In Hospital Outcomes Among Diabetics Undergoing Transcarotid Artery Revascularization for Carotid Artery Stenosis

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Background

- Transcarotid artery revascularization (TCAR) is a novel procedure to intervene on clinically significant carotid artery stenosis[1], which involves a reversal of flow from the carotid artery to the femoral vein
- In clinical trials the periprocedural rate of stroke has proved exceedingly low (<1.5%)[1]
- Diabetic patients are known to have elevated risk of periprocedural adverse events with traditional carotid endarterectomy and stenting[2]
- Outcomes among diabetics undergoing TCAR remain unclear

-Our aim was to determine the periprocedural cardiovascular and cerebrovascular events (MACCE) among patients undergoing TCAR in a large national database

Methods

- The Vascular Quality Initiative database was queried for all Transcarotid Artery Revascularization procedures from January 2012 to March 2021
- TCAR was defined by procedures involving reversal of flow
- Baseline demographic information and periprocedural outcomes were obtained
- In cases in which multiple procedures were performed, only the most recent was included in the final analysis

-Outcomes examined included stroke, TIA, MI, death and various composite outcomes

Tables

Table 1: Baseline characteristics of patients

	Total 19342 (100.0)	TCAR Diabetics 7427 (38.4)	TCAR Non-Diabetics 11914 (61.6)	P-value
Male	12324 (63.7)	4737 (63.8)	7587 (63.7)	0.89
Age	74 (IQR 67-80)	73 (IQR 67-79)	75 (IQR 68-80)	<0.01
RACE				<0.01
White	17455 (90.3)	6516 (87.7)	10939 (91.8)	
African American	942 (4.9)	460 (6.2)	482 (4.1)	
Asian	178 (0.9)	80 (1.1)	98 (0.8)	
American Indian/Alaskan Native	79 (0.4)	41 (0.6)	38 (0.3)	
Hispanic Ethnicity	774 (4)	429 (5.8)	345 (2.9)	<.001
CAD	4974 (25.7)	2125 (28.6)	2849 (23.9)	<.001
CHF	3291 (16.9)	1698 (22.9)	1593 (13.3)	<.001
HTN	17611 (91.1)	7075 (95.3)	10536 (88.5)	<.001
COPD	4944 (25.6)	1953 (26.2)	2991 (25.1)	.065
Prior PCI	5310 (27.9)	2497 (33.6)	2813 (23.6)	<.001
Prior CABG	4140 (21.4)	1989 (33.6)	2813 (23.6)	<.001
Prior Smoker	9866 (51.1)	3879 (52.2)	5987 (50.1)	<.001
Prior CEA/CAS	5373 (27.8)	2104 (28.3)	3269 (27.4)	.179

Table 2: Analysis of in-hospital outcomes between diabetic and non-diabetic TCAR patients

	TOTAL 19,341 (100.0)	TCAR diabetics 7,427 (38.4)	TCAR non-diabetics 11,914 (61.6)	OR (95% CI)	P-value
Death	80 (0.4)	38 (0.5)	42 (0.4)	1.45 (0.94-2.26)	.096
Stroke	272 (1.4)	123 (1.7)	149 (1.3)	1.32 (1.05-1.69)	.020
TIA	104 (0.5)	51 (0.7)	53 (0.4)	1.55 (1.05-2.28)	.027
Myocardial infarction	106 (0.6)	50 (0.7)	56 (0.5)	1.44 (0.98-2.10)	.064
TIA or stroke	375 (1.9)	174 (2.3)	201 (1.7)	1.40 (1.14-1.72)	.001
Stroke or death	322 (1.7)	146 (2)	176 (1.5)	1.34 (1.07-1.67)	.010
Stroke or myocardial infarction or death	408 (2.1)	188 (2.5)	220 (1.9)	1.38 (1.13-1.68)	.001

Results

- A total of 19,341 patients underwent TCAR, of these 7427 (38.4%) were diabetics

-The risk of periprocedural stroke (OR 1.32, p=.020), TIA (OR 1.55, p=.027), TIA/Stroke (OR 1.40, p<.01) all suggested diabetics remain at higher risk compared to non-diabetics

-The risk of myocardial infarction was not significant (0.7% vs 0.5%, p=.064)

-Death remained a rare outcome (0.5% vs 0.4%, p=.096) and was not statistically significant between the two groups

-The combined composite outcome of stroke/death/MI noted a higher adverse event rate (2.5% vs 1.9%, OR 1.38, p=.001) for diabetics as well

Conclusion

- TCAR is a safe revascularization for significant carotid artery stenosis with an elevated risk of periprocedural MACCE in diabetics compared to non-diabetic patients
- Further studies are need to define optimal patient selection for this novel and less-invasive strategy for carotid artery disease
- Of particular interest will be if other revascularization strategies (TFCAS & CEA) offer a lower risk among diabetics compared to TCAR

References & Disclosures

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