

Aim: To study the procedural success of percutaneous mitral commissurotomy (PMC) and one month outcomes in patents with mitral valvular calcification.

Methods and results: Over a period of 13 months we enrolled 103 patients who underwent PMC in our institution. All patients were screened for fluoroscopic calcium and divided into two groups: group 1 without significant calcium (no calcium or calcium seen in cine fluoroscopy) and group 2 with significant calcium (calcium seen in high fluoroscopy). There were 85 patients in group 1 and 18 patients in group 2 and procedural success was 91.8% and 72% respectively in two groups ($P = 0.034$). Confidence interval of procedural success in calcific group was 51.5–92.9%. In this study, the presence of mitral calcium detected by echocardiography or cine fluoroscopy did not influence the immediate success of PMC. There was no procedural death and none developed severe mitral regurgitation (MR) or required mitral valve surgery within one month post procedure. Other parameter that influenced procedural success was Wilkins score >8 . All patients except two improved symptoms to New York Heart Association (NYHA) I/II at one month follow-up.

Conclusion: PMC success rate in patients with significant fluoroscopic calcium is inferior to those without significant calcification. Still the success rate in calcific group is good without additional complication.

Prevalence and prognostic significance of left ventricular myocardial late gadolinium enhancement in severe aortic stenosis



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Background: Myocardial fibrosis occurs in aortic stenosis (AS) as part of the hypertrophic response. It can be detected by late gadolinium enhancement (LGE), which is associated with an adverse prognosis in the form of increased mortality and morbidity.

Objectives: To assess the prevalence of LGE patterns using cardiac magnetic resonance (CMR) in severe AS patients and to study the prognostic significance of LGE pertaining to mortality, arrhythmic risk, heart failure/hospitalization and LV ejection fraction $\geq 20\%$.

Methods: Patients were enrolled into the study from June 2012 to November 2014. All the patients underwent CMR and various patterns of enhancement were studied. These patients if symptomatic were advised aortic valve replacement (AVR) and others were managed conservatively. All patients were followed up and watched for outcomes like mortality, heart failure/hospitalization for cardiovascular cause, fall in left ventricular ejection fraction (LVEF) $\geq 20\%$ and arrhythmia.

Results: A total of 109 patients (mean age $- 57.7 \pm 12.5$ yrs) underwent CMR with 63 males. These patients were followed up for a mean of 13 months. Among 38 patients who underwent AVR, 6 died (5 – cardiovascular cause, 1 – non cardiovascular). 71 patients were managed conservatively out of which 18 died (17 – cardiovascular cause, 1 – non cardiovascular cause). LGE patterns were seen in 46 patients (43%); midmyocardial enhancement was seen in 31.1% of cases (33 patients). No LGE pattern was seen in 57% (63 patients). Basal and mid regions were maximally involved with mid myocardial enhancement in 66% & 68.3% respectively. LV ejection fraction ($p = 0.002$), peak aortic systolic velocity ($p = 0.01$) and peak aortic systolic gradient ($p = 0.02$) were the main predictors of LGE. Main predictors of primary outcome were NYHA class [OR $- 13.4 (2.8-26.1)$, $p \leq 0.001$], age $- 62 \pm 9.6$ yrs ($p = 0.001$), EF simpson- $50.9 \pm 13\%$ ($p \leq 0.001$), LGE [OR $2.8 (1.27-6.47)$, $p = 0.01$], number of segments involved [2.37 ± 2.1 , $p \leq 0.001$] & CMR LV mass (151.73 ± 32 g,

$p = 0.007$). LGE truly predicted heart failure/hospitalization for cardiovascular cause [OR $- 3.8 (1.2-11.9)$, $p = 0.01$] and fall in LVEF [OR $- 5.8 (1.5-22.5)$, $p = 0.005$]. Patients with LGE had 2.87 times risk of adverse outcomes and patients with more than 3 segment LGE involvement had again increased chances of adverse outcomes.

Conclusions: LGE was detected by CMR in 43% of patients with severe AS. It predicted recurrent heart failure, hospitalization for cardiovascular cause and fall in LV ejection fraction. Our study has laid a path to larger prospective studies with long term follow-up to assess the prognostic impact of CMR in patients with severe AS.

Prognostic importance of exercise brain natriuretic peptide in asymptomatic chronic organic mitral regurgitation



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Background: Early surgery could be advisable in selected patients with chronic severe mitral regurgitation, but there are no criteria to identify candidates who could benefit from this strategy. In patients with primary mitral regurgitation (MR), BNP is known to be a good surrogate marker of MR consequences on the left ventricle, left atrium, and systolic pulmonary arterial pressure (PAP), and is a powerful predictor of outcome. It is hypothesized that the measurement of BNP at exercise could provide incremental value as compared with standard resting BNP for the risk stratification of patients with asymptomatic MR.

Methods and results: Comprehensive resting and exercise transthoracic Doppler echocardiography was performed in 50 consecutive asymptomatic patients with moderate to severe MR and preserved left ventricular (LV) function enrolled over a period of 12 months from October 2013 to October 2014. Blood samples were collected both at rest and during exercise. Follow-up was done every 3 months for 1 year. The BNP level significantly increased from rest to exercise in 16 patients. There was a significant graded relationship between increasing BNP level at exercise (according to tertiles) and increased incidence of cardiac events (death, heart failure, mitral valve surgery driven by symptoms, or LV dilatation/dysfunction onset) (1 year, $10 \pm 5\%$ vs. $20 \pm 6\%$ vs. 40.5 ± 9 in tertiles 1, 2 and 3, respectively). On multivariable analysis, after adjustment for demographic and echocardiographic data and for resting BNP level, exercise BNP remained significantly associated with increased risk of cardiac events during the follow-up (hazard ratio 2.6 and 3.8, $P = 0.040$ and 0.020 , for tertiles 2 and 3, as compared with tertile 1).

Conclusions: In asymptomatic patients with primary MR, exercise BNP level provides incremental prognostic value beyond what is achieved by demographic and echocardiographic data and resting BNP level. Patients with elevated exercise BNP should be considered at high risk of reduced cardiac event-free survival.

Balloon mitral valvuloplasty in situs inversus dextrocardia with rheumatic mitral stenosis



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