

Asymptomatic degenerative mitral regurgitation – timing the surgery

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Primary degenerative mitral regurgitation (MR) is caused by abnormality of one or more components of the valve apparatus, whereas functional MR is a left ventricular (LV) disease. Mitral valve (MV) surgery is required to address the primary process in degenerative MR (DMR), but the timing of MV surgery is controversial in asymptomatic patients. The "watchful waiting" strategy is dictated by a timely LV dysfunction recognition. The guidelines recommend MV surgery in asymptomatic patients with LV ejection fraction (EF) <60%, LV end-systolic diameter 40 to 45 mm, new-onset atrial fibrillation, resting systolic pulmonary artery pressure (sPAP) exceeding 50 mmHg, or if surgical risk is low with high likelihood of durable MV repair¹.

Current accepted echocardiographic measurements of LV function are not sensitive enough for early myocardial injury detection since end-systolic dimensions and EF are affected by the different loading conditions in MR. The key is to identify hemodynamic consequences early in MR time course so that timely surgery may reverse them before becoming irreversible². Studies struggle on identifying other parameters or methods that could detect subclinical LV systolic dysfunction and predict postoperative outcomes such as: 1) brain natriuretic peptide (BNP) (there is no specific BNP cutoff of BNP for intervention, but a serial increase in BNP may reflect LV dysfunction and increased reliance on preload reserve in maintaining cardiac output); 2) LV global longitudinal strain (GLS) (a sensitive method for early detection of LV dysfunction, independently associated with mortality, add incremental data to surgical timing, with cutoffs -17.9% and -21.7% shown in studies that differentiate patients at higher risk, and with the possibility to detect relative change of GLS from baseline as in cardio-oncology); 3) left atrial size and strain; 4) echocardiographic exercise testing (good contractile reserve measured by LVEF and LV GLS and preserved exercise capacity without sPAP or MR worsening are reassuring parameters for a beneficial outcome); 5) cardiac magnetic resonance imaging (it can potentially reclassify MR severity providing valuable data on LV function and volumes)¹⁻³.

Lastly, determination of proper timing for DMR surgery remains challenging and requires more studies.

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LITERATURE

1. Flint N, Raschpichler M, Rader F, Shmueli H, Siegel RJ. Asymptomatic Degenerative Mitral Regurgitation: A Review. *JAMA Cardiol.* 2020 Mar 1;5(3):346-355. <https://doi.org/10.1001/jamacardio.2019.5466>
2. Lancellotti P, Go YY, Dulgheru R, Marchetta S, Radermecker M, Sugimoto T. Management of Asymptomatic Severe Degenerative Mitral Regurgitation. *Structural Heart* 2017;1(5-6):216-224. <https://doi.org/10.1080/24748706.2017.1370565>
3. Mentias A, Naji P, Gillinov AM, Rodriguez LL, Reed G, Mihaljevic T, et al. Strain Echocardiography and Functional Capacity in Asymptomatic Primary Mitral Regurgitation With Preserved Ejection Fraction. *J Am Coll Cardiol.* 2016 Nov 1;68(18):1974-1986. <https://doi.org/10.1016/j.jacc.2016.08.030>