

INDICATORS FOR INTERVENTION IN ACAS; ARE MES, VMR AND SBI RELEVANT? NO

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Asymptomatic carotid artery stenosis carries a low risk for ipsilateral stroke and in the current therapeutic approach with statins and hypertension lowering drugs, the risk of strokes is even smaller. However, there is a sub-group of ACAS patients with higher risk of stroke than average, in whom surgery might be justified. To identify these subgroups, whether micro embolic signals (MES) and cerebral vasomotor reactivity (CVR) examined by transcranial Doppler (TCD), or silent brain infarction detected in Magnetic resonance imaging (MRI) are relevant.

It is unclear whether the knowledge of autoregulation is a predictor for the outcome of a patient in addition to the degree of the stenosis and a history of stroke or TIA. There are a few investigations presenting follow-up data of patients with occlusive carotid artery disease and an initial determination of VMR. The Doppler-CO₂ test or related methods (Diamox test, breath-holding test) were applied in these studies. In these studies, the ipsilateral event rate was around 30% in all subgroups with reduced VMR whereas it was only between 0 and 9% in patients with normal VMR, and reduced VMR was found an independent predictor of stroke. The clinically important question is whether these results (30% risk of stroke/TIA during about 2 years in patients with impaired VMR) justify the decision for carotid endarterectomy in asymptomatic ICA stenosis or for EC/IC bypass surgery in carotid occlusion. In order to give a reliable answer, we have to show in randomized interventional multi-center studies that surgical procedures might really decrease the risk of stroke in patients with decreased VMR.

In Asymptomatic Carotid Stenosis and Risk of Stroke (ACSRS) study is demonstrated that the presence of silent brain infarcts in the ipsilateral brain hemisphere in patients with moderate and severe asymptomatic carotid artery stenosis was associated with an increased risk of ipsilateral hemispheric neurologic events and stroke compared with patients without such infarcts. This difference may prove useful in the management of patients with asymptomatic carotid disease by identifying a high-risk group for neurologic events. However, the using CT scanning in this study is considered as a limitation because of the low sensitivity to detect SBI. Many efforts have been done to identify the subgroup of patients with asymptomatic ICA stenosis which could benefit more from carotid treatment. Plaque morphology and cerebral CT findings have been advocated as the most reliable predictor for future cerebral events. Plaque structure is linked to the development of cerebral embolic events.

In a study of 319 patients with asymptomatic 60% or greater stenosis (19% had symptoms >18 months previously), patients with MES on two 1-hour TCD recordings were more likely to have stroke within the first year of follow-up than patients with no MES. A multicentre study of 202 patients with asymptomatic stenosis, in which a variable number (mean 4.3) of 1-hour TCD recordings were made, found only a nonsignificant trend for more ipsilateral events in MES positive arteries. Further data is available from the Asymptomatic Carotid Emboli Study (ACES). In this international multicentre study, the presence of asymptomatic embolisation, detected by TCD, predicted subsequent ipsilateral stroke and TIA and also ipsilateral stroke alone. This suggests that TCD might be useful to identify patients with asymptomatic carotid stenosis who are at increased risk of stroke or TIA, and also to identify patients at low risk in whom surgical intervention will not be beneficial.

Last but not at least, according to the Guideline on the Management of Patients with Extracranial Carotid and Vertebral Artery Disease; although there is evidence from randomized trials that referred patients with asymptomatic hemodynamically significant carotid stenosis benefit from therapeutic intervention, no screening program aimed at identifying people with asymptomatic carotid stenosis has been shown to reduce their risk of stroke. Hence, there is no consensus on which patients should undergo screening tests for detection of carotid disease. Auscultation of the cervical arteries for bruits is a standard part of the physical examination of adults, but detection of a bruit correlates

more closely with systemic atherosclerosis than with significant carotid stenosis. Because the sensitivity of detection of a carotid bruit and the positive predictive value for hemodynamically significant carotid stenosis are relatively low, however, ultrasonography may be appropriate in some high-risk asymptomatic patients irrespective of findings on auscultation. Because carotid ultrasonography is a widely available technology associated with negligible risk and discomfort, the issue becomes one of appropriate resource utilization. To date, no screening program for detection of carotid stenosis has demonstrated the capacity to reduce stroke risk for any defined cohort, and as a result, no solid consensus can be developed concerning which patients should undergo diagnostic screening.