ECG OF THE MONTH

ECG in a 30-Year-Old Woman

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Figure 1: ECG recorded on admission in a 30-year-old woman.

What is your diagnosis?

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DIAGNOSIS: Sinus rhythm; an atrial premature complex; sagging ST-segments, low T-waves, and prominent U-waves suggesting hypokalemia.

The ST-T and U-wave changes described above are characteristic of hypokalemia. When the serum potassium level is between 3.0 and 3.5 mEq/L, one or more of the findings may be present. All three are common when the serum potassium level is below 2.5 mEq/L. At the lowest serum potassium levels the T-wave becomes a notch on the upstroke of a giant U-wave, as occurs here in the ECG of this woman with a serum potassium of 1.7 mEq/L. This configuration is occasionally mistaken for the ST-segment depression and long QT interval of myocardial ischemia.

Atrial premature complexes are common with hypokalemia, and atrial fibrillation may occur. This patient’s potassium was repleted, and the following day her ECG was essentially normal (Figure 2) and virtually unchanged from an ECG recorded two years earlier.

![ECG of the Month](image)

Figure 2: ECG recorded a day after potassium repletion shows sinus tachycardia (101 beats/min) and sinus arrhythmia, but is otherwise normal.

REFERENCES


Dr. Glancy is a professor and Dr. Diwan is a fellow in the Section of Cardiology, Department of Medicine, Louisiana State University Health Sciences Center and the Interim LSU Public Hospital, New Orleans, Louisiana.