Editorial

Moderate Ischemic Mitral Regurgitation: Should It Still be in Gray Zone?

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Chronic ischemic mitral regurgitation (IMR) is a common complication of acute myocardial infarction and is present in up to 20% of patients with coronary artery disease.[1]

Mitral regurgitation has been clearly shown to affect the natural history of patients with previous myocardial infarction, especially in the case of left ventricular dysfunction.[2,3] It can be caused by global left ventricular dilatation and resulting annular dilatation and displacement of both or single papillary muscle with adjacent wall dysfunction.

Treating IMR is a challenging topic for most cardiac surgeons. The role of isolated myocardial revascularization in the treatment of ischemic cardiomyopathy if moderate MR is present is still debated.[4-12]

It means that moderate IMR is in the gray zone of surgical decision-making and that the long-term results of surgery and the influence of patient characteristics need to be deciphered.

Not chiming with studies that do not equate mitral valve repair with improved survival in patients with IMR,[4,5] there are several studies that point to the progression of moderate MR after isolated CABG and its association with decreased long-term survival.[13]

According to the Society of Thoracic Surgeons (STS) database, concomitant mitral valve surgery increases the perioperative risk of CABG by roughly twofold; accordingly, the decision to repair or to leave the moderate IMR unchanged requires judicious clinical judgment. But what factors influence this judgment?

I am inclined to believe that there are two groups of factors which can collectively lead us to either perform the mitral valve intervention or leave it untreated: the clinical factors and imaging studies.

The clinical factors

Age

Given the rate of the progression of mitral regurgitation and the life expectancy of patients, isolated myocardial revascularization is sufficient treatment for patients with CAD and moderate IMR if patients are older than 75 years of age or more than 70 with a major comorbidity.

Symptoms

If the major complaint of a patient is dyspnea, it is in favor of opting for mitral valve repair. On the other hand, anginal pain as the major symptom tips the balance in favor of isolated CABG.

Paraclinical factors

Echocardiography

Findings such as severe left ventricular dysfunction, enlargement of the left atrium, complex regurgitant jet, marked annular dilatation, and marked increase in the left ventricular dimension and volumes are signposts pointing to mitral valve intervention.

Stress echocardiography

If the akinesia or hypokinesia of the basal segments improve

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with stress (e.g., dobutamine infusion), it is safe to assume that isolated myocardial revascularization is sufficient.

Coronary angiogram

If a coronary arteriography demonstrates a complete occlusion of the major artery supplying the inferobasal segment of the left ventricular cavity, mitral regurgitation is less probable to improve after isolated myocardial revascularization because the main component of the inferobasal segment in this situation is thought to be scar tissue. Nonetheless, it should be emphasized that the above statement is by no means a rule as there are many exceptions.

Ventriculography

The akinesia or dyskinesia (rather than hypokinesia) of the inferobasal or posterobasal segment on left ventriculography should encourage us to do the repair. Moreover, severe left ventricular dysfunction and dilatation are also in favor of mitral valve repair.

Thallium scan

If this study shows the affected segments (posterobasal or inferobasal) are viable but ischemic, isolated myocardial revascularization is likely to lessen the degree of regurgitation.

Pulmonary artery pressure

Moderate or severe increase in the pulmonary artery pressure can be a sign of significant mitral regurgitation, which calls for action.

Undoubtedly, taking all the above-mentioned factors into account when deciding to do mitral valve surgery in conjunction with coronary artery bypass grafting can be slightly complex, to say the least. Nevertheless, some of these factors have the same meaning and impact; for example, viability in the basal segments, which can be determined by ventriculography, thallium scintigraphy, or stress echocardiography, can be interpreted as a single predictor.

All these factors can be of great assistance in the decision-making process; however, there is a major limitation: the impact of each factor should be determined separately, which needs a study design on a large population of patients and an appropriate statistical analysis to illustrate the influence of each factor. We are currently working on this issue, and our efforts will hopefully bear fruit in the shape of a scoring system and a practical guideline designed to overcome this challenging issue.

"Recognizing the problem is the most important step to solve it." **Hippocrates**

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