Predictors of outcome in mitral valve repair surgery

Authors:
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Topic(s):
Echocardiography: Valve Disease

Citation:
Background: Surgical mitral valve repair currently remains a good option in both organic or functional mitral valve regurgitation (MVR). However, a significant number of patients (P) have comorbidities that can contribute to adverse outcomes.

Objective: To determine clinical and echocardiographic predictors of adverse outcomes in P submitted to MV repair surgery in our center, notably MVR recurrence and new MV replacement surgery or all-cause mortality.

Methods: Retrospective analysis of 262 P who underwent MV repair surgery between 2008 and 2017, with a mean follow-up of 30 months. P were included with both organic or functional MV regurgitation. P who underwent simultaneous coronary artery bypass grafting (CABG), atrial fibrillation (AF) surgery and tricuspid valve repair were also included. However, P with simultaneous surgical aortic valve replacement or previous endocarditis were excluded and the remaining 204 P were analysed.

We evaluated whether MVR etiology, simultaneous surgery (tricuspid valve repair, AF or CABG), body mass index (BMI), gender, chronic obstructive pulmonary disease (COPD), diabetes mellitus, renal dysfunction (measured by serum creatinine levels), baseline left ventricular ejection fraction (LVEF) and left ventricle end-diastolic diameter (LVED) were predictors of a composite endpoint (follow-up MV replacement surgery or all-cause mortality) and secondary endpoints: MV replacement surgery and all-cause mortality.

Results: 204 P who underwent MV repair surgery, 67.2% male, mean age of 62±14 years. 80.4% had organic MVR and 19.6% functional MVR (mostly ischemic – 72.4%). 7P (3.4%) had rheumatic MVR. 16.8% underwent simultaneous CABG, 12.3% tricuspid valve repair and 7.8% AF ablation. 30-day mortality was 0%.

The composite endpoint occurred in 40P (20%) and there was MVR recurrence with follow-up MV replacement surgery in 15P (7.5%) and all-cause mortality in 28P (13.7%).

The authors found that elevated serum creatinine levels (OR 4.66; p=0.003), COPD (OR 3.00; p=0.035) and functional etiology (OR 2.22; p=0.049) were predictors of the composite endpoint.

Both COPD (OR 2.823; p=0.024) and renal dysfunction (OR 6.901; p=0.001) were also found to be independent predictors of all-cause mortality.

Simultaneous CABG was a predictor of all-cause mortality (OR 2.82; p=0.024).

Female gender was a predictor of future MV replacement surgery (13.4% vs 4.7%, p=0.023).

However, echocardiographic variables (baseline LVEF and LVED) were not found to be significant predictors of adverse outcomes in MV repair surgery. Likewise, simultaneous AF or tricuspid valve surgery, rheumatic/ischemic etiology, high BMI or diabetes were not associated with poorer prognosis.

Conclusion: In P undergoing MV repair surgery, renal dysfunction and COPD were independent predictors of all-cause mortality. Functional etiology and simultaneous CABG surgery were also predictors of adverse outcomes.
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Baseline LVEF and LVED were not correlated with prognosis.