Fever-Induced Electrocardiographic Changes

Purav Mody, MD¹, Ambarish Pandey, MD³, and Jose Joglar, MD²

¹Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX, USA; ²Cardiac Electrophysiology Section, Division of Cardiology, Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX, USA; ³Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX, USA.

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PRESENTATION

A 62-year-old man presented to the emergency department (ED) with chest pain and fever for three days. Temperature at admission was 39.1 °C (102.4 °F). The initial electrocardiogram (ECG) was remarkable for a Brugada type 1 pattern, i.e., > 2 mm elevation of the J-point, with a downward sloping of the ST segment in

leads V1–V3, with associated inverted T-waves (Fig. 1). The patient denied any history of syncope, palpitations, sudden death of a family member, or ventricular arrhythmias. He was given gentle hydration and acetaminophen for the pyrexia. An ECG obtained seven hours later, after resolution of the fever, showed a complete resolution of the Brugada pattern (Fig. 2).

Fever is known to cause characteristic electrocardiographic changes that can mimic life-threatening conditions such as acute coronary syndrome and malignant arrhythmias, including Brugada-like electrocardiographic pattern on ECG.^{1–3} Placement of an implantable cardioverter-defibrillator is recommended as a Class Ia indication for a Brugada ECG pattern

Figure 1. The 12-lead electrocardiogram showing Brugada type 1 pattern unmasked by a fever of 39.1°C (ECG > 2 mm elevation of the J-point with a downward sloping of the ST segment in leads V1–V3, with associated inverted T-waves).

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Figure 2. The 12-lead electrocardiogram obtained seven hours after initial electrocardiogram and after resolution of fever 35.9 °C (96.6 °F).

in the presence of symptoms such as syncope, ventricular arrhythmia, or family history of sudden death.⁴ However, in the absence of these symptoms, treatment of the pyrexia is sufficient. No additional electrophysiological testing is warranted for the Brugada ECG pattern in isolation; close follow-up is adequate.⁵

Conflict of Interest Disclosures: None

Corresponding Author: Purav Mody, MD; Department of Internal Medicine University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75390-8837, USA (e-mail: Purav.mody@outlook.com).

REFERENCES

1. **Amin AS, Klemens CA, Verkerk AO, et al.** Fever-triggered ventricular arrhythmias in Brugada syndrome and type 2 long-QT syndrome. *Neth Heart J.* Mar 2010;18(3):165–169.
2. **Kumar V, Patel N, Van Houzen N, Saini N.** Brugada-type electrocardiographic changes induced by fever. *Circulation.* 2013;127(21):2145–2146.
3. **Pandey A, Dubey D, Sawhney A.** An unusual cause of ST elevations in a young man. *J Gen Intern Med.* 2014;9(8):1207–1208.
4. **Antzelevitch C, Brugada P, Borggreffe M, et al.** Brugada syndrome: report of the second consensus conference: endorsed by the Heart Rhythm Society and the European Heart Rhythm Association. *Circulation.* 2005;111(5):659–670.
5. **Probst V, Veltmann C, Eckardt L, et al.** Long-term prognosis of patients diagnosed with Brugada syndrome: Results from the FINGER Brugada Syndrome Registry. *Circulation.* 2010;121(5):635–643.