Patients implanted with a WiSE-CRT system have a trend towards superior reverse left ventricular remodelling compared with those receiving conventional epicardial cardiac resynchronisation therapy upgrades

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Introduction: Heart failure (HF) patients undergoing CRT upgrades are more symptomatic and have lower rates of reverse LV remodelling compared with de novo implants. WiSE-CRT delivers endocardial LV pacing and has many advantages over epicardial CRT which can be particularly useful in this upgrade population. Currently, WiSE-CRT is reserved for patients considered high risk for epicardial CRT such as venous occlusion, risk of pocket infection and multiple co-morbidities placing patients at an increased risk.

Methods: Consecutive patients undergoing epicardial CRT upgrades at Guy’s and St Thomas’ between 2014-2018 were compared with patients undergoing high-risk CRT upgrades with a WiSE-CRT.

Result: 95 patients were included; 58 epicardial and 37 endocardial CRT. Baseline demographics for epicardial vs. endocardial CRT upgrades include: 71.2±12.2 vs. 67.9±11.4 years (p=0.098), 77.6±0.4 vs. 83.8±0.4% (p=0.023) male, 39.7±0.5 vs. 37.8±0.5% (p=0.859) ischaemic, QRS 176.3±27.5 vs. 182.4±29.0ms (p=0.315) and LVEF 30.2±8.2 vs. 29.7±7.9% (p=0.796). At 6 month follow-up, epicardial CRT upgrades had an 81% improvement in clinical composite score (alive, no HF hospitalisations, improvement in NYHA or global assessment) and 78% had improvement following WiSE-CRT (p=0.784). There was a trend towards a non-significant improvement in LV remodelling following WiSE-CRT compared with epicardial CRT; 73.5±0.4 vs. 66.0±0.5% (p=0.367) of patients had an absolute change in LVEF≥5% and 69.0±0.5 vs. 52.8±0.5% (p=0.185) of patients had improvement in
LVESV $\geq$ 15%.

**Conclusion**: Patients undergoing high-risk CRT upgrades with a WiSE-CRT system have comparable outcomes with those patients undergoing epicardial CRT upgrades. There is a tendency towards improved LV remodelling following WiSE-CRT, however further studies are required to determine if this reaches significance in a larger patient cohort.