18th Gulf Heart Association Conference
November 12-14, 2026
OCEC, Muscat, Oman



POSTER PRESENTATION

New-Onset Persistent Left Bundle Branch Block After Transcatheter Aortic Valve Implantation: A Systematic Review and Meta-Analysis

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1 BACKGROUND

New-onset persistent left bundle branch block (NOP-LBBB) is the most frequent conduction complication of TAVI, yet whether it independently worsens prognosis, and over what horizon, remains contested.

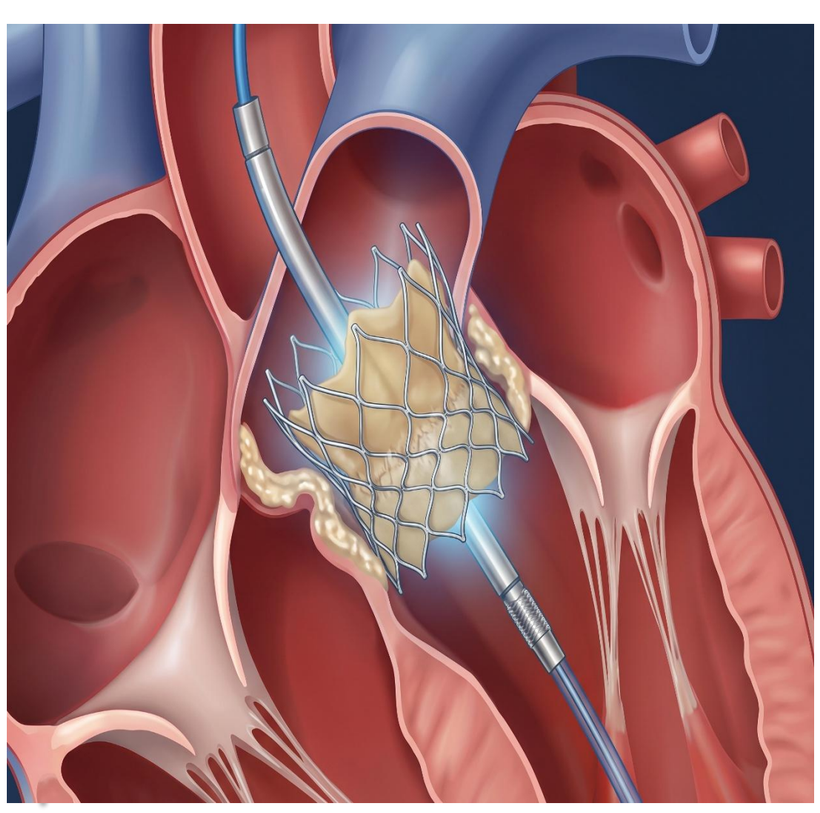
We quantified its incidence, the factors driving variation in that incidence, and its association with mortality, heart failure and pacemaker requirement.

2 METHODS

Studies comparing adults with and without NOP-LBBB after TAVI, from inception to 1 June 2026.

PubMed / MEDLINE · Embase · Scopus · Web of Science · Cochrane Library

26 cohorts
19,864 patients



3 RESULTS

Incidence of NOP-LBBB	Permanent pacemaker
21.0%	**2.63**
95% CI 17.9–24.6 · I^2 97%	RR, 95% CI 2.14–3.24

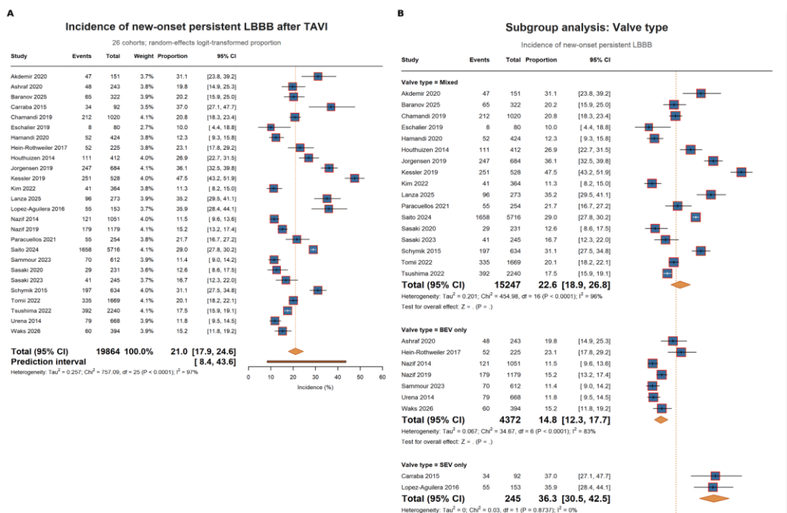
Heart-failure rehospitalisation	All-cause mortality, 1 year
1.53	**1.41**
RR, 95% CI 1.28–1.83	RR, 95% CI 1.12–1.78

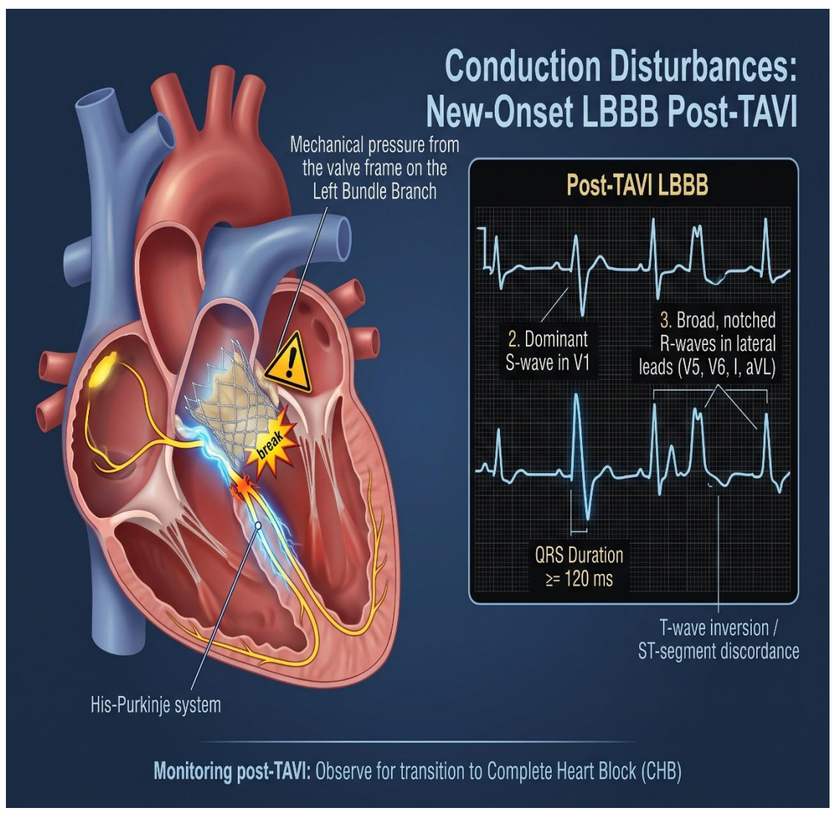
Twenty-six cohorts, 19,864 patients

Pooled incidence of NOP-LBBB was **21.0%** (95% CI 17.9–24.6; I^2 = 97%; prediction interval 8.4–43.6). Incidence differed markedly by prosthesis and by the definition and timing of ascertainment (both **p < 0.0001**).

NOP-LBBB was associated with all-cause mortality at 1 year, cardiovascular mortality, heart-failure rehospitalisation and permanent pacemaker implantation. The mortality signal **attenuated over time** and was not significant at 1–5 years (RR 1.09, 0.98–1.20). Male sex was not associated with NOP-LBBB (RR 0.92, 0.85–1.01).

4 INCIDENCE AND DETERMINANTS





Incidence by prosthesis

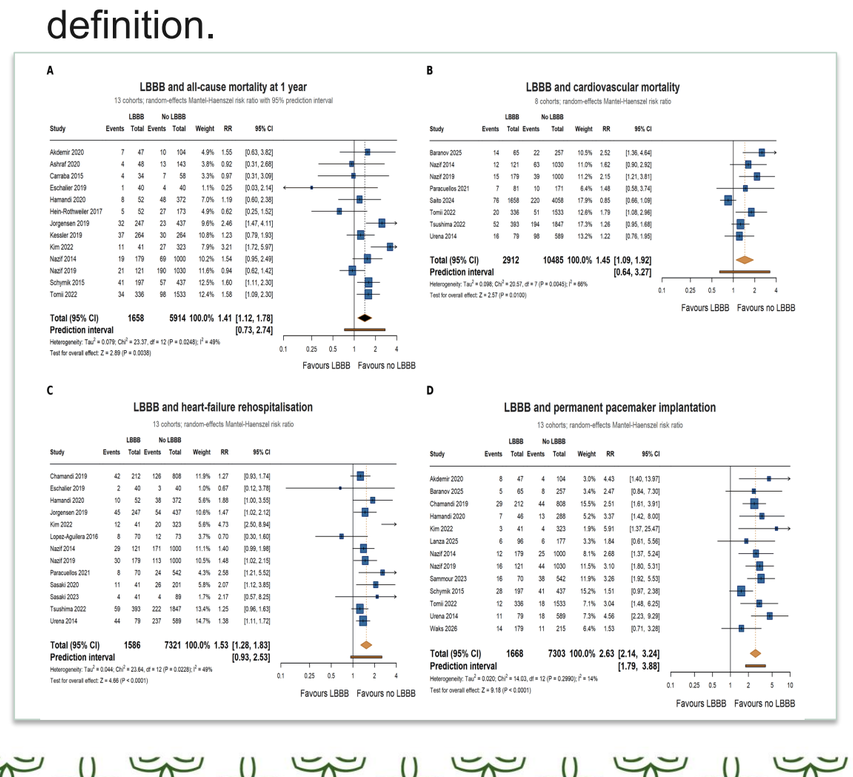
Prosthesis	Incidence	95% CI
Self-expanding	**36.3%**	30.5–42.5
Mixed valve use	**22.6%**	18.9–26.8
Balloon-expandable	**14.8%**	12.3–17.7

Subgroup difference p < 0.0001.

5 CONCLUSIONS

NOP-LBBB affects approximately one in five patients after TAVI, three times more often with self-expanding prostheses, and is associated with excess early mortality, cardiovascular death and heart-failure rehospitalisation, together with a 2.6-fold pacemaker requirement.

The attenuation of the mortality association beyond one year, and the low to very low certainty throughout, argue for prospective studies using a uniform, persistence-based definition.



Registration
PROSPERO CRD420261488007

KEY MESSAGE

One in five patients develops persistent LBBB after TAVI — and needs a pacemaker 2.6 times as often.

The one robust consequence

Pacemaker implantation is the only outcome whose 95% prediction interval excludes the null (1.79–3.88), making it the most dependable consequence of the conduction injury.