

### Left atrial thrombus index (LATI) is a sensitive marker for the detection of left atrial appendage (LAA) thrombus in atrial fibrillation (AF) patients with less CHADS2 score

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**Background:** Aim of the study is to evaluate the predictive correlation between LA thrombus index by transthoracic echocardiography in AF patients and LAA thrombus detection by transesophageal echocardiography in AF patients with CHADS2  $\leq$  1.

**Methods:** Patients with non valvular atrial fibrillation (AF) presenting to the Osmania general hospital, Hyderabad with CHADS2  $<$  1 were included. Patients with CHADS2  $>$  1 are excluded from the study. The defined patient population is screened with CHADS2 score and ECG. Then transthoracic echocardiographic parameters La volume index is calculated by Simpson's method and LVEF measured by Simpson's rule and transesophageal echocardiography are done for LAA thrombus in all AF patients with CHADS2  $\leq$  1. The parameters are analyzed for its correlation.

**Results:** 25 consecutive patients of nonvalvular AF were analysed. Mean age of presentation was 53.1 $\pm$ 9.1yrs. Male and female ratio was 1.27:1(14,11). Echocardiographic analysis showed LATI, a new parameter for LA/LAA thrombus burden, to be significantly correlated with presence of LA/LAA clot. Other echo parameters like Mitral e' velocity ( $>$ 10cm/sec) and E/e' ratio ( $>$ 11) were predictive of for the presence of LA/LAA clot. The routine parameters used as a scale for starting anticoagulants in patients with non valvular AF i.e LA size( $>$ 5cm), LAVI( $>$ 28ml/m<sup>2</sup>), LAA velocity (40cm/sec) were found to be not statistically significant with relation to presence of LA/LAA clot.

**Conclusions:** Atrial fibrillation is the most common cause of arrhythmia. AF patients with CHADS2 score  $<$  1 need to be assessed precisely to avoid the embolic episodes by evaluation of Echo parameters like LATI, E/e' and Mitral e' velocity in addition to assessing LA size, LAVI and LAA velocity. The early initiation of anti coagulation by use of above parameters will help in reducing the morbidity and mortality.

### Echocardiographic assessment of right ventricular function in acute myocardial infarction

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**Background:** Data on the association between right ventricular (RV) function and left ventricular (LV) dysfunction and Killip class in acute myocardial infarction (AMI) is scarce. The purpose of the current study was to evaluate the relation between RV function and LV dysfunction and Killip class in AMI exclusive of RV infarction.

**Methods:** Consecutive patients admitted to coronary care unit with AMI underwent echocardiography within 24 hours of admission to assess RV and LV function. RV function was quantified with Tricuspid annular plane systolic excursion (TAPSE), RV

fractional area change (RVFAC), RV longitudinal strain, RV myocardial performance index (RVMPI). These were compared with the LV ejection fraction and Killip class.

**Results:** In a cohort of 13 patients, the mean age was 47.3 years. There were 11(84.6%) males and 2(15.4%) females. There were 7(53.8%) patients in Killip class 1, 3(23.1%) in class 2, 2(15.4%) in class 3 and 1(7.7%) in class 4. There were 3 (23.1%) diabetics, 7(53.8%) hypertensives, 3(23.1%) dyslipidemic and 4(30.8%) smokers. There were 10(76.9%) patients with anterior wall AMI and 3(23.1%) patients with inferior wall AMI. RV longitudinal strain and RVFAC had a significant negative correlation with Killip class ( $r^2=0.657$ ,  $p=0.01$ ) and LV ejection fraction ( $r^2=0.657$ ,  $p=0.01$ ).

**Conclusion:** In a cohort of 13 patients presented with mostly anterior wall AMI, the RV longitudinal strain and RVFAC had a significant negative correlation with Killip class and LV ejection fraction, demonstrating that larger infarcts correlated with RV dysfunction. TAPSE and RVMPI poorly correlated with RV dysfunction. RV longitudinal strain and RVFAC enables direct quantification and are sensitive to detect RV dysfunction in the setting of AMI and independently predict the worse outcome.

### RV function assessment by TDI in Patients with acute IWMI with or without RV infarction

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**Background:** Assessment of Right ventricular (RV) function is least considered in patients with acute myocardial infarction. With use of Echocardiography RV function can be easily determined using tissue Doppler imaging.

**Aim:** This study was designed to determine the RV function by tissue Doppler imaging (TDI) in patients with inferior wall MI (IWMI) with or without right ventricular involvement (RVMI).

**Methods:** 56 patients with a first episode of acute MI (isolated IWMI: 45, IWMI with RVMI: 11) and 25 healthy controls were included in the study. From the echocardiographic apical 4-chamber view, tricuspid annular motion (TAM), tricuspid annular velocity systolic (TAV-S), tricuspid annular early diastolic velocity (TAV-E) and late diastolic velocity (TAV-L) were recorded at the RV free wall with the use of TDI.

**Results:** TAM was reduced in IWMI patients as compared to controls (17.3 and 26 mm,  $p < 0.01$ ). TAV-S was reduced in patients with IWMI compared to controls (12 vs. 23.0 cm/s,  $p < 0.01$ ), also TAV-E was significantly lower in patients with IWMI than controls (11.1 and 22mm,  $p < 0.01$ ). Patients having both IWMI and RVMI as compared to patients with isolated IWMI had significantly less TAM (13.9 and 17.3 mm,  $p < 0.01$ ), TAV-S (9.5 and 12 cm/s) and TAV-E (7.5 and 11.1 cm/s,  $p < 0.01$ ). However TAV-L did not show any significant difference in patients as compared to controls.

**Conclusions:** So, by using TDI, TAM and TAV can be used to assess RV function in patients with IWMI with or without RVMI. These parameters are significantly reduced in IWMI patients as compared to controls. Patients with RV involvement were found to have significantly reduced parameters as compared to patients with isolated IWMI.