

Efficacy and Safety of Carotid Endarterectomy Versus Carotid Artery Stenting in Asymptomatic Severe Carotid Stenosis: A Systematic Review and Meta-Analysis

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Background: Severe carotid stenosis (CS) is defined as 70-99% blockage of the carotid artery. In patients with severe CS, both carotid endarterectomy (CEA) and carotid artery stenting (CAS) carry procedural risks, however they can restore patency and significantly reduce long-term stroke risk. Most studies compare outcomes between procedures in symptomatic patients; however, there is limited data comparing CEA to CAS in asymptomatic severe CS.

Methods: We performed a literature search using PubMed, Embase, and Cochrane Library from inception through September 2021 to investigate the efficacy and safety of CAS compared to CEA in patients with asymptomatic severe CS. The primary outcome was all-cause mortality and secondary outcomes were stroke, MI, and stroke post 30-day follow up.

Results: 4 randomized controlled trials involving 6442 patients were included in this meta-analysis. There is no difference in the primary outcome of all-cause mortality between CEA and CAS. Compared to CAS, CEA has significantly lower rate of stroke [RR 1.56; CI 1.13, 2.15; P = 0.006]. Alternatively, CAS has significantly lower rate of MI [RR 0.49; CI 0.27, 0.91; P = 0.02]. There is no significant difference in risk of stroke post 30-day follow up.

Conclusion: Based on our results, there is lower risk of stroke with CEA and lower risk of MI with CAS, however no difference in all-cause mortality or stroke post 30-day follow-up. Further trials with large sample sizes are needed to confirm our findings.