Multipoint pacing activation in the patients implanted with Cardiac Resynchronization therapy.

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Introduction: Multipoint left ventricular (LV) pacing [MultiPoint™ Pacing (MPP), modality enables sequential pacing from two LV sites (LV1 and LV2) through a quadripolar LV lead and from one right ventricular (RV) site. It provides benefit to acute LV hemodynamics, dyssynchrony and peak radial strain and to mid-term LV function beyond conventional CRT. The positioning of LV quadripolar lead effects the possibility of Multipoint pacing activation. MPP feature can be programmed ‘ON’, in a patient who have at least 2 vectors from different groups (with different Cathodes) that fulfills the following conditions: • At least one vector per electrode (D1, M2, M3 and M4) must be tested • The capture threshold does not exceed 4.5 V at 0.5ms pulse width (CRT-D) or 4.5V @ 0.4ms (CRT-P) • No Phrenic Nerve Stimulation (PNS) at 1 Volt above the pacing capture threshold Patients who met above programming criteria were considered as true candidates for “MPP Activation”. In this study, we evaluated probability of MPP activation in patients implanted with a CRT- pacemaker(P) or defibrillator(D) MPP device.

Methods: A total of 78 patients implanted with Abbott CRT-P /D at Pushpawati Singhania Research Institute(PSRI) Hospital, India were enrolled. All subjects had a routine device interrogation on the day of Implant. To check the possibility of turning MPP feature “On”, device interrogation was conducted within 7 days post implant. It included routine device parameters, RV-LV Conduction delays and MPP Vector test. Data collected was evaluated to see how many patients meet the programming criteria for “MPP Activation”.

Result: Out of 78 patients, 58 patients received CRT-D and 20 received CRT-P MPP device. Out of 78, 56 subjects had Ischemic while 23 had non-ischemic cardiomyopathy. LV lead was positioned at lateral position in 56% patients, posterior lateral in 24%, anterior lateral in 12% and rest were anterior. On the day of implant all subjects had stable device parameters. Out of 78, 73 number of patients met the criteria for MPP activation. Majority of patients had an average capture threshold of 1.5V@0.5ms pulse width with PNS absent. 5 Patients didn’t meet programming criteria due to unavailability of MPP vectors with anatomical separation (4) and death (1).

Conclusion: Hence, MPP activation is possible in majority of patients.