

Background

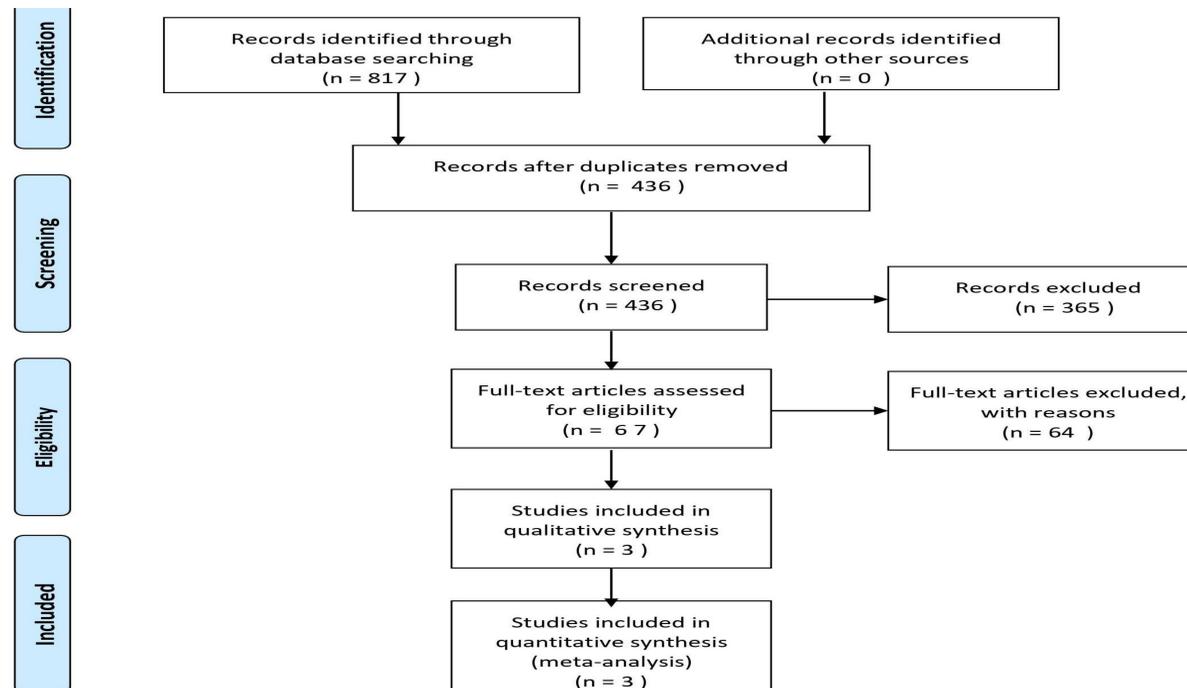
- Symptomatic mitral regurgitation (MR) increases mortality rate of heart failure by about 50-90%, and one-third of patients with moderate to severe MR is inoperable (1,2)
- In these high-surgical-risk patients, Transcatheter Mitral Valve Repair (TMVR) is increasingly used
- Bleeding or thromboembolic complications after valvular interventions are independently associated with poor outcomes. (3) Thus, defining an optimal antithrombotic therapy after TMVR is crucial
- However, there is yet no evidence-based guideline on this topic

Study Objective

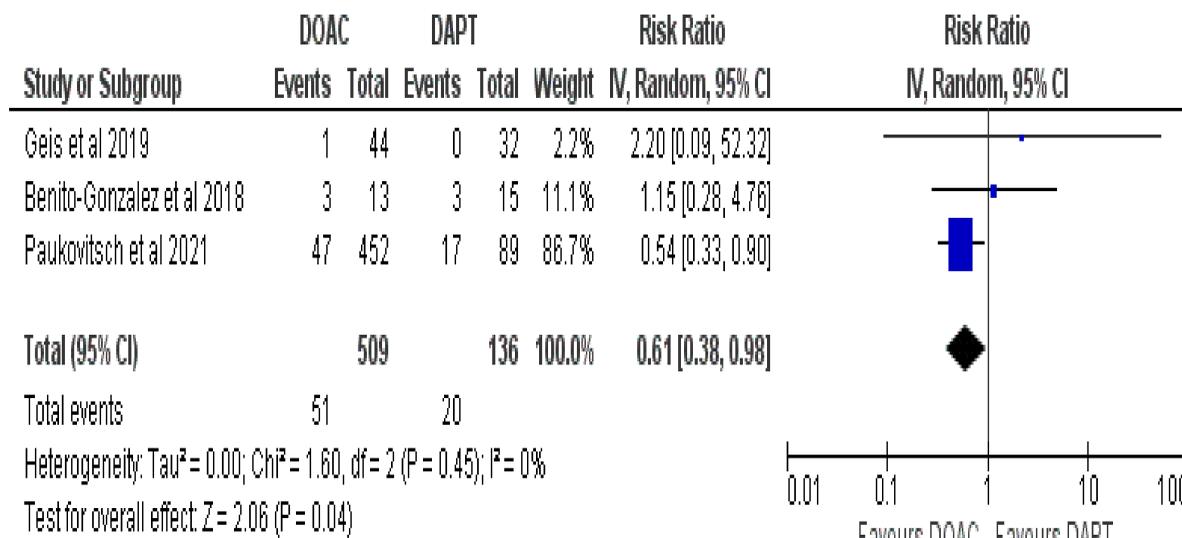
- To compare the rate of bleeding incidences in patients treated with Direct Oral Anticoagulants (DOAC) vs Dual Antiplatelet Therapy (DAPT) after TMVR with MitraClip

Methods

- Review was done according to Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) guideline (fig 1)
- We searched PubMed, Embase, CENTRAL, and Web of Science from inception to December 2021 for studies on antithrombotic therapy after MitraClip
- Pre-specified inclusion criteria are **(a)** TMVR device: MitraClip **(b)** Study designs: retrospective/prospective observational, and controlled trials in humans **(c)** Intervention: DOAC or DAPT **(d)** Primary endpoint: incidence of Mitral Valve Academic Research Consortium (MVARC) bleeding events **(e)** Endpoint duration: within 30 days
- Random-effects model meta-analysis was performed on extracted data. Analysis was done via Cochrane RevMan 5.4 software. (4)
- Higgins's I-squared test was used to measure the proportions of total variability due to between-study variability. (5)



• Fig.1: PRISMA flowchart



• Fig.2: Forest plot of the result of meta-analysis

Main Finding

This hypothesis-generating study showed that; compared to DAPT, patients treated with DOAC had a reduced risk of bleeding events within 30 days after TMVR with MitraClip

Results

- Out of 817 studies, 3 studies, including 645 patients in the group of interest, were included in the meta-analysis
- Mean age of the patients was 76.8 ± 8.7 years, and 61.3% were males
- Pooled analysis (fig. 2) revealed that bleeding events were significantly lower in the DOAC group (RR: 0.61, 95% CI: 0.38 - 0.98, p = 0.04, I²: 0%). (fig. 2)

Discussion

- Incidences of MVARC bleeding within 30 days of starting antithrombotic therapy is lower in patients treated with DOAC compared to those treated with DAPT
- In patients that needs antithrombotic therapy after MitraClip and have increased risk of bleeding, DOAC may be a suitable option than DAPT.

Limitation and recommendation

- The sample size of this study is limited and we did not evaluate differences in the mortality outcome
- Further studies is needed to evaluate either anticoagulation strategy's impact on short and long-term mortality

References

1. Goel SS, Bajaj N, Aggarwal B, et al. Prevalence and outcomes of unoperated patients with severe symptomatic mitral regurgitation and heart failure: comprehensive analysis to determine the potential role of MitraClip for this unmet need. J Am Coll Cardiol 2014;63:185-186
2. Stone GW, Lindenfeld J, Abraham WT, et al. Transcatheter Mitral-Valve Repair in Patients with Heart Failure. N Engl J Med. 2018;379(24):2307-2318
3. Rodés-Cabau J, Dauerman HL, Cohen MG, et al. Antithrombotic treatment in transcatheter aortic valve implantation: insights for cerebrovascular and bleeding events. J. Am. Coll. Cardiol. 2013;62:2349-2359
4. Review Manager (RevMan) [Computer program]. Version 5.4, The Cochrane Collaboration, 2020
5. Higgins JP, Thompson SG. Quantifying heterogeneity in a meta-analysis. Stat Med. 2002;21(11):1539-1558