Adult Tachycardia - Narrow Complex Admin Guideline (Age ≥ 14) Narrow tachycardia with serious signs or symptoms (generally HR >150): dyspnea, chest pain, syncope/near-syncope, hemodynamic compromise, altered mental status or other signs of end organ hypoperfusion Asymptomatic Shock, poor perfusion, Normal perfusion, patients altered mentation normal mentation Cardioversion: For ASYMPTOMATIC PATIENTS (or those with 120J only minimal symptoms, such as palpitations) and a (Attempt to synchronize, if no sync and normal blood pressure, manage with CLOSE unstable - defibrillate) OBSERVATION and/or fluid bolus rather than immediate treatment with an anti-arrythmic May repeat if needed at 200J. Check pulse medication. and evaluate for cardiac arrest if no conversion Administer 500mL NS/LR fluid bolus Unstable patients may sometimes present with Consider sedation prior to cardioversion: sinus tachycardia with Midazolam 2.5 mg IV/IO or 5mg IM less apparent p waves. May repeat as needed max total dose 10 mg Do not give AV nodal blockers to sinus Administer O2, VS assessment (inc. tachycardia, and instead В temp when available) give fluids. IV/IO access, O2, Cardiac monitor Administer 500 mL NS/LR fluid bolus. May repeat as needed. Regular Rhythm Irregular Rhythm (A-fib/A-flutter) (SVT) В Vagal maneuvers В Vagal maneuvers Administer adenosine 6 mg IV (proximal), followed by 20 Administer diltiazem 20 mg IV/IO. mL saline flush Give initial 10 mg slowly over 2 minutes. May repeat x 1 at **12 mg** IV Administer remainder of dose slowly as blood pressure allows. if no conversion, consider administration of diltiazem 20 mg IV/IO. Patients over 65: Give initial 10 mg dose slowly over 2 minutes. Administer Administer diltiazem 10 mg IV/IO Р remainder of dose slowly as blood pressure allows. Give initial 5mg slowly over 2 minutes. Р Administer remainder of dose slowly as blood Patients over 65: pressure allows Administer diltiazem 10 mg IV/IO Give initial 5mg slowly over 2 minutes. Administer May repeat diltizem dose x 1 if needed. remainder of dose slowly as blood pressure allows Repeat 12 lead ECG, repeat vital signs, monitor May repeat diltiazem dose for any age x 1 if needed.

Repeat 12 lead EKG, repeat vital signs, monitor

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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-arrythmic 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 \geq 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):

- $_{\circ}$ 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 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 faciliate cardioversion.
- Document all rhythm changes with monitor strips and obtain monitor strips with therapeutic interventions.