Typical ECG findings in an unconscious patient

R. Joustra\textsuperscript{1,2} · F. N. Polderman\textsuperscript{3} · J. L. Smeets\textsuperscript{2} · M. C. Daniëls\textsuperscript{1} · M. Boulaksil\textsuperscript{1,2}

Published online: 26 October 2016
© The Author(s) 2016. This article is available at SpringerLink with Open Access.

**Answer**

Notably, the ECG on admission shows a Brugada-like electrocardiographic pattern (with right bundle branch block and typical ST-segment elevations in leads V1–V3 with a terminal negative T wave). This Brugada-like pattern is called coved type or type 1 (Fig. 1).

In individuals with a normal baseline ECG, this pattern can be provoked by controlled infusion of sodium channel blocking agents for the diagnosis of Brugada syndrome.
However, intoxication with a sodium channel blocking agent may give rise to a transient Brugada-like pattern without an underlying Brugada syndrome.

In patients with a psychiatric history, one should consider involvement of a tricyclic antidepressant (TCA), since TCAs are known to result in sodium channel blockade [2]. Our patient turned out to be using nortriptyline, a TCA, amongst other non-tricyclic antidepressants. Therefore, the suspicion of an intoxication with this drug was raised [3]. Indeed, blood tests showed toxic levels of nortriptyline (507 µg/l (therapeutic levels: 50–150 µg/l; toxic levels: >500 µg/l), E-10-OH-nortriptyline 386 µg/l).

She was admitted to the intensive care unit and treatment with activated charcoal was started to reduce enteral absorption. Furthermore, she was alcalinised with sodium bicarbonate infusion in order to increase binding of nortriptyline to serum proteins. On follow-up, the ECG abnormalities eventually dissolved (Fig. 2).

**Conclusion**

Type 1 Brugada-like ECG pattern provoked by TCA intoxication.

Conflict of interest R. Joustra, F.N. Polderman, J.L. Smeets, M.C. Daniëls and M. Boulaksil declare that they have no competing interest.

Open Access This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

References