

CHALLENGE CASES

Telemetry Abnormalities in a 54-year-old Man with Hypomagnesemia

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A 54-year-old man with history of coronary artery disease with prior inferior myocardial infarction, monomorphic ventricular tachycardia on amiodarone, and B-cell acute lymphoblastic leukemia (ALL) secondary to prior chemotherapy treatment for stage IIIB squamous cell lung cancer (SCLC) was admitted to the leukemia service for salvage chemotherapy with blinatumomab (immunomodulatory agent). During his admission, he experienced several episodes of neutropenic fever which were treated with broad-spectrum antibiotics. On day 8 of his admission the patient reported increased fatigue. Shortly after this the following tracing was seen on telemetry (Figure 1).

Q1: What is the most likely rhythm depicted in Figure 1?

- A. Atrial flutter
- B. Polymorphic ventricular tachycardia (Torsades de Pointes)
- C. Monomorphic ventricular tachycardia (MMVT)
- D. Sinus rhythm with overlying artifact
- E. Ventricular fibrillation

Case Discussion

The correct answer to Q1 is D.

The patient's history of amiodarone use and hypomagnesemia may make him more susceptible to polymorphic ventricular tachycardia (Torsades de Pointes). Combining these facts with the tracing seen on telemetry, initial concern for polymorphic ventricular tachycardia would be understandable. However, the presence of normal sinus beats marching through the tracing indicates that the oscillating amplitudes represent benign

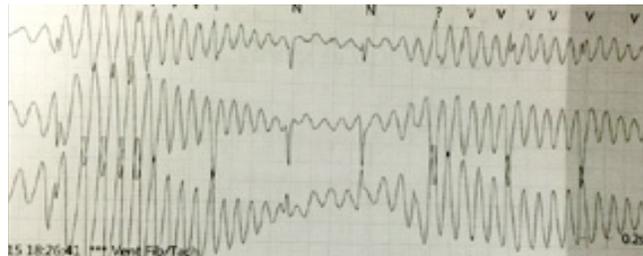


Figure 1: Abnormalities seen on telemetry

Telemetry revealed that the patient had experienced several 10–20 second runs of the above rhythm. Pertinent labs included a magnesium of 1.2 mg/dL, potassium of 4.3 mmol/L, and a normal lactic acid. A stat EKG obtained after the above episode is depicted in Figure 2. The patient continued to appear increasingly ill and confused. Vital signs revealed no hemodynamic instability.

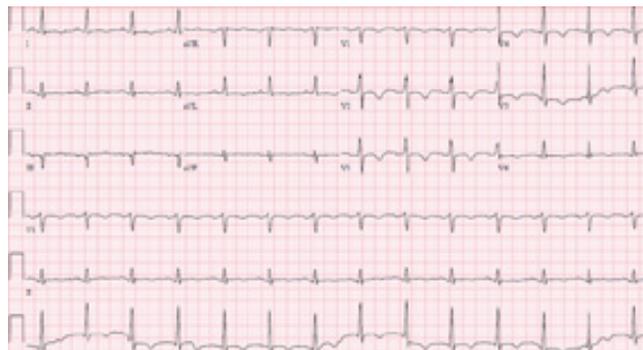


Figure 2: EKG obtained after above telemetry strip

