% of the annual UK stroke burden, while costing £76,000 (€88,300) per stroke prevented. The reality is that, to date, no one has devised a selective screening protocol that is both clinically and cost effective.

However, the main "headline" from this study was that at five years 42% of patients with 80—99% ECST stenoses (65—99% NASCET) suffered ipsilateral neurological symptoms (transient ischaemic attack (TIA), amaurosis fugax, stroke).[3] This is a very high proportion, but meaningful interpretation is confounded by very small numbers (12 patients), a failure to provide five year ipsilateral stroke data (no one does CEA to prevent TIA/amaurosis), and (contrary to what was implied in the paper) we are not provided with evidence that patients with severe ACS were taking APRx/statin therapy prior to stroke onset. We are informed that in patients with "any stenosis, progressing to symptoms", 62% were taking APRx while 75% were on statins.[3] This would suggest considerable scope for further optimising medical therapy.

So will the Swedish experience influence my practice? The majority of my ACS patients are treated medically (unless the patient opts for CEA), and I do not recognise a 40% rate of progression towards late ipsilateral symptoms. However, I agree with my Swedish colleagues that if a clinical/cost effective screening strategy were available, optimising medical therapy in ACS patients will reduce cardiac related mortality and allow evolving imaging criteria (as recommended in the ESVS guidelines) to select a "higher risk of stroke" cohort in whom to target carotid interventions.[1]

REFERENCES

1 Naylor AR, Ricco JB, de Borst GJ, Debus S, de Haro J, Halliday A, et al. Management of atherosclerotic carotid and vertebral artery disease: 2017 Clinical practice guidelines of the European Society for Vascular Surgery (ESVS). *Eur J Vasc Endovasc Surg* 2018;**55**:3—86.

2 Aboyans V, Ricco J-B, Bartelink M-L, Bjorck M, Brodmann M, Cohnert T. 2017 ESC guidelines on the diagnosis and treatment of peripheral arterial diseases, in collaboration with the European Society for vascular Surgery (ESVS). *Eur J Vasc Endovasc Surg* 2018;**55**:305—68.

3 Hogberg D, Bjorck M, Mani K, Svensjo S, Wanhainen A. Five-year outcomes in men screened for carotid artery stenosis at 65 years of age: a population based cohort study. *Eur J Vasc Endovasc Surg* 2019;**57**:759—66.

4 Jonas DE, Feltner C, Amick HR, Sheridan S, Zheng ZJ, Watford DJ, et al. *Screening for asymptomatic carotid stenosis; a systematic Review and meta-Analysis for the US preventive Taskforce. Evidence synthesis No 111*. Rockville, MD: Agency for Healthcare Research and Quality; 2014. AHRQ Publication no. 13-05178-EF-1.

5 Ricotta JJ, Aburahma A, Ascher E, Eskandari M, Faries P, Lal BK, et al. Updated Society for Vascular Surgery guidelines for management of extracranial carotid disease. *J Vasc Surg* 2011;**54**:e1—31.

6 Thapar A, Munster A, Shalhoub J, Davies AH. Testing for asymptomatic carotid disease in patients with arterial disease elsewhere. *Rev Vasc Med* 2013;**1**:81—4.

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