EM Basic- Croup

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Diagnosis

-Clinical diagnosis based on barking cough
-Accompanied by URI symptoms- cough, runny nose, fever

Differential Diagnosis

Aspirated foreign body- always a consideration in kids- consider if very sudden onset (one second fine, the next with difficulty breathing)

Epiglottitis- Much less common with modern vaccinations- look toxic, have a lot of difficulty breathing, lots more drooling

Retropharyngeal abscess- may present similarly to epiglottitis but usually not as sick- may not want to move head or neck 2/2 pain

Bacterial tracheitis- also appears very sick, purulent sputum is the hallmark

Cause of croup- Para-influenza virus type 1 and 2 (75% of cases)

Imaging

X-ray- can consider it if diagnosis is in doubt- can be helpful to rule out the other conditions on the differential above

-Classically reveals the steeple sign (below)
-Tintinalli's says this may be absent in up to 50% of cases

http://emedicine.medscape.com/article/407964-overview

Labs- Not necessary unless you are considering other diagnoses

PEARL: Avoid agitating these patients as much as possible- this includ lab draws- don't do them or obtain IV access unless you absolutely ne it

Classification of Croup

-Mild- No stridor at rest, classic cough

-Moderate- stridor at rest, some retractions and/or decreased air int

-Severe- Stridor at rest, cyanosis at agitation, decreased air intake

-Impending respiratory failure- altered level of consciousness, cyano at rest, markedly decreased air intake

Wesley Croup Score- more useful as an epidemiologic tool but not usually useful clinically- can use to differentiate mild from moderate croup

Treatment

Dexamethasone (aka Decadron)

-Given to all patients with croup, improves outcomes and decreases ED returns
-0.6 mg/kg PO or IM, max of 10mg
-Newer studies showing that 0.15 mg/kg may be just a effective with less vomiting
-Go with least invasive route possible
-If tolerating PO, mix IV version with juice and give it P

PEARL: In general, most kids with mild croup may be better on arrival the ED due to exposure to the cold night air which is easier for them t breathe

Inhaled Epinephrine (racemic or regular)

-ONLY FOR KIDS WITH STRIDOR AT REST

-Stridor with agitation is ok-

-If stridor resolves with rest, do not need racemic epi

-No difference in outcomes with racemic versus non-racemic epi

-Racemic epi- 0.5ml of 2.25% solution diluted in 2-3 ml of Saline

-Regular epi- 1:1,000 concentration (or 1 mg/ml)- 5ml diluted in 2-5 mL of saline

-Can be given every 2 hours as needed

Oxygen and Heliox

-Oxygen for all hypoxemic patients

-Heli-ox- helium oxygen mixture for severe croup- reduces work of breathing due to less air turbulence

Albuterol

-Avoid- can worsen symptoms- not a lot of asthma in this agre group

Intubation

-Severe croup that does not respond to other treatment

-Use one size smaller ET tube than you would normally use due to

airway swelling

Disposition

-Children with persistent stridor at rest, tachypnea, retractions, or hypoxia or if needing more than 2 rounds of inhaled epi= admit

-Consider cardiac monitoring if needing multiple doses of epi

Discharge criteria

-3 h since last epinephrine

-Nontoxic appearance

-Able to take fluids well

-Caretaker able to recognize change in child's condition and has adequate transportation to return if necessary

References:

1. Mapelli E, Sabhaney V. Stridor and Drooling in Infants and Children Tintinalli JE, Stapczynski J, Ma O, Yealy DM, Meckler GD, Cline DM. ed Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 8e. N York, NY: McGraw-Hill; 2016. http://accessmedicine.mhmedical.com/content.aspx?bookid=1658&S ionid=109406485. Accessed April 12, 2016.

2. Bjornson C, Russell K, Vandermeer B, Klassen TP, Johnson DW. Nebulized Epinephrine for croup in children. PubMed 2013. Available www.pubmed.gov. Accessed April 8, 2016.

3. Weber JE, Chudnofsky CR, Younger JG, et al. A Randomized Comparison of Helium–Oxygen Mixture (Heliox) and Racemic Epinephrine for the Treatment of Moderate to Severe Croup. Pediatri 2001;107(6). Available at: http://pediatrics.aappublications.org/content/107/6/e9. Accessed Ap 8, 2016.

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