





Education/Pearls:

Tachycardia is common, and may reflect an underlying process (such as a reaction to infection, pain, or injury) or represent a primary cardiac disease, such as an accessory electric cardiac pathway or cardiac ischemia. Treatment of tachycardia depends on symptoms of the patient and vital sign stability. In the stable patient with minimal symptoms, non-electric interventions may be attempted first. Evidence of shock (altered mental status, hypotension, mottled extremities, cyanosis), chest pain with evidence of ischemia (STEMI, ST changes, T-wave inversions or depressions) or acute heart failure should prompt rapid intervention. Continuous pulse oximetry is required for all narrow complex patients.

For ASYMPTOMATIC PATIENTS (or those with only minimal symptoms, such as palpitations) and any tachycardia with rate approximately 100-120 and a normal blood pressure, consider CLOSE OBSERVATION and/or fluid bolus rather than immediate treatment with an anti-arrhythmic medication. A patient's "usual" atrial fibrillation, for example, may not require emergent treatment.

- **Sinus tachycardia:** Typically ranges from 100 to (220 - patient's age) beats per minute. It may be caused by dehydration, fever, substance use, etc.
 - Symptomatic tachycardia usually occurs at rates of 120 -150 and typically ≥ 150 beats per minute.
 - Patients symptomatic with heart rates < 150 often have impaired cardiac function, such as CHF
 - Search for underlying cause of tachycardia such as fever, sepsis, dyspnea, etc.
- **Wolff-Parkinson-White (WPW):**
 - A rare syndrome, WPW is diagnosed by a short PR interval and upsloping QRS complex (delta wave). The rhythm can degenerate to appear similar to atrial fibrillation with rapid ventricular response. A 12-lead ECG or the patient's history may reveal WPW. A chaotic wide complex tachycardia greater than 220 beats per minute can represent WPW. This usually will require electrical cardioversion.
 - DO NOT administer any Ca Channel Blocker (e.g. Diltiazem), Beta Blockers, or Adenosine
 - Unstable patients with WPW require electrical cardioversion.
- **Regular Narrow-Complex Tachycardia (SVT):**
 - Vagal maneuvers and adenosine may be administered. Vagal maneuvers may convert up to 25 % of SVT.
 - Adenosine should be pushed rapidly via proximal IV site followed by 20 mL Normal Saline rapid flush.
 - Diltiazem or metoprolol may be considered alternatively or if rhythm does not convert with adenosine.
- **Irregular Tachycardia:** Includes atrial fibrillation and atrial flutter.
 - First line agents for rate control are calcium channel blockers.
 - Adenosine may be considered to assist with diagnosis or if patient has history of Adenosine conversion, but Adenosine is NOT mandated.
 - Adenosine may not be effective in atrial fibrillation / flutter, yet is not harmful and may help identify rhythm.
- Synchronized cardioversion is recommended to treat UNSTABLE Atrial Fibrillation, Atrial Flutter and Regular Narrow-Complex Tachycardia (SVT.)
- Amiodarone may also be used to treat narrow complex tachycardia, either regular or irregular, as a second line agent if there is an allergy or contraindication to adenosine or diltiazem or other primary agent.
 - Refer to dosing in the **Tachycardia - Wide Complex AG.**
- Monitor for hypotension after administration of Calcium Channel Blockers.
- Monitor for respiratory depression and hypotension associated with Midazolam if utilized to facilitate cardioversion.
- Document all rhythm changes with monitor strips and obtain monitor strips with therapeutic interventions.