Tell it like it is: Experience in mitral valve surgery does matter for improved outcomes in mitral valve infective endocarditis

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Mitral valve (MV) repair rather than replacement for infective endocarditis (IE) has demonstrated lower operative mortality, better durability, and better long-term survival.¹⁻⁵ Toyoda and colleagues' report⁶ in this issue of the *Journal* is the latest to highlight the benefits of repair. They compare outcomes of 1970 patients undergoing isolated primary MV repair (n = 367, 19%) or replacement (n = 1603, 81%) for active IE in New York and California. MV repair versus replacement was associated with lower mortality and better 12-year survival (68.8% vs 53.5%), less recurrent IE (4.7% vs 9.5%), and similar occurrence of reoperation (9.1% vs 8.6%). However, repairs performed by a high-volume MV surgeon (≥ 25 annually for any etiology) were 5 times less likely to require reoperation within 1 year than those performed by a lower-volume surgeon (2% vs 9.2%).

Nationwide, the proportion of repairs for regurgitation caused by degenerative MV disease is 41% to 61%; low-volume surgeons are more likely to replace the valve, and patients have worse survival and lower freedom from reoperation.⁷⁻¹⁰ Similar trends have been observed for many other operations, eg, patients undergoing emergency surgery for acute aortic dissection by low-volume surgeons and centers have twice the risk-adjusted mortality of those undergoing surgery by high-volume providers.^{E1,E2}

According to new The American Association for Thoracic Surgery consensus guidelines for surgical treatment of IE, "Mitral valve repair is the preferred choice whenever possible" (Recommendation 5-7).^{E3} In addition to the normal benefits of repair over replacement, superior

Native mitral valve endocarditis: repair or replace?
The answer depends on who you ask!

Central Message

Surgeon, center experience, and a multidisciplinary team approach are the keys to increased use of valve repair to achieve best outcomes for mitral valve endocarditis.

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freedom from recurrent mitral IE is the rationale for favoring repair. The message is being heard, because during the period studied by Toyoda and colleagues,⁶ the prevalence of MV repair almost doubled, from 10.7% to 19.4%.

One major deficit of Toyoda and colleagues' administrative dataset analysis (acknowledged by the authors) was nonavailability of extensiveness of valve pathology, which affects both feasibility of repair and outcomes.⁶ Complexity of MV repair for invasive IE varies with pathology and is more likely to require patch repairs of missing and excised leaflet tissue in addition to standard repair techniques. Although a few surgeons report repair in a high proportion of infected MVs, de Kerchove and colleagues² showed that repairs including a patch (in 61% of their patients) fail more often than repairs not requiring a patch. Limitations, success, and durability of extensive patch repairs are unknown. Mitral annular calcification, not uncommon in patients with MV IE, adds further to operative difficulty. The optimum proportion of repairs remains to be discovered and will vary depending on how comfortable surgeons are with repair when leaflet resection is required.

Defining "Center of Excellence," "minimum surgical volume," and "referent surgeon" remains challenging.^{E4} Referring patients with IE to high-volume centers, along with other collaborative quality-improvement initiatives,

should be encouraged to improve outcomes, similar to recommendations for other high-risk surgical procedures associated with strong volume–outcome relationships.^{E5} Surgery for IE carries the greatest risk of any valve surgery, and the team caring for these patients should include an experienced surgeon who has mastered the full armamentarium of MV repair techniques.

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APPENDIX E1. AATS CONSENSUS GUIDELINES: SURGICAL TREATMENT OF INFECTIVE ENDOCARDITIS (IE)^{E3}

Who Should Care for and Operate on Patients With IE? Native Aortic Valve IE (Recommendation 1-1)

Patients with suspected IE should ideally be cared for at centers with access to a complete team, including cardiology, infectious disease, cardiac surgery, and other services needed to handle IE complications.

Surgeons operating on patients with IE should be well-trained, experienced valve surgeons who are well versed in the different reconstruction techniques needed by patients with advanced disease.

Native Mitral Valve IE (Recommendation 5-7)

Mitral valve repair is the preferred choice whenever possible. Adding a prosthetic annuloplasty ring adds minimally, if at all, to the risk of recurrent infection.

When valve replacement is required, it is reasonable to implant a new mechanical or tissue valve, with the choice based on normal criteria.

If there is destruction and invasion, the annulus is reconstructed and the valve prosthesis anchored to the ventricular muscle in an attempt to prevent leakage underneath the prosthesis.

E-References

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