Mitral regurgitation in presence of aortic stenosis

Clinically significant MR is often found in conjunction with severe AS, though the reported rates are quite different, based on the severity of MR (15-90%). Barreiro et al reported moderate MR in 17% patients aged ≥70 years undergoing isolated AVR. In this population, MR was ischemic or functional in ~35%, myxomatous origin in ~35%, or associated with extensive valvular or subvalvular calcification in ~30% of patients. MR associated with AS should not be overlooked, as it can worsen functional status and independently affect prognosis- lead to development of heart failure. In patients with AS, the severity of MR increases over time due to: increase in transaortic pressure gradient, and as a result of adverse remodeling seen in the left ventricle, which affects the mitral apparatus leading to worsening MR.

Although isolated AVR in elderly patients has been widely adopted with acceptable mortality rates, the operative risk increases significantly for a double-valve replacement. The role of concurrent MVR at the time of AVR is controversial, and no clear guidelines exist. A surgeon’s decision to operate on both valves should only be made after careful clinical and echocardiographic assessment. Some groups have suggested an aggressive approach to operating on the mitral valve, due to the reported data that concomitant moderate to severe MR does not improve in 50% of the patients, and that it may even increase in a small subgroup of patients. Ruel et al reported that patients with AS and ≥ grade 2+ functional MR with left atrial diameter >5 cm, peak aortic gradient <60 mm Hg or atrial fibrillation, had a higher risk of mortality, congestive heart failure or need for secondary mitral valve surgery after AVR. Mitral valve repair during double-valve surgery might be beneficial compared to mitral replacement, with a long-term reduction in mortality, without increased perioperative mortality. These recommendations are also supported by both Gilinov and Talwar et al who reported that mitral valve repair with AVR provided significantly better event-free survival than double-valve replacement. When MR is severe, double-valve surgery is generally considered. However, in patients in whom operative risk is considerably high for double valve surgery, isolated AVR (or
transcatheter aortic valve implantation) may be acceptable (in spite of documented severe MR), given that even in this situation, some regression of post operative MR will occur.

The prognostic significance of “less than severe” MR in patients undergoing isolated AVR is debated. Decision-making regarding any intervention can be difficult in these patients, and will be influenced by the following considerations: expectation that MR may spontaneously improve, by the increased risk of double-valve surgery, and by the increased risk of future reoperation if postoperative MR remains. Both increased perioperative morbidity from infections, kidney failure and low output, and mortality has been reported in patients when preoperative MR was left uncorrected. Nonetheless when preoperative MR is less than severe and not being considered for repair or replacement at the time of AVR for AS, most studies have described improved MR after surgery in most patients. This postoperative reduction in MR occurs as a result of disparate mechanisms. In patients with an enlarged LV, postoperative improvement in MR is related to both LV reverse remodelling and reduction in transmitral pressure gradient, whereas in patients with a small LV cavity, the decrease in pressure gradient after surgery represents the predominant mechanism. A general scheme for decision making in patients with co-existent MR and AS is given below.
In summary, the decision to operate on both valves requires assessment of MR severity, preferably by the measurement of the effective regurgitant orifice, correct determination mechanism of MR- functional or organic etiology, and consideration of the suitability for mitral valve repair instead of replacement. Additionally, the decision-making in a patient is further influenced by the age, the presence of co-morbidities, and the assessment of operative risk.

References:

11. Arom KV, Nicoloff DM, Kersten TE, et al. Ten-year follow-up study of patients who had


