SYMPTOMATIC BRADYCARDIA – ADULT / ADOLESCENT

ALS STANDING ORDERS:

1. Monitor cardiac rhythm and document with rhythm strip.

2. Pulse oximetry; if room air oxygen saturation less than 95%:

   ► *Administer High-flow oxygen by mask or nasal cannula at 6 L/min flow rate as tolerated.*

3. Establish IV access. Consider IO if attempts at IV access are unsuccessful or not feasible.

4. If patient without evidence of poor perfusion or other symptoms (see Guidelines below):

   ► Obtain 12-lead ECG; if "Acute MI" indicated or a STEMI is suspected based on paramedic interpretation of 12-lead ECG, make Base Hospital contact for CVRC destination with an open cardiac catheterization lab.

5. <u>If symptomatic bradycardia (see Guidelines below)</u>:

   ► Atropine: 1 mg IV/IO/IM approximately every 3-5 minutes as needed to correct bradycardia to a maximum total dose of 3 mg.

6. If unable to attain IV/IO access or 1 mg Atropine fails to improve heart rate, continue Atropine dosing and:

   ► Place transcutaneous pacemaker and initiate pacing (see Procedure Guideline # PR-110).
   → If paced by pacemaker, stop atropine dosing and contact Base Hospital for potential CVRC destination.
   → If paced by pacemaker, blood pressure less than 90 systolic and lungs clear to auscultation, contact Base Hospital for potential CVRC destination and:

      ► Administer normal saline, 250 mL IV/IO, repeat up to maximum 1 liter to maintain adequate perfusion

   → If transcutaneous pacing causes anxiety and extreme discomfort and blood pressure greater than 90 systolic:

      ► Administer midazolam (Versed®) up to 5 mg IV slowly titrated to attain sedation (Assist ventilation and maintain airway if respiratory depression develops)

   → If IV access cannot be established and blood pressure greater than 90 systolic:

      ► Administer midazolam (Versed®) 5 mg IN divided between each nostril, may repeat once after approximately 3 minutes (Assist ventilation and maintain airway if respiratory depression develops)

7. For systolic blood pressure less than 90 (paced or if non-capture), no response to atropine, and lungs clear to auscultation:

   ► Administer normal saline, 250 mL, may repeat 3 times (total 1 liter) to maintain perfusion.

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► If BP < 90 after 1 liter of NS or if evidence of CHF, contact Base Hospital.

8. ALS escort with Base Hospital contact for CVRC destination.

TREATMENT GUIDELINES:

- Symptomatic bradycardia is defined as heart rate less than or equal to 60 bpm and at least one of the following:
  - Hypotension
  - Signs of poor perfusion (poor skin signs)
  - Altered level of consciousness
  - Chest pain
  - Shortness of breath, signs of pulmonary edema

- If patient has an implanted pacemaker and is bradycardic with heart rate less than 60 bpm, treat in same manner as described in ALS Standing Orders above.

- Cardiac pacing, when immediately required to stabilize a patient, should be deployed without waiting if there is a delay in establishing IV/IO access.

- Consider common toxicologic and metabolic causes of bradycardia (e.g. hyperkalemia, calcium-channel or beta-blockers, digoxin). Contact Base Hospital for additional medical direction if these suspected.

- Consider an acute MI is present for the following 12-lead monitor interpretations:

  1. ***ACUTE MI***
  2. ***STEMI***
  3. Acute ST Elevation Infarct
  4. Probable Acute ST Elevation Infarct
  5. Acute Infarction
  6. Infarct, Probably Acute
  7. Infarct, Possible Acute

- Base Hospital may order push-dose epinephrine for refractory hypotension, refer to ALS procedure # 230 (Push-Dose Epinephrine).