Title

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Authors

Elsayed, Nadin
Nakhaei, Pooria
Alsaigh, Tom
et al.

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Median age was 73 years; however, there were more octogenarians/nonagenarians in the post- protocol cohort (16% vs 23%; $P = .048$). There were more symptomatic patients post- protocol (66.9% vs 72.4%; $P = .005$). Reflective of this, there were fewer patients with >80% stenosis post-protocol (76% vs 68%; $P = .04$). After protocol implementation, only 3.6% of patients met criteria needing IMC level of care ($P < .0001$). Due to ongoing bed-capacity issues however, approximately one-half of patients in both time periods boarded overnight in the PACU. There was no significant difference between overall patient length of stay, PACU length of stay, and PACU boarding between the two cohorts. There was no significant difference in postoperative stroke, cranial nerve injury, or documented hypotension or hypertension needing treatment as a result of the protocol.

Conclusions: The enhanced recovery pathway for carotid artery revascularization surgery maintains patient safety and was successful in reducing the vascular patient load in higher acuity units; however, it did not reduce overnight boarding in the PACU despite having expanded bed placement potential. Further protocol adjustment is likely needed to help to reduce patient length of stay in the PACU while continuing to maintain excellent patient outcomes.

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IP223

Outcomes of Carotid Artery Revascularization Procedures in Patients with High-grade Bilateral Stenosis

Nadin Elsayed,[1] Pooria Nakhaei,[2] Tom Alsaigh, Raghu L. Motaganahalli,[3] Mahmoud Malas[4]. [1]Center for Learning and Excellence in Vascular and Endovascular Research, University of California San Diego, San Diego, CA; [2]Center for Learning and Excellence in Vascular and Endovascular Surgery (CLEVER), Division of Vascular and Endovascular Surgery, Department of Surgery, UC San Diego, La Jolla, CA; [3]Indiana University School of Medicine, Indianapolis, IN; [4]Division of Vascular and Endovascular Surgery, University of California San Diego, La Jolla, CA

Objectives: Bilateral carotid arteries stenosis (BCAS) has been associated with higher risk of stroke and postoperative complications. Nevertheless, no established treatment strategy for managing bilateral carotid artery stenosis exists. We aim to describe the outcomes of carotid endarterectomy (CEA), transfemoral carotid artery stenting (TFCAS), and transcarotid artery revascularization (TCAR) among patients with contralateral carotid artery stenosis (CCAS) greater than 70%.

Methods: We performed a retrospective analysis on patients undergoing CEA, TFCAS, or TCAR with contralateral carotid artery stenosis greater than 70% in the Vascular Quality Initiative database from 2016-2023. Multivariable logistic regression and Cox regression analyses were used to assess in-hospital and 1-year outcomes, respectively.

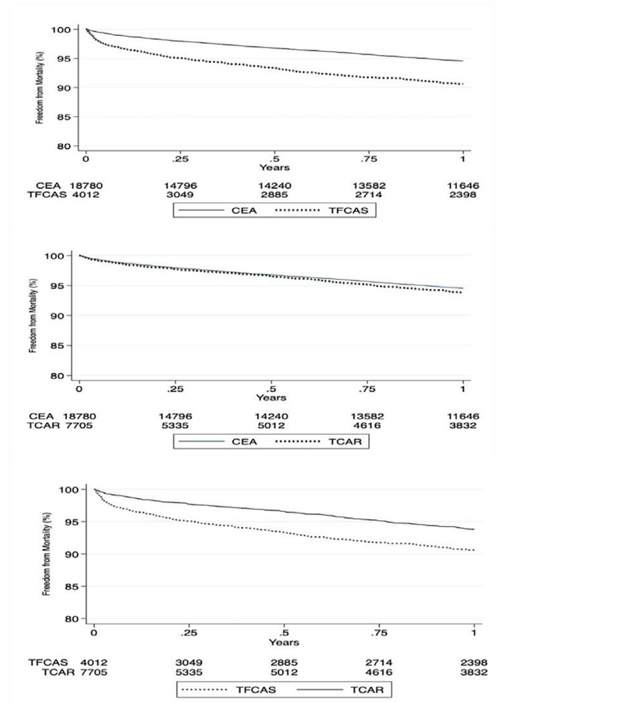

Fig. Overall Survival of TFCAS vs CEA, TCAR vs CEA, and TCAR vs TFCAS.

Results: A total of 30,622 patients with CCAS underwent carotid revascularization, 18,827 (61.48%) CEA; 4056 (13.25%) TFCAS; and 7739 (25.27%) TCAR. Compared to CEA and TFCAS, patients undergoing TCAR were older (74 [68-79] vs 72 [65-77] vs 71 [65-77] years; $P < .001$), more likely to be Hispanic/Latino (4.71% vs 3.35% vs 3.81%; $P < .001$), hypertensive (92.50% vs 91.57% vs 89.78%; $P < .001$), diabetics (41.39% vs 39.01% vs 40.35%; $P = .002$), with CAD (54.51% vs 29.36% vs 49.61%; $P < .001$), and CKD (39.49% vs 36.30% vs 37.50%; $P < .001$). TFCAS was associated with higher odds of total stroke (OR, 1.67; 95% CI, 1.05-2.65; $P = .030$), ipsilateral stroke, contralateral stroke, death (OR, 5.81; 95% CI, 3.70-9.13; $P < .001$), reperfusion syndrome (RPS) (OR, 30.93; 95% CI, 18.21-52.54; $P < .001$), stroke or death (OR, 2.55; 95% CI, 1.79-3.63; $P < .001$), and stroke/death/MI (OR, 1.93; 95% CI, 1.40-2.65; $P < .001$) compared to CEA. TCAR was associated with a 49% reduction of MI and a 27% reduction of stroke/death/MI compared to CEA. Compared to TFCAS, TCAR was associated with lower mortality, RPS, and stroke/death/MI (Table 1). At 1 year, TFCAS was associated with a higher risk of mortality compared to CEA (aHR, 1.50; 95% CI, 1.26-1.79; $P < .001$). There was no difference between TCAR and CEA in 1-year mortality (aHR, 0.95; 95% CI, 0.82-1.11; $P = .527$). Compared

Table. Multivariable in-hospital outcomes of TFCAS vs CEA, TCAR vs CEA, and TCAR vs TFCAS

	TFCAS vs CEA		TCAR vs CEA		TCAR vs TFCAS	
	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Total stroke	1.67 (1.05-2.65)	**.030**	1.06 (0.77-1.47)	.714	0.85 (0.48-1.51)	.583
Ipsilateral stroke	1.77 (1.05-2.98)	**.033**	1.11 (0.78-1.59)	.562	1.21 (0.68-2.14)	.522
Contralateral stroke	1.99 (1.13-3.50)	**.017**	0.86 (0.49-1.49)	.588	0.55 (0.27-1.11)	.097
Death	5.81 (3.70-9.13)	**<.001**	0.88 (0.56-1.40)	.595	0.32 (0.14-0.68)	**.004**
MI	1.01 (0.60-1.67)	.981	0.51 (0.35-0.73)	< .001	1.03 (0.52-2.03)	.933
Reperfusion symptoms	30.93 (18.21-52.54)	**<.001**	3.40 (2.06-5.62)	<.001	0.12 (0.08-0.18)	**<.001**
Stroke/TIA	1.29 (0.86-1.95)	.216	1.10 (0.85-1.43)	.458	0.89 (0.54-1.45)	.640
Stroke/death	2.55 (1.79-3.63)	**< .001**	0.96 (0.71-1.29)	.788	0.63 (0.39-1.04)	.073
Stroke/death/MI	1.93 (1.40-2.65)	**<.001**	0.73 (0.59-0.91)	**.006**	0.62 (0.40-0.95)	**.027**

CI, Confidence interval; *MI*, myocardial infarction; *OR*, odds ratio; *TIA*, transient ischemic attack.
Boldface *P* values indicate statistical significance.

to TFCAS, TCAR was associated with 40% lower risk of 1-year mortality (aHR, 0.60; 95% CI, 0.50-0.73; $P < .001$) (Fig 1).

Conclusions: In patients with BCAS, TFCAS was associated with a significantly higher risk of postoperative stroke or death, RPS, and 1-year mortality compared to CEA. Conversely, TCAR exhibited a favorable risk profile, with a significant reduction in the risk of MI and stroke/death/MI and similar one year survival compared to CEA. Notably, TCAR also demonstrated superior outcomes compared to TFCAS, showing a notable reduction in the risk of postoperative mortality, stroke/death/MI, RPS, and 1-year mortality. This study highlights concerns with TFCAS long-term efficacy with the recent CMS wide approval of this procedure.

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IP225

Effect of BMI on the Outcomes of Patients With Pulmonary Embolism Requiring Endovascular Interventions

Benjamin Wick, Junji Tsukagoshi, Lillian Tia,[1] Debora K. Kim,[2] Christine Shokrzadeh. [1]University of Texas Medical Branch, Galveston, TX; [2]University of Texas Medical Branch, Galveston, TX

Objectives: Previous studies report that obesity is associated with various cardiovascular comorbidities including pulmonary embolism (PE). However, the effect of body mass index (BMI) on patient outcomes after endovascular interventions for PE is unclear. Interestingly, related reports investigating other cardiovascular events have described the “obesity paradox” that patients who are obese had lower mortality rates post-intervention compared to non-obese counterparts. Therefore, this study aims to elucidate the effect of BMI on the outcomes of patients with pulmonary embolism requiring endovascular interventions.

Methods: We used the TriNetX database (TriNetX, LLC) to conduct a propensity score-matched case-control study of patients undergoing therapeutic intervention for PE. Patients were defined using Current Procedural Terminology (CPT) and International Classification of Diseases (ICD)-10 codes. Cohorts were defined by BMI categories 18.5-24.9 (normal), 25-29.9, 30-34.9, and ≥35 kg/m^2. The primary outcome was 1-year mortality, while secondary outcomes included chronic thromboembolic pulmonary hypertension (CTEPH), respiratory failure, and intracranial hemorrhage (ICH).

Results: A total of 24,329 patients (BMI <25 = 5629; BMI 25-29.9 = 6909; BMI 30-34.9 = 5787; BMI ≥35 = 5787) were included in the analysis. Patient demographics were comparable between each group. One-year mortality demonstrated an inversely proportional decline as the BMI increased (BMI <25 = 31.2% vs BMI 25-29.9 = 28.3% vs BMI 30-34.9 =21.2% vs BMI ≥35 = 19.7%). Risks of CTEPH, respiratory failure, and ICH were comparable and did not demonstrate a correlation to the BMI. Odds ratios (ORs) of mortality of each group compared to normal BMI were as follows; BMI 25-29.9: OR, 0.87; 95% confidence interval [CI], 0.80-0.94; BMI 30-34.9: OR, 0.59; 95% CI, 0.55-0.64; BMI ≥35: OR, 0.53; 95% CI, 0.48-0.57). The risk of CTEPH was the only outcome higher in the BMI 25-29.9 (OR, 1.37; 95% CI, 1.26-1.48) and BMI ≥35 (OR, 1.36; 95% CI, 1.24-1.48) cohort compared to the normal BMI group, while respiratory failure and ICH were both comparable or significantly lower in the higher BMI cohort.

Conclusions: This study showed that among patients requiring endovascular interventions for PE, patients had an inversely proportional decline in 1-year mortality as the BMI increased. Risks of respiratory failure and ICH were also lower for patients with higher BMI, which may explain this correlation. Our result adds context to the reported “obesity paradox” and warrants further investigation.

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IP227

Unraveling Histological Dynamics in Deep Venous Arterialization

Bright Benfor,[1] Judit Csore,[2] Deborah Vela,[3] Miguel F. Montero-Baker,[4] Trisha Roy[5]. [1]Houston Methodist DeBakey Heart and Vascular Center, Houston, TX; [2]DeBakey Heart and Vascular Center, Houston Methodist Hospital Houston, TX; [3]Texas Heart Institute, Houston, TX; [4]HOPE Vascular & Podiatry Institute, Houston, TX; [5]Houston Methodist Hospital, Houston, TX

Objectives: Deep venous arterialization (DVA) is emerging as a promising alternative for limb salvage in ’no-option’ chronic limb-threatening ischemia (CLTI). However, its pathophysiology remains incompletely understood. This report aimed to unveil some of the histological alterations occurring in the limb following DVA and provide a framework for future experimental models to explore early radiologic and histologic markers of successful venous arterialization.

Methods: We report the case of a 53-year-old female who underwent a percutaneous DVA for CLTI using a covered stent. The intervention was successful with evidence of improved blood flow to the foot, but the postoperative course was notable for worsening infection leading to a below-knee amputation 4 weeks later. A 7T MRI was used to scan the amputated limb using specialized high-resolution sequences, and the blood vessels were harvested for histology analysis.

Results: The MRI confirmed the patency of the DVA stent graft (Fig 1) and plantar loop, whereas histology demonstrated evidence of valvular disruption and eccentric neointimal hyperplasia (NIH) in the vein that underwent intervention (Fig 2). Most importantly, there was also evidence of NIH and increased smooth muscle cells in the media of the paired vein that did not undergo intervention, resulting in greater thickness compared to the media of the anterior tibial vein at the same level.

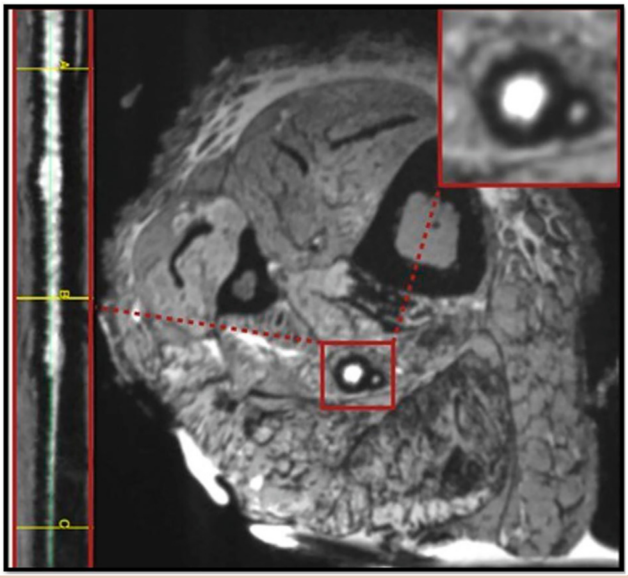

Fig 1.