PEDIATRIC BRONCHOSPASM

Pediatric Bronchospasm is a manifestation of several disease processes. In children, the most common are reactive airway disease (asthma), viral bronchiolitis, pneumonia, bronchopulmonary dysplasia, and foreign body obstructions. Physical examination reveals wheezing with a prolonged expiratory phase of breathing. Cough and dyspnea are often present. Respiratory Distress is categorized as follows:

- **Minimal Distress:** A slight increase in work of breathing and respiratory rate with minimal wheezing or stridor evident.
- **Moderate Distress:** A considerable increase in work of breathing and respiratory rate with wheezing and/or abnormal breath sounds evident. Nasal flaring and mild intercostal retractions are present.
- **Severe Distress:** Extreme work of breathing with nasal flaring and intercostal, subcostal, and suprasternal retractions. Additional accessory muscle use (sternocleidomastoid) may be evident. The expiratory phase becomes prolonged and may be silent. Wheezes may be absent as airflow is significantly compromised.

A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

B. If patient is in moderate distress and:

1. Heart rate is < 180:

   a. Administer **Albuterol**
      - 5.0 mg with oxygen 8 - 10 LPM for children 6 – 12 years of age.
      - 2.5 mg with oxygen 8 - 10 LPM for children < 6 years of age.

   b. Administer **Ipratropium Bromide (Atrovent®)**
      (may be nebulized with the albuterol)
      - 0.5 mg with oxygen 8 - 10 LPM for children 6 – 12 years of age.
      - 0.25 mg with oxygen 8 - 10 LPM for children 1 – 6 years of age.
      - *Contraindicated in children <1 year of age.*

   c. Reassess vital signs and lung sounds.

2. If distress is unrelieved and patient appears severe:

   a. Expedite transport.

   b. Administer a second dose of **Albuterol**
      - 5.0 mg with oxygen 8 - 10 LPM for children 6 – 12 years of age.
      - 2.5 mg with oxygen 8 - 10 LPM for children < 6 years of age.

c. Administer a second dose of **Ipratropium Bromide (Atrovent®)** *(may be nebulized with the albuterol)*
   - 0.5 mg with oxygen 8 - 10 LPM for children 6 – 12 years of age.
   - 0.25 mg with oxygen 8 - 10 LPM for children 1 – 6 years of age.
   - *Contraindicated in children <1 year of age.*

d. Administer **Dexamethasone** IV/IO/PO/IM 0.6 mg/kg to a maximum dose of 10 mg 

3. If distress is relieved:

   a. Monitor vital signs and transport.

   b. Notify **Medical Command**.

C. If patient is in severe distress and:

1. Heart rate is < 180:

   a. Administer **Albuterol**
      - 5.0 mg with oxygen 8 - 10 LPM for children 6 – 12 years of age.
      - 2.5 mg with oxygen 8 - 10 LPM for children < 6 years of age.

   b. Administer **Ipratropium Bromide(Atrovent®)** *(may be nebulized with the albuterol)*
      - 0.5 mg with oxygen 8 - 10 LPM for children 6 – 12 years of age.
      - 0.25 mg with oxygen 8 - 10 LPM for children 1 – 6 years of age.
      - *Contraindicated in children <1 year of age.*

   c. Administer **Dexamethasone** IV/IO/PO/IM 0.6 mg/kg to a maximum dose of 10 mg

   d. If transport time permits, consider administration of **Magnesium Sulfate** 50 mg/kg IV/IO diluted in 100ml of Normal Saline administered over 1 hour. 

2. If heart rate > 180:

   a. Confirm that patient's tachycardia appears to be from respiratory distress and not from other causes.
   b. Proceed with treatment as in "B" above.

c. Monitor patient's symptoms and vital signs closely.

d. If any signs of increasing chest pain or cardiac symptoms develop, stop nebulizer, and treat per appropriate protocol.

D. **Contact Medical Command** for further treatment options 

E. For extreme respiratory distress marked by diminished air movement resulting in questionable delivery of nebulized medication administer Epinephrine (1:1,000) 0.15 mg IM

F. In the setting of bronchospasm refractory to treatment, markedly decreased lung compliance with BVM, apnea, or other signs of impending respiratory arrest consider Epinephrine (1:1,000) 0.15 mg IM.