The Clinical benefit of MultiPoint Pacing in Heart failure patients: preliminary results from a randomized and multicenter study in the Middle East

Abdul Mohsen Al-Musaad
Fayez Boukhari
Raed Sweidan
Yahya Al Hebiashi
Ahmed Al Fagih
Najib Al-Rawahi
Amjad Al-Mandalawi
Mohammed Hashim
Ahmad Hersi
Bandar Al-Ghamdi
Mohammed Amin
Mohammed El Maghawry
Naeem AlShoaibi
Antonio Sorgente
Maria Luisa Loricchio
Ghaliah Al Mohani
Ismail Al Abri
Edmon Khammo
Nazar Sudan
Mohamed Sayed

Introduction: Cardiac Resynchronization Therapy (CRT) has been established as adjunctive therapy for heart failure patients with electrical dysynchrony. Despite the improvement of pacing technology and features minimizing the rate of non-responders to such therapy remains the goal. MultiPoint™ Pacing (MPP) is one of the latest pacing technologies that provide the opportunity to improve CRT response by pacing the left ventricle (LV) from 2 electrodes along a quadripolar LV lead. Acute and chronic benefits of MPP have been shown in several non-randomized clinical studies. In this randomized multicenter trial we evaluated the long-term clinical benefits of MPP.

Methods: In this prospective, randomized, multicenter study, patients with LBBB, meeting an approved indication for CRT-D implant according to ESC/EHRA guidelines underwent CRT implantation with St Jude Medical (now Abbott) CRT-D device with a quadripolar LV lead. Those with non-LBBB or a history of AF within 30 days prior to the enrollment were excluded. Patients were enrolled in 13 centers in 7 countries in the Middle East and randomized to receive either MPP ON (MPP arm) or empirically optimized conventional bipolar pacing (BIV arm) immediate post-implant. MPP was programmed based on the RV-LV conduction time, assessed by the VectSelect™ feature. Transthoracic echocardiogram was performed pre-implant and at 6 months post-implant and analyzed by a core lab to assess CRT response. The primary endpoint was defined as a reduction in LV end-systolic volume (ESV) of >15% at 6 months.

Result: A total of 182 patients were enrolled in the study, successful implantation of LV quadripolar leads were achieved in 174 patients (95.60%) and equally randomized in the two group. Thirty two
patients were dropped out (18.39%) because of 20 loss-to-follow-up (11.4%), system explant or lead dislodgment in 3 patients (1.7%), study withdrawal 4 patients (2.2%), 2 patients had no six months echocardiography (1.1%) and 3 patients died during follow up due to non-cardiac reasons (1.7%). At 6-months follow-up patients were distributed as following: 73 patients in MPP arm and 69 patients in BIV arm. Final analysis showed significant improvement in the End Systolic Volume (ESV) in MPP group versus BIV group (68% vs. 50%, p<0.0399).

**Conclusion:** The study has been successfully executed and final analyses suggest a positive trend. Additional results will be presented at the conference.