

Pharmacy 407
Case Studies
Acute Bacterial Sinusitis and
Mucopurulent Rhinitis
November, 2011

Learning Objectives

- 1. To learn about the pathophysiology of acute sinusitis.***
- 2. To learn about the signs and symptoms of acute sinusitis.***
- 3. To learn about the diagnosis of acute sinusitis.***
- 4. To learn about the appropriate treatment of acute sinusitis.***
- 5. To learn about the problems of bacterial resistance in the treatment of acute sinusitis.***
- 6. To become familiar with the literature and guidelines for acute sinusitis /mucopurulent rhinitis.***

Suggested References

1. Guideline for The Diagnosis and Management of Acute Bacterial Sinusitis
Available from the Alberta Medical Association TOP Guidelines Website
http://www.topalbertadoctors.org/cpgs.php?sid=15&cpg_cats=56
2. Principles of Appropriate Antibiotic Use for Acute Rhinosinusitis in Adults: Background. John M Hickner et al. Ann Intern Med 2001; 134: 498–505
3. Adult Appropriate Antibiotic Use Summary / Physician Information Sheet
<http://www.cdc.gov/getsmart/campaign-materials/info-sheets/adult-approp-summary.html>
(or Search Google for CDC Adult Appropriate Antibiotic Use Summary: Physician Information Sheet)
4. CDC Brochure: Snort, Sniffle, Sneeze No Antibiotics Please.
(This is a great brochure for patients with good description of changes in nasal discharge)
<http://www.cdc.gov/getsmart/campaign-materials/brochures.html>
5. CDC Brochure: Cold or Flu. Antibiotics Don't Work for You. CDC website
<http://www.cdc.gov/getsmart/campaign-materials/print-materials/Brochure-general.html>

Extra Reference of Interest

Clinical Practice Guideline : Adult Sinusitis

Otolaryngology -- Head and Neck Surgery 2007 137: S1

The online version of this article can be found at:

http://oto.sagepub.com/content/137/3_suppl/S1

These guidelines provide a nice review of the literature and include alternative treatments and chronic sinusitis.

Clinical Practice Guideline: Management of Sinusitis

American Academy of Pediatrics

Pediatrics Vol 108 No.3 September 2001 pg. 798-808

(This reference provides a nice background regarding the diagnosis of sinusitis in addition to the treatment guideline)

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Case 1

Signs of bacterial sinusitis include cold-Sx then abrupt fever after a couple days

Advice
(why he's getting
colds)

6-8 colds/yr on avg
8-10 / yr if at daycare

--> May not be
washing hands

S.N is a 4 year old boy who attends a daycare in Edmonton. He has been previously healthy but has had 2 colds since the beginning of the school year. He now has another cold and his mother comes to your pharmacy quite concerned asking for advice. In talking to her, you find that she is concerned at the number of colds that he has been having and she is particularly concerned that he has had this cold for 7 days now and has now developed a thick greenish discharge from his nose. She is concerned that she should be taking her son to the doctor for antibiotics because of this discharge. Upon questioning her you find that he had a low-grade fever for the first 2 days of the cold but has been afebrile since. On checking his profile you find that he does not take any regular prescription medications and the last prescription that he received was for amoxicillin for an ear infection last March.

What advice would you give to the mother?

Give it a few days to a week

Green discharge does not necessary = bacterial infection --> could be just a cold (viral)

Saline irrigation could be indicated to help clean out discharge however child does not present with congestion

ABx not indicated, however, he may take some acetaminophen or ibuprofen for pain

If he gets facial pain, swelling, erythema, tenderness --> then see Doctor as it may be bacterial

Case 2

X-Ray, CT scans, culturing, MRI & transillumination not needed for Dx

C.B. is a 5 year-old girl who attends a daycare in Edmonton. She has been previously healthy. She now has a cold and her mother comes takes her to their family physician quite concerned. She was particularly concerned that she has had this cold for 10 days now and has now developed a thick greenish discharge from her nose and has developed a fever of 39°C over the past 2 days. The physician examines the child and diagnoses acute bacterial sinusitis.

1. What are the 2 organisms most likely to cause bacterial sinusitis in this child?

Strep pneumo H. influenzae

2. What is the most appropriate treatment for this child (Drug/dose/duration)?

amoxicillin High dose: 90 mg/kg/day PO div bid - tid for 10 days ibuprofen for pain

High dose b/c she's been in day-care < 3 months ago and prob got it from someone else & it probably is resistant pneumo

3. If this child had previously developed hives when given penicillin how would this change the choice of antibiotic treatment?

SMX/TMP 6-12 mg TMP/kg/day x10 days

Erythromycin-sulfisoxazole may be better than SMX/TMP b/c of more resistance reported with SMX/TMP

50 mg/kg/day erythromycin and 150 mg/kg/day sulfisoxazole in divided doses every 6 hours;

~~Amoxi/Clav XR 1000mg q12h x10 days~~

4. When receiving the antibiotic prescription the mother asks how soon she should expect to see improvement and when she should take her child back to the doctor if she doesn't improve. What advice would you give her?

Expect symptomatic relief at 72 hours and if not then see doctor to get 2nd line agent

If pt asymptomatic, no need for F/U

5. If the child does not improve and returns to her physician and the physician decides that she needs further antibiotic therapy which antibiotic (Drug /Dose/Duration) would be most appropriate.

Amoxi-Clav --> 45mg/kg/day divided in bid-tid x10 days ----- 7:1 amoxi:clav

If they're treated with high dose --> they've already been treated for resistant Strep pneumo and they failed thus just give clav. still for 10 days.

Clavulanate covers H. influenzae & morexella

If they fail amoxi low dose --> give high dose amoxi (90) to cover for strep pneumo AND give clav.

OR

Cefuroxime axetil 30 mg/kg/day PO div bid for 10 days

See Doctor:

If > 4 bacterial sinusitis per year

or complications like:

orbital cellulitis --> infection of tissue surrounding the eye

Meningitis, intracranial abscesses, and intracranial venous thrombosis

IF Beta-Lactam allergy:

Azithromycin: 10 mg/kg/day PO 1st day then 5mg/kg PO daily for 4 days (5 day tx)

Clarithromycin: 15 mg/kg/day PO div bid for 10 days

Macrolides provide best coverage & work best; however they're reserved due to resistance

Case 3

J. L is a 29 year-old young mother with a 2 year old daughter at home. J.L. has been previously healthy with no chronic illnesses. She has had a cold for about a week and a half and was not doing too badly until 2 days ago when she developed severe pain in her face on the left side above her teeth. She states that her teeth feel like they need to be pulled and that the movement of raising her head off the pillow or bending over is excruciating. She has had considerable yellowish-green discharge from her nose and has had an irritating cough that is worse at night. She is not currently taking any prescription medications and occasionally takes ibuprofen for muscle aches or headaches and occasional Claritin Extra for allergic rhinitis. Three years ago she developed an itchy rash all over her body when taking penicillin and has developed a serum-sickness reaction to sulfonamides approximately 7 years ago. Her doctor diagnoses acute bacterial sinusitis.

1. What are the two most likely pathogens in this case?

Streptococcus pneumoniae, Haemophilus influenzae

2. Which antibiotic regimen (drug/dose/duration) would be most appropriate for this patient?

Amoxicillin 500 mg PO tid for 10 days

If they have penicillin allergy (as in this case: Doxycycline 200 mg PO once then 100 mg PO bid for 10 days)

5. What other ancillary measures may help this patient?

*Analgesics/antipyretics, Saline irrigation, Cool mist humidifier, decongestants, expectorants
check for dental infection, reduce tobacco smoke, wash hands*

6. Two days following the completion of first line treatment J.L. developed a fever of 40°C and once again had developed excruciating pain in the region of her left maxillary sinus and left eye. She returned to her physician for assessment. What treatment would be appropriate for J.L. at this point?

Amoxi-clav XR 1000mg BID x10 days but she has an allergy, so give:

Azithromycin 500mg QD x3 days or Zmax 2g suspension