


Editorial

Double Valve Heart Surgery Outcomes are Safe and Durable

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“A man’s worth is no greater than his ambitions”—
Marcus Aurelius.

Following the development of the heart–lung machine in 1960, Boston surgeon Dr. Dwight Harken (1910–1993) implanted the first aortic prosthetic valve to treat aortic regurgitation [1]. Thereafter, the practice of valve surgery replacement accelerated and extended to other heart valves.

The elegant and congratulated study by the talented surgical team Peng *et al.* [2] on double valve surgery provides a comprehensive analysis of mortality and morbidity associated with this complex procedure. Indeed, this study examined 722 patients across four centers in China; using various centers can provide valuable insights into risk factors and outcomes. However, several critical areas warrant further scrutiny and discussion.

One of the strengths of the study was the application of rigorous methodology, including propensity score matching, which can adjust for confounding variables. Moreover, including long-term follow-up data enhanced the reliability of the findings regarding late mortality predictors. Identifying key risk factors, such as age (≥ 60 years), prolonged cardiopulmonary bypass time, and reduced postoperative estimated glomerular filtration rate (eGFR) (≤ 65 mL/min/1.73 m²), can contribute significantly to the current understanding of double valve surgery outcomes.

Despite these strengths, certain limitations must be addressed. The retrospective design of the study can inherently introduce selection bias. Although propensity score matching was applied as a mitigation procedure, performing randomized controlled trials would provide a more definitive causation assessment. Additionally, while the study includes patients from multiple centers, it is geographically restricted to China, limiting generalizability to other populations with different healthcare infrastructures and genetic predispositions. Furthermore, the volume–outcome effect of double heart valve surgery is important and will hopefully be reconfirmed in China as more patients with double heart valve disease are operated on in various centers [3].

This study provides a detailed breakdown of preoperative, intraoperative, and postoperative characteristics; however, some areas can be expanded. For example, the choice between mechanical and biological prostheses was noted but not deeply explored regarding long-term durability and patient quality of life. Additionally, a more in-depth analysis of complications, particularly valve-related events such as thrombosis and structural deterioration, would strengthen the Discussion in the study, especially since increasing amounts of evidence depict that mechanical valves are superior to biological tissue for patients under the age of 70 [4].

Another noteworthy aspect is the relatively high rate of lost-to-follow-up patients (7.9%). While this rate is within acceptable limits for long-term studies, it raises concerns about potential data attrition bias. Thus, understanding whether these patients had significantly different baseline characteristics or outcomes could provide additional context.

The influence of kidney function on surgical outcomes is well-known [5]. Moreover, while the study highlights renal function as a major determinant of survival, it does not elaborate on potential interventions or perioperative strategies to mitigate renal impairment. Given the significant impact of kidney function on outcomes, further investigation into protective measures, such as goal-directed fluid management and nephroprotective strategy, would be beneficial.

In conclusion, this study contributes valuably to the cardiac surgery field by elucidating key factors influencing double-valve surgery outcomes. However, the methodology needs to be refined further, along with an expanded discussion of prosthetic valve selection and enhanced analysis of postoperative management strategies. Future research should aim to address these gaps through prospective multicenter trials and a broader international cohort to improve the generalizability and applicability of these findings.

Availability of Data and Materials

Not applicable.



Author Contributions

Jeffrey H. Shuhaiber (no other authors involved) wrote the editorial and searched the literature using standard data bases available publicly including pubmed based on the paper written by Peng *et al.* The author read and approved the final manuscript. The author agrees to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethics Approval and Consent to Participate

Not applicable.

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Conflict of Interest

The author declares no conflict of interest. Dr. Jeffrey H. Shuhaiber is on the editorial board of this journal. We confirm that Dr. Jeffrey H. Shuhaiber has not been involved in the processing of this article and has no access to information regarding its processing.

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