Incidence and predictors of pacemaker induced left ventricular dysfunction in patients with right ventricular pacing

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Introduction: Asynchronous activation of left ventricle (LV) due to chronic right ventricular (RV) pacing has been known to predispose to LV dysfunction. The predictors of LV dysfunction remain to be prospectively studied. This study was designed to follow up patients with RV pacing to look for development of LV dysfunction and identify predictors of LV dysfunction.

Methods: Three hundred sixty three patients undergoing dual chamber and single chamber ventricular implants were enrolled and followed up. Baseline clinical parameters; paced QRS duration and axis; RV lead position by fluoroscopy; LV ejection fraction (LVEF) by simpson’s method on transthoracic echocardiography (TTE); intraventricular dysynchrony (spetal-posterior wall contraction delay) and interventricular dyssynchrony (aorto-pulmonary ejection delay) on TTE were recorded. The patients were followed up at 6-12 monthly interval with estimation of LVEF and pacemaker interrogation at each visit. Pacemaker induced cardiomyopathy (PiCMP) was defined as a fall in ejection fraction of 10% as compared to the baseline LVEF. Patients developing PiCMP were compared to other patients to identify predictors.

Result: The mean age of study population was 59.8 years, 68.3

Conclusion: Incidence of PiCMP with RV pacing was found to be 13.8% over a mean follow up of 14.5 months. Burden of right ventricular pacing and interventricular dyssynchrony were identified as the most important predictors for the development of PiCMP.