PEM physician at LeBonheur Children’s Hospital
I have no disclosures
Objectives

• Explore topics frequently seen in the PED
  • Presentations
  • Work ups
  • Treatments

• Discuss cases from each prospective
  • Physicians
  • Nurses
  • Paramedics

• Take home points
Let’s start some cases

Foreign body aspiration
While riding with MFD...

- EMT (paramedic) called to an 18 month male who is choking on a foreign body
- On arrival patient has stridor and respiratory distress, but while on the scene he passes out
- You decide to intubate and when intubating, you see the foreign body
- What do you do?
  - A) attempt to bag the patient and head to closest PED
  - B) attempt to remove the FB
  - C) right mainstem the foreign body
Now let’s pretend we are in the PED

- You decide to intubate and when intubating, you see the foreign body
- What do you do?
  - A) attempt to remove the FB
  - B) right mainstem the foreign body
  - C) either A or B
From the nursing perspective

- 20 month male presents to the ED with history of cough and decreased PO intake
  - Initial vitals are HR 130 RR 30 pOx 99% RA BP 92/54

- Placed into your room and you go to assess
  - Lungs clear, not labored
    - But he is drooling....

- What would you do? What should you think about?
  - Any history of ingestion?
  - Any stridor or signs of impending distress?
The same child

- A chest x-ray was obtained and it appears that a coin is in the proximal esophagus
  - What can you do now?

- If it is in the stomach, does this change your management?

- It is a button battery... now what changes?
Foreign Body Aspiration

- In 2000, over 17,000 children presented to ED with FBA
- Usually <3 years of age
  - May have a choking history
  - Subtle findings
- Potentially life threatening
  - Block airway
  - Impair oxygenation and ventilation
Major culprits

- Younger children
  - Parts of toys
  - Food items
    - Popcorn
    - Hot dogs
    - Grapes

- Older children
  - Non-food items
    - Coins
    - Paper clips
    - Pen caps
Be careful!!
Presentation

- Life threatening
  - Severe respiratory distress
  - Cyanosis
  - Altered mental status

- Subtle\(^7\)
  - Wheeze
  - Cough
  - Diminished breath sounds
Work Up

- **CXR**
  - Can see hyperinflated lung, atelectasis, mediastinal shift or pneumonia 8-11
  - May see hyperexpansion distal to FB if partial obstruction
  - In one retrospective study 2/3 negative 8-11

- **Inspiratory/expiratory films**
  - Shift away from FB in expiratory films

- **Decubitus films**
  - Failure of affected lung to collapse
Management

- History, physical and radiography

- Life threatening
  - Heimlich
  - Direct laryngoscopy
  - Needle cricothyrotomy
  - Advance Right main stem

- Non life threatening
  - support
  - Definitive treatment
    - Bronchoscopy
I am that mom

“it’s the choking kind”
“I can’t have that”
“I can have gum when I am five years old”
Acute Asthma Exacerbation
Asthma exacerbation-EMS

- 9 year old female with wheezing
- On your arrival she is awake in moderate distress, speaking only in short phrases
  - HR 120s, RR 38 sats on RA 90% BP 106/68
- What could you do?
  - A) place on oxygen
  - B) start albuterol
  - C) place IV and give solumedrol
  - D) a and b
  - E) start racemic epinephrine
Asthma exacerbation

- You are the nurse in the resuscitation room
- 5 y old male presents from triage in severe respiratory distress
  - All MDs tied up with a trauma
- What should you do?
  - Oxygen
  - IV
  - If you can get albuterol neb started .. RT?
  - Any protocol orders?
    - Steroids?
Asthma exacerbation

- 4 y female with h/o RSV as infant
  - Cough and wheeze x 2-3 days with increased sx today
- HR 180 RR 30 BP 86/50 pulse Ox 96%
  - Exp wheezes throughout with prolonged exp phase
- What is the mainstay of therapy?
- She improves after your first intervention
  - What would you consider adding?
Asthma exacerbation

- 13 y female with h/o asthma presents to the ED in severe respiratory distress

- What would you do and how would you proceed?
  - Albuterol
  - IM epinephrine
  - Solumedrol
  - Magnesium sulfate
  - Terbutalline
  - Ketamine
  - Non-invasive ventilation
  - Lastly.... Endotracheal intubation
Asthma

- Asthma affects all ages
  - Usually starts in childhood
- Complex interaction
  - Airflow obstruction
  - Inflammation
  - Bronchial hyperresponsiveness

- Common symptoms
  - Cough
  - Wheeze
  - Chest tightness
  - Shortness of breath
Asthma exacerbations

- Acute ED goals
- Rapid reversal of airflow obstruction \(^{12}\)
  - Bronchodilators
  - Systemic glucocorticoids
- Correction of hypoxemia and hypercapnia
Asthma

- **Mild**
  - Albuterol MDI vs. Neb and glucocorticoids

- **Moderate**
  - Add ipratropium (smooth muscle relaxation)
  - Frequent reassessments
Asthma

• Severe exacerbation 16-32
  • IM epinephrine/IM terbutalline
  • Oxygen
  • Continuous albuterol
  • Systemic glucocorticoids
  • magnesium sulfate (50mg/kg- max 2 g)
  • IV terbutalline bolus and drip (usually load 10 mcg)

• Other options
  • ketamine
  • Heliox
  • Non-invasive ventilation
  • Only if you have no other option....intubation
fever
3 week female

- You are the nurse in the ED, triage brought a neonate to your room
- Presented to the ED with fever, tmax 38.6 R
- Has had nasal congestion and fever today with decreased PO intake
- Not toxic appearing T 38.2R  HR 140 RR 40 BP 70/40
- What would you do?
  - Full work up
6 week male

- You are taking care of a 6 week old male
- Presents with fever, tmax =38.6, and cough
- Temp 38.6 HR 160 RR 50  BP 92/48 pOx96%
- What would you want to know?
  - Birth history
  - Other symptoms
6 week old

• What would you do?
  • A) RSV/FLU
  • B) full work up with RSV/FLU
  • C) RSV /FLU , full work up if neg
  • D) Blood, urine, RSV/FLU

• Thoughts??
11 week male with fever

- Presents again with fever and congestion, T max 38.6
- Tmax 38.6 HR 130 RR 40 BP 88/48 pOx 97%
- RSV+ at the PCP office earlier today
- What would you like to know?
  - Length of fever
  - Immunizations
- Now what would you do?
Fever in neonates

- 0-28 days
  - Well and ill appearing
  - Tmax \( \geq 38.0 \) C
- Risk of SBI almost 20%
- Strong recommendation 32-34
  - blood cultures
  - Urine
  - CSF
  - Chest x-ray if respiratory symptoms
  - Admission with empiric antibiotics
Fever in infants

- Day 29-56
  - ill appearing
    - Full work up and admission on antibiotics
  - well appearing

- No bronchiolitis
  - Full work up (strongly recommended)
    - Delineate if low risk
      - Admit if high risk and cover with antibiotics
      - Low risk may discharge with follow up in 24 hours

- Bronchiolitis
  - UA and Urine culture
  - Strongly consider CBC and blood culture
    - Consider CSF if WBC high
Fever in young infants

- 57 days-90 days
- Ill appearing
  - Full work up
- Well appearing
  - Bronchiolitis
    - UA/Urine culture
  - No bronchiolitis
    - UA/Urine culture
    - Consider CBC/blood culture
      - Consider csf if elevated WBC
      - Risk stratification
Risk stratification

- Rochester criteria
  - 0-60 days
- Philadelphia criteria
  - 29-56 days
- Boston criteria
  - 28-89 days
Risk stratification

- Low risk criteria
  - Well appearing
  - No focal infection
  - +/- prenatal and post natal course

- Laboratory parameters
  - WBC
  - UA WBC
  - Band count
  - Stool smear
  - Chest X-ray

- Treatment
  - High risk
  - Low risk
Take home points

- Please cut up foods for children
  - Grapes, hotdogs, pizza
- Avoid peanuts and popcorn in toddlers
- FBA can be subtle, keep it in your differential
- Take asthma seriously - frequent rechecks
  - Can quickly become worse
- “Never ” intubate an asthmatic
A few more take home points

- Fever and the work up are evolving
- Guidelines are guidelines
- If you do empiric antibiotics in the infants <90
  - Good follow up
  - Full work up
- Immunizations do matter
Questions??
References


• 18. Gries DM, Moffitt DR, Pulos E, Carter ER. A single dose of intramuscularly administered dexamethasone acetate is as effective as oral prednisone to treat asthma exacerbations in young children. J Pediatr 2000; 136:298.


THANK YOU