Treatment Protocol: CARDIAC DYSRHYTHMIA - BRADYCARDIA

Base Hospital Contact: Required for all patients with symptomatic bradycardia

1. Assess patient’s airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302)

2. If foreign body suspected, perform direct laryngoscopy for foreign body removal and treat in conjunction with TP 1234-P, Airway Obstruction

3. Administer Oxygen pm (MCG 1302)
   High-flow Oxygen 15L/min for poor perfusion ❶

4. Initiate cardiac monitoring (MCG 1308)
   Perform 12-lead ECG if dysrhythmia suspected prn

5. For poor perfusion:
   Begin bag-mask-ventilation (BMV) ❷ ❸

6. Establish vascular access prn (MCG 1375)

7. For persistent poor perfusion:
   Begin chest compressions if bradycardia (< 60 bpm) persists
   **Epinephrine (0.1mg/1mL) 0.01mg/kg slow IV/IO push**, dose per MCG 1309
   Repeat every 3-5 min
   CONTACT BASE for Physician Consultation concurrent with above treatment

8. If suspected AV Block or patient unresponsive to epinephrine: ❸
   **Atropine (0.1mg/mL) 0.02 mg/kg IV/IO push**, dose per MCG 1309
   May repeat x1 in 5 min

9. Consider Transcutaneous Pacing (TCP) for HR ≤ 40 with continued poor perfusion (MCG 1365)
   For infants and young children place pacing pads anterior and posterior chest; for older children place as per adult patients ❹
   Recommended initial settings: rate 70bpm/0mA, slowly increase mAs until capture is achieved
   CONTACT BASE concurrent with initiation of TCP

   If TCP will be utilized for the awake patient, consider sedation and analgesia
   For sedation:
   **Midazolam (5mg/mL) 0.1mg/kg IM/IN/IV/IO**, dose per MCG 1309
   Repeat x1 in 2 min prn, maximum two doses prior to Base contact

   For pain management:
   **Fentanyl (50mcg/mL) 1mcg/kg slow IV/IO push or IM**, dose per MCG 1309
   Repeat in 5 min prn x1, maximum 2 total doses prior to Base contact
   **Morphine (4mg/mL) 0.1mg/kg slow IV/IO push**, dose per MCG 1309
   Repeat in 5 min prn x1, maximum 2 total doses prior to Base

   CONTACT BASE for additional sedation and/or pain management after maximum dose administered:
   May repeat Midazolam, and/ or Fentanyl or Morphine as above maximum 4 total doses
10. For nausea or vomiting in patients ≥ 4 years old:
   Ondansetron 4mg ODT

11. For signs of poor perfusion with HR > 40:
   Normal Saline 20mL/kg IV/IO rapid infusion per MCG 1309

12. For suspected overdose, treat in conjunction with TP 1241-P, Overdose/Poisoning/Ingestion
SPECIAL CONSIDERATIONS

❶ Management of oxygenation and ventilation is most important aspect of treatment of bradycardia in children. Squeeze the bag mask device just until chest rise is initiated and then release; state “Squeeze, Release, Release” to prevent hyperventilation.

❷ Young athletes, typically adolescents may have normal resting heart rates < 60 bpm, treat only if signs of poor perfusion.

❸ Potential causes of unresponsiveness to epinephrine in children include increased intracranial pressure, beta blocker/calcium channel overdose, hypothyroidism, infection, congenital heart disease, and sleep apnea where administration of atropine could be of theoretical benefit.

❹ There are minimal data on the use of TCP in infants and children in the out-of-hospital setting. Patients unresponsive to BMV and epinephrine may be candidates. Base Physician consultation is recommended in these patients.