Objective: When mitral valve (MV) surgery is indicated, repair is preferred over replacement; however, this preference is not supported by evidence from clinical trials. Furthermore, the benefits of MV repair may not be universal for all etiologies of MV disease.

Methods: Patients who underwent MV surgery during 2001–2018 were identified from Taiwan's National Health Insurance Research Database (NHIRD), and classified into four etiologies: infective endocarditis (IE), rheumatic heart disease (RHD), ischemic mitral regurgitation (IMR), and degenerative mitral regurgitation (DMR). Propensity score–matched cohorts were created for each of the four etiologies to compare outcomes between patients who underwent surgery for MV repair versus MV replacement.

Results: A total of 18,428 patients who underwent MV repair (n = 4,817) or MV replacement (n = 13,611) surgery were analysed. After propensity matching, all-cause mortality during follow-up was lower among patients receiving MV repair than among patients receiving MV replacement in the IE, IMR, and DMR groups. The RHD group demonstrated no significant difference in late mortality between surgeries; however, the MV reoperation rate was significantly higher after MV repair than after MV replacement. In the IE, IMR, and DMR groups, the reoperation rates between surgeries did not differ significantly.

Conclusion: In comparison with MV replacement, MV repair was associated with lower late mortality in patients with IE, IMR, and DMR and a higher risk of reoperation in patients with RHD. The etiology of MV disease is essential for the outcomes of MV repair versus replacement.

Figure Legend: Cumulative event rate of all-cause mortality in patients who received mitral valve repair versus replacement in the propensity score-matched cohort by different etiologies: (A) IE, (B) RHD, (C) IMR, and (D) DMR.

Abbreviations: IE, infective endocarditis; RHD, rheumatic heart disease; IMR, ischemic mitral regurgitation; DMR, degenerative mitral regurgitation.

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