Case Study 5
PHA 5127
Fall 2005

A. M. is a 60 year old, 70 kg female patient admitted to the emergency room with severe pneumonia. As treatment, her doctor orders that she be administered 200mg of bacqilmycin by I.V. bolus every 8 hours for one week. Baqilmycin is a novel aminoglycoside that is solely eliminated through by the kidneys. Its clearance can be estimated as being equal to creatinine clearance. The volume of distribution for Baqilmycin is 1.114L/kg. A. M.'s Cp_{creat} is 0.588mg/dl.

1. What is the initial drug concentration after the first dose?

2. What would the drug concentration be 20 hours into the dosing regimen?

3. What are the peak and trough concentrations at steady state?

4. Another doctor recommends giving a loading dose to A. M. Calculate a loading dose that will give A. M. the same average concentration at steady state as before.

5. What would be the AUC for one dosing interval at steady state?

6. At steady state, how much drug is eliminated during one dosing interval?

7. Are the following statements true or false regarding an i.v. bolus multiple dosing regimen.

T   F   The accumulation is increased in patients with increased clearance.

T   F   The larger the Vd the lower the average steady state concentration.

T   F   The longer the half-life the more pronounced the differences between peak and trough concentrations.

T   F   The time to reach steady state depends on the dosing interval.