SIX-YEAR EXPERIENCE WITH A LUMENLESS PACING LEAD IN PEDIATRICS AND CONGENITAL HEART DISEASE

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Background: Pediatric and congenital heart disease (CHD) patients requiring permanent pacing present unique challenges, including need for long duration of implant, small size, and structural abnormalities. A novel 4.1 Fr lumenless catheter delivered pacing lead (Model 3830, Medtronic, Inc, Minneapolis, MN) has proven useful in short term studies in this population. We report long-term experience with this lead.

Methods: Retrospective review of patients with a 3830 lead implanted at a single pediatric center from 2005 to 2011. Data were collected prospectively in a registry from time of implant. Data were compared to a similar control population of patients with a model 1488 lead (St. Jude Medical, Minneapolis, MN).

Results: A total of 193 patients with 198 model 3830 leads (125 atrial, 73 ventricular) were enrolled. CHD was present in 121 patients (63%). Age and weight at implant were 16.6 ± 8.5 years and 51.7 ± 23.5 kg. Length of follow up was 26 ± 19 months (range 0 [Unable to Display Character: &lt;] 73). At implant, mean atrial sensing was 2.76 ± 1.26 mV and capture threshold was 0.61 ± 0.34 V at 0.5 ms. Implant ventricular lead sensing was 9.21 ± 4.52 mV and threshold was 0.5 ± 0.3 V at 0.5 ms. These values remained stable over time, and there were no significant differences in impedance, sensing, or thresholds compared to the 101 leads in the 1488 control group. Implant complications were rare in both groups. Long term complications were seen in 4% of the 3830 leads, and 16% of controls. Eight 3830 leads required extraction. Of note, all were fully extracted without complications using only manual traction. There were 3 deaths in each group. One death in the control group occurred during lead extraction. No other deaths were lead related.

Conclusion: This is the largest study to date reporting long term performance of the 3830 lead in pediatric and CHD patients. During 6 years of use this lead has demonstrated excellent efficacy, a low rate of complications and straightforward extractability relative to a control population with traditional pacing leads.