ADVANTAGES OF REMOTE MONITORING FOR PERMANENT HIS BUNDLE PACING FOLLOW UP

Ulhas M Pandurangi
Aparna Balaji
Aishwarya S
Koti K
Jaya Pradhap
Radhika B
Muthu Seenivasan
Nagendran C
Dinesh Seenivasalu
Mahima P Manoj
Nithin G
Sailendri G
Nirmala S
Dasari Himaja
Sandini S
Swathi K

Introduction: His bundle pacing (HBP) has gained a lot of interest in the recent times. However, His bundle lead is more prone to undersensing, oversensing and higher capture thresholds compared to the conventional apical lead. This calls for a standard monitoring protocol to optimize battery and device performance, especially in those patients without a backup ventricular lead. There are published guidelines for in-clinic follow up of these patients. The data is scarce regarding follow up through remote monitoring (RM) and the influence of RM on conservation of battery and optimizing device performance.

Methods: We followed up 18 patients prospectively during the period from June 2018 to February 2019 who underwent a HBP using the Medtronic SelectSecure™ MRI SureScan™ 3830 (4.1Fr) lumen less lead driven by the Medtronic C315 HIS (7Fr) delivery catheter. Out of these, 11 (61%) patients are under RM. As a standard practice, the His output for these patients was set at 5V @ 1ms and the His sensitivity at 0.90 mV for the first month. These patients were advised to do the first transmission 15 days post implant, the next at 1 month and every 3 months there on.

Result: Out of 11 patients, 10 patients (91%) did a successful transmission after 15 days, while 9 patients (81%) transmitted after 1 month and 8 patients (73%) transmitted at 3 months. At the 1 month remote follow up, 8 patients (88%) had a His threshold less than 2V @ 1ms with a mean of $1V ± 0.75V$. These patients were called to the clinic and the His output was optimized from 5V @ 1ms to a value $+1.5V$ than the measured threshold. However, there was 1 patient (11%) who had a threshold of 4V @ 1ms and the His output continued to be at 5V @ 1ms without any in-clinic intervention until the next year. Intermittent loss of capture was observed in 1 patient (9%) at the 3rd month transmission and the His output was increased to an appropriate value to ensure consistent capture. There were 2 patients (18%) identified with atrial oversensing by the His lead, one during the transmission done at 15 days post implant and the other at the 1st month transmission. These patients were called to the clinic and the His
sensitivity was reduced to prevent oversensing. There was 1 patient (9%) who was identified with intermittent ventricular undersensing at the 15th day transmission and the His sensitivity was increased to ensure appropriate sensing. These patients had an opportunity of early intervention to identify device performance issues and optimize device longevity and none of them ended up having a lead malfunction or poor battery performance. Few data from RM which helped proactive intervention is shown in figure below.

**Conclusion :** With the help of RM follow up, early proactive intervention is possible to optimize HBP parameters, thereby providing a standard of care and better quality of life.