

ANGIOPLASTY VS ENDARTERECTOMY FOR SYMPTOMATIC CAROTID ARTERY STENOSIS: A DECISION ANALYSIS

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Background: Carotid artery stenting (CAS) is a revascularization alternative for carotid stenosis but its safety and efficacy compared to carotid endarterectomy (CEA) are questionable.

Design/Methods: We reviewed the literature to best estimate the risks for recurrent stroke, myocardial infarction (MI), death and local complications in patients treated with CEA and CAS. We made the following assumptions: pay off values: asymptomatic 1, stroke 0.5, myocardial infarction 0.7, local complications .7, and death 0; overall complication and 30-day event rate of 6% for both procedures, local complications 1% vs. 6%, stroke 10% vs. 4%, MI 1% vs. 5%, death 1% vs. 2% for CAS vs. CEA respectively (based on EVA S3 and SPACE trials). Sensitivity analyses were also conducted

Results: CAS is the optimal choice provided its complication rate is <8%. This choice was exquisitely sensitive to changes in event rates. CEA becomes the optimal choice if MI or local complication rates in CEA arm decrease (5% to 4% and 6% to 4%, respectively).

Conclusions/Relevance: CAS is approved for treatment of carotid stenosis in high-surgical risk subjects. However, CAS-treated patients had higher 30-day risk of stroke in EVA-S3 and SPACE trials while they had lower risk of MI in SAPPPIRE trial. Although CAS is the optimal choice in our analysis, the result is sensitive to rate changes in overall complications among CAS-treated subjects, and MI and local complications among CEA-treated subjects. While results of larger trials (CREST and ICSS) are pending, CAS should be limited to subjects at high surgical risk.