Aveir Leadless Pacemaker implantation in pediatric population: a case series

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Background: While the Medtronic Micra pacemaker provided a small device for leadless pacemaker implantation, the Aveir device allows chronic retrievability and mapping prior to fixation. We present the first Aveir leadless pacemaker implantations in a pediatric population.

Purpose: To describe the first retrievable leadless pacemaker implants in children.

Methods: Retrospective review of pediatric Aveir implants occurred between November 2022 and December 2022. All patients were implanted via internal jugular vein insertion utilizing the Aveir sheath and catheter deployment system with mid-atrial approach taken prior to insertion of the catheter across the tricuspid valve. All patients had initial mapping of capture threshold, impedance and R-wave noted prior to deployment. Indications for pacing included sinus pauses and intermittent atrioventricular block.

Results: Three patients underwent Aveir leadless pacemaker implantation with weights of 32.3kg, 44kg, and 51kg. Capture thresholds were all 0.75Volts@0.2 milliseconds with impedance range of 370-1110 ohms, and R-waves of 8-14 millivolts (mV). Follow-up at 3 months ranged from 0.5V@0.2ms to 1V@0.2ms with impedances ranging 400-700 ohms, and R-wave 7-14 mV. At VVI 50-55bpm, with pacing ranged from 5% to 14%, predicted longevities ranged from 20 to 24.5 years at 3 months follow-up.

Conclusion(s): Retrievable leadless pacemaker implantation is feasible in children and may offer good longevities for intermittent pacing need.
Aveir Leadless Pacemaker in RV