Left ventricular dyssynchrony between right ventricular septal pacing and right ventricular apical pacing: one year follow up.

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Introduction: Chronic right ventricular pacing can lead to an increased risk of ventricular dyssynchrony (VD), heart failure and mortality. It is thought that ventricular dyssynchrony is affected by underlying disease, pacing mode, pacing site. Some investigators showed that LV function is better in RV septal (RVS) pacing than in RV apex (RVA) pacing. We investigated the VD in patients implanted with permanent pacemaker (PPM) according to the pacing site after one year.

Methods: We enrolled 36 patients (11 male (30.6%), 72.3 ± 10.9 years) with complete AV block who underwent successful pacemaker implantation (ventricular pacing greater than 90%) from 2017 to 2018. They were divided into two groups as pacing site (RV septum vs. RV apex). We analyzed baseline characteristics, 12 lead surface electrocardiogram, and echocardiography after one year. The degree of LV dyssynchrony was evaluated by tissue Doppler imaging.

Result: Baseline characteristics was not different between two groups. At one year follow up, VD was seen in 15 (42.9%) patients. The degree of VD was significantly higher in RVA (65.0% vs. 13.3%, p=0.005). Paced QRS duration was longer in RVA (172.3 ± 10.8 vs. 163.7 ± 7.7, p=0.009). However, there was no statistically significant difference in LV ejection fraction (65.0 ± 8.7 vs. 62.4 ± 8.9, p=0.234) and cardiac death, hospitalization due to heart failure.

Conclusion: Although RVS pacing has narrower paced QRS complex, lesser ventricular dyssynchrony compared with RVA pacing, they did not show any difference in clinical outcome during one year follow up. A large number of patients and long term follow up are likely to be required.