

## Study of tricuspid annular motion in right coronary artery-related acute inferior myocardial infarction with or without right ventricular involvement



B. Khedkar Umesh\*, Gavade Sachin, Patil Ganesh,  
A.U. Mahajan, P.J. Nathani

Department of Cardiology, Lokmanya Tilak Municipal Government  
Hospital & Medical College, Sion, Mumbai, India

**Background:** Presence of right ventricular (RV) infarction imposes a higher risk of adverse events in inferior wall myocardial infarction (IWMI). In this study, we attempted to correlate various indices of RV function assessed by echocardiography with presence of right coronary artery (RCA) stenosis and effect of thrombolysis on these indices.

**Objective:** Tricuspid annular movement and velocities before and after thrombolytic therapy were investigated for the detection of RV involvement in RCA-related acute inferior myocardial infarction (IMI).

**Methods:** Patients with RCA-related acute IMI were evaluated for this prospective cohort study. Annular movement was measured by TAPSE (tricuspid annular plane systolic excursion), and annular velocities were measured by tissue Doppler echocardiography. Data collected before and after thrombolysis and angiography. The diagnosis of RV infarction was defined by ST segment elevation  $>0.1$  mV in lead V4R. Chi-square and Student's t-tests were used in statistical analysis.

**Results:** Thirty-one patients were included. Before thrombolysis, annular velocities and TAPSE were found significantly higher in patients without RVMI than in patients with RVMI. Comparison of tricuspid systolic velocity ( $S'$ ) and movement before and after thrombolytic therapy in patients without RVMI revealed no significant difference ( $21.6 \pm 2.1$  mm vs.  $21.8 \pm 2.0$  mm  $p > 0.05$  and  $136.1 \pm 8.8$  mm/s vs.  $137.5 \pm 9.0$  mm/s  $p > 0.05$ , for TAPSE and  $S_a$  respectively). Contrarily, in patients with RVMI, TAPSE and systolic velocity increased significantly after thrombolysis compared with pre-thrombolysis ( $16.2 \pm 2.0$  mm vs.  $17.6 \pm 1.8$  mm  $p = 0.001$  and  $110.0 \pm 12.6$  mm/s vs.  $113.08 \pm 12.7$  mm/s  $p = 0.027$  for TAPSE and  $S'$  respectively). Diastolic velocities did not change significantly after thrombolysis in patients with RVMI.

**Conclusion:** Tricuspid annular movement and velocity measurement by echocardiography may contribute to echocardiographic diagnosis of RV involvement in RCA-related IMI. Patients without RVMI have significantly higher annular velocities and TAPSE than in patients with RVMI before thrombolysis. Only in IMI patients with RVMI, significant increases in TAPSE and  $S_a$  were observed after thrombolysis.

## A case of discrete sub-aortic membrane (SAM) causing severe aortic stenosis with regurgitation



Shaad Aqbari, Asif Hasan, Srikant Behera

Jawaharlal Nehru Medical College Aligarh, AMU, India

**Background:** Subaortic membrane (SAM), a fibroelastic diaphragm like discrete circular tissue although a rare condition is usually associated in 60–70% cases with VSD, Atrioventricular septal defect, Bicuspid Aortic Valve, Coarctation of Aorta and often complicating into Infective Endocarditis. Even asymptomatic membrane should be removed early because of risk of progressive valve damage. The diagnosis on echocardiography is often missed due to its close proximity to aortic valve.

**Case:** A 7 year old female presented with recurrent episodes of fast breathing of 2 months duration. Examination revealed mild tachypnea while maintaining saturation on room air, HR of 110/min, Blood Pressure – 96/66 mmHg. CVS examination included normal S1&S2, harsh systolic murmur in Aortic area while rest of the systemic examination was unremarkable. Echocardiography showed evidence of Intact IAS and IVS, normal ejection fraction and a discrete membrane beneath aortic valve causing severe stenosis and mild regurgitation of aortic valve.

Once Doppler derived LVOT gradient reaches  $\geq 50$  mmHg, risk of aortic regurgitation rises. Doppler derived estimated peak instantaneous pressure gradient  $\geq 50$  mmHg (severe SAM) should direct operative resection of SAM. Surgical intervention should be considered at lower gradients (peak instantaneous pressure gradient  $< 50$  mmHg) if there is LV systolic dysfunction, moderate/severe AR or a VSD.

The child was immediately sent for surgery as the subvalvular obstruction is always progressive. The regurgitation is often due to jet of AS hampering the closure of aortic valve.