Unstable Bradycardia Protocol

Bradycardia is defined as a heart rate less than sixty beats per minute (< 60 bpm). Determining the stability of the patient with bradycardia is an important factor in patient care decisions. The assessment of the patient with bradycardia should include evaluation for signs and symptoms of hypoperfusion.

The patient is considered **stable** if the patient is asymptomatic (i.e. alert and oriented with warm, dry skin and a systolic BP > 100mmHg).

The patient is considered **unstable** if he/she presents with:

- An altered level of consciousness (ALOC).
- Diaphoresis.
- Dizziness.
- Chest pain or discomfort.
- Ventricular ectopy.
- Hypotension (systolic BP < 100mmHg).

First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Initiate ALS intercept and transport as soon as possible.

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ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. **IV Fluid Therapy**: 500mL fluid bolus.

4. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).

5. **Contact Medical Control** as soon as possible.

6. **Atropine**: 0.5mg IV (**with Medical Control order only**) if the patient's perfusion does not improve after the fluid bolus, if the patient is hemodynamically unstable or if the cardiac rhythm is an AV block (other than a 3rd degree block). May repeat 0.5mg IV every ***5 minutes*** (**with Medical Control order)** up to a total of 3mg.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. **IV Fluid Therapy**: 500mL fluid bolus.

4. **Atropine**: 0.5mg IV/IO if the patient's perfusion does not improve after the fluid bolus, if the patient is hemodynamically unstable or if the cardiac rhythm is an AV block (other than a 3rd degree block). May repeat 0.5mg IV/IO every ***5 minutes*** (**with Medical Control order)** up to a total of 3mg.

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ALS Care (continued)

5. **Immediate Transcutaneous Pacing**: If the patient is in a **3rd degree AV block (**or in a **Type II 2nd degree AV block** unresponsive to Atropine).

   - Target heart rate should be set at **70 bpm**.
   - Current should be set at minimum to start and increased until capture is achieved.
   - Refer to the *Transcutaneous Pacing Procedure* for additional information.

6. **Midazolam (Versed)**: 2mg IV/IO for patient comfort after pacing is initiated. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.

7. **Dopamine**: If the patient remains hypotensive. Begin infusion at 24gtts/min. Increase by 12gtts/min every ***2 minutes*** to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.

   - *Dopamine is provided premixed (400mg in 250mL D_5W). This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.*

8. Transport as soon as possible (*Transport can be initiated at any time during this sequence*).

9. **Contact Medical Control** as soon as possible.

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NOTES ON HEART BLOCK

- **1st Degree AV Block: A delay in conduction through the AV node which is characterized by a prolonged PR interval (> 0.20 seconds). The rhythm is usually regular and there is a 1-to-1 correlation between the P wave and the QRS complex. 1st degree AV Block is of little clinical significance.**

- **Mobitz Type I 2nd Degree AV Block (Wenckebach): An intermittent block that usually occurs at the AV node. The conduction delay progressively increases until the ventricle is blocked. This produces a characteristic cyclical pattern in which the PR interval gets progressively longer until a P wave occurs that is *not* followed by a QRS complex (a "dropped beat"). Wenckebach is usually transient and reversible but can also progress to a more serious block. It may be an indication of an AMI, increased vagal tone, drug toxicity or an electrolyte imbalance.**

- **Mobitz Type II 2nd Degree AV Block: An intermittent block that usually occurs below the Bundle of His. It is characterized by consecutive P waves being conducted with a constant PR interval before a dropped QRS complex and usually occurs in a regular sequence with a noticeable conduction ratio. This is a serious arrhythmia and can rapidly lead to hypoperfusion.**

- **3rd Degree AV Block (Complete Heart Block): A complete electrical block at or below the AV node. It is characterized by consecutive P waves that are conducted independently of regularly conducted QRS complexes. This is a potentially lethal rhythm due to the asynchronous action of the cardiac chambers and preparation for transcutaneous pacing (TCP) should be done immediately (even if the patient is asymptomatic).**

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Critical Thinking Elements

- **Treat the patient – not the monitor. Bradycardia does not necessarily mean that the patient is unstable or requires intervention.**
- **Treat underlying etiologies according to protocol.**
- **<u>Atropine is NOT to be given if the patient's blood pressure is normal or elevated</u>.**
- ***Bradycardia may be present due to increased intracranial pressure from a stroke or head injury*. Contact Medical Control.**
- **Factors to consider during the assessment of the patient who presents with bradycardia include: patient health & physical condition (*e.g.* an athlete), current medications (*e.g.* beta blockers), trauma or injury related to the event (*e.g.* a head trauma patient exhibiting signs of herniation or *Cushing's syndrome*), and other medical history.**
- **Assess for underlying causes (*e.g.* hypoxia, hypovolemic shock, cardiogenic shock, or overdose).**
- **Fluid bolus should not delay Atropine administration or TCP if the patient is unstable.**
- **If the patient's presenting rhythm is a 3rd degree block, immediately prepare to pace. If the patient is symptomatic, pacing should be started without delay.**