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May 2nd, 12:00 AM

# Outcomes of Thoracic Endovascular Aortic Repair (TEVAR) Procedure in Octogenarians, Nonagenarians and Centenarians: A Population-Based Study

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Pastore, Dakota B.; Elias, Tony; Beshai, Rafail; Girgis, Kyrillos; Daneshvar, Maziyar; and Anacker, Keith, "Outcomes of Thoracic Endovascular Aortic Repair (TEVAR) Procedure in Octogenarians, Nonagenarians and Centenarians: A Population-Based Study" (2024). *Rowan-Virtua Research Day*. 17.  
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# Outcomes of Thoracic Endovascular Aortic Repair (TEVAR) Procedure in Octogenarians, Nonagenarians and Centenarians: A Population-Based Study

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## Background

- There is limited data specifically for patients undergoing thoracic endovascular aortic repair (TEVAR) procedure who are older than or equal to 80 years old (YO).<sup>1</sup>
- We sought to examine the national inpatient sample database to describe in-hospital outcomes among these older patients.

## Methods

- Data were extracted from the National Inpatient Sample (NIS) Database for the years 2019 and 2020.
- The NIS was searched for hospitalizations of adult who underwent TEVAR procedure using international classification of diseases 10th revision codes.
- We then examined the outcomes in patients who were older than or equal to 80 YO vs. younger than 80 YO.
- Linear regression and multivariate logistic was used accordingly to adjust for confounders.
- The primary outcome was inpatient mortality.
- Secondary outcomes were hospital length of stay (LOS), and total hospital charges (TOTHCG).
- SPSS software was used for statistical analysis.

## Results

- This study included 696 patients who underwent TEVAR, of which only 35 (5.02%) patients were over or equal to the age of 80.
- Patients who had a TEVAR and were  $\geq 80$  YO had higher prevalence of hypertension (57.6% vs. 50.3%,  $p < 0.001$ ), diabetes mellitus (34.4% vs. 27.3%,  $p < 0.001$ ), and chronic kidney disease (5.3% vs. 4.2%,  $p < 0.001$ ).
- In-hospital mortality was higher among the older cohort (5.35% vs. 4.0%  $p < 0.001$ ). On linear regression analysis, increased age was associated with increased in-hospital mortality ( $p < 0.001$ ).
- On multivariable regression, age  $\geq 80$  YO was associated with higher odds of inpatient mortality (OR 1.103, 95% CI 1.026-1.186,  $p < 0.001$ ).
- Surprisingly, it was shown that older patients who underwent TEVAR pay significantly less TOTHCG (\$359,887 vs. \$462,216,  $p < 0.001$ ) with shorter LOS (12.8 days vs 15.7 days,  $p < 0.001$ ).
- On secondary analysis it has shown patients aged more than or equal to 80 years old who underwent TEVAR had higher odds of having acute kidney injury (AKI), use of vasopressors, congestive heart failure (CHF), and arrhythmias, as seen in Table 1.

Outcome	Odds Ratio	95% Confidence Interval	P-Value
AKI	1.092	1.046-1.148	<0.001
Use of Vasopressors	1.233	1.082-1.403	<0.001
CHF	1.036	1.001-1.073	<0.001
Arrhythmias	1.071	1.028-1.115	<0.001

**Table 1.** Odds ratios, 95% confidence intervals, and p-values for outcomes in TEVAR patients  $\geq 80$  compared to TEVAR patients  $< 80$  YO

## Conclusions

- In this nationally representative population-based study, aging was associated with higher mortality and worse outcomes among patients undergoing TEVAR.

## References

1. Frisiras A, Giannas E, Bobotis S, et al. Comparative Analysis of Morbidity and Mortality Outcomes in Elderly and Nonelderly Patients Undergoing Elective TEVAR: A Systematic Review and Meta-Analysis. *J Clin Med.* 2023;12(15):5001. Published 2023 Jul 29. doi:10.3390/jcm12155001