



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. If symptomatic bradycardia (see Guidelines below):
 - ▶ 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 Atropine fails to improve heart rate:
 - ▶ Place transcutaneous pacemaker and initiate pacing (see Procedure Guideline # PR-110).
 - If paced by pacemaker, 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.
 - ▶ If BP < 90 after 1 liter of NS or if evidence of CHF, contact Base Hospital.

Approved:

Carl Schultz, MD

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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. Base Hospital may order Calcium Chloride
- 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).

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