PHA 5127
Case Study #VI
Fall 2004

Case 1.

A 58-year-old male Caucasian patient is admitted to the hospital due to a rupture of his chronic stomach ulcer. Before the surgery, it is usual to start a preventive antibiotic (aminoglycoside) therapy. As a pharmacist, it is your task to develop the patient's antibiotic dosing regimen. The patient Ali Gator is 5 ft. 1 in. height, weighs 55kg and has a serum creatinine of 1.3 mg/dl. (Assume population parameters for Vd: 0.24 L/kg(IBW))

Question 1A.
Calculate the aminoglycoside maintenance dose with the most feasible dosing interval for Ali G. As C_{peak} assume a value of 6mg/L and as C_{trough} 1 mg/L.

Question 1B:
Calculate the trough concentration expected for the dose calculated in question 1A (70mg)

Question 1C:
After four days (Steady state) the nurses drew some new samples while Ali Gator was receiving 80mg every 8 h. The following values were obtained (note: his renal function was decreased)

7:55 am C_{trough} : 3.2 mg/l
8-9 am: an 1 hour infusion of 80 mg was given
9:00 am C_{peak} : 9.2 mg/l
Calculate the new k_e, τ, $t_{1/2}$ and Vd.

Case 2:

A 52 year old white female is admitted to he hospital with diagnosis of a severe pulmonary infection. She is 5 ft. and 3 in. high and weighs 52kg. Her serum creatinine reported from the lab was 0.8 mg/dl.

Question 2A:
Recommend a once daily dose for that patient. Knowing that the average dose for gentamicin is 5-7 mg/kg based on IBW.

Question 2B:
Is the once daily dosing interval appropriate for the woman's renal status?

Question 2C:
With the dosing you just calculated, what peak and trough levels do you expect at steady state. Assume an 1hour infusion and population Vd = 0.24 L/Kg * IBW.