Bradycardia

Signs and Symptoms

- Pulse less than 60 BPM
- Hypotension
- Weakness
- Dizziness
- Syncope
- Decreased level of consciousness or agitation
- Chest pain
- Hypotension
- Signs of CHF such as rales, JVD
- Dyspnea
- Diaphoresis

History

- Heart problems, (pacemaker, previous MI)
- Medications/Allergies
- Possible overdose

Differential

- Acute Myocardial Infarction
- Drug reaction/overdose (beta blocker, calcium channel blocker, organophosphates/nerve agents)
- Hypothermia
- Metabolic abnormalities (hypoglycemia, electrolyte/endocrine)
- Increased intracranial pressure
- Vasovagal response
- Athletic physiology

Pediatric Pearls

- * Symptomatic bradycardia for pediatrics: signs of poor perfusion.
- **Infants and young children with signs of poor perfusion and HR <60 require CPR.**
- Note minimum dose for Atropine is 0.1mg.
- Think airway or respiratory failure as potential cause and provide early airway management and oxygenation.
- Check glucose & treat hypoglycemia when indicated.

WARNINGS

! Do not delay pacing in unstable patients. If difficulty securing IV access, may proceed directly to pacing.

Care: Adults and Pediatrics

B E I P

Follow General Directive #3, Orders for all Patients
Keep patient supine, may elevate legs if tolerated.

E I P

! Establish IV of **Normal Saline** at a KVO rate. *If* hypotensive, administer fluid bolus as per Cardiac Emergencies Protocol #7.

I P

Initiate cardiac monitoring, acquire 12 lead EKG.

*Does the patient have clinical findings consistent with symptomatic bradycardia? **

No

Continue monitoring and be prepared to treat if symptoms develop.

Yes Peds

I P

Epinephrine (1:10,000) 0.01 mg/kg IV, repeat dose every 3-5 minutes.

I P

Atropine 0.02 mg/kg IV, (not to exceed 0.5 mg/dose). Minimum dose is 0.1mg. May repeat once.

I P

Consider external transcutaneous pacing. Consult medical control if sedation required.

Yes Adult

I P

Atropine 0.5 mg FAST IV. If condition does not improve prepare to pace, may repeat dose of 0.5 mg every 5 min. up to 3 mg.

I P

External transcutaneous pacing, sedate PRN with **Midazolam (Versed®)** 2.5 mg IV *after* mechanical capture.

I P

Consider **Dopamine (Intropin®)** starting at 5 mcg/kg/min. titrating to effect with a dose range of 5-20 mcg/kg/min.

Pearls

- For pacing, adjust heart rate to 70 in adults, 100 in children with slow increase in current output until capture.
- If no capture at maximum output, discontinue pacing.
- For adults, bradycardia is defined as a pulse less than 60 but treatment will generally not be necessary unless pulse falls below 50 with symptoms of hypoperfusion.
- *Symptomatic bradycardia for adults: *(pulse less than 50 bpm) with decreased level of consciousness, chest pain, dyspnea, or hypotension (SBP < 90 mmHg).*
- *If no improvement with first dose of Atropine especially with high degree (2° Type II or 3°) heart block, do not delay pacing.*
- Effective December 2013, Premixed **Dopamine** (**Intropin®**) will typically be supplied as 400mg in 250 ml (1600 μg/ml). Note this new "standard" concentration.
- Example Dopamine flow rates (1600mcg/ml concentration):

Micrograms/ minute		Microdrops/ minute
200	=	7.5
400	=	15
600	=	22.5
800	=	30

Performance Indicators

- Symptomatic Bradycardia recognized and treated appropriately before contacting medical control.
- Any delay in patient care is minimized.
- Other conditions or circumstances that could lead to bradycardic presentation recognized when appropriate.