Mind the gap: transcatheter edge to edge repair *vs.* surgical repair in degenerative mitral regurgitation

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Keywords: Degenerative mitral regurgitation (DMR); transcatheter edge-to-edge repair (TEER); surgical repair; equipoise; clinical trials

Submitted Aug 31, 2025. Accepted for publication Nov 10, 2025. Published online Jan 29, 2026.
doi: 10.21037/acs-2025-dmv-11
View this article at: https://dx.doi.org/10.21037/acs-2025-dmv-11

For years, surgical mitral valve repair has been the undisputed gold standard for degenerative mitral regurgitation (DMR). In experienced hands, particularly for simpler posterior leaflet disease, the results are superb—durable, reproducible, and achieved with low operative risk (1,2). Guidelines reflect this confidence, placing surgical repair at the forefront for low- and intermediate-risk patients and reserving transcatheter edge-to-edge repair (TEER) for those at high or prohibitive surgical risk (1). Over the past decade TEER has matured into a safe, efficient, and reproducible procedure in expert centers, with outcomes steadily improving across a widening range of anatomies. This evolution is beginning to blur the traditional boundaries between surgical and transcatheter candidates, making the appeal of a less invasive option increasingly difficult to ignore for both patients and physicians.

This momentum brings us to a central question: have we reached a point where there is enough genuine uncertainty to justify randomizing moderate-risk patients between TEER and surgical repair? Not simply uncertainty in the abstract, but the kind of balanced doubt that makes a trial both ethical and truly feasible (3,4).

The edges of the spectrum

Understanding where equipoise begins requires looking at the outer edges first. At one end, there is little debate. A healthy 62-year-old with an isolated P2 prolapse and access to a high-volume surgical program will almost certainly have the best outcome with a durable surgical repair (2). Enrolling such a patient in a TEER-versus-surgery trial would push the boundaries of equipoise well beyond what could be justified.

At the other extreme, for an elderly patient in their eighties with significant comorbidities, the decision is just as clear in the opposite direction. In that setting, it is difficult to justify a sternotomy when a catheter-based repair can be performed safely, with rapid recovery and far less physiological stress (5). These poles frame the conversation, but they are not where the most meaningful uncertainty resides.

The true grey zone

Between those extremes lies the territory where equipoise is most relevant. Moderate-risk patients—those in their seventies with manageable comorbidities, anatomies that are repairable but not straightforward, or situations where both TEER and surgery are technically viable—present a genuine clinical dilemma. In this space, reasonable clinicians can and do disagree.

Designing a trial for this group is a challenge in its own right. Agreement among the broader expert community is important, but insufficient on its own (3,4). Surgeons must be open to the idea that TEER could be a reasonable first-line approach for patients in this moderate-risk grey zone (6). Interventionalists must be equally willing to

acknowledge when surgery may offer the better long-term result (2). And patients—many of whom arrive with firmly held preferences—must be willing to allow randomization to decide their treatment (3,4). Without this alignment, a trial risks stalling before it ever gains momentum.

Measuring what matters

Even with the right patient population, a trial will only be as valuable as the outcomes it measures. Surgical repair is evaluated in decades; TEER's durability, while improving, remains under active scrutiny, especially in more complex anatomies (2,5,6). Conversely, TEER carries clear advantages in procedural risk, recovery time, and early quality of life—factors that may weigh heavily in patient decision-making but are often underrepresented in surgical comparisons (5,6).

A robust trial must reflect both perspectives. That means pairing echocardiographic measures of valve competence with hard clinical outcomes—mortality, heart failure hospitalizations, and need for reintervention—while also capturing validated patient-reported quality-of-life measures (6). Without that scope, we risk omitting a substantial part of the answer.

Learning from TAVR

We have navigated this path before. The expansion of transcatheter aortic valve replacement (TAVR) from inoperable cases to low-risk patients was not a leap of faith but a steady progression through well-designed trials (7). Each study focused on a population where equipoise was genuine, and each step was grounded in solid evidence before moving to the next.

TEER now stands at a similar inflection point. The devices are more refined, procedural safety is high, and the global experience is vast (5). Yet without randomized evidence in the moderate-risk degenerative MR population, the field risks drifting forward based on perception and momentum rather than data. This is not about replacing surgery—it is about defining where TEER truly belongs.

Conclusions

True equipoise in degenerative MR is rare at the margins but tangible in the middle. That is where our research should focus—on the patients whose best option is not obvious. Trials in this space must be designed with care, grounded in patient-relevant outcomes, and adequately powered to provide clear, lasting answers. They should reflect broad professional support and be built to earn the trust of the patients they aim to serve (3,4).

Handled well, such a trial could define TEER's role with the same clarity that now exists for surgical repair. If the opportunity is missed, the boundaries will be drawn by default, without the benefit of strong evidence to guide them. The moderate-risk population offers a clear and timely opportunity to answer this question the right way—and it is worth taking that opportunity now. At this time frame without knowing the role of TEER in the moderate risk patient, randomizing a healthy 62-year-old patient to TEER, would not constitute equipoise.

Acknowledgments

None.

Footnote

Funding: None.

Conflicts of Interest: The authors have no conflicts of interest to declare.

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Cite this article as: Kar S, Avedikian S. Mind the gap: transcatheter edge to edge repair *vs*. surgical repair in degenerative mitral regurgitation. Ann Cardiothorac Surg 2026;15(1):11. doi: 10.21037/acs-2025-dmv-11