

PHA 4210 - Infectious Disease/Dermatology Module
Homework Assignment 2
Posted February 7, 2000

Pharmacodynamics and Drug Selection

1. Define the following terms:
 - a. Concentration-dependent killing activity
 - b. Post-antibiotic effect
 - c. Synergy
 - d. C_{max}-to-MIC
 - e. AUC:MIC
 - f. T>MIC

Lower Respiratory Infection

2. List the risk factor criteria, usual pathogens and initial treatment options for Class II chronic bronchitis.

3. List the most common organisms causing community-acquired pneumonia and hospital acquired pneumonia.

Meningitis

4. Name three antibiotic characteristics that are important to consider when choosing therapy for meningitis.

5. Explain the rationale behind the use of dexamethasone for the treatment of meningitis.

Pharmacokinetics Homework

6. JN is a 52 yo female admitted to the hospital with complaints of left groin pain for the last 4 days with fever and chills for the last 24 hours.

PMH: spinabifida, IDDM x2 years, decubitus ulcer on left buttock

SH: smoked _ pack/day until 2 years ago

Meds: insulin, elavil, flexeril, tylenol with codeine

PE: 99° F, 108, 20, 84/44
all within normal limits except abdominal tenderness, grade 2-3 decubitus ulcer central to right side buttock, grade 3-4 left side buttock

Labs: WBCs 15.5 BUN 8 SCr 0.8 Glucose 200 all others WNL
Height: 5'7" Weight: 150 lbs

Admitting diagnosis is R/O osteomyelitis, sepsis secondary to decubitus ulcers

Blood cultures that were obtained upon admission are now growing gram-negative bacilli in 2/2 sets and the physicians want to start piperacillin plus gentamicin.

Calculate gentamicin doses for JN using both high dose once daily and divided daily dosing.

ALL WORK MUST BE SHOWN TO RECEIVE CREDIT.

From Elizabeth Coyle, Pharm.D.:

7. Name and describe 3 therapies (treatment and/or supportive) for sepsis. Be sure to include why the therapy may be or is required and how it works in sepsis.

George Allen, Pharm.D.

8. MH, a 32 year-old female graduate student abruptly develops urinary frequency and dysuria while proctoring the PHA 4210 exam. She proceeds to the emergency room, where she reports the same complaints. A urinalysis (midstream clean catch) is performed. Results of the urinalysis reveal the following: 4+ WBC, 3+ leukocyte esterase, + nitrite, moderate bacteria. A short while later, you are told that the patient's urine culture showed 100,000 colonies/mL of a gram-negative bacilli (to be identified).

Briefly outline a management course for MH. Be sure to address the following points:

- a) Which organism is the most likely cause of MH's infection?
- b) Was it necessary to perform a urine culture in this patient? Why or why not?
- c) Is there any additional information (laboratory tests, physical exam, etc.) about MH you want? If so, explain the information you need and why.
- d) Develop a treatment regimen (drug, dose, duration) for MH. Include any pertinent monitoring parameters (for safety and/or efficacy) for the drug you choose (there is more than 1 possible answer for this question).