

PHA 5128

Homework 5

1. T.M., a 66-year-old, 72 kg male (SrCr 1.6mg/dL), has been taking 0.25mg of digoxin tablets orally for his CHF, and at 9.00am on the day of admission, a digoxin plasma concentration of 1.1 μ g/L was measured. He was continued on his outpatient maintenance dose. On the fifth day, just before his morning dose (four doses of digoxin have been administered each day at 9.00am), a second digoxin sample was obtained. Calculate L.P.'s digoxin concentration on the morning of the fifth day. ($F = 0.7$) (2 points)
2. P.T, is a 62 year old, 50 kg woman, who has been admitted to the hospital for possible digoxin toxicity. Her serum creatinine level was 3 mg/dL and her dosing regimen at home had been 0.25 mg of digoxin daily for many months. The digoxin plasma concentration on admission was 4 μ g/L. How long will it take for the digoxin concentration to fall from 4 μ g/L to 2 μ g/L? (1 point) Calculate a daily dose that will maintain here digoxin concentration at 2 μ g/L. (1 point)
3. G.H is a 65 y.o. man weighing 76 kg with CHF was admitted on March 25 to the hospital at 15:00 because his condition was worsening. His admission history indicates that he had taken his digoxin tablet (0.25 mg) that morning at the usual time (8:00-9:00), but he forgot to take a tablet on March 24. A plasma sample taken at 17:00 was obtained to see if the symptoms were consistent with non-compliance. A plasma digoxin concentration of 0.8 μ g/L and a serum creatinine of 0.7 mg/dL were reported. Based on the population parameters, what concentration would you expect? (2 points)

4. T.P. is a 75 kg, 45 year old man with asthma. Estimate a loading dose of aminophylline that will produce a plasma theophylline concentration of 15 mg/L. (1 point) What aminophylline infusion rate will maintain an average steady state level of 15 mg/L? (1 point)

5. A patient is admitted with an acute theophylline overdose. A serum level is measured at 45 $\mu\text{g/ml}$. Assuming an 8 hour half-life and no further drug absorption, how long does it take for the serum level to drop to the upper limit of the therapeutic range (20 $\mu\text{g/ml}$)? (2 points)