

Tachyarrhythmia

- HR \geq 150
- Determine if appropriate for clinical condition

- Maintain airway and breathing
- Administer supplemental oxygen if clinically indicated
- Establish pulse oximetry, cardiac and blood pressure monitoring
- Obtain 12-lead ECG as time and resources permit
- Obtain IV/IO access
- Identify and treat underlying cause (e.g., dehydration, blood loss, fever, infection, anxiety)

Signs of hemodynamic compromise?

YES

NO

Wide QRS (\geq 0.12 sec)?

YES

NO

- Immediate **synchronized cardioversion** (pre-sedate if possible)
- Consider **adenosine** (do not delay cardioversion) for narrow-complex and regular rhythm
- If refractory, consider:
 - Need to increase energy level for next cardioversion
 - Antiarrhythmic medication (**procainamide, amiodarone**)
 - Underlying cause
 - Expert consultation
- For Polymorphic VT:
 - Unsynchronized, high-energy shock (defibrillation)

- Consider **adenosine** if regular and monomorphic
- Consider antiarrhythmic medication (**procainamide, amiodarone**)
- Consider **magnesium sulfate** for Torsades de Pointes
- If refractory, consider:
 - Underlying cause
 - Cardioversion
 - Adjustment of dose or change/addition of another antiarrhythmic medication (procainamide, amiodarone)
 - Expert consultation

- Attempt **vagal maneuver** if rhythm is regular
- Consider **adenosine** if rhythm is regular
- Consider **calcium channel blocker** OR **β -blocker** if rhythm is not regular, adenosine is ineffective or tachyarrhythmia recurs
- Consider expert consultation

Medications

Administration

Adenosine

- First dose: 6 mg via rapid IV push
- Second dose: 12 mg IV if needed

NOTE: Follow each dose with a rapid 10- to 20-ml NS flush

Amiodarone

- 150 mg IV over 10 min; repeat as needed if arrhythmia recurs
- Maintenance infusion: 1 mg/min IV for first 6 hours

Magnesium Sulfate

- Loading dose: 1 to 2 g IV/IO over 15 min
- Maintenance of 0.5 to 1 g/hour IV (titrate to effect)

Procainamide

- 20 to 50 mg/min IV until arrhythmia is suppressed, hypotension develops, QRS duration increases by more than 50% or max dose of 17 mg/kg is given
- Maintenance infusion: 1 to 4 mg/min IV

Synchronized Cardioversion Energy Doses

Follow device manufacturer's recommendations for energy doses

- Atrial fibrillation, atrial flutter: 200 J, increase in stepwise fashion
- Stable monomorphic VT: 100 J, increase in stepwise fashion
- SVT: 100 J, increase in stepwise fashion

Signs of Hemodynamic Compromise

- Changes in mental status
- Ischemic chest discomfort
- Hypotension
- Signs of shock
- Acute heart failure

