The WiSE-CRT system results in reverse left ventricular remodelling and improved symptoms in patients who are deemed non-responders to conventional epicardial cardiac resynchronisation therapy

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
Andrew Chow
Christopher Aldo Rinaldi

**Introduction** : The management of heart failure patients who are CRT non-responders (remain symptomatic and have no evidence of reverse left ventricular (LV) remodelling following epicardial CRT) remains limited. Studies have shown that endocardial LV pacing is potentially superior to epicardial LV pacing since it allows faster electrical activation, is more physiological and provides a greater selection of pacing sites enabling the operator to select the optimal site without any myocardial scar. The WiSE-CRT system was developed to provide endocardial LV pacing and may be particularly useful in CRT non-responders to improve patient outcomes.

**Methods** : All CRT non-responders who successfully had the WiSE-CRT system implanted were analysed. Patients were considered CRT responders if they had evidence of left ventricular remodelling at 6 months or had an improvement in their clinical composite score (CCS); alive, no heart failure hospitalisations, improvement in NYHA functional class or improvement in patient global assessment.

**Result** : Overall 17 patients were analysed, baseline demographics include: age of 68.2±7.9 years, 94.1% male, 41.1% ischaemic aetiology, NYHA functional class 2.8±0.4, QRS duration 169.1±23.8ms and LVEF 25.6±8.0%. There were no acute complications and only 1 patient developed a pocket haematoma during the follow-up period. Overall, 58.8% of patients had an improvement in their CCS, 53.3% had an improvement in end-systolic volume (ESV) of ≥15% and 64.7% had an absolute increase in LVEF of ≥5% or improvement in ESV of ≥15%.
Conclusion: The management of CRT non-responders remains difficult with limited treatment options. Our analysis has shown that in this high-risk patient group, the WiSE-CRT system results in a considerable improvement in the clinical composite score and leads to reverse left ventricular remodelling. These encouraging results suggest an important role for the WiSE-CRT system in the management of CRT non-responders.