Safety of endovascular treatment of carotid artery stenosis compared with surgical treatment: a meta-analysis.

BACKGROUND AND PURPOSE: Since publication of previous meta-analyses comparing endovascular and surgical treatment of patients with carotid artery stenosis, two further large-scale trials have been conducted, almost doubling the number of patients available for analysis. Therefore, it is justified to update these meta-analyses.

METHODS: Relevant trials were identified by a search of the literature using an electronic database. Trials with a nonrandomized patient allocation were not included. We focused on events within 30 days after intervention and made two sets of analysis: one with all trials and one with large trials exclusively including symptomatic patients.

RESULTS: Only Endartérectomie Versus Angioplastie chez les patients ayant une Sténose carotide Symptomatique Serrée (EVA3S) and Stent-Supported Percutaneous Angioplasty of the Carotid Artery versus Endarterectomy (SPACE) were identified to be included in the updated meta-analysis. In total, 2985 patients were included in eight trials of which 89% were symptomatic. In contrast to previous analyses, this meta-analysis found a significant difference between the odds ratios of any stroke or death within 30 days after treatment with a disadvantage of endovascular treatment when analysing all trials (odds ratio [OR], 1.38; 95% confidence interval [CI] 1.04-1.83; \( P = .024 \)). Significant heterogeneity was
found for this analysis (P = .03). The increase of the odds of suffering from disabling stroke or death in the endovascular compared with the surgical group was not significant in the analysis of all trials (OR, 1.37; 95% CI, 0.92-2.04; P = .12); no heterogeneity was found for this analysis (P = .27). In the analysis of the large trials with symptomatic patients, the OR for the endpoint any stroke or death was 1.29 (95% CI 0.94-1.76; P = .11); with a hint for heterogeneity (P = .10). For the endpoint disabling stroke or death, the OR was 1.33 (95% CI 0.89-1.93; P = .17) without any heterogeneity (P = .58).

CONCLUSION: The expressiveness of this meta-analysis is limited by the heterogeneity of some tests. The main result is that surgical treatment still remains the gold standard for treatment of patients with symptomatic carotid artery stenosis, who do not have an increased surgical risk. Carotid artery stenting is neither safer than nor as safe as carotid endarterectomy in large clinical trials when short-term stroke and death rates are taken into account. Further recruitment into ongoing randomized trials is strongly recommended.

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