Acute Pneumonia

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Acute Pneumonia

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Tuesday 12 May 2020
ACUTE PNEUMONIA

STEVEN HATCH MD, MSC
12 MAY 2020
GOALS

• Characterize the epidemiology and pathogenesis of acute pneumonia in children and adults
• Highlight the most common etiologic agents of acute pneumonia
• Review clinical presentation and diagnosis
• Explain the approach to management
CASE #1
52 YO M WITH FEVER & COUGH

- No PMHx
- Abrupt onset yesterday afternoon
- Coughing up green sputum
- Moderate pleuritic R sided chest pain
- SHx: construction work, lives at home with wife and 2 children, 2 grandchildren
- Exam: T 102°, tachycardic, tachypneic, Sats 90% on 3L, looks sick T 102°
- WBC 15.7 (80^N 8^Bnd 10^L)
- Hct/Plt/Chem 7/LFTs unremarkable
WHAT IS THE IMMEDIATE NEXT THING TO DO?

• A. Give ceftriaxone and metronidazole
• B. Send home with doxycycline 100 mg po twice daily
• C. Start vancomycin and piperacillin-tazobactam
• D. Perform ultrasound of Gallbladder
• E. Order CT scan of chest
• F. Think
WHAT ABX DO YOU WANT TO GIVE?

• That’s the wrong question to ask!

• **Do not make plans before you assess.**
HOW TO THINK ABOUT ID CASES

Non-infectious causes

Infections

Opportunistic (i.e. HIV)

"Routine"

"Weird" (i.e. call ID)

Gram Positives
Gram Negatives
Anaerobes
Viruses
Fungi
Parasites & Protozoa

Other bacteria:
-- Intracellular
-- Acid Fast/Modified
-- Spirochetes & other
52 YO M WITH FEVER, COUGH, FOCAL INFILTRATE: WHAT NOT TO MISS INITIALLY

- Non-ID: post-obstructive PNA 2° tumor; PE
- ID:
  - Gram-Pos: Pneumococcus >> Streps + Staph
  - Gram-Neg: H flu >> Klebs, E coli, Moraxella, others*
  - Anaerobes: only if he drinks heavily
  - Atypicalis: Chlamydophila, Legionella, Mycoplasma
  - Viruses: influenza >> paraflu, RSV, adeno, others
  - Fungi, parasites, & protozoa: unlikely (if HIV negative)
- Question: could this be COVID?
NOW WHAT?

- You need to cover pneumococcus, & H flu upfront (esp pneumococcus) +/- Chlamydophila & Mycoplasma
- You can/should cover influenza during flu season
- Low suspicion for COVID right now, but keep in mind
- You need to keep the other stuff in mind in case he doesn’t get better

- Q: what drug has good Gram positive and Gram negative coverage?
WHY, WHY DON’T YOU USE...

Ceftriaxone!

We add azithromycin for the atypical coverage in inpts; combo is superior. Can also go with levofloxacin alone.

- 3rd gen cephalosporin
- Good Gram + coverage
- Good Gram - coverage
- Once daily dosing
- cheap
- Well-tolerated
- Can also use cefotaxime (Claforan)
30 YO MALE WITH DYSPNEA X 24 HRS

- Notes “not feeling well” for unclear length of time (weeks?)
- Mildly confused
- Mild cough, some whitish sputum
- Vitals: T 100.8 F, RR 24, O2 Sats 90%, HR 100
- Lung Exam: diffuse mild crackles, no dullness to percussion
- CBC: WBC 2.2; 33 Hct 33; Plt 180
- CXR:
YOU CONSIDER PNEUMONIA.
WHAT ADDITIONAL PHYSICAL EXAM FINDING MAY HELP YOU WITH YOUR DIFFERENTIAL DIAGNOSIS?

- A. Funduscopic exam: AV nicking
- B. Oropharyngeal exam: superficial infection of mucosal surface
- C. Cardiac exam: crescendo-decrecendo murmur
- D. Lower extremity exam: unilateral erythema and tenderness
- E. You believe the likelihood of PNA is low given normal CXR.
<table>
<thead>
<tr>
<th>Transplacental</th>
<th>Amniotic fluid</th>
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<tbody>
<tr>
<td>Rubella</td>
<td>Cytomegalovirus</td>
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<tr>
<td>Cytomegalovirus</td>
<td>Herpes simplex virus</td>
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<tr>
<td>Herpes simplex virus</td>
<td>Entamoeba histolytica</td>
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<td>Adenovirus</td>
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<td>Mumps virus</td>
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<td>Toxoplasma gondii</td>
<td>Chlamydia trachomatis</td>
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<tr>
<td>Mycobacterium tuberculosis</td>
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<tr>
<td>Treponema pallidum</td>
<td>Group B streptococci</td>
</tr>
<tr>
<td>Listeria monocytogenes</td>
<td>Escherichia coli</td>
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<tr>
<td><strong>At delivery</strong></td>
<td><strong>Haemophilus influenzae (nontypable)</strong></td>
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<tr>
<td>Group B streptococci</td>
<td><strong>Ureaplasma urealyticum</strong></td>
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<tr>
<td>Escherichia coli</td>
<td><strong>Streptococcus agalactiae</strong></td>
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<tr>
<td>Staphylococcus aureus</td>
<td><strong>Streptococcus mitis</strong></td>
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<tr>
<td>Klebsiella sp</td>
<td><strong>Group B streptococci</strong></td>
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<tr>
<td>Other streptococci</td>
<td>Klebsiella sp</td>
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<td>Pseudomonas</td>
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<td><em>Bacillus subtilis</em></td>
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<td>Ureaplasma urealyticum</td>
<td>Citrobacter diversus</td>
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<td><strong>Nosocomial</strong></td>
<td><strong>Influenza virus</strong></td>
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<td>Staphylococcus epidermidis</td>
<td>Enteroviruses</td>
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