

Bradycardia Algorhythm

Assess appropriateness for clinical condition.
Heart rate typically < 50/min if bradyarrhythmia.

Identify and treat underlying cause

- Maintain patent airway; assist breathing as necessary*
- Oxygen (if hypoxemic)
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IV access
- 12-Lead ECG if available; don't delay therapy

Persistent bradyarrhythmia causing:

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

Monitor
and
observe

N

Y

Atropine IV Dose:

First dose: 0.5 mg bolus
Repeat every 3–5 minutes
Maximum: 3 mg

If atropine ineffective:

- Transcutaneous pacing**
OR
- Dopamine IV infusion:
2–10 mcg/kg per minute
OR
- Epinephrine IV infusion:
2–10 mcg per minute

Consider:

- Expert consultation
- Transvenous pacing

* Dorges V, Wenzel V, Knacke P, Gerlach K. Comparison of different airway management strategies to ventilate apneic, nonpreoxygenated patients. *Crit Care Med*. 2003;31:800-804

** Link MS, Atkins DL, Passman RS, Halperin HR, Samson RA, White RD, Cudnik MT, Berg MD, Kudenchuk 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

Bradycardia Algorithm

Treat per General Treatment Guideline

Stable - HR <50

- Monitor EKG, obtain 12 lead
- Maintain O2 sat >90%
- IV/IO
- Placement of defibrillator / pacing pads

Unstable - HR <50 and - BP <90, ALOC, CP, SOB, s/s of heart failure, or shock

- 250cc NS to maintain BP >90, MR prn
- Consider **Atropine** 0.5 - 1.0 mg IV/IO
- Initiate transcutaneous pacing without delay for high degree blocks (2nd Degree Type 2, 3rd Degree Heart Block)
- Once capture is achieved, sedate patient using pain management protocol
- Non-responsive pacing consider
 - Epinephrine** drip 2-10mcg/min IV/IO, titrate to HR and BP
 - OR
 - Dopamine** drip 5-20mcg/kg/min IV/IO, titrate to HR and BP

Notes

1. Bradycardia may be a protective measure in patients with cardiac ischemia, only initiate treatment if patient is unstable
2. Patients with hyperkalemia due to renal failure, muscular dystrophy, para/quadruplegia, crush injuries, or serious burns >48hrs prior may become bradycardic. Treat with hyperkalemia protocol.
3. In unstable patients, TCP may be initiated prior to IV/IO access

Epinephrine Mix 1mg 1:1000 in 250ml NS or D5W at 4mcg/ml		
mcg/min	ml/hr	
2		30
3		45
4		60
5		75
6		90
7		105
8		120
9		135
10		150