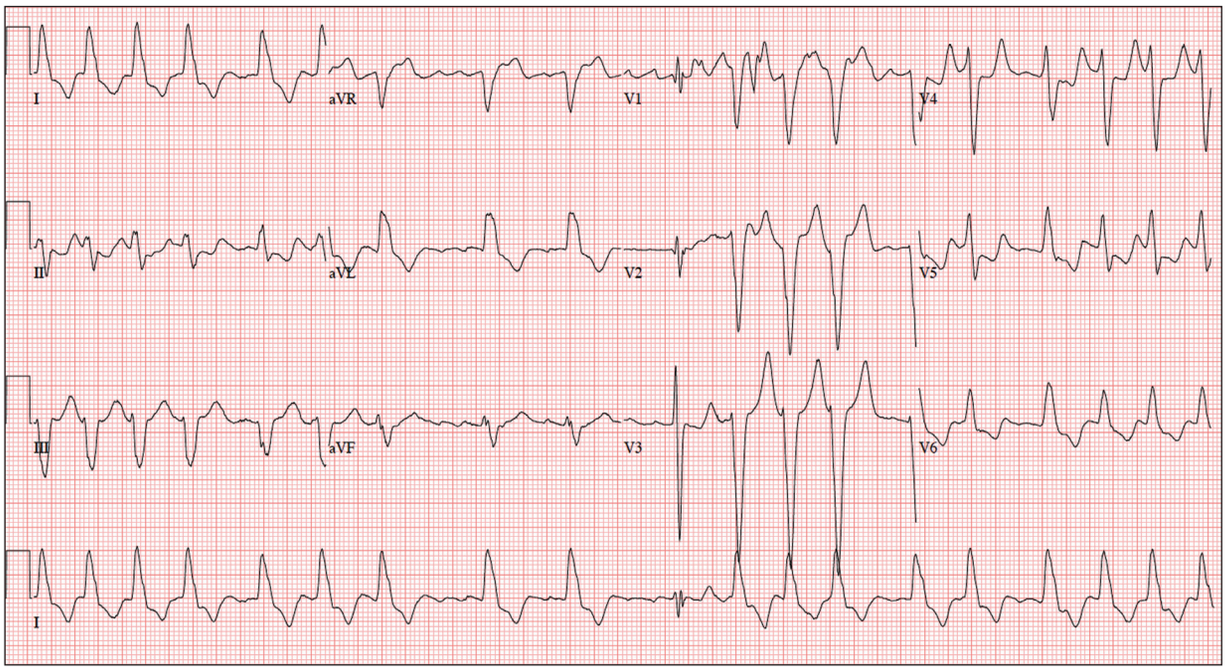
"Spry" Woman Reports Rapid Heart Rate



An 84-year-old woman who recently relocated to be closer to her children presents to your practice as a new patient. She is a resident of an assisted living facility near your office, and although she has no specific complaints, she does report that her home health nurse observed a rapid heart rate and recommended she get it checked.

A comprehensive medical history—provided by the patient, her daughter, and the aforementioned nurse—includes hypertension, paroxysmal atrial fibrillation, hypothyroidism, and type 2 diabetes. She has taken medication for these diagnoses for more than 30 years. Surgical history is remarkable for cholecystectomy, appendectomy, and abdominal hysterectomy and oophorectomy, all of which were performed in the 1970s.

Her current medication list—confirmed by the assisted living facility—includes furosemide, glyburide, metoprolol, potassium, and levothyroxine. She has not missed any doses. She is allergic to sulfa.

The patient, a retired teacher, has never smoked, but she does "enjoy" one martini at dinner on a regular basis. She is widowed; her two daughters and four sons are all alive and well.

The review of systems is remarkable for corrective lenses, bilateral hearing aids, and chronic joint pain. The patient does not routinely weigh herself but thinks, based on the fit of her clothes, that she may have gained some weight. She denies constitutional symptoms and shortness of breath. She thinks she may have a urinary tract infection, as she's had burning with urination for several days, but says this is beginning to improve.

Physical exam reveals a blood pressure of 168/90 mm Hg; pulse, 106 beats/min; temperature, 98.4° F; and O_2 saturation, 94% on room air. Her weight is 132 lb and her height, 60 in. She is alert and quite spry, with a lot of energy. She wears glasses and bilateral hearing aids.

Jugular distention is present

Lyle W. Larson, PhD, PA-C, is clinical faculty in the Department of Medicine, Division of Cardiology, Cardiac Electrophysiology, at the University of Washington, Seattle.

to the angle of the jaw. There is no thyromegaly. The pulmonary exam is remarkable for crackles in both lung bases. The heart rhythm is irregularly irregular at a rate of 110 beats/min, and a grade II/VI murmur of mitral regurgitation is heard at the left lower sternal border.

The abdomen is soft and nontender, with multiple surgical scars. The lower extremities are remarkable for 2+ pitting edema bilaterally to the level of the midcalf. Osteoarthritic changes are present in both hands. The neurologic exam is grossly intact.

An ECG reveals a ventricular rate of 110 beats/min; PR interval, not measured; QRS duration, 144 ms; QT/QTc interval, 298/403 ms; no P axis; R axis, –36°; and T axis, 169°. What is your interpretation of this ECG?

ANSWER

The correct interpretation includes atrial fibrillation with a rapid ventricular response and aberrantly conducted complexes, left axis deviation, and a left bundle branch block.

Atrial fibrillation is evidenced by the irregularly irregular heart rhythm without a measurable PR interval, and the rapid ventricular response is indicated by a ventricular rate > 100 beats/min.

Aberrant conduction, caused by conduction delay down the His-Purkinje system, is evidenced by the wide QRS complexes with a normally conducted beat (see first beat in leads V_1-V_3). Criteria for left axis deviation include an R axis between –30° and –90°, and left bundle branch block criteria include a QRS duration > 120 ms, a dominant S wave in V_1, and broad monophasic R waves in leads I, aVL, and V_5-V_6. **CR**