Letter to the Editor

Revelation of Brugada electrocardiographic pattern during a febrile state

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Abstract

The prevalence of the Brugada-type ECG and its natural history are still unclear. The Brugada syndrome is usually identified by a characteristic Brugada-type ECG that consists of ST elevation of a coved type in the precordial leads V1 to V3 and ventricular fibrillation that can lead to sudden cardiac death, although affected individuals may have a normal ECG. Mutations in the cardiac sodium channel gene SCN5A, which encodes the alpha-subunit of the human cardiac voltage-dependent Na+ channel (Na(v)1.5), are identified in 15–30% of patients with Brugada syndrome. Most SCN5A mutations lead to a ‘loss-of-function’ phenotype, reducing the Na+ current during the early phases of the action potential. Several nongenetic factors have been mentioned in the literature as possible inductors of the ECG pattern resembling Brugada syndrome. As such, a Brugada-type ECG may appear in some patients during febrile states and in those who are under the influence of cocaine and pharmaceutical drugs that have a sodium channel-blocking effect. It has been also reported that chest pain and ST elevation Brugada pattern occur during febrile states. We present a case of revelation of Brugada pattern in a 61-year-old Italian man complaining of pain in the left hipocondrium during a febrile state. Also this report confirms that Brugada pattern should be considered as one of differential diagnoses when we examine the patients during a febrile state.

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Keywords: Brugada pattern; Brugada syndrome; Febrile state; ST elevation

1. Case report

The prevalence of the Brugada-type ECG and its natural history are still unclear [1]-type ECG that consists of ST elevation of a coved type in the precordial leads V1 to V3 and ventricular fibrillation that can lead to sudden cardiac death, although affected individuals may have a normal ECG. Mutations in the cardiac sodium channel gene SCN5A, which encodes the alpha-subunit of the human cardiac voltage-dependent Na+ channel (Na(v)1.5), are identified in 15–30% of patients with Brugada syndrome. Most SCN5A mutations lead to a ‘loss-of-function’ phenotype, reducing the Na+ current during the early phases of the action potential [2]-type ECG may appear in some patients during febrile states [3] and in those who are under the influence of cocaine [4] and pharmaceutical drugs that have a sodium channel-blocking effect [5]. It has been also reported that chest pain and ST elevation Brugada pattern occur during febrile states [6]. We present a case of revelation of Brugada pattern in a 61-year-old Italian man complaining of pain in the left hipocondrium during a febrile state. Also this report confirms that Brugada pattern should be considered as one of differential diagnoses when we examine the patients during a febrile state.

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1. Case report

The prevalence of the Brugada-type ECG and its natural history are still unclear [1]-type ECG that consists of ST elevation of a coved type in the precordial leads V1 to V3 and ventricular fibrillation that can lead to sudden cardiac death, although affected individuals may have a normal ECG. Mutations in the cardiac sodium channel gene SCN5A, which encodes the alpha-subunit of the human cardiac
saturation was 96% on room air, and the body temperature was 38.2 °C. The ECG was performed and it showed ST elevation in the precordial leads V1 to V3 (Fig. 1). Echocardiographic evaluation revealed a mild mitral regurgitation and a mild tricuspid regurgitation. An ejection fraction of 50% was observed. No pericardial effusion, no ipokinesia and no hypokinesia were observed. TropI was 0.00 (normal value 0.00–0.15 ng/ml). Biochemical test results were as follows: White blood cell count was 27,610 μL, neutrophil count was 25,240 μl, blood urea nitrogen was 59 mg/dl (normal value 12–50), creatinine was 1.8 mg/dl (normal value 0.6–1.2). Antipyretics, antibiotics and the treatment for acute myocardial infarction were beginned and the patient was admitted to the Cardiology Unit. The ST elevation in the precordial leads V1 to V3 disappeared when the body temperature decreased and the ECG showed right bundle branch block also over the following hours (Fig. 2). TropI was negative. A urinary infection with renal lithiasis was found. Also this report confirms that Brugada pattern should be considered as one of differential diagnoses when we examine the patients during a febrile state.

References


Fig. 2. ECG with without ST elevation in the precordial leads V1 to V3.