morbidity, Cath lab team should be prepared with all necessary equipments for positioning and snaring/retrieval of devices.

Echocardiography

To study the efficacy of right ventricular isovolumic acceleration by 2D-Echo in evaluating post operative outcomes in Tetrology of Fallot

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Background: Tetrology of Fallot (TOF) is a most common cyanotic congenital heart disease encountered in clinical practice. Right ventricular function is an important determinant of post operative outcomes in these patients. Cardiac Magnetic Resonance Imaging is a gold standard in evaluating right ventricular function. However this technique is expensive, has limited availability, and requires significant expertise to acquire and interpret. Hence we would like to use 2D-Echo which is easily available. Most of the parameters used in 2D-Echo in evaluating right ventricular function are load dependent except for isovolumic acceleration (IVA) and myocardial performance index (MPI). Hence in view of lack of data on isovolumic acceleration on pre-operative evaluation in Congenital Heart Disease, we used this parameter in evaluating the post-operative outcomes in (TOF). Isovolumic acceleration is a ratio of peak velocity during isovolumic contraction and time to peak.

Methods: Sixty three consecutive TOF patients planned for intracardiac repair referred for pre-operative Echocardiographic evaluation were studied. Their mean age was 9+/−3 years. All patients were in sinus rhythm with stable hemodynamic condition during Echocardiographic examination. Doppler tissue imaging technique was used to determine IVA. Recordings were made at a sweep speed of 50 to 100mm/s. Values are presented as means of 3 consecutive beats and the sample volume of 6mm. From the basal right ventricular free wall IVA was measured. These patients were followed up with IVA for 2 weeks and at 1 month. We correlated preoperative IVA to length of ICU stay and 30 day mortality using chi-square test. A P value of <0.005 was considered significant.

Results: Sixty three TOF patients were divided into four groups based on IVA values. Group 1 consisted of 19 patients who had IVA > 2.2m/s² were used as controls. Group 2 consisted of 12 patients who had IVA between 1.5 and 2.2m/s². Group 3 consisted of 17 patients who had IVA between 1.5 and 2.2m/s². Group 4 consisted of 15 patients who had IVA <1m/s². Each group was further subdivided based on length of ICU stay and mortality. Group 1 and group 2 had no mortality nor was postoperative ICU stay more than a week. In group 3, twelve had ICU stay for more than a week and three died in hospital. Group 4, thirteen patients had ICU stay for more than 1 week and 11 died in hospital.

Conclusion: Our study showed there is a significant association of pre-operative IVA to post operative outcomes in TOF patients and those patients whose IVA values < 1m/s² had high 30 day mortality with significant P values < 0.0001. Hence, IVA can be used as a prognostic marker in TOF patients who are planned for intracardiac repair.

Noninvasive estimation of pulmonary vascular resistance in patients of pulmonary hypertension in unclassified congenital heart disease with unobstructed pulmonary flow

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Background: Pulmonary vascular resistance (PVR) is a critical and essential parameter during the assessment and selection of modality of treatment in patients with congenital heart disease accompanied by pulmonary arterial hypertension. The present study was planned to evaluate non invasive echocardiographic parameters to assess pulmonary vascular resistance.

Methods: This prospective observational study included 44 patients admitted in the cardiology and pediatric cardiology ward of our institution for diagnostic or pre-operative catheter based evaluation of pulmonary arterial pressure and PVR.

Detailed echocardiographic evaluation was carried out including tricuspid regurgitation velocity (TRV) and velocity time integral of the right-ventricular outflow tract (VTViRVT). These parameters were correlated with catheter based measurements of PVR (PVRcath).

Results: The TRV / VTViRVT ratio correlated well with PVRcath (r = 0.896, 95% confidence interval [CI] 0.816 to 0.9423, p < 0.001). Using the Bland-Altman analysis, PVR measurements derived from Doppler data showed satisfactory limits of agreement with catheterization estimated PVR. For a PVR of 6 WU, a TRV / VTViRVT value of 0.14 provided a sensitivity of 96.67% and a specificity of 92.86% (Area under the curve 0.963, 95% Confidence Interval 0.858 to 0.997) and for PVR of 8 WU a TRV / VTViRVT value of 0.17 provided a sensitivity of 79.17% and a specificity of 95% (Area under the curve 0.923, 95% Confidence Interval 0.801 to 0.982).

Conclusions: Doppler-derived ratio of TRV / VTViRVT is a simple, noninvasive index which can be used to estimate PVR. We found that TRV / VTViRVT ratio correlated well with catheterization-derived PVR and the following formula predicted PVR with reasonable certainty − PVRDoppler (WU) = 37.96 × (TRV / VTViRVT) − 0.131

McConnell’s sign predictor of massive pulmonary embolism by echocardiography

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Background: We intended to study the utility of McConnell’s sign as a predictor of massive pulmonary embolism.

Methods: Between July 2011and June 2013 the patients admitted with the diagnosis of pulmonary embolism in the intensive care unit where included into the study. The diagnosis of pulmonary embolism was confirmed by a spiral computed tomography (CT) scan showing obstruction in the pulmonary artery or it branches. Their echo report were collected retrospectively through the electronic data system and analysed. Patients who had an alternative diagnosis for breathlessness were excluded from the study.

Results: Forty seven patients were admitted to the intensive care unit with the diagnosis of pulmonary embolism during the study
Utility of longitudinal strain imaging by speckle tracking in predicting obstructive CAD in patients with no wall motion abnormality in 2D echocardiography

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Background: Abnormalities in strain imaging appear before wall motion abnormalities in the ischemic cascade. Strain imaging is yet to find definite practical utility in the routine evaluation of CAD. This study is to define the utility of strain imaging in predicting obstructive CAD in a subset of patients who do not have RWMA in routine 2D echocardiography.

Methods: Prospective study enrolling patients with no RWMA in routine 2D echo being taken up for CAG. Longitudinal strain imaging by speckle tracking using automated functional imaging was done by a single operator, using a VIVID E9 machine, prior to CAG. All angiograms were read by a second operator who was unaware of the strain imaging findings. Obstructive CAD was defined as >70% luminal diameter narrowing of any epicardial coronary artery and abnormal strain was defined as a value less negative than 20%. Strain values were calculated for each ventricular segment. The sensitivity, specificity, positive and negative predictive values for each artery as well as each coronary segment were obtained.

Results: 129 consecutive patients were enrolled over a 7 month period from Nov 2013 to May 2014. Strain imaging had a high sensitivity- 97% for LAD, 90.69% for RCA, 91.6% for LCX, a high negative predictive value- 81.81% for LAD, 91.3% for RCA, 92.3% for LCX but a poor specificity- 15.2% for LAD, 13.9% for RCA, 22.8% for LCX and a poor positive predictive value-57.6% for LAD, 34.5% for RCA and 21.3% for LCX territories.

Conclusion: Strain imaging has a high sensitivity and high negative predictive value when compared to CAG (gold standard) in identifying obstructive CAD, thus making this a good test to rule out obstructive CAD in a low risk population. Though, in this study, strain imaging has not been compared to TMT, as these tests represent different physiological states of rest and exertion, strain imaging may be used in patients who cannot undergo TMT. CAG may be avoided in patients with normal strain values.

Effect of balloon mitral valvotomy on left ventricular function in rheumatic mitral stenosis

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Background: Mitral stenosis (MS) is found to produce left ventricular dysfunction in some studies. Even in the presence of preserved global LV function as measured by ejection fraction, there can be impairment in long-axis function as shown by tissue Doppler echocardiography. We sought to study the left ventricular function in patients with rheumatic MS undergoing balloon mitral valvotomy (BMV).

Methods: In this prospective cohort study, we included 43 patients with severe rheumatic mitral stenosis undergoing BMV. They were compared to twenty age-matched healthy controls. The parameters compared were left ventricular (LV) ejection fraction (EF) by modified Simpson’s method, mitral annular systolic velocity (MASV), mitral annular plane systolic excursion (MAPSE), mitral annular early diastolic velocity (E’), and myocardial performance index (MPI).

Results: Mitral annular systolic velocity, MAPSE and E’ and EF were significantly lower and MPI was higher in mitral stenosis group compared to controls. Impaired longitudinal LV function was present in 77% of study group. Within the study group, atrial fibrillation patients had a higher MPI with other parameters being similar. Mitral annular plane systolic excursion and EF did not show significant change after BMV while MPI, MASV and E’ improved significantly .Mitral annular systolic velocity and E’ showed improvement immediately after BMV, while MPI decreased only at 3 month follow up.

Conclusions: There was significantly lower mitral annular motion parameters and higher myocardial performance index in patients with rheumatic mitral stenosis. Those with atrial fibrillation had higher MPI compared to those in sinus rhythm, indicating a worse global LV function. Immediately after BMV, there was improvement in LV long axis function with a gradual improvement in global LV function.

Diagnostic performance of echocardiography in cases of hypothyroidism

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Background: The aim of this study was to assess the diagnostic validation of myocardial performance parameter by