

Long-Term Efficacy and Stability of Atrial Sensing in VDD pacing

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摘要

Abstract

Background: The efficacy and stability of atrial electrode sensing function is essential in maintaining atrioventricular (AV) synchrony and activity response in VDD pacing. Studies to evaluate the relationship between atrial sensing efficacy, stability, and implantation strategy are few. Hypothesis: This study sought to determine the possible predictors, among the recipients' underlying clinical conditions and the implantation strategies used, of achieving the most stable and effective atrial sensing. Methods: Eighty consecutive adults implanted with VDD pacemakers were studied retrospectively. Atrial electrodes were positioned where the optimal atrial potentials (APs) were measured during implantation. Interrogation parameters, including AV-synchrony ratio, were acquired immediately post implantation, at 1 year, and at 2 years after pacemaker implantation. Appropriate atrial sensing efficacy was defined as AV-synchrony ratio $\geq 90\%$. The stability of atrial sensing was evaluated by the variation ranges of measured APs. Results: The measured APs showed no statistical difference when age, gender, or comorbidity was considered. However, with pacing-lead bending angles $\leq 90^\circ$, patients may have presented with larger APs and narrower AP variation than patients with obtuse angles. There were no clinical parameters in our study that could have predicted the proper atrial sensing efficacy with an AV-synchrony ratio $\geq 90\%$. Conclusions: The long-term sensing efficacy and stability of VDD pacing is reliable. More sophisticated implantation strategies may further improve the atrial sensing stability and efficacy in VDD pacing.