

CORRESPONDENCE

Letters to the Editor

Role of Mitral Valve Surgery for Secondary Mitral Regurgitation in Heart Failure

In nonischemic and ischemic cardiomyopathies, geometric perturbations in the left ventricle (LV) result in dysfunction of the mitral valve and secondary (functional) mitral regurgitation (MR). An increase in interpapillary muscle distance, annular dilation, and enhanced leaflet tethering contribute to secondary MR. Because the MR in these patients is primarily a function of distorted LV geometry rather than a primary valve problem, “the advantages of correction of secondary MR are less clear,” as discussed by Carabello (1). This prevailing concept is buttressed by the lack of a survival benefit in a retrospective analysis of 419 patients (2). However, this study did not report changes in patient symptoms. Carabello (1) notes that “some have questioned whether surgery in ischemic MR improves survival and/or long-term quality of life.” That being the case, several studies actually suggest an improvement in functional status after mitral valve repair of secondary MR in heart failure patients. Over 200 patients with cardiomyopathy and severe MR who underwent mitral valve repair were prospectively studied over a 10-year period (3). In addition to low overall mortality and improvements in quantitative echocardiographic indexes of cardiac function at 2 years, the New York Heart Association (NYHA) functional class for all patients improved from a pre-operative mean of 3.2 ± 0.2 to 1.8 ± 0.4 post-operatively. Another study of patients with severe LV dysfunction and MR also demonstrated improvement in NYHA functional class from 2.8 ± 0.8 to 1.2 ± 0.5 ($p < 0.0001$) and freedom from readmission for heart failure of 88%, 82%, and 72% at 1, 2, and 5 years, respectively (4). These patients were also able to tolerate higher doses of medications after repair (4). When functional outcomes after mitral valve repair of secondary MR were assessed in yet another study of patients with severe dilated cardiomyopathy, it was noted that, in addition to a low hospital mortality, NYHA functional class improved from 3.4 ± 0.4 to 1.4 ± 0.6 ($p < 0.0001$) (5). The authors of that study concluded that, “in patients with end-stage dilated cardiomyopathy, mitral valve repair is feasible with low hospital mortality and important symptomatic improvement.” These positive findings on functional status have been reported in a number of other studies (6–10). In patients with NYHA functional class III to IV symptoms and severe MR on baseline maximal drug therapy, operation led to improved NYHA functional class from 3.9 ± 0.3 to 2.0 ± 0.6 (6). Similar findings were noted in a prospective study of 125 patients with 4+ MR, severe LV dysfunction (mean ejection fraction of 14%) and NYHA functional class III or IV symptoms wherein NYHA functional class improved for all the patients from a preoperative mean of 3.2 ± 0.2 to 1.8 ± 0.4 post-operatively (8). In patients with a mean LV ejection fraction of 30%, NYHA functional class also improved significantly (3.2 to 1.6 ; $p < 0.0001$) at follow-up (10).

Finally, a prospective, randomized, multicenter trial of 193 patients with NYHA functional class II to IV heart failure, all with intensive background medical therapy, demonstrated the safety and efficacy of mitral valve surgery after a median follow-up of 23 months (11). Notably, there were significant improvements in quality of life at 3, 6, 12, and 18 months as assessed with the Minnesota Living with Heart Failure and the Short-Form 36 questionnaires and improved 6-min walk tests (11). Taken together, although surgical correction of secondary MR is controversial, in part because the prognosis is thought to be related primarily to the underlying cardiomyopathy, physicians should consider offering mitral valve surgery to medically optimized yet symptomatic patients with severe MR and end-stage heart failure.

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