Late right ventricular dysfunction in inferior myocardial infarction with right ventricular involvement

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Purpose: Recovery of right ventricular (RV) function has been reported after RV infarction. The aim of this study is to assess RV function one year after an inferior myocardial infarction (MI) with RV involvement.

Method: Forty-two patients with previous inferior MI have been enrolled. Twenty patients (group I) had inferior MI with RV involvement (ST elevation >0.1 mV in V4R with culprit lesion on the right coronary artery proximal to RV branch) whereas 22 patients (group II) had inferior MI without RV involvement. All patients underwent primary percutaneous coronary intervention (PCI). The 2 groups had similar mean ages and sex ratio. All included subjects had no evidence of valvular or chronic pulmonary diseases. All patients were recalled one year after MI for echocardiographic assessment.

Results: We observed no difference in left ventricular ejection fraction between the 2 groups (49±4% vs. 50±3%, NS). Right ventricular diastolic diameter, RV ejection fraction, conventional Tei index, tricuspid annular plane systolic excursion and pulmonary arterial pressures were similar in both groups. However, the tricuspid annulus systolic velocities obtained at the basal RV free wall by tissue Doppler imaging (TDI) were significantly decreased in group I (9.1±1.7 cm/s vs. 14.1±1.9 cm/s, p<0.01) reflecting subclinical RV systolic dysfunction. Among group I patients, impaired RV systolic function at TDI is significantly pronounced in the subgroup with delayed primary PCI (>6 hours).

Conclusion: Our study shows that RV subclinical dysfunction persists late after RV infarction and apparent clinical RV recovery. Tissue Doppler imaging is the most powerful technique to monitor disease process.