

ASYMPTOMATIC CAROTID RECONSTRUCTION BEFORE CABG ? – YES

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The prevalence of severe carotid disease among patients undergoing coronary artery bypass graft surgery (CABG) is estimated at about 5-10%. In the absence of randomized clinical trials, the best approach to management of concomitant carotid and cardiac disease remains controversial. Three approaches commonly used are staged carotid endarterectomy (CEA) followed by CABG, synchronous carotid and coronary surgery (SCC) and staged carotid stenting followed by CABG. In addition, several retrospective analyses argue against routine carotid intervention in patients with asymptomatic severe carotid artery disease undergoing CABG. However, none of these studies have routinely assessed patient outcome by a neurologist nor could provide a long-term follow-up. Therefore, the optimal strategy in these patients remains unknown and so far can only be estimated from uncontrolled case series or routine hospital data:

Utilizing a large US database from 2003 to 2007, patients who had SCC were compared with patients with cerebrovascular disease who had CABG with prior CEA, and those with carotid Doppler stenosis >75% and no carotid intervention. Of 745,769 patients who underwent isolated CABG with/without CEA, 108,212 (14%) had cerebrovascular disease. Of this group, 5,732 (5%) underwent SCC. After statistical adjustment for all baseline differences, SCC had clinically and statistically higher rates of neurological complications compared with any of the reference groups, with a 20-40% higher event risk. Although no quantitative control group exists for comparison, SCC as recently performed in North America seems to have a higher risk compared with any of the reference groups. Nevertheless, it remains unknown of what happened to patients with neurological or cardiac complications after staged carotid intervention who did not go on to have CABG. Likewise, the long term prognosis of patients with severe carotid disease receiving isolated CABG remains unknown. Some of these patients will eventually undergo carotid intervention (usually outside a controlled clinical trial and with an unknown complication rate), while others with no carotid intervention remain at risk from asymptomatic carotid stenosis. These patients with polyvascular disease are known to have a higher stroke risk than patients with isolated carotid disease (and treated medically only).

Suboptimal results associated with the SCC strategy in clinical routine do suggest a need for quality improvement and research on the optimal management of patients with simultaneous carotid and coronary disease. Quality control of (isolated) carotid surgery has already transformed vascular surgery but is only beginning to be applied to SCC.

On the other hand, there is not sufficient evidence to advocate isolated CABG in patients with asymptomatic carotid disease because

1. patients at high risk of perioperative stroke are still poorly defined (i.e. bilateral stenosis, contralateral occlusion, multiple cardiovascular risk factors) and
2. little is known about the long prognosis (and management) of patients with polyvascular disease after isolated CABG.

As with any intervention, the perioperative complication rate is more dependent on the surgeon or interventionalist than the intervention itself. With rigorous quality control applied, SCC may still prove the best treatment option if performed jointly by an experienced vascular and cardiac surgeon.

“Coronary Artery Bypass graft surgery in Asymptomatic Carotid Stenosis” (CABACS) is a randomized, controlled, open, multicenter group sequential trial with two parallel arms and outcome adjudication by blinded observers which has been registered under www.controlled-trials.com/ISRCTN13486906.⁽¹⁾ Patients with asymptomatic high-grade carotid stenosis scheduled for elective CABG are randomized to either isolated CABG or synchronous CABG and CEA. The trial started in December 2010 aiming at recruiting 1160 patients in 25 to 30 German cardiovascular centers. The composite primary efficacy endpoint is the number of strokes and deaths from any cause (whatever occurs first) within 30 days after operation. A 4.5% absolute difference (i.e. 4% compared to 8.5%) in the 30-day rate of the above endpoints can be detected with > 80% power. Secondary endpoints include single components of the primary endpoint, myocardial infarction, technical failures, duration of ventilatory support, change of cognitive performance and observations at different time points up to 5 years. The results of this trial are expected to have an important impact on managing patients with severe carotid artery disease undergoing CABG.

References

1. Knipp S, Scherag A, Beyersdorf F, Cremer J, Diener HC, Haverich JA, Jakob HG, Mohr W, Ose C, Walterbusch G, Welz A, Weimar C, for the CABACS study group. Randomized comparison of synchronous CABG and carotid endarterectomy vs isolated CABG in patients with asymptomatic carotid stenosis: the CABACS trial. *Int J Stroke* 2012;7(4):354-60