OhioHealth Emergency Medical Services Podcast Series
September 2021 Episode: Pediatric Airway and Respiratory Illnesses

Objectives:

1. Discuss pediatric respiratory illnesses.
2. Review approaches to pediatric airway management.

Podcasters

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Case: 4-year-old female with shortness of breath. Parents are on seen. You note mildly increased work of breathing but no tripoding. You note bilateral wheezing in all lung fields. Pulse oximetry is 90-92% with a mildly elevated respiratory rate.

Danni's Initial Thoughts:

- Recognize pediatric encounters, especially higher acuity ones, are stressful.
- Determine if the patient is sick versus not sick. Communicate well and slow down.
- Evaluate for respiratory rate, accessory muscle use, retractions, nasal flaring, grunting, stridor, wheezing, cyanosis, apnea, oxygen levels, tripoding.
- Have a good reference for normal pediatric vital signs that is easy to access.
- If you hear sounds from the door, it is likely stridor rather than wheezing.
- What treatments are available.
- While not just young adults, several of the treatments are similar.

Drew's Initial Thoughts:

- Abnormal respiratory sounds in pediatrics are difficult to differentiate.
- Please see links below for examples of stridor and wheezing
  - Stridor
  - Wheezing
- Consider non-respiratory illnesses that may lead to abnormal lung sounds such as foreign bodies
  - Caregivers may not always be aware of foreign bodies so keep on your differential.
- Chronic lung disease may have acute decompensation or a new, acute problem. Involve parents/caregivers in these scenarios.
- Pediatric illnesses are increasing (as of August 2021). Bronchiolitis is becoming more prevalent.
- May appear well but have the potential for decompensation quickly.
- Allow parents to hold child and help with blow-by oxygen or nebulizer

Eric's Initial Thoughts:

- Prepare yourself and change your mind set for the pediatric encounter.
- First step: look and visualize with the pediatric assessment triangle to determine sick vs. not sick. This assessment includes breathing, perfusion, and mental status.
- Second step: categorize as upper airway, lower airway, or external problem.
- Upper airway: consider croup, anaphylaxis, obstruction, etc.
    - Think racemic epinephrine
- Lower airway: wheezing, bronchiolitis, foreign body, etc.
    - Think albuterol +/- ipratropium
- External: foreign body, congenital heart disease, anatomical abnormality

RSV and Bronchiolitis

- Typically occurs in winter months but is increasing this summer.
- Bronchiolitis can appear like asthma.
- Most of the time, the patients are well appearing.
- Upper airway congestion and wheezing are common.
- Differentiating from asthma is challenging, especially in younger patients.
- Provide oxygen supplementation as needed.
- Albuterol is not officially recommended in bronchiolitis. However, trialing albuterol is reasonable.
- Nebulized treatment is also humidified air which can assist with symptom control.

Drew's Five Upper Airway Problems:

- Aspirated foreign body
- Croup: barky cough, better in cold environment
- Epiglottitis: rare but can be very toxic. Consider in unvaccinated children.
- Retropharyngeal or peritonsillar abscess
- Bacterial tracheitis

Pediatric Airway

- Anatomical differences: smaller mouth, larger tongue, different colored vocal cords, subglottic narrowing, trachea narrow, large heads which causes flexion when supine, obligate nasal breathers.
- Highly consider pediatric-specific video laryngoscopy equipment.
- Stick with what you know and are comfortable with.
- Be sure to use the right size of equipment.
- Getting the epiglottis out of the way is important in pediatric intubations.
- There is tendency to go too deep when inserting the laryngoscope blade. Take a step wise approach from the tongue and progress distally to the epiglottis.
- Have a plan for removing foreign bodies. Consider ventilating one lung if the foreign body cannot be removed.
- Utilize a reliable reference for determining endotracheal tube size and depth. Cuffed tubes are likely better than uncuffed tubes in most patients.

- Intubation Medications
    - Preparatory work is most important: pre-oxygenation, positioning, equipment, etc.
    - Induction: ketamine is a good option. Etomidate is another option but more controversial in the pediatric population.

Closing Thoughts

- Keep your stress in check during these difficult encounters.
- We will be focusing on pediatrics over the next few episodes.