Apparent pacemaker malfunction following atrioventricular node ablation

Diego Chemello MD, Anandaraja Subramanian MD, Krishnakumar Nair MD, Kumaraswamy Nanthakumar MD

A 61-year-old woman received backup ventricular pacing and atrioventricular (AV) node ablation for chronic atrial fibrillation with poor ventricular rate control. Following uneventful single-chamber pacemaker implantation (Sensia; Medtronic Inc, USA), AV node ablation was performed, which resulted in complete AV block with ventricular escape rates of 35 beats/min to 40 beats/min. A lower pacemaker rate was then programmed in VVI mode (95 beats/min lower heart rate) to prevent bradycardia, a potential trigger for torsades de pointes (1). During postprocedure monitoring, telemetry recordings showed multiple episodes of long pauses with no pacing output (Figure 1). The pacemaker pacing and sensing parameters, and lead and impedance, even with pacemaker pocket manipulation, were normal. Analysis of the tracing showed that the pauses between the intrinsic R wave and the paced beat were exactly 1200 ms. Also, the pauses between any two intrinsic R waves remained less than 1200 ms. There were no pauses following paced beats. These findings suggested that the hysteresis feature had

been left on at a rate of 50 beats/min, which was confirmed. The patient had regained some degree of AV nodal conduction and her intrinsic R waves appeared intermittently at shorter cycle lengths than the lower rate interval, which triggered the hysteresis feature and caused the pauses. This feature was switched off and no pauses were documented subsequently.

Hysteresis programmed on would not be a problem in a pacemaker-dependent patient with complete AV block and low ventricular escape rates. However, if AV nodal conduction recovers, as in the present patient, hysteresis could be the cause of cardiac pauses, a potential trigger for life-threatening torsades de pointes.

REFERENCES

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Figure 1

The Hull Family Cardiac Fibrillation Management Laboratory, Toronto General Hospital, University Health Network, Toronto, Ontario

Correspondence: Dr Kumaraswamy Nanthakumar, 200 Elizabeth Street, 3rd Floor, Room 5222B, Peter Munk Cardiac Centre, Toronto, Ontario

M5G 2C4. Telephone 416-340-4800 ext 4442, fax 416-340-4457, e-mail nanthaj@yahoo.com

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