

## QUIZ

### The EKG Quiz: “Suspicious!”

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#### History

This EKG is of an 86-year-old man who was transferred from a nursing home for increasing confusion and “not feeling well” for several days. He was intubated in the Emergency Department and was admitted to the Intensive Care Unit. Past medical history was positive for hypertension and atrial fibrillation. There was no previous history of coronary artery disease. Medication list was unavailable. On physical examination, the patient was intubated and sedated; otherwise, the exam was unremarkable.

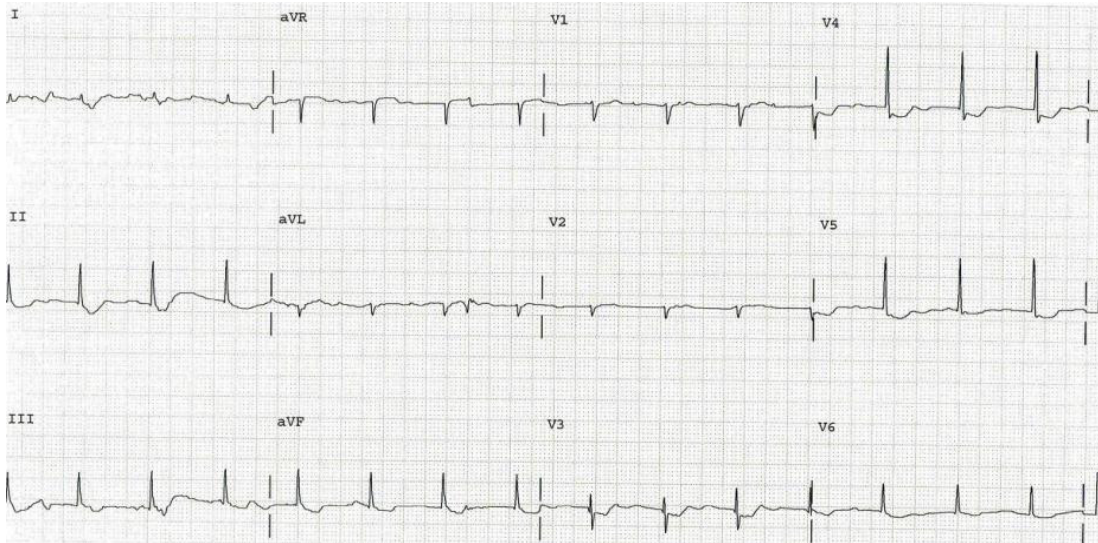


Figure 1. EKG of an 86 year old man brought to emergency department with confusion.

### Questions

Please study the EKG below (Figure 1) and consider these questions before you proceed further.

1. What is the EKG interpretation?
2. What is the possible cause (s) of the EKG findings?

### Discussion

The QRS complexes are narrow and regular at a rate of about 85 bpm. P waves are not well seen in most of the leads; however, a closer look at the lead V1 clearly reveals regular atrial activities at a rate of about 140 bpm (Fig. 2) which is consistent with atrial tachycardia. Furthermore, the same lead demonstrates the lack of any relationship between these atrial activities and the underlying QRS complexes (i.e., AV dissociation). Hence, the likely nature of these QRS complexes is an accelerated junctional rhythm

on a background of complete heart block.

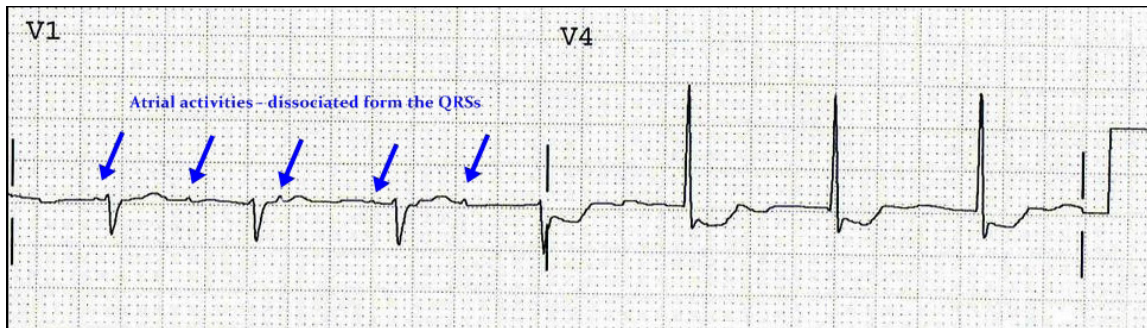


Figure 2. A closer look at the EKG in Fig.1 showing atrial tachycardia with AV dissociation.

More tracings (Figure. 3) from the ICU confirmed the above findings. Note that the escape rhythm is now even slower, and lower (i.e. wider QRS), compared to the presentation EKG.

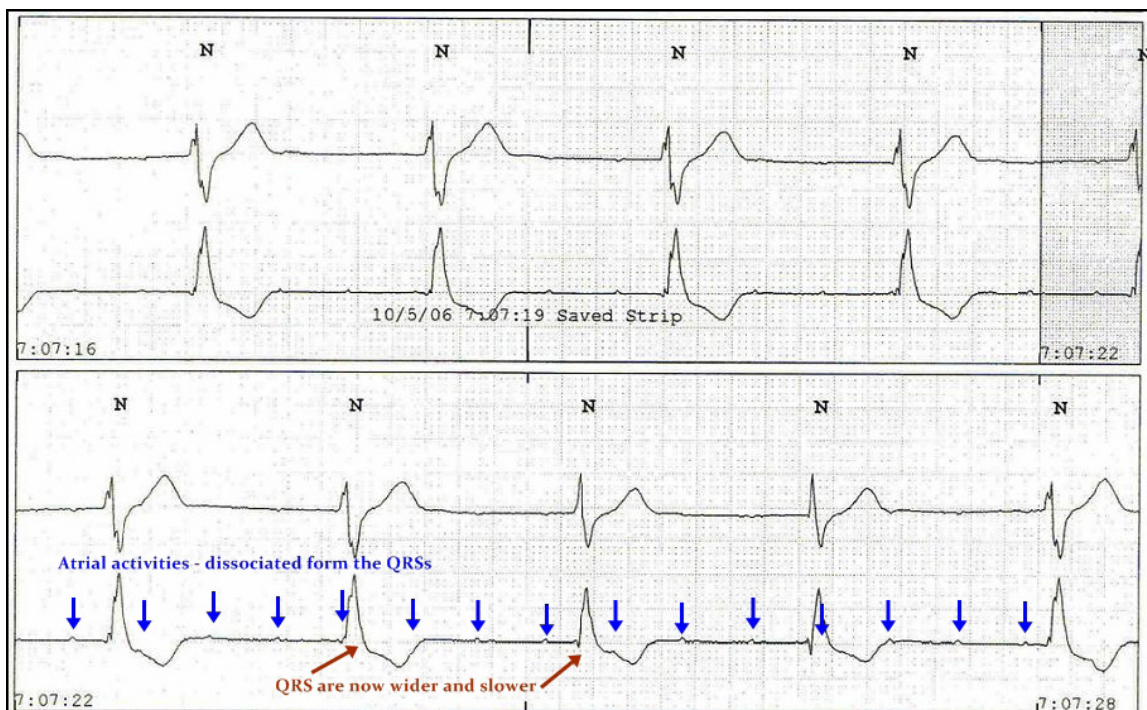


Figure 3. Rhythm strips from telemetry in ICU.

In this patient, the combination of atrial tachycardia and heart block with accelerated junctional rhythm should raise the suspicion of "digitalis excess or toxicity." In addition, there are some repolarization changes (ST depression with inverted T waves most visible in leads V4-V6) suggestive of "digitalis use."

**Final Answers**

1. Atrial tachycardia with complete heart block and accelerated junctional rhythm.
2. Digoxin toxicity.

Blood test confirmed digoxin toxicity.

This patient was treated conservatively and did well.