Surgical therapy of organic mitral valve disease: Strategy and outcomes

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PART IV

TIMING OF SURGERY IN DEGENERATIVE MITRAL VALVE DISEASE

The timing of surgery for patients suffering from asymptomatic severe degenerative mitral valve regurgitation is a matter of controversy. This is reflected by the European and North American guidelines; the European guidelines recommend surgery in asymptomatic patients only in the presence of certain additional characteristics (e.g. left atrial volume index ≥60 ml/m2 body surface area or flail leaflet). On the other hand, the North American guidelines advocate a more aggressive approach and recommend surgery for all asymptomatic patients with severe mitral valve regurgitation, provided that the expected repair rate is high, expected mortality low and patients are operated on in heart valve centre [1, 2]. Even in Europe, several experienced centres have reported their results with surgical management of completely asymptomatic patients, challenging the recommendations made by the respective guidelines [3-5].

The discrepancy in the recommendations is based on the ongoing discussion on weather completely asymptomatic severe mitral regurgitation presents a rapidly evolving disease or not. In a study by Rosenhek and colleagues, performing close clinical and echocardiographic follow-up in 132 asymptomatic patients, the authors argued against early surgery [6]. Their conclusion was based on the fact that after a follow-up of 8 years, more than 50% of the whole study cohort remained free of an indication for surgery. In a recent update from the same research group, reporting the results of a "*watchful waiting*" approach in 280 completely asymptomatic patients [7], the overall survival of the study cohort did not differ from the overall survival of the age- and gender-matched general population. Nevertheless, 2 deaths due to heart failure (both occurring in elderly patients who opted voluntarily not to attend further follow-up visits) as well as 2 sudden deaths were observed. As acknowledged by the authors, comparing the survival rates to the general population is challenging as referral bias and superior treatment of cardiovascular and other pathologies could provide an explanation for such observations.

Contrary to the active surveillance proposed by Rosenhek and colleagues, other groups advise a much more aggressive approach to asymptomatic severe mitral regurgitation.

This is related to the growing pool of evidence suggesting that severe mitral regurgitation is not a benign condition but will lead to progressive and irreversible structural and morphological changes of the heart and result in an excess of hereto related morbidity and mortality [2, 8-12]. Nevertheless, it should be acknowledged that the amount of evidence supporting an early surgery approach remains scarce.

The highest level of evidence derives from the international multi-centre MIDA registry and a single-centre prospective registry from South Korea. In a recent publication from the MIDA registry, Suri and colleagues concluded that, in patients with severe mitral regurgitation due to flail leaflet, early surgery is associated with greater long-term survival and a lower risk of heart failure when compared to initial medical management, with no difference in new-onset atrial fibrillation [13]. However, the authors excluded only patients with class I indications for surgery from their study cohort and a Class II indication was present in almost 30% of patients undergoing early surgery. No clear conclusions regarding the value of early surgery in completely asymptomatic patients can therefore be drawn from their analyses. Moreover, the observation that early surgery is not effective at preventing the occurrence of late atrial fibrillation is disappointing. The latter is known to occur in a substantial percentage of patients even after adequate resolution of volume overload related to mitral regurgitation [14]. This is most likely related to left atrial fibrosis that develops because of long-standing volume overload prior to the operation and is present even in patients in preoperative sinus rhythm [15]. The value of early surgery for the prevention of late atrial fibrillation will need to be evaluated in the future. Lastly, surgical intervention is related to early and late complications and might, in example, predispose to the occurrence of incisional atrial tachycardia's.

The reports from the remaining prospective registry from Kang and colleagues provide a better insight into the value of early surgery in completely asymptomatic patients as the authors excluded patients with Class II indications from their analyses [16]. In their earlier report, early surgery was shown to improve overall survival while the more recent report failed to show a beneficial effect of early surgery on overall survival despite the lower incidence of cardiac-related deaths with early surgery. The authors did find early surgery to be related to a lower occurrence of a predefined composite endpoint of operative mortality, cardiac death, repeat mitral valve surgery or hospitalization due to congestive heart failure [17].

Irrespective of the position taken, the protagonists of either an active surveillance or early surgery oriented approach seem to agree that patients with severe mitral regurgitation are best of being followed-up or operated on early in experienced heart valve centres. More studies are clearly needed to better define the results of the former or the latter approach.

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