Peer Review File

Article information: https://dx.doi.org/10.21037/jtd-2025-973

Review Comments

Strengths:

• Thoracic endovascular aortic repair (TEVAR) in patients aged 80 years or older is a less invasive alternative to open chest surgery, with the potential to reduce perioperative complications and mortality. Consequently, it has become a widely adopted treatment strategy. However, age-specific risks must be carefully considered, and the outcomes warrant thorough evaluation.

• The study methodology is clearly described, with well-defined inclusion and exclusion criteria.

Major Concern 1: Multivariate Analysis (Critical Omission)

Comment 1: The manuscript does not report the use of multivariate analysis, which represents a significant methodological limitation given the retrospective study design. Conducting multivariate analysis is essential to adjust for potential confounding variables and to enhance the robustness of the conclusions. The authors are strongly encouraged to perform and present multivariate results, particularly for early and mid-term outcomes.

Reply 1: We thank the reviewer for this valuable comment. We agree that a multivariate analysis is essential to strengthen the conclusions of our retrospective study. Accordingly, we performed a logistic regression analysis to identify independent predictors of perioperative major complications and mid-term mortality. Due to the limited sample size (n=35), we limited the number of covariates to avoid overfitting and included only variables with p<0.1 in univariate analysis (age, aortic diameter, hybrid treatment, emergency status, respiratory disease). Our findings confirmed that larger aortic diameter and presence of respiratory comorbidity were independently associated with postoperative mortality.

	Odds ratio	**95% CI**	**p-value**	**Sig.**
(Intercept)	4.0104e-12	[0, inf]		
Weight	1.0519	[0.884761, 1.25062]	0.566548	
ASA Score	1.85476	[0.0498658, 68.988]	0.737758	
Complication Post Operative				

1	8.45007e+08	[0, inf]	0.995809
Respiratory Complication			
1	0.294766	[0.0051725, 16.7979]	0.553704

	Odds ratio	**95% CI**	**p-value**	**Sig.**
(Intercept)	1.17023e-09	[0, inf]		
Complication Post Operative				
1	7.30231e+17	[0, inf]	0.998188	
Respiratory Complication				
1	4.68091e-10	[0, inf]	0.999033	
Stroke				
1	1.17023e-09	[0, inf]	0.999075	
Paraplegia				
1	1.17023e-09	[0, inf]	0.999075	

	Odds ratio	**95% CI**	**p-value**	**Sig.**
(Intercept)	1.82604e-11	[2.2137e-22, 1.50626]		
Age	1.36746	[1.00793, 1.85522]	0.0443543	*
Weight	0.973997	[0.916678, 1.0349]	0.394551	
Respiratory Disease				
1	0.313998	[0.0151957, 6.48834]	0.453438	
diametre aorte max	0.999293	[0.959098, 1.04117]	0.97308	

Changes in the text: We added a new paragraph in the Results section presenting the multivariate logistic regression analysis, and discussed these findings in the Discussion section (See Page 7-8, Lines 132-137 and page10 Lines 182).

Major Concern 2: Sample Size and Statistical Power

Comment 2: The elderly group (aged 80 years or older) included only 35 patients, which limits the statistical power of the study. This limitation should be acknowledged, along with its implications for the interpretation of the findings.

Reply 2: We fully acknowledge the limited sample size as a constraint of our study, particularly in the context of a multivariate analysis. Although our study includes one of the larger octogenarian cohorts in TEVAR literature from a single institution, the results should be interpreted with caution and serve as exploratory data. We have included this point more explicitly in the limitations section.

Changes in the text: We expanded the limitations section of the Discussion to include the implications of limited statistical power (See Page 15, Lines 294-300).

Major Concern 3: Mid-Term Outcomes

Comment 3: The mean follow-up duration of 14 months is relatively short for evaluating mid-term survival and clinical outcomes. This should be recognized as a limitation, and the necessity for future studies with longer follow-up periods should be emphasized.

Reply 3: We agree with the reviewer. While our study's follow-up reflects real-world clinical practice for elderly patients, we recognize that longer follow-up is needed to fully assess mid-term outcomes and complications. We have now explicitly acknowledged this limitation and called for longer prospective studies in the Discussion.

Changes in the text: A paragraph was added to the Discussion highlighting the short follow-up and calling for longer-term prospective studies (See Page 15, Lines 294-300).

Major Concern 4: Comparison Between Age Groups

Comment 4: The subgroup analysis comparing patients aged 80 years or older with those under 80 years is underpowered due to the small sample size. This limitation should be explicitly stated, and the need for further investigations involving larger cohorts should be highlighted.

Reply 4: We agree with the reviewer. Due to the limited sample size and lack of a younger control group in our dataset, no age-based subgroup comparison was performed in this study. We clarified this in the methods and limitations and emphasized the need for multicentric data to better evaluate age-stratified outcomes.

Changes in the text: Clarifications and limitations were added regarding age group comparisons (See Page 15, Lines 294-300).

Minor Concern: Pulmonary Complications and Aortic Rupture Details

Comment 5: While the initial technical success rate was 100%, the in-hospital mortality within 30 days was notably high at 14%. More detailed data are needed regarding pulmonary complications and aortic rupture associated with type I endoleaks.

Reply 5: Thank you for this suggestion. We now provide more detailed information on the nature of the pulmonary complications (pneumonia, prolonged ventilation, respiratory failure) and have specified that the aortic rupture in one patient was due to a type I endoleak. This case is now discussed in more detail in the Results section.
Changes in the text: Additional detail added to the Results section about pulmonary complications and the case of aortic rupture (See Page 9, Lines 152-156).

Discussion – Japanese Studies
Comment 6: Several Japanese studies have provided detailed data on the outcomes and effectiveness of TEVAR in patients aged 80 years or older. Notably, some have demonstrated that TEVAR can be both safe and effective in this population, while also emphasizing the need for vigilance regarding endoleaks and stent-graft-related complications. These findings are valuable in guiding clinical decision-making and treatment strategies for elderly patients. Ultimately, the appropriateness of TEVAR should be determined based on the patient's overall clinical status and anatomical suitability, in accordance with the latest evidence and guidelines.
Reply 6: We appreciate the reviewer's comment and have now included a paragraph in the Discussion referencing key studies that have demonstrated the feasibility and safety of TEVAR in elderly patients. We also note the importance of individualized risk-benefit assessment, especially in relation to endoleak risk and anatomical suitability.
Changes in the text: New citations and discussion of literature were added (See Page 12, Lines 243).

Conclusion – Clinical Recommendations
Comment 7: Depending on the individual patient's risk profile and expected outcomes, TEVAR may not always be the optimal treatment option for elderly patients. The authors should provide a more detailed analysis of outcomes and associated risks to support clinical recommendations.
Reply 7: Thank you for this suggestion. We expanded the conclusion to better reflect the key findings regarding risk stratification and complication rates. We emphasize that TEVAR may be considered in selected octogenarians after multidisciplinary evaluation, and that in certain cases, conservative management may be more appropriate.
Changes in the text: The conclusion has been revised and expanded (See Page 15, Lines 307-326).

Recommendation:

Major Revisions Required:

The manuscript presents a promising investigation; however, it requires the inclusion of a multivariate analysis and a more comprehensive discussion of study limitations. Once these issues are adequately addressed, the study will be suitable for reconsideration for publication.