PHA 5128

Spring 2006

Homework #3

1. B.W. is a 50-year-old, 5'2'', 55kg female with a serum creatinine of 2.2 mg/dL. She is given gentamicin for soft tissue infections. Calculate the gentamicin concentration 1 hour after initiating the one-half hour infusion of a 200 mg dose, using the short-term infusion model.(2pts)
2. S.H. with a CL of 6.1 L/hr, Vd of 17.5 L was given tobramycin 7mg/kg QD in a 30-minute-infusion. Predict the steady-state peak concentration at the end of infusion and subsequent steady-state plasma concentration 12 hours after starting the infusion. Assume S.H. weighs 60 kg. (2pts)
3. K. K., a 30-year-old, 65 kg, non-obese female patient with a gram-negative pneumonia, was being treated with gentamicin 100mg infused over 30 minutes every 8 hours at midnight, 8:00a.m., and 4:00 p.m. Blood samples were obtained just before the 8:00 a.m. and at 9:00 a.m to evaluate therapy and prevent toxicity. The gentamicin concentrations reported were 0.4 mg/L and 4.5 mg/L respectively. Assuming these concentrations represent steady-state levels, make a dosing adjustment to achieve a peak concentration of 8 mg/L. (2pt)
4. H.W., a 65-year-old, 5'4'', 60kg woman with a serum creatinine of 1mg/dL, has been started on 1g of vancomycin over 1 hr infusion q12h for the treatment of staphylococcal. Calculate initial peak and trough vancomycin concentration and steady-state peak and trough vancomycin concentration. (2pts)

5. K.T. is a 65-year-old, 5’7’’, 105kg man with a serum creatinine concentration of 2.2mg/dL. He is going to receive vancomycin for a nafcillin-resistant S.aureus (NSRA) infection. Design a dosing regimen (dose and dosage schedule) that will produce peak concentration of 30mg/L and trough concentration of 10mg/L. (2 pts)