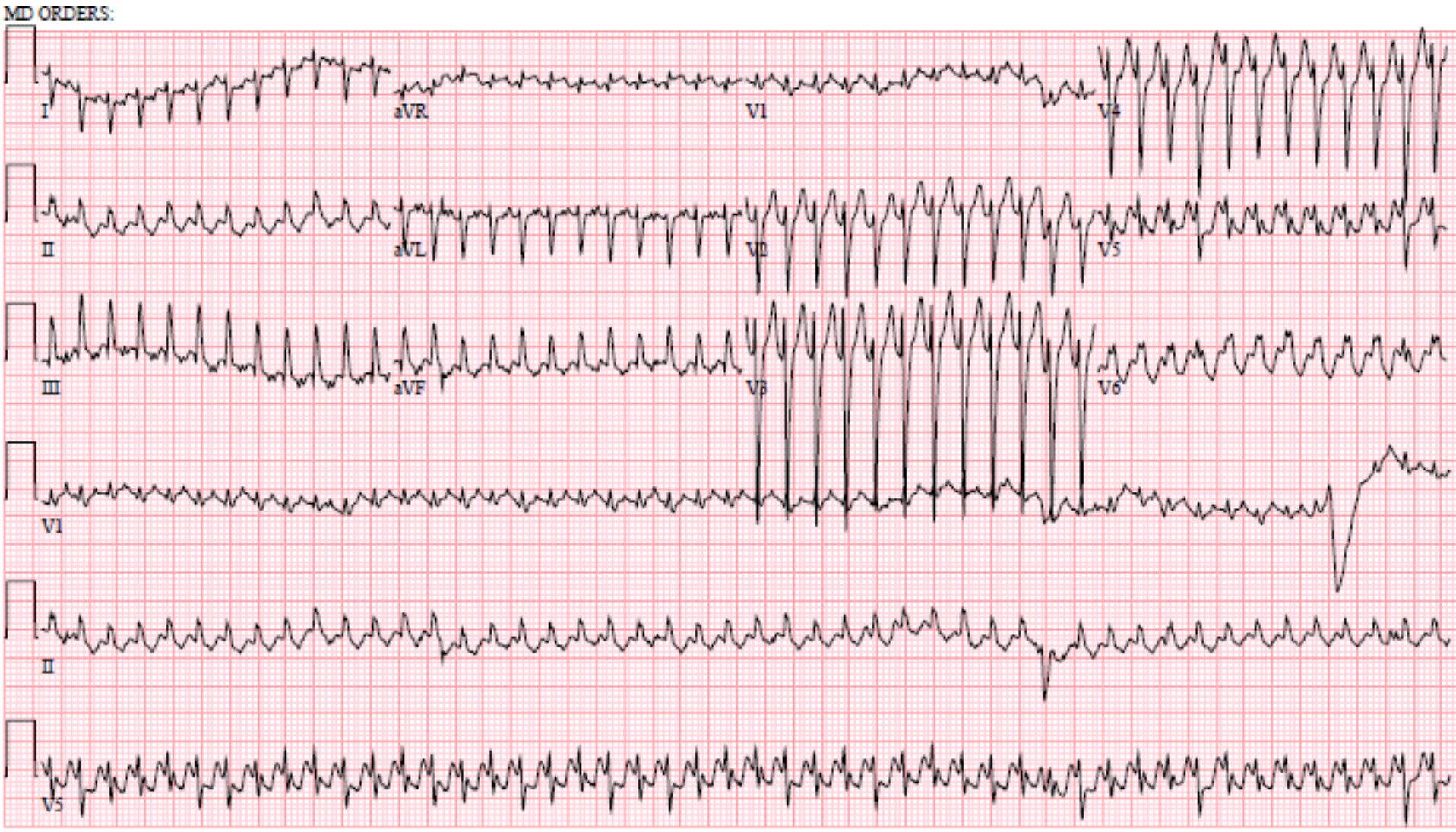
This is an ECG from a 2 week old who presents to the ER with poor feeding. The medical student working with you comments "This is too fast to be sinus tachycardia."

1) Is this correct? How fast is too fast for it to be sinus tachycardia?

You find the patient to be hypotensive with poor perfusion.

2) What is the optimal treatment for this arrhythmia given the clinical situation? (1pt.)

3) How, if at all, would your management change if the patient was hemodynamically stable? (1pt)



1) Is this correct? How fast is too fast for it to be sinus tachycardia? This cannot be sinus tachycardia. The rate is way too fast (nearly 300bpm in this case). The sinus node can only fire at about 220bpm in an infant, and at a rate of about 220-(patients age) as one gets older. This patient therefore must have some sort of tachyarrhythmia. That being said, tachyarrhythmias can happen at much slower rates than this as well.

2) What is the optimal treatment for this arrhythmia give n the clinical situation? (1pt.)

Immediate synchronized electric cardioversion . Any patient who presents with hemodynamic instability and a clear tachyarrhythmia (e.g. HR>220bpm) should be immediately cardioverted with 0.5-1J/kg of energy. Important to use the "sync" mode as this will prevent the machine from delivering a charge during the sensitive part of repolarization, which could cause the rhythm to degenerate into V-fib.

Note that this answer holds for both wide AND narrow QRS complex tachycardia.

3) How, if at all, would your management change if the patient was hemodynamically stable? (1pt)

If the patient is hemodynamically stable, you have the luxury of not having to immediately cardiovert the patient. Management in this case would probably begin with vagal maneuvers or IV administration of adenosine. Despite the fact that the 12-lead shows a wide complex QRS tachycardia(wide for an infant, anyway), this likely represents supraventricular tachycardia (SVT) with aberrancy/bundle branch block as opposed to ventricular tachycardia (VT). Looking at previous ECG's can be helpful in this situation: does the patient have a history of a bundle branch block? Wolff-Parkinson-White syndrome (i.e. a set-up for SVT)?