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Krayenbuehl P-A, Christen S

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Tricyclic Antidepressant Overdose Mimicking Myocardial Infarction

P.-A. Krayenbuehl[1], St. Christen[2]

A 39 year old female patient with altered mental status was brought to the emergency department by basic life support ambulance. A neighbour found her unresponsive in her bed at home with a farewell letter revealing suicidal intention. On arrival the patient was lethargic with a blood pressure of 150/90 mmHg, a pulse rate of 100 beats/min and a respiratory rate of 10/min. The 12-lead ECG (Figure 1, column 1) on admission showed a sinus tachycardia and moderate alterations of the QRS complex and altered repolarisation. Urine-drug screening proved to be positive for tricyclic antidepressants. For further monitoring and treatment the patient was admitted to the intensive care unit. Because of the patient's altered mentation she underwent paralysis-assisted endotracheal intubation. 14 hours later, a repeat ECG (Fig. 1, col. 2) showed ST tract elevation in leads V1, V2 and aVL with reciprocal ST depression inferior, QRS widening and slight prolonged QT interval (QTc = 0.47 s). Myocardial enzymes, arterial blood gases, pH and serum electrolytes were normal. Echocardiographic findings including ventricular segmental kinesis were normal. Toxicological studies returned positive for amitriptylin with blood levels greatly exceeding (1360 ug/l) the upper limit of therapeutic range (250 ug/l). She received intravenous sodium bicarbonate for blood alkalinization. 84 hours (Fig. 1, col. 5) later, the ECG became practically normal again. No episode of arrhythmia was observed. The patient was extubated and discharged to a psychiatric facility with the diagnosis of tricyclic antidepressant overdose.

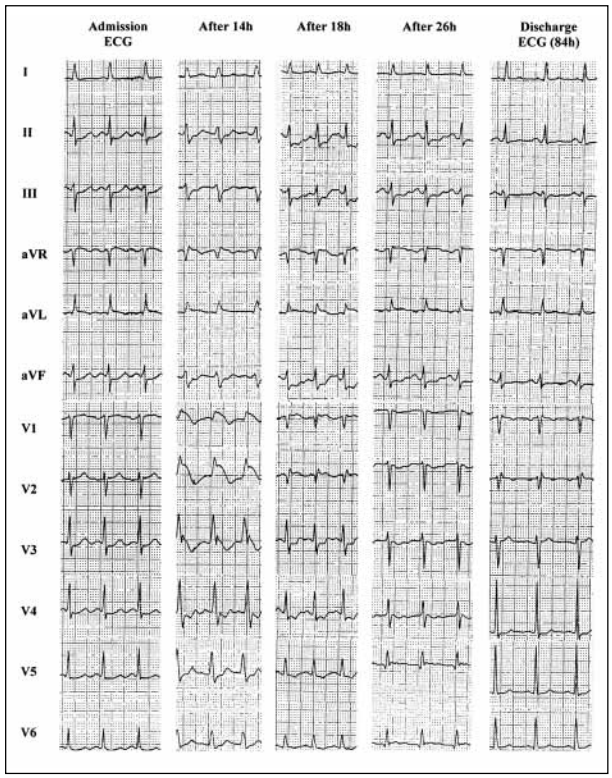

Figure 1. Serial standard electrocardiographic tracings during hospitalization

Discussion

It is known that tricyclic antidepressants can induce obvious cardiac electrical alteration. ECG abnormalities such as sinus tachycardia, QRS widening resembling right bundle branch block and prolonged QT are the most frequently observed [1]. Such changes were present in our patient's ECG. Furthermore, 14 hours after admission, a marked ST tract elevation in leads V1, V2 and aVL with reciprocal ST tract depression inferior mimicking myocardial injury was observed. ST tract elevations due to tricyclic antidepressant overdose are exceedingly rare. In two previous reports a short precordial ST tract elevation following a right bundle branch block pattern have been described [2, 3]. In the present case, there was a long shoulder-like ST tract elevation with a striking resemblance to an anteroseptal myocardial infarction.

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From the [1]University Hospital of Zurich, Department of Internal Medicine, Medical Policlinic, and the [2]City-Hospital Waid, Zurich, Switzerland
Correspondence to: Pierre-A. Krayenbuehl, MD, University Hospital of Zurich, Department of Internal Medicine, Medical Policlinic, CH-8091 Zurich, Switzerland; e-mail: pierrea.krayenbuehl@dim.usz.ch

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