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Sex Differences in Outcomes Among Patients Undergoing Thoracic Endovascular Aortic Repair (TEVAR) Procedure: A Retrospective Cohort Study

Dakota B. Pastore
Rowan University

Tony Elias
Rowan University

Rafail Beshai
Jefferson Health

Kyrillos Girgis
Newark Beth Israel Medical Center

Maziyar Daneshvar
Virtua Health
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Submitting Author(s)

Dakota B. Pastore, Tony Elias, Rafail Beshai, Kyrillos Girgis, Maziyar Daneshvar, and Keith Anacker

Sex Differences in Outcomes Among Patients Undergoing Thoracic Endovascular Aortic Repair (TEVAR) Procedure: A Retrospective Cohort Study

Dakota B. Pastore, MPH¹, Tony Elias¹, Rafail Beshai, DO², Kyrillos Girgis, MD³, Maziyar Daneshvar, DO⁴, Keith Anacker, DO⁴
(1) Rowan-Virtua School of Osteopathic Medicine, (2) Jefferson Health, (3) Beth Israel Newark Medical Center, (4) Virtua Health

Background

- There is limited data specifically looking for sex differences in patients undergoing thoracic endovascular aortic repair (TEVAR) procedure.¹
- We sought to examine the national inpatient sample database to describe in-hospital outcomes by gender.

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 patients who underwent thoracic endovascular aortic repair (TEVAR).
- Out of this Cohort, Female patients were identified.
- Pregnant patients were excluded.
- Multivariate logistic was used 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 retrospective cohort study included 696 patients who underwent TEVAR, of which 255 (36.6%) were females.
- 7 patients were pregnant and were excluded from this study.
- Female patients who underwent TEVAR had higher prevalence of obesity (30.6% vs. 24.3%, $p < 0.001$), smoking (28.1 vs. 22.3, $p < 0.001$), and CKD (5.2% vs. 4.2%, $p < 0.001$).
- In-hospital mortality was higher among the female cohort (6.1% vs. 4.0%, $p < 0.001$).
- On multivariable regression, female patients who underwent TEVAR were associated with higher odds of inpatient mortality (OR 1.210, 95% CI 1.091-1.342, $p < 0.001$).
- It was also shown that patients who underwent TEVAR who had ventricular arrhythmias pay significantly more total hospital charges (\$600,004 vs. \$462,216, $p < 0.001$) with longer length of stay (23.5 days vs. 15.7 days, $p < 0.001$).
- On secondary analysis it has shown patients with ventricular arrhythmias who underwent TEVAR had higher odds of having acute kidney injury, developing shock, arrhythmias and congestive heart failure exacerbation, as seen in Table 1.

Outcome	Odds Ratio	95% Confidence Interval	P-Value
AKI	1.667	1.420-1.956	<0.001
Shock Development	1.557	1.340-1.810	<0.001
Arrhythmias	1.509	1.354-1.682	<0.001
CHF Exacerbation	1.103	1.064-1.243	<0.001

Table 1. Outcomes associated with patients who underwent TEVAR and had concomitant ventricular arrhythmias

Conclusions

- In this nationally representative population-based retrospective cohort study, female patients were associated with higher mortality and worse outcomes among patients undergoing TEVAR procedure.

References

1. Lareyre F, Raffort J, Behrendt CA, et al. Impact of Female Sex on Outcomes of Patients Undergoing Thoracic Endovascular Aortic Aneurysm Repair: A Ten-Year Retrospective Nationwide Study in France. *J Clin Med*. 2022;11(8):2253. Published 2022 Apr 18. doi:10.3390/jcm11082253