Pediatric Bradycardia

This protocol is for paramedic use only

Aliases: Slow heart rate, heart block

Bradycardia should be considered to be due to hypoxia until proven otherwise. This protocol applies to pediatric patients with bradycardia, a pulse, and poor perfusion (cardiopulmonary compromise).

NOTES: Signs of cardiopulmonary compromise include:

1. Hypotension:
    a. In neonates, SBP less than 60
    b. In infants 1 month to 1 year, SBP less than 70
    c. In children aged 2 to 10 years, SBP less than 70 + (age x 2).
    d. For children greater than 10, SBP less than 90
2. Acutely altered mental status.
3. Signs of shock - indicated by absent and/or weak peripheral and femoral pulses, increased capillary refill time (> 3 seconds), skin cool/mottled.
4. Respiratory difficulty indicated by increased work of breathing (retractions, nasal flaring, grunting, tracheal tugging), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.

General Treatment

A. Pediatric patients (≤ 14 years of age) utilize MI MEDIC cards for appropriate medication dosage. When unavailable utilize pediatric dosing listed within protocol.
B. Manage airway as necessary
C. Provide supplemental oxygen as needed to maintain O2 saturation > 94%
D. Initiate monitoring

1. If pulse is < 60 confirm and support adequate oxygenation and ventilation.
2. If pulse remains < 60 and patient remains symptomatic perform CPR
3. Establish vascular access
4. Apply cardiac monitor to identify rhythm
5. If pulse remains < 60, despite oxygenation & ventilation
    A. Administer **epinephrine** according to MI MEDIC cards.
        i. If MI MEDIC cards are not available administer **epinephrine**:
            1. 1mg/ 10mL,
            2. 0.01 mg/kg (0.1 ml/kg) IV/IO up to 1 mg (10 ml),
            3. Repeat every 3-5 minutes.
    B. If patient remains unstable and pulse < 60 administer **atropine** according to MI MEDIC cards.
        i. If MI MEDIC cards are not available administer **atropine**:

1. 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose 0.5 mg)
2. May repeat once in 5 minutes, if effective.

ii. Continue administration of epinephrine as above

6. If patient remains unstable and pulse <60 after **epinephrine** and **atropine** administration:
   i. Begin transcutaneous pacing at rate up to 100 bpm per **Electrical Therapy-Procedure Protocol.**
   ii. Sedation may be used to facilitate transcutaneous pacing per MCA selection. Refer to **Patient Procedural Sedation-Procedure Protocol**.
7. Continuously monitor for pulses. If pulse is not present, refer to **Pediatric Cardiac Arrest-Treatment Protocol**.
8. Ensure adequate patient warming.

Notes:

When CPR is required, a precise diagnosis of the specific bradyarrhythmia is not important.

Medication Protocols
Atropine
Epinephrine