

Chapter 71, Self-Assessment Questions

- Which of the following statements regarding the epidemiology of community-acquired pneumonia is correct?
 - Mycoplasma pneumoniae* is the most prevalent bacterial pathogen.
 - Haemophilus influenzae* is a common pathogen in adults who smoke tobacco.
 - Necrotizing CAP which is common in children is caused by CA-MRSA and associated with a high (42%) mortality rate.
 - Mixed infections with bacteria and viruses are an uncommon cause of CAP in adults, incidence less than 5%.
- AJ is a 52-year-old man admitted to the hospital with suspected aspiration pneumonia. His home medications are lisinopril 20 mg once daily and omeprazole 20 mg once daily. What organisms need to be considered as causative agents in AJ?
 - Staphylococcus aureus*, *Escherichia coli*, and viridans Streptococci
 - Anaerobes, *E. coli*, and viridans Streptococci
 - S. aureus* and anaerobes
 - Anaerobes and *Streptococcus pneumoniae*
 - Anaerobes, viridians Streptococci, *Streptococcus pneumoniae*, *E. coli*, and *S. aureus*
- CD is a 66-year-old woman admitted to the hospital for respiratory failure. Upon admission she was intubated. She was improving and on day 9 was starting to be weaned off the ventilator. On day 9 her respiratory symptoms were worsening and full ventilator settings were required. She is diagnosed with ventilator-associated pneumonia. Which of the following organisms are most likely associated with her pneumonia?
 - S. pneumoniae*, *H. influenzae*, MRSA, and MSSA
 - H. influenzae*, enteric GNB, anaerobes, and MSSA
 - Pseudomonas aeruginosa*, *Acinetobacter* spp., and MRSA
 - S. pneumoniae*, *H. influenzae*, viridians Streptococci, and MRSA
 - P. aeruginosa*, *Acinetobacter* spp., anaerobes, and *S. pneumoniae*
- PF is a 50-year-old man who smokes two packs of cigarettes per day. Which of the following host defenses that protect the lung are known to be impaired by the smoke?
 - Mucous and ciliated cells
 - Alveolar macrophages
 - Immunoglobulin (IgA, IgG, and IgM)
 - A and C
 - All of the above

5. GH is a 58-year-old woman who presents to the emergency room complaining of a productive cough (greenish/yellowish stuff) and chest tightness. She states this feels different from her usual cough. Two weeks earlier, she had developed a cold, which was resolving prior to the onset of the current symptoms. For the last week she babysat her 2-year-old grandson who had an ear infection and could not attend his daycare.

PMH: COPD × 6 years

Allergies: cephalosporins—hives, shortness of breath

SH: smoked 2-ppd × 10 years, quit 2 years ago, lives with her husband (nonsmoker)

Vitals: 100.8°F (38.2°C), HR 80, 118/86 Pulse Ox: 82% (0.82) on room air

PE: Lungs: rales, rhonchi, decreased breath sounds over right mid lobe

Chest x-ray: right mid lobe infiltrate

Sputum Gram stain: Moderate WBCs, no organisms seen

What signs, symptoms, and risk factors does GH have that are associated with community-acquired pneumonia?

- A. Cough, shortness of breath, difficulty breathing, rales, rhonchi, decreased breath sounds, chest x-ray findings
 - B. Fever, myalgias, mental status changes, cough, low oxygenation, exposure to grandson, chest x-ray findings, chest tightness
 - C. Chest x-ray findings, cough, fever, shortness of breath, rales, rhonchi, decreased breath sounds, chest tightness
 - D. Cough, rales, rhonchi, decreased breath sounds, low oxygenation, chest tightness, fever, exposure to grandson
 - E. Cough, rales, rhonchi, decreased breath sounds, low oxygenation, chest tightness, fever, chest x-ray findings, exposure to grandson
6. Immune responses to pneumonia include the following:
- A. Alveolar macrophages engulfing organisms attempting to contain the infection
 - B. Cytokine release from macrophages increasing mucous production
 - C. Alveolar macrophages engulfing organisms and presenting the antigens to elicit an adaptive immune response
 - D. A and C
 - E. All of the above

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What factors need to be considered before empirical therapy for CAP can be selected for GH?

- A. COPD and quit smoking 2 months ago
 - B. Chest x-ray—right mid lobe infiltrate and decreased breath sounds over right mid lobe
 - C. Allergy to cephalosporins
 - D. A and C
 - E. All of the above
8. Which of the following statements regarding resistance is paired to the appropriate organism?
- A. The absence of a cell wall results in resistance to β -lactams for *Moraxella catarrhalis*.
 - B. β -Lactamase production confers resistance to penicillin for *S. pneumoniae*
 - C. Methylation of ribosomes confers clarithromycin resistance for *S. pneumoniae*
 - D. β -Lactamase production within *H. influenzae* has steadily increased over the past 10 years with rates now over 70%
9. JF is a 60-year-old woman presents to the emergency room complaining of a productive cough (greenish/yellowish stuff) and chest tightness. PMH: HTN \times 4 years. Vitals: 101.2°F (38.4°C), HR 80, 118/86, respiratory rate 18, pulse oximetry (oxygen saturation) 96% (0.96) on room air. Ht 5'5" (165 cm) Wt 140 lbs (63.6 kg). Allergies: NKDA. Home medication is atenolol 50 mg once daily. Chest x-ray: right mid lobe infiltrate. She is alert and oriented \times 3. Her electrocardiogram is normal, renal function is normal (creatinine clearance 75 mL/min [1.25 mL/s]), and WBCs are 11.8 cells/mm³ (11.8 \times 10⁶/L).
- Which of the following would be the most appropriate empirical therapy for JF's pneumonia?
- A. Azithromycin 500 mg PO every 24 hours
 - B. Levofloxacin 750 mg PO every 24 hours
 - C. Ceftriaxone 1 g IV plus azithromycin 500 mg IV every 24 hours
 - D. Cefepime 2 g IV plus doxycycline 100 mg IV q12h
10. DR is a 72-year-old man who presented to the hospital for a hernia repair. PMH is significant for smoking for the last 20 years. He has been intubated for the last 12 days, and attempts to wean DR off of the ventilator failed. The nurses noted increased volume

and purulence of secretions from the ventilator. Chest x-ray: left lower lobe infiltrate. Urinary DFA for Legionella is negative. Ht 5'10" (178 cm) Wt 75 kg and he has NKDA. PMH is negative, and home medications are 1 multivitamin once daily. Creatinine clearance is 70 mL/min (1.17 mL/s), WBCs are 13.5 cells/mm³ (13.5 × 10⁶/L), and temperature is 100.4°F (38.0°C).

Which of the following organisms are the most likely pathogens for DR's pneumonia?

- A. MRSA, extended-spectrum β-lactamase-producing *Klebsiella pneumoniae*, *P. aeruginosa*, *Acinetobacter* spp.
 - B. *S. pneumoniae*, MSSA, *E. coli*, *K. pneumoniae*
 - C. Anaerobes, viridans Streptococci, *E. coli*, *K. pneumoniae*
 - D. *S. pneumoniae*, *H. influenzae*, *M. catarrhalis*, *M. pneumoniae*, *C. pneumoniae*, and *Legionella pneumophila*
11. DR underwent bronchoscopy, and the Gram stain of the bronchoalveolar lavage shows moderate gram-positive cocci in clusters, moderate gram-negative bacilli, and many WBCs. Which of the following would be the most appropriate empirical regimen for DR's pneumonia?
- A. Moxifloxacin 400 mg IV or PO every 24 hours plus vancomycin 1500 mg IV every 12 hours plus cefepime 2 g IV every 12 hours
 - B. Nafcillin 2 g IV every 6 hours plus cefepime 2 g IV every 12 hours plus tobramycin 380 mg IV every 24 hours
 - C. Vancomycin 1500 mg IV every 12 hours plus cefepime 2 g IV every 12 hours plus tobramycin 380 mg IV every 24 hours
 - D. Azithromycin 500 mg IV every 24 hours plus ceftriaxone 1 g IV every 24 hours
 - E. Ertapenem 1 g IV every 24 hours plus ceftriaxone 1 g IV every 24 hours
12. Which of the following factors is/are the most important considerations for determining the duration of therapy for DR?
- A. Clinical pulmonary infection score
 - B. Time to the start of clinical improvement
 - C. Risks for toxicity associated with the therapy
 - D. A and C
 - E. All of the above
13. Which of the following are appropriate outcome evaluations for pneumonia?
- A. Improvement of symptoms within 48 to 72 hours for HAP, HCAP, and VAP
 - B. Resolution of symptoms within 96 to 120 hours for HAP, HCAP, and VAP
 - C. Improvement of symptoms within 48 to 72 hours for CAP
 - D. Resolution of symptoms within 48 to 72 hours for CAP
14. CC is a 24-year-old woman inquiring about receiving the influenza and pneumococcal vaccines at your pharmacy. She has asthma, has no drug or food allergies, and is 6 months pregnant. Which of the following vaccines can she receive?

- A. Fluzone intradermal
 - B. Influenza intranasal
 - C. 13-valent conjugated pneumococcal
 - D. 7-valent conjugated pneumococcal
 - E. None, she has to wait until after the pregnancy to be vaccinated
15. AK is a 12-year-old child who will have to undergo a splenectomy. In order to minimize pneumococcal disease after the splenectomy, AK should receive:
- A. The polysaccharide vaccine
 - B. The 13-valent conjugated vaccine
 - C. No vaccine because they are not effective in the absence of a spleen and AK should be placed on penicillin prophylaxis to prevent pneumococcal disease

Answers

1. B
2. B
3. C
4. A
5. E
6. E
7. D
8. C
9. A
10. A
11. C
12. A
13. C
14. A
15. A