

**REPLY: Expanding Transcatheter
Edge-to-Edge Mitral Valve Repair Indications:
A Word of Caution**



Based on our recent case report,¹ García-Villarreal alerts us to be more cautious in the selection of patients suitable for transcatheter edge-to-edge mitral valve repair (TEER). We share this opinion and would like to add an important aspect to this discussion. In our case report, we describe TEER failure in a patient with degenerative mitral valve regurgitation (MR). The evidence of TEER in patients with degenerative MR is highly limited, with questionable long-term sustainability of the mitral valve competence. In the EVEREST II (Endovascular Valve Edge-to-Edge Repair Study) trial, 73% of patients had degenerative MR and were randomized to TEER or surgery with mitral valve repair or replacement.² Although mortality at 5 years was similar between the groups, residual significant MR was more frequent in the TEER cohort, with an increased need of reoperations.² In the Society of Thoracic Surgeons/American College of Cardiology Transcatheter Valve Therapy Registry report, the outcomes of TEER in patients with functional and degenerative MR were compared.³ Not surprisingly, mortality and rehospitalization for heart failure (HF) was higher for patients with functional MR. Unfortunately, the sustainability of MR reduction with TEER and comparison with a surgical cohort were lacking, which limits the impact of this report in guiding the use of TEER as a treatment regimen for degenerative MR. In a recent article by Khader et al⁴ the midterm outcomes of TEER vs surgical repair for degenerative MR were reviewed. Again, TEER patients had higher rates of MR recurrence and need of reintervention.

In contrast, mitral valve replacement or repair is performed with high procedural risk in patients with functional MR and does not offer a reduction in HF hospitalization or mortality.⁵ Instead, high-risk patients with HF and functional MR seem to benefit

from TEER, with a sustained reduction of MR, HF hospitalizations, and mortality during a 3-year follow-up, as compared to guideline-directed medically treated control individuals.⁶

In conclusion, there is a lack of support for the use of TEER in degenerative MR, and this alternative should be considered only in highly selected patients after a decision by a multidisciplinary heart team.

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

REFERENCES

1. Wedin JO, Karlsson P, Holm L, et al. Surgical removal of a detached mitral valve repair clip to resolve cardiogenic shock. *J Am Coll Cardiol Case Rep*. 2022;4(11):658-662.
2. Feldman T, Kar S, Elmariah S, et al. Randomized comparison of percutaneous repair and surgery for mitral regurgitation. *J Am Coll Cardiol*. 2015;66(25):2844-2854.
3. Sorajja P, Vemulapalli S, Feldman T, et al. Outcomes with transcatheter mitral valve repair in the United States. *J Am Coll Cardiol*. 2017;70(19):231-2327.
4. Khader AA, Allaf M, Lu OW, et al. Does the clinical effectiveness of Mitraclip compare with surgical repair for mitral regurgitation? *J Card Surg*. 2021;36(3):1103-1119.
5. Vahanian A, Beyersdorf F, Praz F, et al. 2021 ESC/EACTS guidelines for the management of valvular heart disease. *Eur Heart J*. 2022;43(7):561-632.
6. Mack MJ, Lindenfeld J, Abraham WT, et al. 3-year outcomes of transcatheter mitral valve repair in patients with heart failure. *J Am Coll Cardiol*. 2021;77(8):1029-1040.