

Is Multipoint Pacing Superior to Optimized Single-Point Pacing?

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In this article, Mehta et al.¹ add interesting data about the role of multipoint pacing (MPP) in cardiac resynchronization therapy (CRT). Despite the promising initial results, the largest randomized studies have failed to show a clear benefit of MPP in CRT. Therefore, the authors conclude that it is difficult to justify the widespread use of MPP in CRT.

Indeed, most MPP studies have focused on correcting intra-left ventricular dyssynchrony, recruiting more ventricular muscle than single-point pacing (SPP). However, these studies have neglected the potential role of fusion-based optimization with intrinsic conduction. In a recent study, we assessed the potential role of MPP in CRT by comparing MPP with SPP optimized by the fusion-optimized intervals (FOI) method.²

This method consists of achieving fusion between the paced rhythm and intrinsic conduction by modifying the atrioventricular (AV) and interventricular delays. We compared a single-point left ventricular pacing strategy optimized by FOI (SPP-FOI) with MPP programmed with a fixed AV interval of 130 ms. The SPP-FOI strategy resulted in greater QRS shortening than the MPP strategy (-56 ms vs. -42 ms; $P < 0.001$). On the other hand, when FOI was added to MPP (MPP-FOI), there was no further shortening. Similarly, O'Donnell et al.³ observed that SPP with automatic AV delay optimization using the SyncAV algorithm resulted in a significant shortening of the QRS duration compared to non-optimized modes (SPP and MPP). Furthermore, they did not find a significant difference in QRS shortening when comparing SPP and MPP.

These two recent studies, not included in the previous review by Mehta et al., further reinforce the concept that most patients achieve their narrowest QRS when the AV interval is optimized to obtain fusion with intrinsic conduction, regardless of the use of MPP.

In summary, multipoint pacing was not superior to single-point pacing optimized with SyncAV or manual FOI, and MPP also resulted in higher battery drainage than SPP. It is possible to test individually whether MPP may be useful in specific cases by measuring the QRS duration with different options.

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3. O'Donnell D, Wisnoskey B, Badie N, et al. Electrical synchronization achieved by multipoint pacing combined with dynamic atrioventricular delay. *J Interv Card Electrophysiol*. 2021 Sep;61(3):453-460. doi: 10.1007/s10840-020-00842-7.