Is stroke an issue after transcatheter mitral valve repair? A systematic review and meta-analysis

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Topic(s):
Mitral Valve Intervention

Citation:
Background: Transcatheter mitral valve repair (TMVR) is a minimally invasive therapeutic procedure used as an alternative to surgery for mitral valve regurgitation in high risk patients. This technique creates a double orifice area, which might be comparable to a mitral prosthesis or mitral stenosis. So far, no strict antithrombotic therapy has been recommended and different post-procedure protocols are being currently applied.

Objectives: To assess stroke rate after TMVR, comparing it with surgical mitral valve repair (SMVR) and optimal medical treatment (OMT).

Methods: We systematically searched PubMed, Embase and Cochrane databases, in December 2018, for both interventional or observational studies comparing TMVR with SMVR and/or OMT in the treatment of severe mitral regurgitation. Only studies including data on post-procedure stroke incidence were selected. Two authors independently screened articles for inclusion, risk of bias and data extraction. Random-effects meta-analysis for TMVR, SMVR and OMT were performed. Due to the low number of pooled events, a cumulative meta-analysis was subsequently implemented. The meta-analysis was registered on the Prospero database.

Results: 15 studies were selected for qualitative analysis and, among these, 10 were included in the quantitative analyses (7 of TMVR vs. SMVR and 3 of TMVR vs. OMT), providing a total of 1881 patients. TMVR patients were older and had higher surgical risk scores than SMVR patients. Groups were homogeneous regarding previous atrial fibrillation rate (pooled OR 1.45 [0.82-2.55]), whereas post-procedure de novo atrial fibrillation was more frequent in SMVR when compared with TMVR (pooled OR 0.20 [0.06-0.7]). Although the pooled stroke rate was numerically lower in the TMVR group, there was no statistically difference in the stroke incidence between TMVR and SMVR (pooled OR 0.49 [0.17, 1.42], p=0.19, I²= 0%) - Panel A. On the other hand, cumulative meta-analysis was able to show a significantly lower stroke rate in TMVR, when compared to SMVR (OR 0.4 [0.40, 0.67], p< 0.05). As for TMVR vs. OMT, no difference in stroke rate was identified (pooled OR 1.09 [0.60, 1.97], p=0.79, I²=0%) - Panel B.

Conclusions: Post-procedure TMVR stroke rate was similar to that of patients managed with OMT only. For the same outcome, results favored TMVR when compared with SMVR, which might be related to its lower incidence of post-procedure de novo atrial fibrillation. These findings may prove insightful to future recommendations regarding the conundrum of the best antithrombotic strategy, particularly for patients with atrial fibrillation.
Abstract:

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