

ECG Contest

Response to ECG, September 2019

Respuesta al ECG de septiembre de 2019

Albert Massó-van Roessel,* Toni Perelló-Bordoy, and Julián Palacios-Rubio

Servicio de Cardiología, Hospital Universitari Son Espases, Palma, Balearic Islands, Spain

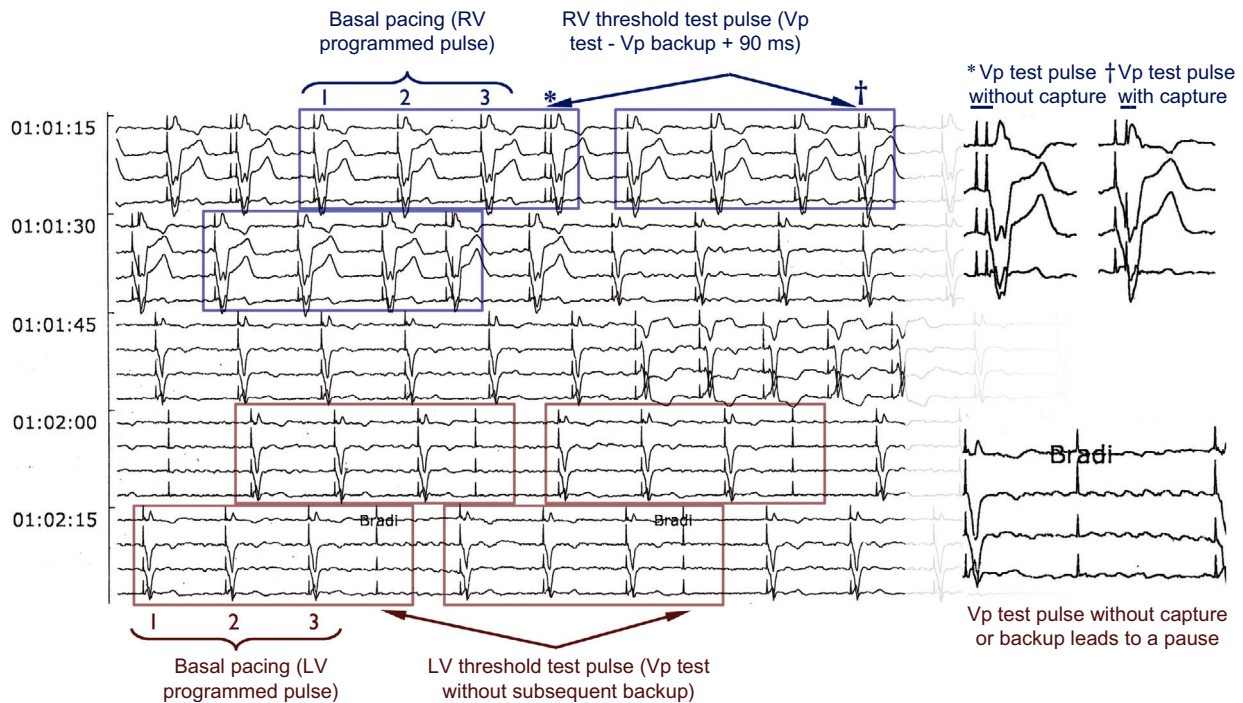


Figure 1.

The correct response is option 3: this is an algorithm of Medtronic cardiac resynchronization therapy devices with automatic threshold-capture determination.¹ Daily, at 01:00 hours, the device first assesses the right ventricle (RV) with 3 support pacing pulses (Vp) followed by 1 test pulse and 1 safety pulse at 90 ms (Figure 1, asterisk). After completing this task, the frequency stability and V-V delay are checked (not apparent in the telemetry) and the device then searches for the left ventricular (LV) threshold. To do this, 3 support pacing pulses are applied followed only by another test pulse, without a safety pulse. Loss of capture from the left ventricle therefore leads to a pause if the patient does not have any intrinsic conduction or escape rhythm. In these cases, it is recommended to deactivate automatic threshold capture control, as it can cause ventricular arrhythmias triggered by sequences of short-long-short cycles.²

Response 2 is incorrect because the RV safety pulse prevents loss of capture. Response 4 is incorrect because there is no QRS complex and the warning is appropriate. Response 1 is also incorrect because the supposed dysfunction follows a pattern (3:1), indicating an issue with the algorithm and not true device dysfunction, which would show erratic behavior.

REFERENCES

1. Manual de referencia para las familias de desfibriladores automáticos implantables digitales con terapia de resincronización cardíaca y tecnología SureScan™ Amplia MRI, Amplia MRI Quad, Compia MRI y Compia MRI Quad de Medtronic. Minneapolis: Medtronic; 2015. Disponible en: <http://manuals.medtronic.com/>. Consultado 15 Oct 2018.
2. Sweeney MO, Ruetz LL, Belk P, Mullen TJ, Johnson JW, Sheldon T. Bradycardia pacing-induced short-long-short sequences at the onset of ventricular tachyarrhythmias: a possible mechanism of proarrhythmia? *J Am Coll Cardiol*. 2007;50:614-622.

SEE RELATED CONTENT:

<https://doi.org/10.1016/j.rec.2018.10.013>

* Corresponding author:

E-mail address: amassovr@gmail.com (A. Massó-van Roessel).

<https://doi.org/10.1016/j.rec.2018.10.014>

1885-5857/© 2018 Sociedad Española de Cardiología. Published by Elsevier España, S.L.U. All rights reserved.