Abstract: **P5682**

**Cardiac resynchronization therapy with a single left ventricular septal pacing electrode: acute hemodynamic and electrophysiological effects**

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**Topic(s):**
Cardiac Resynchronization Therapy

**Citation:**

**Funding Acknowledgements:**
Medtronic is a subsidising party.

**Background**

Cardiac resynchronization therapy (CRT) is usually performed with a right (RV) and left ventricular (LV) lead. In a previous patient study, pacing the interventricular septum permanently on the LV endocardial side (LV septum) proved feasible in patients with sinus node dysfunction.

**Objective**

To investigate the effects of LV septal pacing as compared to conventional biventricular (BiV) pacing with respect to acute hemodynamic and electrophysiological effects in CRT indicated heart failure patients.

**Methods**

Temporary LV septal pacing (transarterial approach) and pacing in the conventional BiV mode using the implanted leads was performed in 26 patients (QRS duration 163 ± 17 ms, 23 left bundle branch block patients) undergoing CRT implantation. Acute hemodynamic response (relative to baseline AAI pacing) was assessed by LVdP/dtmax. Multi-electrode body-surface mapping, what has been used previously to characterize electrical dyssynchrony in CRT patients, was evaluated using the standard deviation of activation times (SDAT) (figure, right panel).

**Results**

LV septal pacing resulted in a significant LV dP/dtmax increase, that was comparable to conventional BiV pacing (figure, left panel). Combined RV and LV septal pacing did not provide an additional increase. LV septal pacing resulted in a significantly larger reduction in SDAT than RV plus LV septal pacing and conventional BiV pacing (figure, middle panel).

**Conclusions**

LV septal pacing results in acute hemodynamic improvement and electrical resynchronization that is at least as good as conventional BiV pacing. These results suggest that LV septal pacing with a single ventricular lead may serve as an alternative to conventional BiV pacing for cardiac resynchronization.
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