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### MORE DECISION-MAKING CRITERIA FOR MODERATE CHRONIC ISCHEMIC MITRAL REGURGITATION

To the Editor:

We read with great interest the expert opinion by Michler and colleagues,<sup>1</sup> which provides insight into better repair of ischemic mitral regurgitation (IMR). The importance of add-on subvalvular approaches is further emphasized in this article, and a decision algorithm for managing moderate IMR on the basis of specific criteria is provided. We would like to propose some additional criteria that might be of help in planning the operation.

When deciding on whether a concomitant mitral procedure is necessary in a given case of moderate IMR, a simple but reliable criterion may be of help: “the actual left atrial enlargement.” A chronic IMR should be corrected when there is left atrial enlargement. If the left atrium is normal in dimension, (1) the IMR is probably not of hemodynamic importance and therefore may be ignored; and (2) in addition to being unnecessary, any mitral procedure will be extremely cumbersome because of the highly limited exposure conditions in a small atrium.<sup>2</sup> The left atrial enlargement can reflect the IMR’s true hemodynamic impact over time, similar to how hemoglobin A1c provides a rough idea about the glycemic trend in the follow-up of a patient with diabetes.

The next issue to decide on is whether to repair or replace the valve. Valve replacement is a simple, reproducible, durable, and “quick” procedure. Among the disadvantages of the repair techniques is the high recurrence rate.<sup>3</sup> Even a minimal residual regurgitation has an adverse prognostic effect, causing a vicious cycle as volume overload ends up with more dilatation, then more leaflet tethering, and, consequently, more regurgitation, leading to heart failure episodes.<sup>4</sup> Mitral valve replacement, on the other hand, effectively eliminates any regurgitation and breaks this

vicious cycle of ongoing volume overload. Accordingly, reverse-remodeling appears better with mitral valve replacement, as reflected by the prosthetic mitral replacement survival curve’s catching up with that of the mitral valve repair cohort during long-term follow-up, as demonstrated by recent studies. A recent (2015) American Association for Thoracic Surgery guideline proposal by Kron and colleagues<sup>5</sup> highlights 3 parameters suggesting a replacement rather than a repair because of the high risk of recurrence should a repair be attempted: (1) a basal aneurysm or dyskinesia, (2) significant leaflet tethering, and (3) severe left ventricular remodeling. Because all 3 of these parameters also denote the hallmarks of IMR by description, prosthetic replacement appears to be a better option in most instances.

There may be other issues to consider as well. For example, a standard repair for IMR includes a reducing annuloplasty; however, an undersized rigid ring, the *sine qua non* of a downsizing annuloplasty, may cause dynamic left ventricular outflow obstruction by creating systolic anterior motion of the anterior mitral leaflet. Furthermore, recent reports point toward an iatrogenic mitral stenosis when an undersized ring is used, which may be unveiled only during physical activity and limits the exercise capacity; a phenomenon not observed after valve replacement.<sup>6</sup>

Because IMR is secondary to left ventricular wall motion compromise, correcting the *physiologic* abnormality (regurgitation) by valve replacement, rather than an *anatomic* correction attempt (repair of the distorted native valve), seems reasonable.

Kerem M. Vural, MD, FETCS

Department of Cardiovascular Surgery  
Hacettepe University School of Medicine  
Ankara, Turkey

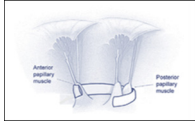
### References

1. Michler RE. Surgical management of moderate ischemic mitral regurgitation at the time of coronary artery bypass grafting remains controversial. *J Thorac Cardiovasc Surg.* 2018;156:1498-500.
2. Vural KM. Recommendations for valve replacement in ischemic mitral regurgitation with compromised ventricle. *J Heart Valve Dis.* 2016;25:651-2.
3. Goldstein D, Moskowitz AJ, Gelijns AC, Ailawadi G, Parides MK, Perrault LP, et al. Two-year outcomes of surgical treatment of severe ischemic mitral regurgitation. *N Engl J Med.* 2016;374:344-53.
4. Agricola E, D’Amato R, Stella S, Oppizzi M, Slavich M, Ancona MB, et al. Effects of mild ischemic mitral regurgitation on ventricular remodeling and its contribution to congestive heart failure. *J Am Soc Echocardiogr.* 2011;24:1376-82.
5. Kron IL, Acker MA, Adams DH, Ailawadi G, Bolling SF, Hung JW, et al. American Association for Thoracic Surgery Ischemic Mitral Regurgitation Consensus Guidelines Writing Committee. 2015 The American Association for Thoracic Surgery consensus guidelines: Ischemic mitral valve regurgitation. *J Thorac Cardiovasc Surg.* 2016;151:940-56.
6. Fino C, Iacovoni A, Ferrero P, Senni M, Merlo M, Cugola D, et al. Restrictive mitral valve annuloplasty versus mitral valve replacement for functional ischemic

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mitral regurgitation: an exercise echocardiographic study. *J Thorac Cardiovasc Surg.* 2014;148:447-53.e2.

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## SURGICAL MANAGEMENT OF MODERATE ISCHEMIC MITRAL REGURGITATION AT THE TIME OF CORONARY ARTERY



### BYPASS GRAFTING REMAINS CONTROVERSIAL

#### Reply to the Editor:

I thank Dr Vural for his letter. The Expert Opinion that I wrote for this issue of the *Journal* deals exclusively with *moderate* ischemic mitral regurgitation (IMR). Dr Vural's comments are appropriate for patients with severe IMR and should not be interpreted as applicable to the diagnosis or surgical treatment of moderate IMR. I wonder whether he has not misread my opinion to imply that I was extending my recommendations to patients with severe IMR?

First, Dr Vural advocates mitral valve replacement as a therapeutic alternative in cases of moderate IMR. This recommendation is contrary to the consensus opinions of experts regarding moderate IMR, for which the recommended surgical options include either bypass surgery alone or bypass surgery with a restrictive annuloplasty. On the other hand, mitral valve replacement or mitral valve restrictive annuloplasty are the 2 primary options to be considered for patients with severe IMR.

Second, it is not uncommon for the clinical requirement to perform surgical revascularization in patients with moderate IMR to accelerate the timing of surgery, and this often occurs before enlargement in the size of the left atrium. In these situations, the surgeon must make a decision regarding whether to address the *moderate* degree of IMR, and that condition is precisely the message of my Expert Opinion. This decision is 2-fold. First, whether to address and second, how best to address the present and future consequences of moderate IMR. These consequences are not predicted by preoperative left atrial size, as suggested by Dr Vural. And yes, the small left atrium does make the surgery technically more challenging, but certainly not overly difficult.

I can only surmise that Dr Vural mistakenly has applied his experience and treatment recommendations for patients with severe IMR to patients with moderate IMR.

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Robert E. Michler, MD

Department of Cardiothoracic & Vascular Surgery  
Montefiore Medical Center/Albert Einstein College of  
Medicine  
New York, NY

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## LEFT ATRIAL SIZE AS AN INDICATION FOR SURGERY IN MODERATE ISCHEMIC MITRAL REGURGITATION



#### Reply to the Editor:

Dr Vural's letter to the editor<sup>1</sup> touches on many aspects of intervention for ischemic mitral regurgitation (IMR). IMR is a secondary, or functional, pathology where the underlying mechanism is not eradicated by surgery of the valve alone. Consequently, indications for intervention in IMR are not as evident as they are for primary mitral regurgitation. Certainly, knowledge of left atrial size helps to plan surgery, and some will alter their approach to the mitral valve on the basis of left atrial dimensions. But using left atrial enlargement (LAE) as an indication for mitral valve intervention in moderate IMR will expose many asymptomatic patients to surgery without certainty that surgery confers any benefit to the patient.

It may be that Dr Vural did not intend to suggest that LAE alone should trigger intervention, because this would be a significant change to current recommendations and most surgeons' practices. Rather, its presence should be included in the decision-making process. Even so, the value of LAE is questionable. However, a recent publication supports the prognostic value of LAE. Rossi and colleagues<sup>2</sup> found that in persons with heart failure, left atrial dimension was associated with increased risk of all-cause mortality and hospitalization, and this persisted after adjustment for ejection fraction and functional mitral regurgitation. Whether this relationship extends to IMR in the absence of heart failure remains to be seen.

Dr Vural's comment that in the presence of normal left atrial dimensions, moderate IMR may be spared from surgery is in accordance with current American College of Cardiology/American Heart Association guidelines, in an indirect way. Regardless of atrial size, asymptomatic chronic moderate secondary mitral regurgitation carries a surgical indication only when other cardiac surgery is planned.<sup>3</sup>