

# ED QUESTIONS

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Laura Chamorro, MD

An **8** year old girl with HgbSS disease presents to the ED with increased work of breathing.

PE: RR= 28, slightly reduced breath sounds,  
Pox: 88%.

CXR demonstrates a new infiltrate

Q: What is the most likely etiology of her diagnosis?

- a. Pulmonary infarction
- b. Hypoventilation secondary to narcotics
- c. Viral infection
- d. Fat embolism
- e. Bacterial infection
- f. Fungal infection

# The diagnosis of ACS requires all of the following:

- A *new pulmonary infiltrate* detected by chest radiograph involving at least one complete lung segment that is not consistent with the appearance of atelectasis
- AND one of the following:
  - *Chest pain*
  - *Temperature >38.5°C*
  - *Tachypnea, wheezing, cough, or the appearance of increased work of breathing*
  - *Hypoxemia relative to baseline measurements*

# Answer: C. Viral

- **Infection** is the most common known cause (29%) → pulmonary infarction (16%) → fat embolism (9%).
- For **children (under 9 yo)**: Infection has been noted to be the most common etiology.
  1. Viruses (RSV, Influenza, CMV, Parvovirus, Adenovirus, Parainfluenza)
  2. Mycoplasma
  3. Chlamydia

- **Adolescents** have a higher rate of Chlamydia (8%) and Mycoplasma (4%) followed by Virus (3%) and Bacteria (3%)
- For many years the most common pathogen has been assumed to be **S. pneumoniae** based on studies >25 yrs ago. The frequency of S. pneumoniae has declined substantially while the incidence of Mycoplasma and Chlamydia grows.
  - Vaccination (penicillin, pneumovax, HiB)

A 14 year old boy with HbSS presents with a 1 day history of shortness of breath and upper back pain.

CXR demonstrates a new pulmonary infiltrate on the LLL. He is found to have acute chest syndrome.

## Which of the following is true of ACS?

- A. Wheezing, cough, fever are presenting symptoms which are more common in patients >10 years old
- B. Involvement of the upper lobes predominates
- C. Empiric coverage requires broad spectrum antibiotics including a macrolide and antifungals
- D. Patients with SCD with asthma are 2-4 times more likely to develop ACS than those without asthma
- E. The risk of infection can be decreased by prophylactic antibiotics until the first 3 years of life.



## Answer: D

- A. Wheezing, cough, fever are presenting symptoms which are more common in patients <10 years old.
- B. Involvement of the lower lobes predominates
- C. Antibiotic coverage requires broad spectrum antibiotics including a macrolide
- D. Patients with SCD with asthma are 2-4 times more likely to develop ACS than those without asthma
  - In asthma pts, inhaled bronchodilators should be used on a scheduled basis even if the patient is not currently wheezing
- E. The risk of infection can be decreased by prophylactic antibiotics until first 5 years of life.

# Sources

- New England Journal of Medicine: Causes and Outcomes of the Acute Chest Syndrome in Sickle Cell Disease
- <http://sickle.bwh.harvard.edu/acutechest.html>
- Uptodate