Paravalvular leak following transcatheter aortic valve implantation: a tertiary center registry-based study

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Introduction: Paravalvular leak (PVL) has historically been recognized as the most frequent complication following transcatheter aortic valve implantation (TAVI), with significant impact on patient outcomes. However, recent studies suggest that moderate/severe PVL may not be independently associated with increased risk of major adverse cardiac and cerebrovascular events (MACCE), challenging earlier evidence that even mild PVL contributes to worse prognosis.[1,2] *Aim*: To evaluate the impact of immediate post-procedural PVL on long-term clinical outcomes in a real-world cohort of patients undergoing TAVI.

Patients and Methods: This retrospective, registry-based study included patients who underwent TAVI between September 2011 and July 2025 at a single tertiary center. Patients were stratified based on PVL severity: moderate/severe PVL versus no/trace-to-mild PVL. Clinical endpoints included all-cause mortality and the composite MACCE (stroke, myocardial infarction, new-onset atrial fibrillation or complete AV block, venous thromboembolism, major bleeding, and aortic root rupture). Logistic regression was used to evaluate associations, with a significance threshold of $p < 0.05$.

Results: A total of 692 patients were included, with a median age of 80 years [IQR 76–83] and median follow-up duration of 381 days [IQR 178–812]. Moderate/severe PVL was present in 65 patients (9.4%). Its presence was marginally associated with increased all-cause mortality ($p = 0.046$), but not with the incidence of MACCE.

Conclusions: In this real-world cohort, moderate/severe PVL following TAVI was associated with a slight increase in all-cause mortality, but not with composite adverse cardiovascular events. Despite these findings, minimizing PVL should remain a key technical objective during the TAVI procedure to optimize long-term outcomes.

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LITERATURE

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