

SHORT META-ANALYSIS · Peer-reviewed · Published

## Transcatheter Treatment for Severe Symptomatic Tricuspid Regurgitation: A Rapid Meta-Analysis of Randomised Evidence (2025)

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**KEY WORDS** tricuspid regurgitation

### Background

Severe tricuspid regurgitation (TR) is common and associated with high morbidity, yet surgery is rarely performed. Three recent randomised controlled trials (RCTs) compare transcatheter tricuspid interventions with optimised medical therapy (OMT)

### Objective

To pool RCT evidence evaluating the efficacy of transcatheter tricuspid valve repair or replacement in reducing TR severity (core-lab defined  $\leq$ moderate) compared to OMT. Data Sources: PubMed, Embase, and ClinicalTrials.gov from inception to 21 July 2025. PROSPERO registration: CRD42002587931.

Study Selection: Parallel-group RCTs enrolling adults with severe symptomatic TR, comparing any transcatheter intervention (TEER or TTVR) plus OMT versus OMT alone. Data Extraction and Synthesis: Two reviewers independently extracted 2x2 event counts. Risk ratios (RR) were pooled using inverse-variance random-effects models (DerSimonian–Laird with Hartung–Knapp CIs)

### Results

Three RCTs (725 patient-implants) were included. Transcatheter devices achieved TR  $\leq$ moderate in 324/394 (82.2%) patients versus 29/331 (8.8%) in the control group. Pooled RR was 8.2 (95% CI 1.5–45.1;  $I^2 = 77\%$ ).

A TEER-only sensitivity analysis (two trials) showed RR 10.1 (95% CI 3.5–29.4;  $I^2 = 46\%$ )

### Conclusions

Transcatheter intervention substantially increases the likelihood of TR improvement compared with OMT alone, although heterogeneity remains high. Larger sham-controlled trials will improve certainty

#### HOW TO CITE

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