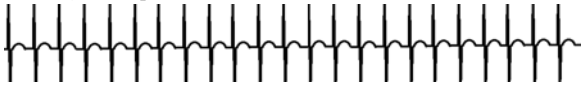
Supraventricular tachycardia is an **aberrant reentry** that bypasses the SA node. It's **narrow** (atrial), **fast** (tachycardia), and will be distinguished from a sinus tachycardia by a **resting heart rate > 150** + the loss of **p-waves** (can you tell p-waves from t-waves?). It responds to **adenosine**.

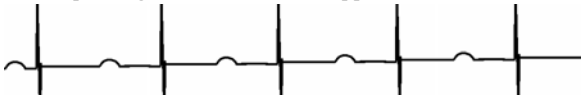


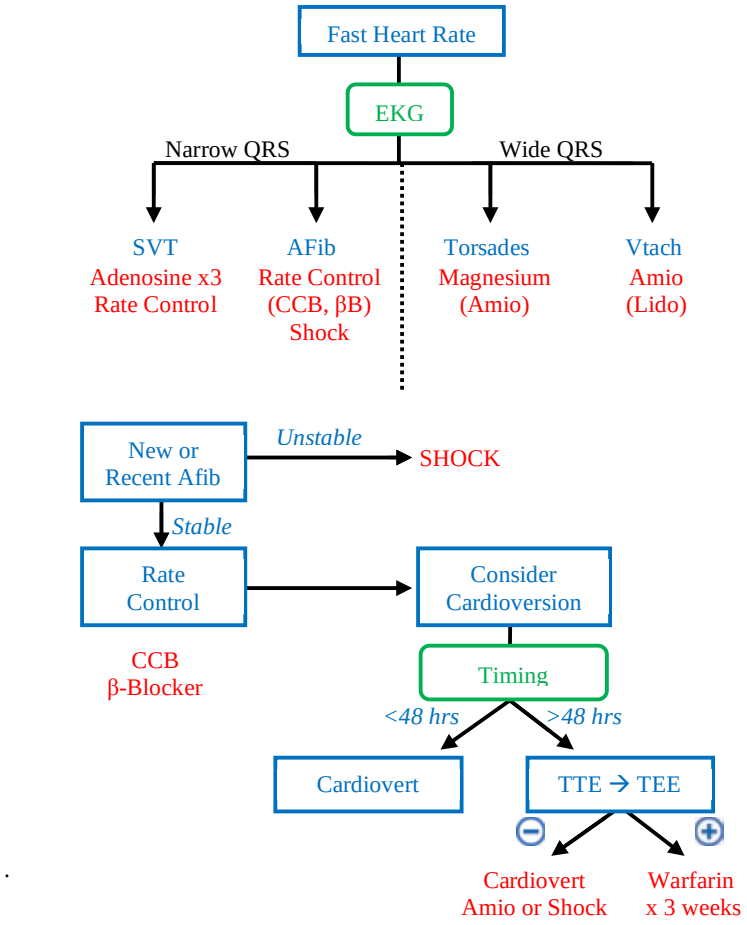
Ventricular Tachycardia is a **wide complex** and **regular** tachycardia. Look for the "tombstones." Since it's ventricular there are **no paves** at all - just the **QRS complexes.** It responds to **amiodarone** (newer/better) or **lidocaine** (older/cheaper)

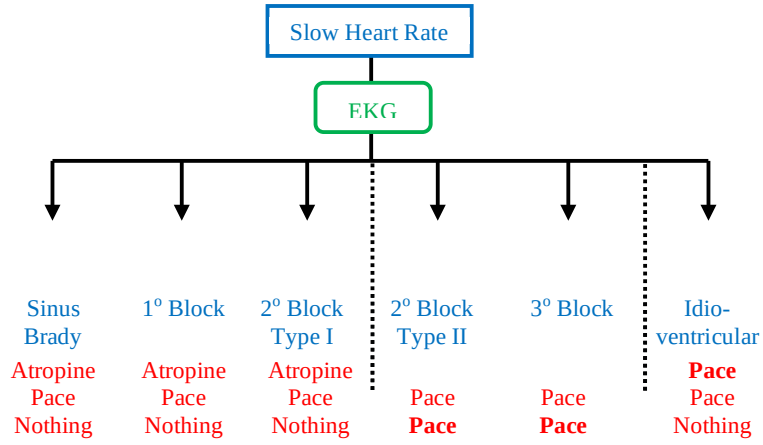
Atrial Fibrillation can be identified by a **narrow complex** tachycardia with a **chaotic background, absent p-waves,** and an **irregularly irregular** R-R interval. It has a special treatment algorithm. In the acute setting (ACLS in a nutshell) simply decide between shock and rate control. **Rate control** is just as good as **rhythm control** (cardioversion). But, you have to weigh risks and benefits in each patient. If the goal is **rhythm control** (cardioversion) it's necessary to determine **how long** the Afib's been present. Simply cardioverting an Afib that's lasted > 48 hrs runs the risk of throwing an **embolism** (and a stroke). If < 48hours cardioversion is ok. But if it's been present **> 48 hours** the patient needs to go on **warfarin** for four weeks. At the end of four weeks, the **TEE** is done. If no clot is found, cardioversion is done and the patient remains on warfarin for another 4 weeks. If you decide to do **rate control** (beta blockers and calcium channel blockers) **anticoagulation** may still be needed. Decide this using the **CHADS2 score**. The higher the score the higher the risk of embolism and the more likely the patient is to benefit from **warfarin** (2+ CHADS2). Now, the Xa- or Thrombin-inhibitors can be used instead (1+ CHADS2). Examples include **apixiban** or **dabigatran**.

Sinus bradycardia is simply a slow normal sinus rhythm. The blocks are a worsening of that normal bradycardia. Almost everything responds to **Atropine** until it gets really bad - then **only pacing will do**.

1° AV Block is characterized by a **regularly prolonged PR interval**. There's no change in the interval between beats, but each is prolonged. There are no dropped beats.







2° AV Block Type I is a normal rhythm with a constantly **prolonging PR interval** with each beat, until a QRS complex is **finally dropped**. The signal comes from the atria so there is a narrow QRS complex.

2° AV Block Type II has a **normal PR interval** but simply **drops QRSs** randomly. The signal comes from the atria so the QRS complexes are narrow. This is the most severe a rhythm can be before atropine no longer works.

3° AV Block. There's total **AV node dissociation.** The **Ps march out** (regular interval between P waves) and the **QRSs march out** (regular interval between QRS complexes). At times, the P waves may seem lost or dropped; the QRS complex occurs at the same time and obscures the p wave. Because the impulse comes from the ventricles it's a wide QRS complex. In general, **avoid atropine** (just pace). This is controversial.

Idioventricular Rhythm is a rhythm without atrial activity. Only the ventricles are contracting, only the ventricles have electrical activity. It looks like a 3° block, but without p waves. **Avoid atropine** (it won't work), as there is no atrial conduction at all, so **just pace**.

This is not every rhythm you could see, but it's way more than you need to be prepared for the USMLE. You'll see a rhythm, MAYBE two on the test. MAYBE.

CARDIAC ARREST

When dead, remember 1 thing: compressions. Everything is based around 2 minutes of CPR. 2 minutes of CPR, check a pulse, check a rhythm, shock if indicated. Shock is indicated only in Vtach/Vifb arrest. Always start with Epi. Only in VT/VF can you shock, and so too only in VT/VF can antiarrhythmics be used. That's it. This is almost never tested on Step 2 but is here for completeness.

	2 minutes		of CPR		2 minutes		of CPR
VT/VF	Epinephrine	⊕	Amiodarone	⊕	Epinephrine	⊕	Amiodarone
PEA/ Asystole	Epinephrine	⊖	~~Atropine~~	⊖	Epinephrine	⊖	~~Atropine~~