Trends in Hospital Length of Stay for Carotid Artery Revascularization: A Comparison of Transcarotid Artery Revascularization Versus Transfemoral Carotid Artery Stenting

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BACKGROUND

- Carotid artery disease (CAD) is a leading cause of preventable stroke, particularly among older adults.
- Transfemoral carotid artery stenting (TF-CAS) and transcarotid artery revascularization (TCAR) are minimally invasive treatment options that reduce procedural burden and improve recovery outcomes compared to traditional carotid endarterectomy surgery.
- Despite their growing use, limited data exist comparing hospital length of stay (LOS) between TF-CAS and TCAR in real-world settings.

OBJECTIVE

This study compared hospital LOS between Medicare patients treated with TF-CAS and TCAR.

METHODS

- The 100% Medicare Standard Analytical Files were used to identify patients aged 65+ with CAD who underwent TF-CAS or TCAR procedures between January 1, 2022 and December 31, 2023.
- Eligible Medicare beneficiaries were required to have at least 3 months of continuous Medicare Fee-for-Service enrollment prior to their index procedure for CAD.
- Hospital LOS was measured in days, from admission to discharge for the index procedural admission.

RESULTS

- A total of 8,255 TCAR patients (mean age: 75.6 ± 6.34 years, mean Charlson Comorbidity Index [CCI] score: 2.6 ± 2.4) and 17,067 TF-CAS patients (mean age: 75.4 ± 6.4, mean CCI score 2.9 ± 2.5) were included in the study **(Figure 1)**.
- TCAR was associated with a significantly shorter mean LOS than TF-CAS across all study periods **(Figure 2)**.
- When stratified by year, TCAR maintained a consistently shorter LOS than TF-CAS **(Table 1)**.

Figure 1. Cohort Attrition for (A) TCAR and (B) TF-CAS

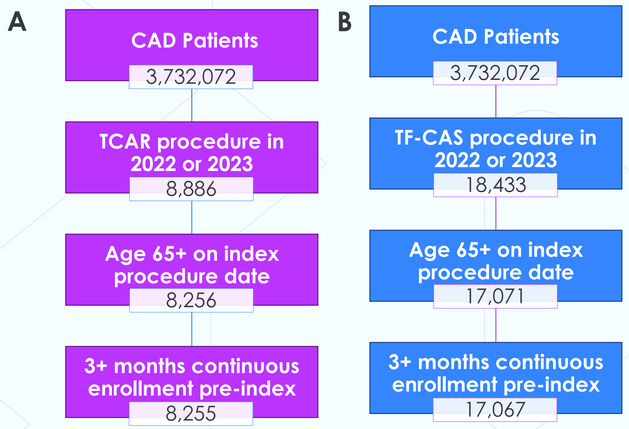

Figure 2. Mean LOS Across 2022 and 2023 for TF-CAS vs. TCAR

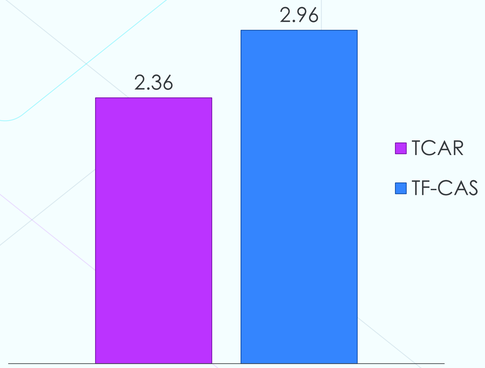

Table 1. Index Admission LOS for TCAR vs. TF-CAS by Year of Index Procedure

LOS in Days	TCAR	TF-CAS
Full Study Period (2022-2023)		
Mean (SD)	2.36 (3.27)	2.96 (4.20)
Median (IQR)	1 (1-2)	1 (1-3)
Index Procedure in 2022		
Mean (SD)	2.44 (3.85)	2.99 (4.12)
Median (IQR)	1 (1-2)	1 (1-3)
Index Procedure in 2023		
Mean (SD)	2.31 (3.18)	2.94 (4.12)
Median (IQR)	1 (1-2)	1 (1-3)

All mean and median comparisons significant at p<0.01.
Abbreviations: SD = standard deviation; IQR = interquartile range

CONCLUSIONS

- TCAR is associated with a shorter hospital LOS than TF-CAS, suggesting improved procedural efficiency and reduced resource utilization.
- While this suggests potential cost savings, further research is needed to quantify economic impacts and assess clinical outcomes.
- These findings support TCAR as a promising strategy for efficient CAD treatment with potential improvements in patient care and provider workflow.

LIMITATIONS

- Retrospective claims-based analyses are subject to inherent limitations, including a lack of detailed clinical data and unmeasured confounding.
- Cohort classification relied on administrative coding, and in cases where the dedicated TCAR-specific code was omitted, TCAR procedures may have been incorrectly categorized as TF-CAS, introducing potential misclassification bias.
- The analysis was limited to Medicare beneficiaries aged 65+, which may limit generalizability to younger or non-Medicare populations.

DISCLOSURES

This study was funded by Boston Scientific. All authors are full-time employees of, and shareholders in, Boston Scientific.

Poster presented by Harshini Mashruwala (harshini.mashruwala@bsci.com) at ISPOR 2025, May 13-16, 2025 in Montréal, QC, Canada