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Ten year performance of the 4.1 French, lumenless, catheter-delivered pacing lead among patients with and without congenital heart

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Introduction: The lumenless, 4.1F diameter M3830 steroid pacing lead (Medtronic, Inc.) is a coaxial, solid core, non-stylet-delivered design. Approved for use in 2005, the very long term performance is largely unknown, especially among congenital heart disease (CHD) pts and with implant at alternate (non appendage/apex) pacing sites (AP). This study presents 10 year post implant evaluation of this lead among CHD pts.

Methods: From 2005-2015, 126 pts (age 2-50, mean 19y, 58% male) received 190 leads: atrial 105; ventricle 85. CHD pre-/post-repair structural anatomy (73%) included septal defects, tetralogy and transposition with 93% implant at AP (e.g. septal). Data included sensing, pacing thresholds and lead impedances (Imp).

Results: Follow-up was from 1-120 months (mean 60) with >50% of pts followed > 5 y post implant. Comparative implant with latest follow-up showed excellent < 1v) pacing thresholds (volts at 0.4-0.5ms) graph): atrial (A) (0.70±0.3 vs. 0.63±0.3 vs. (P=NS)) and ventricular (V) (0.64±0.3 vs. 0.89±0.4 vs. (p<0.05)) and sensed P (mean 3.5±1.9 vs. 3.6±2mv (NS) and R waves (10.6±5 vs. 9.6±4.8mv (NS). Lead Imp were all in the normal range for lead design (A: 745±223 vs. 556±121 Ω: V 845±255 vs. 522±82 Ω (p < 0.05). Only 2 A leads dislodged (< 1 month) and one was repositioned and 2 other leads (1 A, 1 V) were extracted.

Conclusions: The 4.1Fr, lumenless pacing lead shows ease of implant regardless of CHD or site, excellent very long term (10y) stability and performance indices with a very low rate of complications.

Biography

Peter P Karpawich completed his Masters in Science degree from The University of Detroit and his Medical Degree from Hahnemann/Drexel University in Philadelphia, PA. He completed his Post-doctoral Residency in Pediatrics at The Children's Medical Center, University of Texas (Dallas) and Pediatric Cardiology Fellowship at Texas Children's Hospital, Baylor University (Houston). He the founder and Director of the Cardiac Electrophysiology Program at the Children's Hospital of Michigan and Professor of Pediatric Medicine, Wayne State University School of Medicine (Detroit). He has published over 250 scientific papers, textbook chapters and textbooks and is on the Editorial staff of several internationally-recognized medical journals.

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