Elementary analysis of His-Purkinje system pacing in patients who underwent cardiac resynchronization therapy with failure of the LV lead placement via coronary sinus

Hongxia Niu  
Yiran Hu  
Min Gu  
Wei Hua

**Introduction**: His-Purkinje system pacing (HPSP) is a physiological pacing therapy. We aimed to explore the clinical application of in patients who underwent cardiac resynchronization therapy (CRT) with failure of the LV lead placement via coronary sinus (CS).

**Methods**: Pacing parameters and cardiac function indicators of 7 CRT patients undergoing HPSP with failure of the LV lead placement successfully from December 2017 to March 2019 were retrospectively analyzed in this study.

**Result**: Among them, 3 underwent His-bundle pacing, another 4 underwent left bundle branch area pacing. The His-bundle (HB) capture threshold was 2.03 ± 0.42V/1.0ms at implant and 2.00 ± 0.35V/1.0ms at 3-month follow-up. However, the LBBAP capture threshold was 0.75 ± 0.25V/0.4ms at implant and 0.63 ± 0.10V/0.4ms at 3-month follow-up. Besides, the average QRS duration (175.7 ± 13.5 vs 125.4 ± 9.6ms; P<0.001), left ventricular ejection fraction (31.7 ± 6.6 vs 41.0 ± 6.4%; P=0.005), left ventricular end-diastolic diameter (71.0 ± 6.9 vs 63.0 ± 7.4mm; P=0.001) and six-minute walk distance test (306.6 ± 32.5 vs 391.9 ± 69.8m; P<0.001) were significantly improved at 3-month follow-up.

**Conclusion**: HPSP, as an alternative for patients undergoing CRT with failure of LV lead placement, can ameliorate electrical dyssynchrony and improve cardiac function in patients with heart failure.