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A MULTI-INSTITUTIONAL ANALYSIS OF TRANSCAROTID ARTERY REVASCLARIZATION COMPARED TO CAROTID ENDARTERECTOMY, July 2019, *Journal of Vascular Surgery*.

ROSEMONT, Illinois, July 2019 – The first report of a matched analysis of TCAR (transcarotid artery revascularization) and CEA (carotid endarterectomy) reveals similar incidence of stroke and death at both 30 days and one year. Results suggest that the new procedure could become an important part of vascular surgeons' armamentarium in treating significant carotid stenosis.

Up to 30% of ischemic strokes are attributed to atherosclerotic disease in the carotid artery owing to plaque rupture and subsequent cholesterol embolism. Traditional interventions, including CEA and TF-CAS (transfemoral carotid artery stenting), have proven beneficial in decreasing the incidence of stroke in selected patients. However, although considered comparable in terms of composite end points (stroke, death, myocardial infarction), CEA has more cardiac complications and TF-CAS has an increased risk of stroke.

TCAR can be considered a hybrid of these two techniques. Given it does not require crossing the aortic arch and establishes neuroprotection before manipulation of the carotid lesion, it may offer less neurological complications than TF-CAS.

As reported in the July 2019 edition of the *Journal of Vascular Surgery*, a multicenter research effort lead by Dr. Vikram Kashyap from University Hospitals, Cleveland Medical Center, compared the 30-day and one-year outcomes of CEA and TCAR. They studied 663 patients who underwent either CEA (371) or TCAR (292) between 2013 and 2017 at their four centers.

After propensity matching the 292 TCAR patients with 292 CEA patients, they found similar rates of:

- 30-day stroke: 1.0% TCAR vs 0.3% CEA (P=.62),
- 30-day mortality: 0.3% TCAR vs 0.7% CEA (P=NS),
- 1-year stroke: 2.8% TCAR vs 2.2% CEA (P=.79), and
- 1-year mortality: 1.8% TCAR vs 4.5% CEA (P=NS).

The composite endpoint of stroke/death/myocardial infarction at one month was 2.1% TCAR vs. 1.7% CEA (P=NS). TCAR was noted to have a lower rate of cranial nerve injury (0.3% vs 3.8%, P=.01).

“Given that the broad cardiovascular and neurologic outcomes were similar between TCAR and CEA in this analysis, one may question which intervention to offer to patients with severe carotid bifurcation disease,” notes Dr. Kashyap. “A possible benefit of TCAR is the low rate of cranial nerve injury given the limited common carotid artery exposure needed for this procedure.”

In addition, he added, “TCAR has a mean procedural time of 75 +/- 24 minutes. If one views the flow reversal time as the critical time-sensitive period during TCAR—analogous to clamping the carotid artery—this time for TCAR averages 11 +/- 8 minutes.”

This article will be free to access through August at vsweb.org/TCARvCEA .

Article Date: Tuesday, July 23, 2019

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Tags: Research & Quality

Article Type: Press Release