leaflet separation index to predict a good valve opening was 0.87. Using a threshold value of 0.98 cm, sensitivity, specificity, positive predicted value and negative predicted value were 85%, 77%, 82% and 80% respectively. Conclusion: In this large study group of patients with a wide range of MS severity, mitral leaflet separation index was well correlated to the planimetry and a threshold value of 0.98 cm could predict a good PMC result with high sensitivity and specificity. Thus the semi-quantitative method, as a semi-quantitative method, seems to be a useful and complimentary method for MS severity assessment in the setting of PMC.

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Long-term prognostic value of right ventricular contractile reserve by dobutamine stress echocardiography in patients with mitral stenosis: A tissue Doppler study
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Purpose: Isovolumic acceleration (IVA) is a measure of right ventricular (RV) contractile function that is unaffected by loading conditions. The objective of this study was to test the hypothesis that RV contractile reserve assessed by tissue Doppler (TD) derived IVA may be associated with long-term outcome in patients with mitral stenosis (MS).
Methods: We prospectively studied 43 subjects (mean age 44±16): Twenty-four with MS and nineteen controls. RV contractile reserve was evaluated under a maximum challenge at a maximum dose of 20 mcg/kg/min. Conventional 2D and Doppler measurements, pulsed wave TD velocity measurements of the tricuspid annulus at the RV free wall were performed at baseline and during dobutamine infusion. All patients underwent cardiac catheterization. Follow-up duration was 14.5 months.
Results: Patients with major cardiac adverse events (MACE+) had two patients died, two were hospitalized for acute pulmonary edema, and one deteriorated from NYHA II to III. Mean mitral valve index was 0.7±0.1 cm²/m² in MACE+ patients and 0.7±0.2 cm²/m² in MACE− patients (p=0.57). Baseline 2D and TD measures did not differ between patients and controls. Under dobutamine challenge, IVA, isovolumic contraction, A', and RV fractional area change were significantly less in patients than in controls (all p<0.05). However, only reduced IVA was associated with unfavorable clinical outcome (p=0.01) (Figure).
Conclusion: Inability to increase RV IVA during dobutamine challenge is associated with an unfavorable long-term outcome and may be of prognostic value in patients with MS.

ISCHAEMIC HEART DISEASE

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Transthoracic echocardiography in the prediction of ischemic mitral valve repair failure
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Recent studies have demonstrated that mild mitral regurgitation (MR) might reappear after ring annuloplasty. The recurrence of MR might lead to relapse of congestive heart failure symptoms. The purpose of this study was to identify echocardiographic predictors of long-term ischemic mitral valve (MV) repair failure.
Methods: Baseline transthoracic echo examination was performed in 188 patients, 44 females (aged 59.3±13.9 years) who underwent undersized ring annuloplasty for ischemic MR during coronary artery bypass grafting. MR grading was repeated 6 and 12 months and then yearly after surgery. The mean length of follow-up was 2.7±0.13 years. The impact of baseline echocardiographic measures of MR, LV and left ventricle (LV) geometry on MV repair durability in long term observation was assessed. We assessed: left ventricle end-diastolic and end-systolic volume indices, LV ejection fraction, diastolic and systolic eccentricity indices. The left ventricle end-systolic diameter was 5.6±1 cm in the control group, and 5.2±1 cm in the study group (p=0.01). The confidence intervals of mortality for MR and LV remodeling were 95%.
Results: Significant predictors of MR recurrence with cut-off values are listed in the table. Cox regression, after adjustment for age and sex, the independent predictors of late postoperative were MR baseline LV jet area p=0.031 and systolic eccentricity index p=0.037, overall x²=12.592, p=0.002.
Conclusions: Simple transthoracic echocardiographic measurements might be enough to predict durability of ischemic MV repair.

HEART VALVE DISEASE

1055
Long-term outcome of patients with ischemic mitral regurgitation according to the tethering pattern, preliminary results of an observational study
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Background: In the spectrum of the patients with ischemic mitral regurgitation (MR) it is possible to distinguish at least two different subgroups on the basis of some echocardiographic characteristics: 1. patients symmetric tethering (prevalent apical tethering of both leaflets) and 2. patients with asymmetric tethering (prevalent apical tethering of one leaflet). Different techniques and studies for the evaluation of both groups differ for clinical features, degree of local and global left ventricle remodeling and dysfunction, and characteristics of the regurgitant jet.
Aim: To evaluate if these two groups have different long-term prognosis.
Methods: The cohort consisted of patients with ischemic MR who were recorded in our echocardiographic database from January 2000 to January 2006. All patients with a effective regurgitant area >10 mm² or vena contracta >0.2 cm were included in the study. Thus, 219 patients (mean age 67±5 years) were enrolled, 104 (47%) patients in the symmetric and 115 (53%) patients in the asymmetric group. The mean ejection fraction (EF) was 31.3±7%. The end point was cardiac mortality. Survival and event-free survival of patients with symmetric and asymmetric tethering were determined by the Kaplan-Meier method and compared by the log-rank test. Patients were censored at the time of last follow-up. To detect the independent predictors of death, a multivariate Cox regression procedure was performed including the end-diastolic and end systolic volumes, the deceleration time of E wave, the degree of MR and the EF as potential variables.
Results: The overall survival at 32 months was 72%. At 32 months the survival in the symmetric group was 79% and in the asymmetric group was 69%, but this difference was not statistically significant (p=0.05). The univariate predictors of death were the EF (p=0.013) and the degree of MR (p=0.019), whereas at multivariate analysis the only independent predictors of death was the degree of MR (p=0.009).
Conclusion: The preliminary results of this observational study show that the prognosis of patients with ischemic MR was independent on echocardiographic pattern but was mainly affected by the degree of MR.

ISCHAEMIC HEART DISEASE

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The comparison of mitral deformation indices and left ventricle geometry with quantitative assessment of ischemic mitral regurgitation: echocardiographic and cardiovascular magnetic resonance study
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Background: The pathophysiologic of ischemic mitral regurgitation (MR) is related to local and global left ventricular remodeling and the papillary muscle dysfuncion. Am of this study was to compare mitral deformation indices and left ventricle remodeling with quantitative assessment of mitral regurgitation using transthoracic echocardiography (TTE) and cardiovascular magnetic resonance (CMR) methods.
Material and methods: 21 subjects (18 M, 3 F; mean age: 61.3 years) with coronary artery disease, ≥6 months after myocardial infarction, with functional mitral regurgitation (MR I-IV grade) underwent CMR and TTE within the period ≤5 days. There were only 4 subjects with MR III-IV grade, the remaining 17 with I-II grade. The following parameters, assessed by both methods, were analysed: mitral deformation indices as end- systolic and end-diastolic mitral annular area, the coaptation height, the tenting area, mitral annulus leaflet- anterior mitral leaflet length ratio; left ventricle remodeling parameters: left ventricle end-systolic diameter (LVESD), left ventricle end-systolic volume (LVEVS), left ventricular end-diastolic diameter (LVVEDD), left ventricular end-diastolic volume (LVEDV), stroke volume (SV),
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Changes in deformation in asymptomatic patients with isolated severe mitral regurgitation detected by strain rate imaging
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Early left ventricular (LV) dysfunction in patients with mitral regurgitation (MR) is often underestimated due to the lack of a sensitive diagnostic tool to monitor systolic function. To date, there is no specific and widely used diagnostic method to detect subclinical changes in systolic function before irreversible LV dysfunction occurs in MR.
Aims: To assess changes in regional LV function by strain rate (SR) imaging in patients with MR before development of clinical features.
Methods: 53 individuals were studied: 30 asymptomatic patients with isolated severe MR (age 55±11 y) and 23 age matched controls. All patients underwent a standard echo examination with a tissue Doppler study. SR and strain (S) data were acquired from the posterior wall (LVPW) – radial direction and from LV lateral wall and septum (longitudinal deformation).
Results: Radial peak systolic SR in the LVPW was significantly decreased in patients with severe MR compared to controls (2.20±0.8 vs 3.00±0.57, p<0.005). Radial SR and S were inversely correlated with LV end systolic diameter (ESD) (Fig. 1). Longitudinal SR was significantly reduced in LV lateral wall compared to controls (1.27±0.56 vs 1.60±0.24, p<0.005) as well as in septum 1.15±0.51 vs controls 1.50±0.32, (p=0.008).
Conclusions: SR imaging, could be a sensitive clinical tool in detecting subclinical deterioration in LV function in asymptomatic patients with severe MR.

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Evaluation of ventricular long axis contraction in patients with asymptomatic non-ischemic mitral valve regurgitation and normal systolic function
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Purpose: Several indices have been proposed in order to evaluate left ventricular (LV) function in chronic mitral regurgitation (MR); however, none of them is unique. We investigated the role of ventricular long axis contraction in patients with non-ischemic asymptomatic MR.
Methods: Eighty-nine patients, aged 59.9±13.5 years, with non-ischemic asymptomatic MR were studied by echocardiography, exercise radionuclide cineangiography and cardiac catheterization.
Results: Fifty of 89 patients (56.2%) had a normal LV response to exercise, defined as a >5% increase in ejection fraction. LV end diastolic diameter (59±5 vs 57±4 mm) and volume (21±4 vs 190±43 mL) were significantly higher in patients with an impaired LV response (p<0.05). Peak systolic wave velocity and systolic wave slope both at the lateral wall and at the inter-ventricular septum were significantly lower in patients with an impaired LV response (p<0.001). Peak systolic wave velocity at the lateral wall (LatS) was the index that best predicted LV response to exercise; a cutoff value of 9.5 cm/sec predicted an impaired LV response with a sensitivity of 96% and a specificity of 100%. As defined by the width of vena contracta, MR was mild/moderate in 78% of patients with a LatS >9.5 cm/sec and severe in 22% of patients with a LatS <9.5 cm/sec.
Conclusion: The evaluation of LV long axis contraction at rest can unmask a subnormal LV functional status in patients with asymptomatic non-ischemic MR.

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TEE guided thrombolytic therapy with or without surgery in prosthetic valve thrombosis
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Purpose: Mitral valve prosthesis (MVP) thrombosis can be performed in critically ill patients with prosthetic valve thrombosis (PVT) by using tricuspid regurgitation (TRH) size, location and motility, leaflet motion and treatment monitoring.
Methods: One hundred forty-two patients (61±12 years, 102 males with moderate to severe MR related to valve prolapse underwent a standard echo examination with pulmonary artery pressure measurement (using tricuspid regurgitation) and mitral tissue doppler imaging (TDI).
Results: Mean systolic PAP was 44±13 mm Hg, ranging from 25 to 105 mm Hg. Patients with a systolic PAP ≥50 mm Hg (n=33) were older and more symptomatic, had a more severe MR and a higher heart rate, a greater left atrial volume/m2 (r=0.39, p=0.0002), mitral E velocity (r=0.42, p=0.001), and mitral E/A ratio (r=0.46, p=0.0001) than patients with systolic PAP ≤44 mm Hg (n=105). In univariate analysis, predicted factors of systolic PAP were age (r=0.29, p=0.0005), TRH grade (r=0.29, p=0.0005), left atrial volume/m2 (r=0.39, p=0.0002), mitral E velocity (r=0.42, p=0.001), and mitral E/A ratio (r=0.46, p=0.0001). Thrombolysis can be performed in critically ill patients with MVP with high success rate, however severe complications can occur. In some patients the residual obstruction has to be resolved surgically due to pannus, or invetreated thrombus. In these cases, due to improved hemodynamics surgery can be performed safely.