The Long-Term Effectiveness of Right Ventricular Pacing at Different Sites Using Rotation, Torsion and Tei Index

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Background: Long-term right ventricular apical (RVA) pacing leads to left ventricular (LV) dysfunction. However, right ventricular septal (RVS) pacing may better preserve ventricular performance, but this has not been systematically tested. The aim of the present study was to compare RVS-pacing with RVA-pacing, in terms of left ventricular rotation, torsion and Tei-index by echocardiography. Methods: We present 37 patients who underwent implantation of dual chamber pacemaker for atrioventricular block either in the RVS (Male:8, Female 7, mean age 77±11) or in the RVA (Male: 14, Female: 8, mean age 74±13). All patients were assessed by echocardiography 12 months later from implantation. The exclusion criteria in this study were applied cumulative percent ventricular paced of less than 80%, atrial fibrillation and structural heart disease. Result: Paced QRS duration was of RVS-pacing significantly shorter than RVA-pacing (RVS: 121±16msec vs. RVA: 138±12msec, P<0.05) There was no significant difference of medication, block site, LV ejection fraction and rotation. However, The torsion was significantly increased in the RVS-pacing, compared with RVA-pacing(RVS: 4.4 ±1.3° vs RVA:3.0±2.7°,P<0.05 ). Tei-index was significantly lower in the RVS-pacing than in the RVA-pacing (RVS: 0.55±0.22 vs RVA: 0.73±0.21,P<0.05). Conclusion: LV torsion and Tei-index during RVS-pacing was greater than RVA-pacing. This study suggest that RVS-pacing may be physiological pacing. Keywords: atrioventricular block, torsion, septal pacing