

Case Study 3
PHA 5127 Fall 2000

- (1) Mr. I. P. Freely is a 5'6'' 40 y.o. man has a serum creatinine level of 1.3mg/100mL. His best friend Inita P., a 5'2'' 20 y.o. female, has a serum creatinine level of 1.5 mg/100mL. Determine the creatinine clearance for each and compare these to the normal value. What may be deduced about the GFR of each of these individuals? Why is IBW used instead of total body weight (TBW)? IF TBW were used rather than IBW, would the CL_{creat} be under- or over-estimated?

- (2) Mr. Freely's second best friend Anita Hug is hospitalized with a severe infection after being hit by a truck as she tried to write "wash me" in the dust on the truck's rear window. She is being treated with aminoglycosides. The desired peak level for the initial dose is 6 mg/L. Assuming a V_d of 0.24 L/kg (IBW), the same body weight and creatinine clearance as MR. I. P. Freely, determine the appropriate dose. For additional doses, how should this amount be modified (no calculation, just discuss).

- (3) Theophylline is metabolized in the liver by P-450. If a patient is being treated with both theophylline and cimetidine (a known inhibitor of P-450), how should a dosing regimen of theophylline be modified? Theophylline is a low extraction drug with low protein binding.

- (4) How does an increase in hepatic blood flow affect the oral bioavailability of a high extraction drug? Are low extraction drugs affected in the same way? Explain.