

CONVENTIONAL VERSUS MINIMALLY INVASIVE AORTIC VALVE REPLACEMENT SURGERY: A SYSTEMATIC REVIEW, META-ANALYSIS, AND META-REGRESSION

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Resumo: Objective: To assess the potential benefits of minimally invasive aortic valve replacement (MIAVR) compared with conventional AVR (CAVR) by examining short-term outcomes. Methods: A systematic search identified randomized trials comparing MIAVR with CAVR. To assess study limitations and quality of evidence, we used the Cochrane Risk of Bias tool and GRADE and performed random-effects meta-analysis. We used meta-regression and sensitivity analysis to explore reasons for diversity. Results: Thirteen studies (1,303 patients) were included. For the comparison of MIAVR and CAVR, the risk of bias was judged low or unclear and the quality of evidence ranged from very low to moderate. No significant difference was observed in mortality, stroke, acute kidney failure, infectious outcomes, cardiac events, intubation time, intensive care unit stay, reoperation for bleeding, and blood transfusions. Blood loss (mean difference [MD] = -130.58 mL, 95% confidence interval [CI] = -216.34 to -44.82, I² = 89%) and hospital stay (MD = -0.93 days, 95% CI = -1.62 to -0.23, I² = 81%) were lower with MIAVR. There were shorter aortic cross-clamp (MD = 5.99 min, 95% CI = 0.99 to 10.98, I² = 93%) and cardiopulmonary bypass (CPB) times (MD = 7.75 min, 95% CI = 0.27 to 15.24, I² = 94%) in the CAVR group. In meta-regression analysis, we found that age was the variable with the greatest influence on heterogeneity. Conclusions: MIAVR seems to be an excellent alternative to CAVR, reducing hospital stay and incidence of hemorrhagic events. Despite significantly greater aortic cross-clamp and CPB times with MIAVR, this did not translate into adverse effects, with no changes in the results found with CAVR.

Keywords: aortic valve; cardiac surgical procedures; heart valve prosthesis; minimally invasive surgical procedures.

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