

Comparison of local versus general anesthesia in patients undergoing transcatheter aortic valve replacement: A meta-analysis

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Period of study Meta-analysis of studies 2008–2016

Objectives

To gain a better understanding of the safety and efficacy of local anaesthesia (LA)/conscious sedation versus general anaesthesia (GA) in patients with severe aortic stenosis undergoing transcatheter aortic valve replacement (TAVR).

Study design

Meta-analysis.

Materials and methods

- A meta-analysis of 26 studies and 10,572 patients was performed from EMBASE, PubMed, Web of Science, Cochrane Central Register of Controlled Trials, ClinicalTrials.gov, and Google Scholar databases
- Data summarised across treatment arms using Mantel-Haenszel risk ratio (RR) for dichotomous data and the difference of the mean (DM) for continuous data with fixed-effect models

Key results

Compared to GA, the use of LA for TAVR was associated with lower:

- overall 30-day mortality (RR, 0.73; 95% CI, 0.57–0.93; $P=0.01$)
- use of inotropic/vasopressor drugs (RR, 0.45; 95% CI, 0.28–0.72; $P<0.001$)
- hospital length of stay (LOS) (DM, 22.09; 95% CI, 23.02 to 21.16; $P<0.001$)
- intensive care unit LOS (DM, 20.18; 95% CI, 20.31 to 20.04; $P50.01$)
- procedure time (DM, 225.02; 95% CI, 232.70 to 217.35; $P<0.001$)
- fluoroscopy time (DM, 21.63; 95% CI, 23.02 to 20.24; $P50.02$).

No significant differences were observed between LA and GA for stroke, cardiovascular mortality, myocardial infarction, permanent pacemaker implantation, acute kidney injury, paravalvular leak, vascular complications, major bleeding, procedural success, conduction abnormalities and annular rupture

Limitations of study

- Risk of bias of randomised controlled trials assessed by only 2 reviewers
- Sensitivity analysis showed fluoroscopy time became nonsignificant upon removal of 3 studies
- Cumulative analysis showed mortality, inotropic/vasopressor drugs and hospital LOS changed significantly ($P<0.05$) in overall final effect in chronologic cumulative analysis before inclusion of all studies

Conclusions

Use of LA for TAVR is associated with lower 30-day mortality, shorter procedure time, fluoroscopy time, ICU length of stay and hospital length of stay and reduced need for inotropic support.