EKG of the week 08/01/11: 14 yo female presents with 3 months of intermittent palpitations.

1. What is the rate and the rhythm on the baseline ECG?
2. She presents to ED with following rhythm strip (figure 2), she feels unwell and vagal maneuvers fail to terminate her arrhythmia. How does adenosine work (i.e. what is its mechanism of action)?
3. Based on her ECG, what are the two most likely diagnoses to explain her reentrant SVT?

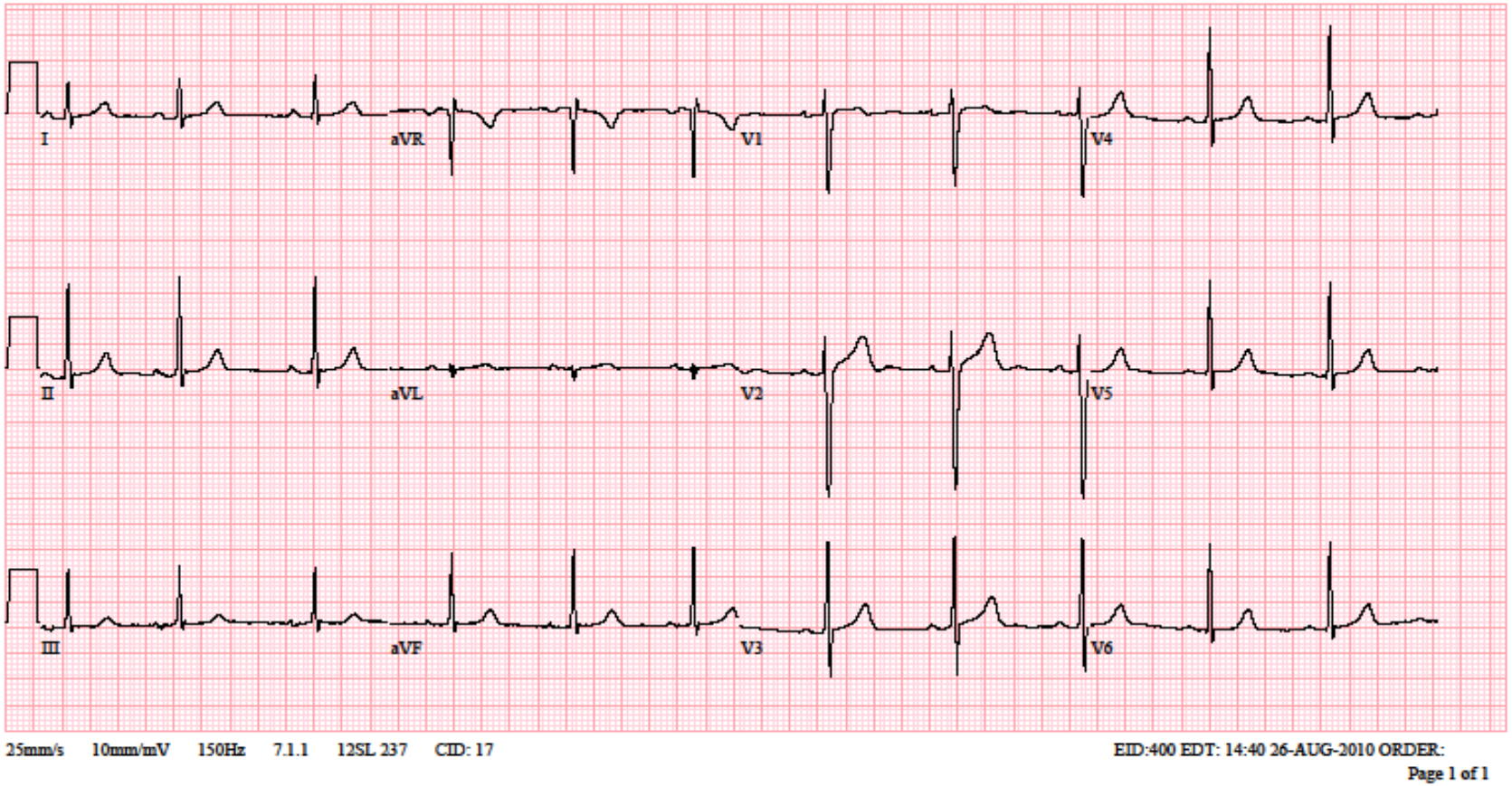
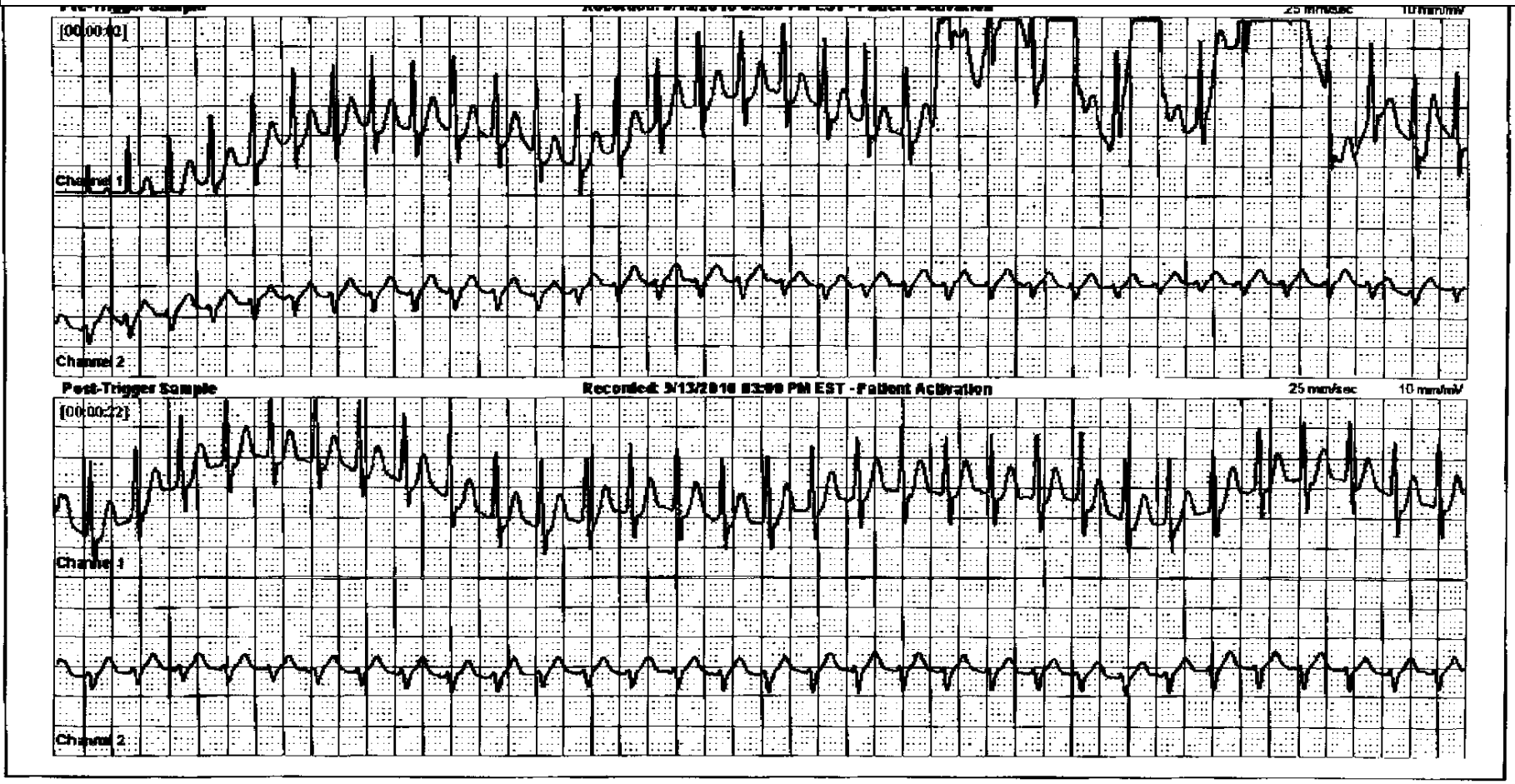


Figure 1. Baseline ECG.

Figure 2. ED Rhythm Strip



EKG of the Week 8/1/11 Answers

1. What is the rate and the rhythm on the baseline ECG?

   The rate is 60 bpm. It is normal sinus rhythm.

2. She presents to ED with following rhythm strip, she feels unwell and vagal maneuvers fail to terminater her arrhythmia. How does adenosine work (i.e. what is its mechanism of action)?

   - Adenosine works by transiently blocking conduction through the AV node. Therefore, in reentrant supraventricular tachycardia that involves the AV node either orthodromic (down the AV node) or antidromic (up the AV node), AV node block terminates the tachycardia by interrupting the circuit. Always remember to have your defibrillator nearby when administering adenosine, in the rare case that atrial fibrillation can be transmitted down an accessory pathway leading to ventricular fibrillation.

EKG of the Week 8/1/11 Answers

3. Based on her ECG, what are the two most likely diagnoses to explain her reentrant SVT?

- Atrioventricular nodal reentrant tachycardia (AVNRT) or atrioventricular reentrant tachycardia (AVRT). Due to the fact that this patient has no evidence of preexcitation on the baseline ECG that would be consistent with Wolff-Parkinson White syndrome, AVRT would occur via a “concealed” accessory pathway (AVRT)--“Concealed” because it does not appear on the resting ECG. This is something that can only be determined with invasive electrophysiology testing.