

Bradycardia (Symptomatic)

History

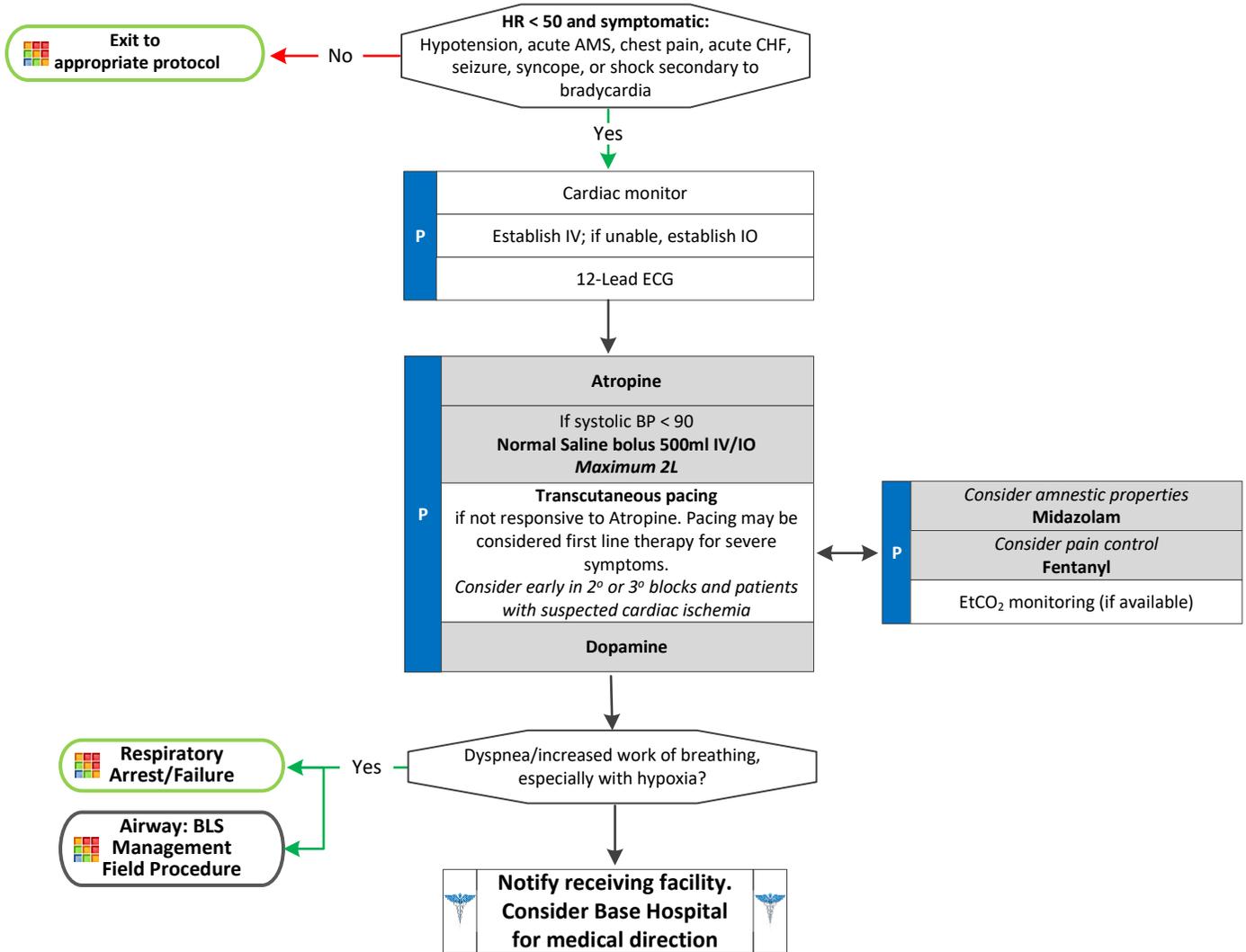
- Past medical history
 - Heart transplant
- Medications
 - Beta blockers
 - Calcium channel blockers
 - Clonidine
 - Digoxin
- Pacemaker

Signs and Symptoms

- Heart rate < 50 with associated hypotension, acute altered mental status, chest pain, acute CHF, seizures, syncope or shock secondary to bradycardia
- Systolic BP < 90
- Chest pain
- Respiratory distress
- Hypotension or shock
- Altered mental status
- Syncope

Differential

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



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Pearls

- Bradycardia causing symptoms is typically < 50 /minutes. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic, otherwise monitor and reassess frequently.
- Identifying signs and symptoms of poor perfusion caused by bradycardia is paramount.
- Atropine vs. pacing: Caution should be exercised in the setting of a suspected acute MI. The use of Atropine for bradycardia in the presence of an acute MI may worsen heart damage. Providers should NOT DELAY transcutaneous pacing for patients with poor perfusion in the setting of an acute MI or 2^o or 3^o heart block.
- For patients who are not in 2^o or 3^o heart block, pacing should be considered for bradycardia not responsive to Atropine. Prepare to utilize transcutaneous pacing early if the patient does not respond to Atropine.
- For wide complex, bizarre appearance of QRS complexes with slow rhythm, consider hyperkalemia.
- Consider treatable causes for bradycardia (e.g., beta blocker OD, calcium channel blocker OD, etc.)
- Hypoxemia is a common cause of bradycardia. Be sure to oxygenate the patient and support respiratory effort.
- Sinus bradycardia in the absence of key symptoms requires no specific treatment; monitor and observe.
- Sinus bradycardia is often seen in patients with STEMI or ischemia. An early 12-Lead ECG should be obtained to assess for STEMI.
- IV access, including EJ, must be attempted. If unsuccessful, then attempt IO.
- A fluid bolus may address hypotension and lessen the need for pacing or treatment with Atropine.
- Sedation prior to starting pacing is not required. Patients with urgent needs should be paced first and sedated afterwards.
- The objective of amnesia and pain control with pacing is to decrease discomfort, not to decrease level of consciousness. Patients who are in need of pacing are unstable and medications should be used with extreme caution.
- Monitor respiratory status closely and support ventilation as necessary.
- Atropine is not effective for bradycardia in heart transplant patients as there is no vagus nerve innervation in these patients.
- Patients with wide QRS or 2^o or 3^o heart blocks will not have a response to Atropine because their heart rates are not based on vagal tone. An increase in ventricular arrhythmias may occur.
- If no capture or hypotensive (SBP < 90), then start dopamine 5 mcg/kg/min. If inadequate response after 5 minutes, then may increase 5 mcg/kg/min to a maximum dose of 20 mcg/kg/min.
- In the setting of renal failure, dialysis, suspected DKA or hyperkalemia, calcium chloride followed by sodium bicarbonate shall be administered.

