

Identifying the optimal location for LV endocardial pacing: results from a multicentre international registry

Authors:

B Sieniewicz¹, J Behar¹, M Sohal¹, J Gamble², T R Betts², P Jais³, N Derval³, D Spragg⁴, P Steendijk⁵, B Van Gelder⁶, F Bracke⁶, A Rinaldi¹, ¹King's College London, Division of Imaging Sciences and Biomedical Engineering - London - United Kingdom, ²Oxford University Hospitals NHS Trust - Oxford - United Kingdom, ³Hospital Haut Leveque - Bordeaux-Pessac - France, ⁴Johns Hopkins University of Baltimore - Baltimore - United States of America, ⁵Leiden University Medical Center - Leiden - Netherlands, ⁶Catharina Hospital - Eindhoven - Netherlands,

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Background: Biventricular endocardial (BIV ENDO) pacing may offer a potential benefit over standard CRT, especially in non-responders however, the optimal site for left ventricular endocardial (LV ENDO) stimulation is undefined.

Objective: We sought to identify the optimal LV ENDO pacing site by evaluating the pacing location that resulted in the the best acute haemodynamic response (AHR) during BIV ENDO pacing.

Methods: Registry of LV endocardial acute pacing studies from five international centres: Johns Hopkins- USA, Bordeaux- France, Leiden- The Netherlands, Oxford- United Kingdom and King's College London- United Kingdom. AHR was measured acutely with a pressure wire and optimal sites were defined using a modified 9 segment version of the AHA 17 segment circumferential polar plot.

Results: A total of 104 patients were studied, incorporating 687 endocardial pacing locations. Patients were predominantly male, mean age 66.4±11.3 years, mean LVEF was 24.6%±7.7% and mean QRS duration 163±30ms. There was a near equal split between ischemic and non-ischemic aetiology. The optimal AHR was identified most frequently at the basal lateral (22%) and mid lateral positions (19.5%), see Figure 1. A lateral position was the optimal endocardial pacing location in 41.5% of patients. In DCM patients, a lateral position was optimal in 40.7%. In ICM patients the lateral position achieved the optimal AHR in 44.4% of patients.

Conclusions: The optimal endocardial pacing site is highly variable between patients with DCM and ICM. Mid and basal lateral positions proved the optimal endocardial pacing location in the majority of patients. Our findings lend further weight to the theory that the endocardial "sweet spot" is unique to each patient across both ischaemic and non-ischaemic pathologies.

