

A Real-world Experience of Atrioventricular Synchronous Pacing with Leadless Ventricular Pacemakers

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Abstract

Aims: The MicraTM transcatheter pacing system (TPS) (Medtronic) is the only leadless pacemaker that promotes atrioventricular (AV) synchrony via accelerometer-based atrial sensing. Data regarding the real-world experience with this novel system are currently lacking. We sought to characterize patients undergoing MicraTM -AV implants, describe percentage AV synchrony achieved, and analyze the causes for suboptimal AV synchrony. **Methods:** In this retrospective cohort study, electronic medical records from 56 consecutive patients undergoing MicraTM -AV implants at the Mayo Clinic sites in Minnesota, Florida, and Arizona with a minimum follow-up of 3 months were reviewed. Demographic data, comorbidities, echocardiographic data, and clinical outcomes were compared among patients with and without atrial synchronous-ventricular pacing (AsVP) [?]70%. **Results:** Fifty-six percent of patients achieved AsVP [?]70%. Patients with adequate AsVP had smaller body mass indices, a lower proportion of congestive heart failure and pulmonary hypertension. Echocardiographic parameters and procedural characteristics were similar across the two groups. Active device troubleshooting was associated with higher AsVP. The likely reasons for low AsVP were persistent atrial arrhythmias, small A4-wave amplitude, and inadequate device reprogramming. Importantly, in patients with low AsVP, subjective clinical worsening was not noted during follow-up. **Conclusion:** With the increasing popularity of leadless PM, it is paramount for device implanting teams to be familiar with common predictors of AV synchrony and troubleshooting with MicraTM -AV devices.

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