

**Selective-site pacing in children using the SelectSecure System: effect on left ventricular function.**

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Introduction: Few data are available about selective-site pacing in children. A small lead potentially ideal for transvenous pacing in young patients is now available. In order to put in evidence a possible deterioration of left ventricular function, we prospectively evaluated the effect of right ventricular mid-septum (RVMS) pacing on Left Ventricular Ejection Fraction (LVEF) of children undergoing selective-site pacing by SelectSecure Lead System (SSLS).

Patients and Methods. From June 2006 to January 2011, 50 leads (25 atrial, 25 ventricular) were implanted in 25 patients (10 females) with complete atrio-ventricular block. Mean age at implantation was 9 years (range 3-17), mean weight 31 Kg (range 13-54). All patients received a dual chambers DDD pacemaker. LVEF was evaluated by echocardiography using the Simpson's method at 1, 3, and every 6 months after pacemaker implantation.

Results. Median length of follow-up was 24 months (range 6-55). LVEF at first implantation and at last follow-up was  $57.32 \pm 14.7$  and  $61.36 \pm 9.9\%$  ( $p=0.03$ ), respectively. Deterioration of LV function never occurred. In two patients with heart failure clinical condition and LVEF rapidly improved; in one diuretics and ACE inhibitors were discontinued and he was removed from the heart transplant list; in the second one normalization of cardiac size was observed. Mean QRS duration during spontaneous rhythm and RVMS pacing was  $96.8 \pm 21.5$ ms and  $100.48 \pm 18.1$ ms respectively ( $p= 0.26$ ).

Conclusion. RVMS pacing might restore a physiologic electrical activation and synchronization. SSLS is a promising system for permanent intracardiac pacing in children. In our population LV function significantly improved, and particularly so in patients with severe ventricular dysfunction. Although our preliminary results are promising, controlled studies are mandatory to confirm the positive effect of this technique on LV function.