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

Baldeep Sidhu
Justin Gould
Bradley Porter
Timothy Betts
Simon James
Andrew Turley
Christian Butter
Martin Seifert
Pasquale Vergara
Lucas Boersma
Sam Riahi
Petr Neuzil
Mauro Biffi
Igor Diemberger
Martin Arnold
David Keane
Pascal Defaye
Jean-Claude Deharo
Richard Schilling
Anthony Chow
Christopher Aldo Rinaldi

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.