

When the dual-chamber pacing system is the optimal choice for Brugada patients in need of implantable cardiac defibrillator

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We read with great interest the case report by Esposito *et al.*¹ describing a 39-year-old man with Brugada syndrome (BrS) at increased arrhythmic risk, treated by a subcutaneous implantable cardiac defibrillator (S-ICD), which was replaced by conventional single-chamber transvenous ICD (TV-ICD) after the recurrence of bradyarrhythmic syncope. In our opinion, several points need to be addressed. First, the finding of asystole as the cause of syncope in BrS patients is not unexpected or unconventional. The BruLoop study, including 370 BrS patients with implantable loop recorder, has recently shown that true arrhythmic syncope is infrequent in patients with unexplained syncope, ~22.4%, and mostly caused by bradyarrhythmias, ~59.3%; among them, asystole due to sinus arrest showed the highest prevalence. In the present case, the induction of syncope at head-up tilt test with evidence of asystole as the main determinant of the event (cardioinhibitory syncope) should have completely clarified the origin of the spontaneous syncopal episodes and stopped the diagnostic pathway.² However, even if the vasovagal origin of the syncopal episodes was clear, as in the present case, we agree with the opportunity to perform programmed ventricular stimulation (PVS) since PVS positivity has been recently identified as a marker of high arrhythmic risk in patients with both spontaneous and drug-induced BrS pattern.³

Secondly, when bradycardia or asystole is responsible for significant clinical symptomatology in BrS patients at increased arrhythmic risk in need of ICD, as in the present case, the optimal choice is a dual-chamber TV-ICD system, preferably with a closed-loop stimulation (CLS) algorithm. Dual-chamber pacing is indicated (Class IA) to reduce recurrent syncope in patients aged >40 years with severe, unpredictable, and recurrent syncope with evidence of spontaneous or tilt-induced documented asystole. In the clinical setting of tilt-induced asystolic syncope, the use of dual-chamber pacing system with a rate-responsive CLS algorithm is highly effective in reducing syncopal recurrences and improving quality of life.⁴ The rate-responsive CLS system continuously analyses the trends of right ventricular intracardiac impedance during systolic phases to gather information about the speed of myocardial contraction and adjust pacing rate accordingly. Closed-loop stimulation activation before the time of maximum vasovagal effect, when blood pressure is still high to maintain sufficient cerebral blood flow, helps to maintain cardiac output and prevent syncopal recurrences.⁵ Moreover, a recent study has shown no significant

differences in inappropriate ICD therapies, device-related complications, and infections between S-ICD and TV-ICD among BrS patients.⁶

Finally, even though S-ICD is usually considered the preferred choice in BrS patients at increased SCD risk, the coexistence of clinically relevant reflex bradyarrhythmia requires the use of a dual-chamber pacing system, preferably with CLS algorithm.

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Data availability

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