Valve-in-Valve Transcatheter Aortic Valve Replacement vs redo Surgical valve replacement for bioprosthetic aortic valve stenosis: An updated Meta-analysis

Introduction:
Redo surgical aortic valve replacement (redo SAVR) is the treatment of choice for severe symptomatic bioprosthetic aortic valve stenosis. Due to high mortality risk with redo SAVR, valve-in-valve transcatheter aortic valve replacement (VIV TAVR) has emerged as an alternative for high and prohibitive surgical risk patients without infective endocarditis.

Methods:
PubMed, Embase and Cochrane databases were searched for all studies comparing VIV TAVR vs redo SVAR until August 2020. The primary outcomes include early and mind-term all-cause mortality. Secondary outcomes include myocardial infarction (MI), pacemaker implantation (PMI), stroke, acute kidney injury (AKI), and major or life-threatening bleeding. Pooled risk ratios (RR) with their corresponding 95% confidence intervals (CIs) were calculated using the DerSimonian-Laird random-effects model.

Results:
10 studies met the inclusion criteria, with a total of 2905 individuals and mean follow-up of 22 months. Early mortality rate is significantly lower in VIV-TAVR group compared to redo-SAVR group with RR of 0.66 (95% CI 0.45-0.94; p=0.02). There is no significant difference in mid-term mortality between two groups with RR of 1.13 (0.98-1.30, P=0.10). Major or life-threatening bleeding is significantly less in VIV-TAVR group with RR of 0.5 (0.26-0.9; p=0.04). 30-day MI, PMI, AKI and stroke rates were not statistically different between two groups. [Figure 1]

Conclusion:
Our meta-analysis demonstrates that VIV TAVR is an acceptable alternative to redo SAVR with lower early mortality and major bleeding rates, and without any difference in mid-term mortality.

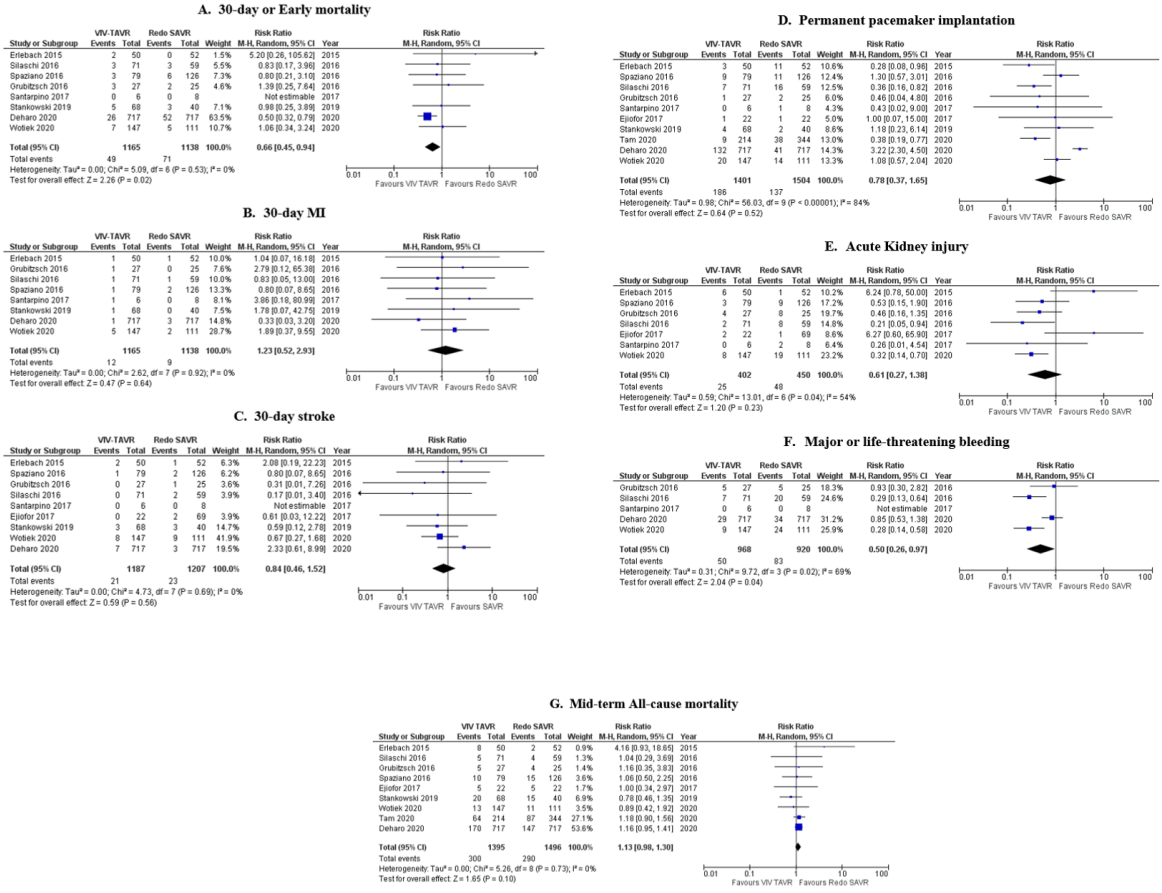

Figure 1: Forest plots for the primary and secondary outcomes.