Transcarotid artery revascularization in symptomatic carotid stenosis: a systematic review

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Objective:
Carotid endarterectomy is currently the gold standard treatment option for significant symptomatic carotid stenosis. Carotid artery stenting can be an alternative in selected patients, although with inferior results when compared to its open counterpart. Transcarotid artery revascularization (TCAR) emerged as a new option with promising results. This study aims to systematically review the current evidence on the safety of TCAR in patients with symptomatic carotid artery stenosis.

Methods:
A systematic review of the literature was performed, according to PRISMA guidelines on PubMed and Web of Science databases. Of the 178 studies retrieved in the search, 11 were selected for analysis. Data was extracted using predefined forms.

Results:
A total of 28326 symptomatic patients undergoing TCAR were included in the analysis (Figure 1). Reported TIA/Stroke rates after TCAR ranged between 2,3-3,3% in-hospital and 1,2-4,3% at 30-days. Similarly, in-hospital post-operative mortality was reported in 0,5-0,7% of the cases, and 1-4,9% at 30 days. After 1 year, TIA/Stroke and death rates ranged between 3,5-3,7% and 2,5-13%, respectively. Post-operative cardiovascular events were observed in up to 2,9% of the patients. Cranial nerve injuries were reported in up to 0,7% of the cases, while surgical and vascular access complications ranged between 1,2-6,1%.

Conclusion:
TCAR has shown promising results for significant symptomatic carotid stenosis treatment, and may be a relevant alternative to carotid endarterectomy, especially in high-risk patients. Further studies are required to assess the effectiveness of TCAR and its comparability with carotid endarterectomy.

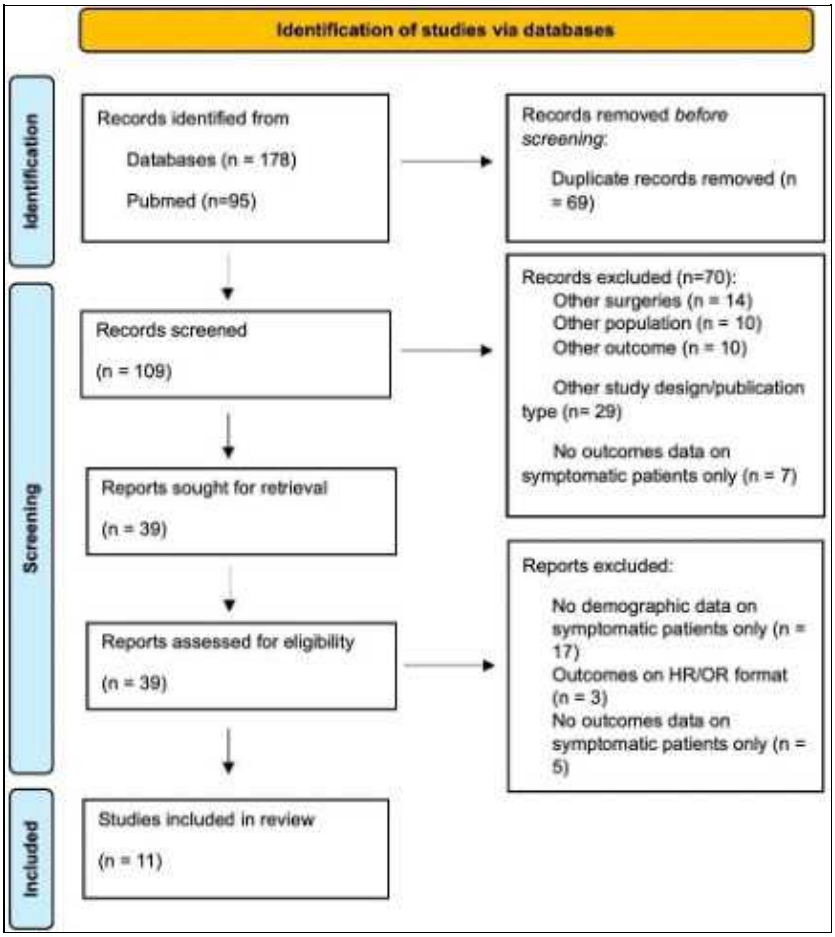

Fig 1 Figure 1: PRISMA flowchart of study inclusion.