Spring 2003

PHA 5128
Case Study 5

1. L.E., a 80 kg male patient (6'2", 52 y.o., SeCr 0.9 mg/dl) received a 30 mg methotrexate loading dose iv followed by a 30 mg/h infusion over 36 hours. At 36 h, leucovorin rescue (10 mg/m^2 q6h) was started. The following levels were monitored:

24h	12 μM
48 h	0.7 μM
60 h	0.4 μM

   Make a recommendation how to continue therapy. When do you expect the methotrexate level to fall below 0.1 μM?

2. Camille Carton is a 36 year old female with newly diagnosed atrial fibrillation with accompanying severe obesity. She is 5'7" tall and weights 338 lbs. Her cardiologist calls the pharmacy and states that he has had trouble in dosing similar patients in the past and would like some assistance in designing a loading and maintenance IV Lanoxin dosage regimen. She has no other complicating drugs or diseases (serum creatinine = 0.7 mg/dl) except that she is being continued on Quinidex Extentabs 300 mg Q8H which she has been reliably taking for 3 years. Respond to the physician's request and in addition, volunteer some helpful TDM guidelines.
   Upon receiving your recommended digoxin regimen for 5 days, you have the following serum digoxin concentrations: Start date 2/2/01 at 8 a.m., SDC = 1.3 ng/ml at 7 a.m. 2/4/01 and 1.7 ng/ml at 7 a.m., 2//7/01. Prepare a follow-up consult and include a warning as to what might be expected if quinidine were discontinued but digoxin remained at the current dosage.

3. Doug Durango is 37 year old male executive with uncontrolled hyperthyroidism with PAT. He as no history of previous illnesses and is not currently receiving any medications. He is 6'3 and weighs 198 Ibs. Lab: serum potassium = 4.8 mEq/L, serum creatinine = 0.7 mg/dl. Design a loading and maintenance dosage regimen for IV or PO digoxin as you are not sure what the physician will prescribe. Three days after the patient receives your recommended regimen IV, the physician requests a serum digoxin conc. It is reported by the lab to be 0.9 ng/ml (1 hour before the next dose). The physician asks 3 questions: 1. What should be the dose IV if I want the trough to be 1.4 ng/ml at steady-state? 2. What should be the dose if we later switch to PO and keep 1.4 as the target trough for Lanoxicaps or Lanoxin tabs? 3. He plans to have surgery next week to control his hyperthyroidism. Will there need to be a change in his digoxin dosage at that time? If so what should be the recommended dosage regimen and a follow-up TDM plan?

4. P.M., a 55 year-old, 70 kg males, was admitted to the coronary care unit with a diagnosis of heart failure, probable myocardial infarction (MI), and premature ventricular contractions (PVCs). Calculate a bolus dose of lidocaine that should achieve an immediate response for P.M. At what rate should this dose be administration? Calculate a maintenance infusion rate that will achieve a steady-state plasma lidocaine concentration of 2 mg/L for P.M.

   P.M.'s PVCs were controlled by the bolus dose of lidocaine and an infusion of 1 mg/min was begun. Fifteen minutes later, PVCs were again noted. What might account for the reappearance of PVCs? What is an appropriate course of action at this point?