Tissue Doppler evaluation of left ventricular function in patients with hypothyroidism

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Background: Cardiovascular involvement is frequent in endocrine disorders. A relation between thyroid and heart has been recognized earlier. Alteration in thyroid status can lead to changes in both systolic and diastolic function of the left ventricle. Hypothyroidism has shown to have changes in the function of the heart. In this present study we took advantage of this particular modality which helped us precisely assess the left ventricular function both systolic and diastolic in patients with sub clinical hypothyroidism.
Methods: 15 patients with sub clinical hypothyroidism with levels of serum TSH more than 9.0μIU/ml normal being 0.5-9.0 μIU/ml, and 15 euthyroids patients who acted as control were taken up for the study and evaluated.
Results: All the results were analysed with ANOVA, there was a significant p- value obtained for both the systolic and diastolic functional parameter of <0.0001 in the sub clinical hypothyroid patients (case) which was suggestive of subtle global systolic and diastolic dysfunction when the findings were compared to euthyroid subjects (control).
Conclusions: On the basis of this study we conclude that there is subtle global systolic and diastolic left ventricular dysfunction in patients with sub clinical hypothyroidism and tissue Doppler imaging is a potent modality to evaluate it.

Right ventricle function in patients undergoing balloon mitral valvotomy

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Background: Right ventricle function is impaired in significant number of patients with severe mitral stenosis undergoing BMV.BMV is associated with improvement in mitral valve orifice area, haemodynamics and RV function.Echocardiography can be used to assess the improvement in RV function after BMV.
Methods: The patients who underwent Balloon mitral valvotomy in Nair Hospital Mumbai from august 2012 to july 2014 were prospectively studied.Patients with organic affection of tricuspid valve were excluded.Patients were studied for RV function by means of transthoracic 2 D echocardiography prior to and post BMV procedure.RV function was studied by means of TAPSE (Tricuspid annular plane systolic excursion), Pulsed Doppler peak systolic velocity at the tricuspid annulus, Tei index-Pulsed Doppler MPI & Tissue Doppler MPI (Myocardial performance index) as parameters of RV systolic function.
Results: 70 patients underwent BMV.28 patients were male while rest 42 patients were female.Mean age of the cases was 32 years.Mean LA pressure measured decreased from 36 mmHg prior to procedure to 23 mmHg post procedure.Mitral valve orifice area measured by planimetry showed significant increase from 1.1 sq cm to 1.55 sq cm and Mitral valve orifice area measured by pressure half time showed significant increase from 1.05 sq cm to 1.67 sq cm.Cases with haemodynamically significant pulmonary hypertension with mean PASP of 72 mmHg prior to BMV showed significant fall to 44 mmHg.

Low TAPSE as evidence of RV dysfunction was seen in 10 cases pre procedure while it was seen only in 6 patients post procedure.Tei index (MPI - Myocardial performance index) showed RV dysfunction in 20 cases pre procedure while it was seen only in 6 patients post procedure.Pulsed Doppler peak systolic S velocity at the tricuspid annulus showed RV dysfunction in 32 cases pre procedure & in only 11 cases post procedure.
Conclusion: Right ventricle dysfunction was observed in 46% cases undergoing BMV.

TDI peak systolic S velocity at the tricuspid annulus was most sensitive to detect Right ventricle dysfunction.BMV was associated with significant improvement in RV function.

Echocardiographic differences between idiopathic dilated and ischemic cardiomyopathy

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Background: Idiopathic dilated (IDCM) or Ischaemic cardiomyopathy (ICM) are among the main causes of chronic heart failure (CHF). Both diagnoses require evidence of dilatation and impaired contractility of the left or both ventricles .Both these conditions have been associated with differential characteristics and prognosis. We explored the differences between IDCM and ICM in echocardiographic parameters at a tertiary cardiac centre.
Methods: Consecutive patients with stable CHF followed up at a tertiary cardiac centre were selected. Inclusion criteria were age >18 years, ejection fraction <45% and history of known CHF because of ICM or IDCM. Non-ischaemic dilated cardiomyopathy was diagnosed after exclusion of severe coronary artery disease by detailed history and investigations. Furthermore, diagnosis of idiopathic dilated cardiomyopathy was done after exclusion of active myocarditis and other causes of non-ischaemic cardiomyopathy i.e. hypertensive heart disease, valvular heart disease, infiltrative diseases and other known etiologies. Echocardiography was done in all patients to measure 2D parameters, Doppler parameters diastolic and systolic function as per ASE guidelines.
Results: Patients with IDCM were younger and the prevalence of female gender was higher.Patients with IDCM had larger right ventricular basal and mid diameters (4.3 ± 0.8 vs 3.6 ± 1.0 cm) and $3.2.7 \pm 0.7$ vs 2.1 ± 0.7 cm) and lower TAPSE (1.6 ± 0.5 vs 1.9 ± 0.4 cm, $p = 0.001$) than ICM patients. RV dysfunction was also more prevalent in IDCM. Diastolic dysfunction was more severe in IDCM. Prevalence of mitral regurgitation with central jet is also higher in IDCM.Regional wall motion abnormality, scarring and LV clot were common in ICM. NYHA class and left ventricular ejection fraction were similar.
Conclusion: There are differences in Echocardiographic parameters between patients with IDCM or ICM. To extend this differences in to prognostic and therapeutic aspects need further studies.