Does A Trans-Septal Approach For Implantation Of The WiSE-CRT Leadless Endocardial Left Ventricular Pacing System Reduce The Incidence Of Vascular Complications?

Introduction: WiSE-CRT is a leadless CRT endocardial pacing system. It uses ultrasound technology to transfer energy from a subcutaneous pulse generator to a receiver implanted directly into the Left Ventricle (LV) endocardial wall. To date this procedure has been performed via a retrograde aortic route which necessitates large gauge femoral arterial access. This is a potential risk to a population of patients with potential vascular disease. A trans-septal access route for implant has been used in a small number of patients in whom retrograde access for implantation is either not feasible or not safe. We compare the efficacy and safety of implanting the WiSE-CRT system via a trans-septal approach versus the standard retrograde aortic route.

Methods: WiSE-CRT was implanted via a trans-septal route in cases where retrograde access was either unfeasible or unsafe. Procedural outcome data, site of implant and complication data was collected and compared with a contemporaneous cohort of implants performed using a retrograde aortic approach.

Result: 20 patients (15 male / 5 female) underwent trans-septal implant at 7 centres. Mean age was 69.7±9.4 years. The electrode was successfully implanted in all 20 cases. locations of each implant is summarised in figure 1. Contraindications to a retrograde approach were: severe peripheral vascular disease-12, mechanical AVR - 4, morbid obesity - 2, TAVR - 1, Aorto-bifemoral graft - 1. In the trans-septal group there were no acute vascular or thromboembolic complications, no incidence of perforation / tamponade. In the retrograde aortic comparator group of 80 cases there were the following: Vascular complications-5 (haematoma -1, pseudoaneryysm-3, reduced flow necessitating removal of closure sutures-1), tamponade-1, perforation with sheath-1.

Conclusion: Leadless endocardial LV pacing utilising a trans-septal approach is both feasible and safe. It is possible to access a wide range of target sites for implant successfully. This technique removes the incidence of vascular complication that is associated with large gauge arterial access.