



Bradycardia; Pulse Present

History

- Past medical history
- Medications
 - Beta-Blockers
 - Calcium channel blockers
 - Clonidine
 - Digoxin
- Pacemaker

Signs and Symptoms

- HR < 60/min with hypotension, acute altered mental status, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia
- Chest pain
- Respiratory distress
- Hypotension or Shock
- Altered mental status
- Syncope

Differential

- Acute myocardial infarction
- Hypoxia / Hypothermia
- Pacemaker failure
- Sinus bradycardia
- Head injury (elevated ICP) or Stroke
- Spinal cord lesion
- Sick sinus syndrome
- AV blocks (1°, 2°, or 3°)
- Overdose

Exit to
Appropriate
Protocol(s)



NO

Heart Rate < 60 / min and Symptomatic:
Hypotension, Acute AMS, Ischemic Chest Pain,
Acute CHF, Seizures, Syncope, or Shock
secondary to bradycardia
Typically HR < 50 / min

YES

Airway Protocol(s) AR 1, 2, 3 <i>if indicated</i>		
Respiratory Distress Protocol AR 4 <i>if indicated</i>		
Chest Pain: Cardiac and STEMI Protocol AC 4 <i>if indicated</i>		
B	Search for Reversible Causes	
	12 Lead ECG Procedure	
A	IV / IO Procedure	
P	Cardiac Monitor	
A		
P		
If No Improvement Transcutaneous Pacing Procedure (<i>Consider earlier in 2nd or 3rd AVB</i>)		
	Notify Destination or Contact Medical Control	

Reversible Causes

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypothermia
Hypo / Hyperkalemia

Tension pneumothorax
Tamponade; cardiac
Toxins
Thrombosis; pulmonary (PE)
Thrombosis; coronary (MI)

Adult Cardiac Protocol Section



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Pearls

- **Recommended Exam: Mental Status, Neck, Heart, Lungs, Neuro**
- **Identifying signs and symptoms of poor perfusion caused by bradycardia are paramount.**
- **Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic, otherwise monitor and reassess.**
- **Consider hyperkalemia with wide complex, bizarre appearance of QRS complex, and bradycardia.**
- **Hypoxemia is a common cause of bradycardia. Ensure oxygenation and support respiratory effort.**
- **Atropine**
 - Do NOT delay Transcutaneous Pacing to administer Atropine in bradycardia with poor perfusion. Caution in setting of acute MI. Elevated heart rate can worsen ischemia.
 - Ineffective and potentially harmful in cardiac transplantation. May cause paradoxical bradycardia.
- **Transcutaneous Pacing Procedure (TCP)**
 - Utilize TCP early if no response to atropine. If time allows transport to specialty center because transcutaneous pacing is a temporizing measure. Transvenous / permanent pacemaker will probably be needed.
 - Immediate TCP with high-degree AV block (2d or 3d degree) with no IV / IO access.
- Consider treatable causes for bradycardia (Beta Blocker OD, Calcium Channel Blocker OD, etc.)