Mitral Valve Repair: The Perfect Collaboration Between Cardiologists, Cardiovascular Anesthesia and Cardiac Surgery

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Mitral valve disease, especially prolapse of the mitral valve is increasingly recognized in the United States and the Western World as an eminently repairable cardiac valve lesion. The diagnosis, perioperative management and surgical treatment however, require a great deal of coordination and teamwork between the three groups of cardiovascular specialties who treat patients with mitral valve prolapse.

Currently cardiologists now are recognizing that for patients with mitral valve to disease to wait until severe symptoms occur can lead to a poor prognosis and reduced life expectancy. Thus, the American Heart Association in collaboration with the American College of Cardiology recently defined new guidelines for the diagnosis, medical treatment and surgical referral for patients with mitral valve disease. A hallmark of these guidelines is that earlier referrals are necessary to prevent severe left ventricular dysfunction, but also it is important that the patient is referred to a surgical team quite experienced in the perioperative management and surgical repair of these lesions. Thus, the cardiologists who have access to skilled mitral valve surgical teams tend to refer patients who are asymptomatic who may show only modest increases in left atrial dimensions, who have had transient bouts of atrial fibrillation or who have very mild symptoms. The operative teams can repair these patients in more than 90% of individuals referred for surgery. This has proven to be an excellent collaboration, because with early referral, patients with mitral valve prolapse are restored to normal life expectancy and unlimited physical activity.

The intra-operative team, including the cardiovascular anesthesiologist and the surgeon must work together as a close knit group. The intraoperative transesophageal echocardiographic diagnosis of anatomical findings and surgical strategy is a mutually beneficial plan between the cardiovascular anesthesiologist and the cardiac surgeon. In my own experience, mitral valve repair of mitral valve prolapse occurs in more than 95% of the cases, with the only exceptions being heavily calcified valves or valves that have been severely scarred by multiple bouts of endocarditis. The cardiovascular anesthesiologist with transesophageal echocardiogram and with 3-D echo can now accurately pinpoint the exact anatomic pathoanatomy before the surgeon even makes the skin incision. This allows for conjoint thinking and planning with anesthesia, surgery and nursing. For example, the size of the anterior leaflet is the most important factor for sizing of the rings, the locations of MR jets, subtle findings of clefts and chordal elongation are also very helpful for the surgeon’s knowledge based on the day of operation. The surgeon, on the other hand, must have the ability to use a variety of different techniques which allow for the lowering of the height of the posterior leaflet, exact coaptation of the mitral valve leaflets and appropriate sizing of annuloplasty rings, which are necessary in every case.

One example of an important finding that impacts on all 3 groups is the probability of systolic anterior motion, the surgical treatment of SAM and possibly the postoperative management of SAM. This is extraordinarily helpful in planning the operative techniques because postoperative SAM is a difficult problem to treat and is best avoided by appropriate operative techniques and the CV anesthesiologist by TEE is the person to highlight and make the surgeon aware of SAM postoperatively. Of course, the use of the transesophageal echocardiogram and 3-D accurately documents the results of the valve repair, the competency of the valve and the trans-mitral gradients following surgical repair factors that are part of the everyday collaboration between surgeon and cardiovascular anesthesiologist.

Finally, the late postoperative care by the cardiologist, tempered by the appropriate reparative techniques and operative resolution of mitral regurgitation, are extremely important in not only preventing further deterioration of the valve, but maintaining the
patients best cardiovascular physiology. Even if confronted with SAM, collaboration with the surgeon is very important in postoperative management.

Our experience at the Brigham and Women’s Hospital has been excellent in this regards and approximately 2000 mitral valve repairs in the past 20 years have yielded excellent information for the optimal planning of intraoperative and postoperative care. It is only with this kind of cardiovascular collaboration that the patient is best served by excellent surgical outcomes and improvement in preoperative, intra-operative and postoperative management.
Bibliography:


