Performance of MICRA pacemaker at 12 months follow-up

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Introduction: Leadless trans-catheter pacemaker systems have been developed to overcome the need for a pacemaker pocket and transvenous lead.

Methods: Describe the procedure details & electrical parameters during implantation and up to 12 months follow-up.

Result: 16 patients were recruited from August 2016 to September 2018. Mean age of patients was 66.9 +/- 8.7 years old (8 male). Indications for pacemaker were sick sinus syndrome (56.3%, n = 9) & complete AV block (43.7%, n = 7). 87.5% (n= 14) were patients on haemodialysis via upper limbs arteriovenous fistula (AVF) & lack of venous access for traditional transvenous permanent pacemaker implantation. 6.3% (n=1) were patient on long term steroids & immunosuppressant therapy with the concern about wound healing. Mean duration of implantation procedure was 63.25 +/- 41.8 minutes, while mean fluoroscopy time was 11.86 +/- 5.02 minutes. 15 patients underwent the procedure under local anaesthesia with conscious sedation and 1 patient who had subcutaneous ICD & MICRA leadless pacemaker implanted during the procedure was done under general anaesthesia. The pacemaker was deployed successfully on 1.5 +/- 0.9 attempts (ranging from 1 – 4 attempts). The device was implanted at RV apical-septum in 15 patients & RV low-septum in 1 patient. Mean values of the R wave were 9.0 +/- 5.5 mV, impedance were 669 +/- 177 ohms & pacing threshold were 0.76 +/- 0.54 V at pulse width of 0.28 +/- 0.09 ms during implantation. The femoral puncture sites of all patients were closed with a Figure of 8 stitch suturing method. 1 patient developed hematoma at the groin puncture site post-procedure was managed conservatively. At 12 months, 9 patients passed away due to underlying other medical illness & not device related. 1 of the patient passed away 2 months after MICRA implantation due to MRSA sepsis from haemodialysis catheter related bacteremia.

Conclusion: Implantation of leadless pacemakers is feasible & safe. The pacemaker & electrical parameters were stable at 12 months follow-up. Longer-term follow up is clearly required but the early experience appears positive.