

# Transcatheter versus surgical aortic valve replacement in low-risk surgical patients: A meta-analysis

Muhammad Anwar, Muhammad Ahsan, Saad Malik, syeda fatima hassan, asim tameez ud din, Mohsin Mirza, Abdulghani Saadi, Kanmantha Reddy, Arun

**Background:** Transcatheter aortic valve replacement (TAVR) is an alternative therapy for severe aortic stenosis in patients with intermediate to high risk for Surgical aortic valve replacement (SAVR). There is emerging evidence for TAVR in patients with low risk. The purpose of our study is to compare the effectiveness and safety of TAVR versus SAVR in patients with low STS score.

**Methods:** We searched PubMed, EMBASE, Web of Science and Google Scholar for studies that compared outcomes of TAVR to SAVR in low risk patients. Our primary end-point was 1 year mortality. Secondary end-points include 30 days mortality, stroke, permanent pacemaker implantation (PPI), atrial fibrillation (AF), length of hospital stay and major bleeding. We used Der Simonian and Laird random-effects method to estimate relative risk as a summary statistic.

**Results:** 8 studies met inclusion criteria with a total of 24,487 patients. There were three Randomized control trial, two prospective randomized trial and a single retrospective study and observational study. There was no difference in 1-year mortality (RR = 0.86 ,95% CI: 0.55 – 1.33). Similarly, no difference was observed in 30-day mortality (RR = 0.64 ,95%CI: 0.41 – 1.00), stroke (RR = 0.68 ,95% CI: 0.37 – 1.24). The risk of atrial fibrillation (AF) (RR= 0.12, 95 %CI=0.07-0.20), post-procedural acute kidney injury (AKI) (RR = 0.37 ,95% CI = 0.19 – 0.71), post-procedural bleeding (RR = 0.36 (95% CI: 0.27 – 0.45) and length of stay was shorter by 2 days in the TAVR group. The risk of PPI after TAVR was increased RR = 2.0(95% CI: 1.28 – 3.35).

**Conclusion:** The results of our study suggests that clinical outcomes and mortality are similar in low risk patients in the TAVR and SAVR groups except for a higher risk of PPI in TAVR patients. Additionally, TAVR patients had a lower risk of AF, bleeding and shorter hospital stay.