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Commentary: Interventions for mitral regurgitation: The sorting hat expands

Stacey Chen, MD, and Eugene A. Grossi, MD

Eugene A. Grossi, MD (left), and Stacey Chen, MD (right)

Mitral valve replacement (MVR) and repair (MVr) were the 2 gold standard therapies for regurgitation (MR). Although MVr is currently recommended as the first-line therapy for MR,¹ the discussion of MVr versus MVR remains an area of ongoing debate.^{2,3} The short-term advantages of MVr over MVR have been well-documented in multiple studies demonstrating lower operative mortality, shorter postoperative hospital length of stay, and fewer valve-related complications such as thromboembolism and anti-coagulation-bleeding.⁴ However, studies on the advantages of long-term outcomes of one technique over the other have not been as conclusive.^{5,6} In addition, there are a proportion of patients who are considered too sick to undergo either MVR or MVr. For these patients with surgically prohibitive risk, the MitraClip (Abbott Vascular, Abbott Park, Ill), which was approved for primary MR in 2013, has become a treatment option.⁷

In this issue of the *Journal*, Zhou and colleagues⁸ present a retrospective analysis using the National Inpatient Sample dataset to study the trends in MVR, MVr, and the MitraClip system from 2000 to 2016. Comparison between the number of overall and isolated MVRs and MVrs performed from 2000 to 2016 demonstrated a decrease in the number of MVRs with a concomitant increase in MVrs performed. Short-term outcomes between MVR and MVr patients were consistent with previous studies comparing the 2 techniques.

From 2013 to 2016, there was a proportionately greater increase in the use of the MitraClip per year relative to the increasing trend observed in MVrs. Interestingly, as noted by the authors, despite the continued annual increase

CENTRAL MESSAGE

The introduction of the MitraClip has provided an additional tool for multidisciplinary teams to consider in their judicious evaluation of patients with mitral regurgitation.

in the number of MitraClip procedures performed, the number of overall mitral valve procedures (ie, surgical or transcatheter) has remained relatively unchanged. Instead, with the steady rise of MitraClip procedures, there has been a decline in the number of MVrs. Thus, although MitraClip recipients were older and sicker compared with patients who underwent surgical MVr, this would suggest that patients selected for the MitraClip may be high surgical risk candidates instead of surgically prohibitive risk. Just as in Hogwarts' school, the "Sorting Hat" process of the heart team evaluation has finer and perhaps more appropriate choices for a given patient. The addition of the MitraClip as a less-invasive treatment option now allows the multidisciplinary cardiothoracic team to further judiciously select the best treatment option for their patients with the most potentially optimal outcomes.

Zhou and colleagues⁸ also outlined trends within each of the mitral valve interventions for 3 separate time periods: 2000-2005, 2006-2011, and 2012-2016. They demonstrated that despite an overall trend of older patients with more comorbidities throughout the years, there was decreased in-hospital mortality and shorter lengths of stay across all treatment groups as well as a tendency for elective as opposed to emergent and/or urgent intervention. Improvement in surgical technique, patient selection, and understanding of mitral regurgitant pathophysiology has allowed for excellent short- and long-term patient outcomes regardless of the mitral valve intervention of choice. Rather than changing the landscape of mitral valve interventions,

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the MitraClip system has provided an additional armamentarium to the treatment of mitral valve disease.

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Commentary: Trends in mitral valve interventions: The good, the bad, and the ugly

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After the burden of transcatheter aortic valve implantation, mitral valve regurgitation has become the most common valve-related disease requiring surgical correction.¹ Two main innovations have dramatically changed the landscape of mitral valve intervention. The first, introduced in 1983, was the so-called French correction that represented the dawn of mitral repair. The second was the advent of the MitraClip device (Abbott Laboratories, Abbott Park, Ill) in 2013, leading to percutaneous mitral valve interventions that allow us to treat sicker patients. The evolution of this new concepts become an evident recommendation of the latest American Heart Association/American College of Cardiology guidelines² where mitral valve repair is the preferred technique when a successful and durable repair can be accomplished despite symptoms, age, or

The next frontier in mitral valve interventions: The good, the bad, and the ugly.

CENTRAL MESSAGE

Mitral valve interventions are associated with excellent surgical results making them the next frontier for percutaneous approaches.

comorbidities and a MitraClip is indicated (only in primary mitral regurgitation) in favorable anatomy when patients have prohibitive surgical risk.

Zhou and colleagues³ elucidate the trends and outcomes of 656,030 mitral valve interventions in 44 states participating in the Nationwide Inpatient Sample administrative database. They analyzed the trends in patient characteristics, focusing on comorbidities and, thus, on the preoperative risk. During the past 2 decades, the number of replacements decreased significantly by 5.6% per year, whereas repair increased by 8.4% per year and MitraClip

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