

Tachycardia With a Pulse Algorithm

Assess appropriateness for clinical condition.
Heart rate typically $\geq 150/\text{min}$ if tachyarrhythmia.

Identify and Treat Underlying Cause

- Maintain patient airway; assist breathing as necessary
- Oxygen (if O_2 sat $< 94\%$) or short of breath
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry

Persistent Tachyarrhythmia Causing:

- Hypotension?
- Acutely altered mental status?
- Signs of shock?
- Ischemic chest discomfort?
- Acute heart failure?

Y

Synchronized Cardioversion*

- Consider sedation
- If regular narrow complex, consider adenosine

N

Wide QRS?
0.12 second

Y

- IV access and 12-lead ECG if available
- Consider adenosine only if regular and monomorphic
- Consider antiarrhythmic infusion
- Consider expert consultation

N

- IV access and 12-lead ECG if available
- Vagal maneuvers
- Adenosine (if regular)
- β -Blocker or calcium channel blocker
- Consider expert consultation

Doses/Details

Synchronized Cardioversion**

Initial recommended doses:

- Narrow regular: 50–100 J
- Narrow irregular: 120–200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: Defibrillation dose (not synchronized)

Adenosine IV Dose:

First dose: 6 mg rapid IV push; follow with NS flush.

Second dose: 12 mg if required

Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia Procainamide IV Dose:

20–50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases $> 50\%$ or maximum dose 17 mg/kg given.
Maintenance infusion: 1–4 mg/min.
Avoid if prolonged QT or CHF.

Amiodarone IV Dose:

First dose: 150 mg over 10 minutes.

Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

Sotalol IV Dose:

100 mg (1.5 mg/kg) over 5 minutes.
Avoid if prolonged QT.

* Link MS, Atkins DL, Passman RS, Halperin HR, Samson RA, White RD, Cudnik MT, Berg MD, Kudenchuk PJ, Kerbenchuk PJ, Kerber RE. "Part 6: electrical therapies: automated external defibrillators, defibrillation, cardioversion, and pacing: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care". *Circulation*. 2010;122(suppl 3):S706-S719. http://circ.ahajournals.org/content/122/18_suppl_3/S706

** Scholten M, Szili-Torok T, Klootwijk P, Jordaens L. Comparison of monophasic and biphasic shocks for transthoracic cardioversion of atrial fibrillation. *Heart* 2003;89:1032-1034