Background: Right ventricular function plays an important role in the development of clinical symptoms, prognosis, and survival in patients with mitral stenosis. Right ventricular dysfunction can be better assessed by strain imaging. The purpose of the study was to assess change in right ventricle longitudinal strain in patients of mitral stenosis undergoing percutaneous transvenous mitral commissurotomy.

Method: This is a prospective study in which patients of mitral stenosis and normal right ventricle systolic ejection fraction undergoing percutaneous transvenous mitral commissurotomy (PTMC) were included. All subjects underwent standard 2D trans-thoracic echocardiography 24±h prior to PTMC and 24±h post PTMC. Right ventricular free wall peak longitudinal strain was measured at basal and mid level in apical 4 chamber view. Statistical analysis was performed using SPSS version 17.

Results: Total 80 subjects (mean age 31±(10 years, 68% females) were included. Majority of them were in NYHA class III (68%) and none in NYHA class IV. Successful PTMC was achieved in 100% of cases. There was significant difference between pre and post PTMC in mean mitral valve area (0.8±(0.2 cm²) and 1.6±(0.2 cm²), mean peak mitral valve gradient (24±(7 mmHg and 12±(3 mmHg), mean right ventricle systolic pressures (50±(14 mmHg and 33±(8 mmHg), right ventricle basal longitudinal strain (24.2±(5.1% and (27.2±(5.2%) and right ventricle mid longitudinal strain (25.2±(7.5% and (28.6±(4.7%) respectively. There was no significant change in TAPSE (19.7±(2.8 mm and 20.2±(3.6 mm) and right ventricle tei index (0.03±0.06 and 0.02±0.03) pre and post PTMC. By applying correlation coefficient with right ventricle longitudinal strain, it was observed that right ventricle systolic pressure, TAPSE and right ventricle tei index were positively correlated, however none of these were statistically significant.

Conclusion: This study demonstrated patients with severe mitral stenosis with normal right ventricle systolic function have decreased right ventricle peak longitudinal systolic strain which significantly increases after successful PTMC.

Detection and location of obstructive coronary artery disease in patients of chronic stable angina by strain and strain rate (myocardial deformation parameters) in the resting echocardiogram

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Background: Stress echocardiography (i.e. exercise or pharmacologic) identifies flow-limiting coronary artery disease (CAD) in clinical practice with satisfactory accuracy. Deformation characteristics of longitudinally oriented myocardial fibres are sensitive markers of early derangements of cardiac function caused by CAD.

Aim: The aim of the study was to evaluate the diagnostic power of Doppler Tissue Imaging (DTI) longitudinal strain and strain rate in detection of CAD and location of the culprit vessel in resting echocardiogram in patients presenting with chest pain and correlation with the gold standard-coronary angiography.

Method: We evaluated 104 consecutive patients undergoing coro-nary angiography who met the following inclusion criteria; (i) presenting with chest pain on exertion, (ii) stable vital signs with normal systolic function and wall motion at rest, (iii) normal sinus rhythm without left bundle branch block, (iv) no valvular stenosis or regurgitation of more than mild degree. Patients with recent or past history of acute coronary syndrome, raised cardiac biomarkers, uncontrolled hypertension, cardiomyopathy, chronic renal failure were excluded. Conventional 2D echocardiographic examinations were performed using a Vivid 7 system (GE Vingmed, Horten, Norway) with a 3.5 MHz transducer. Echocardiography examination included measurements of cardiac dimensions, volumes, and LV ejection fraction. DTI strain was evaluated in 3 views (apical 4 chamber, apical 2 chamber and APLAX view) analysing 16 segments of left ventricle. DTI regional longitudinal systolic strain and strain rate, diastolic strain and strain rate and curved anatomical M mode (CMM) analysis for detection of onset of relaxation was done to detect location of CAD.

Results: Mean age of the study group was 56.7±9.1 years with 81% were male. Diabetes, hypertension, smoking were found in 29.8%, 67.3% and 46.2% respectively. The mean systolic and diastolic blood pressures are 130±8 and 74±6.5 mmHg respectively. Coronary angiography showed single vessel, double vessel and triple vessel in 36.5%, 17.3% and 22.1% respectively. Angiographically normal coronaries were present in 24.1% of the study group. The culprit vessel was LAD in 58.6% cases, LCX in 43.2% cases, RCA in 35.6% cases. Longitudinal strain analysis in 16 segments of left ventricle was done with 5 variables – Systolic strain, Systolic strain rate, Diastolic...