

PHA 5128

Homework 4

Prepare a computer consult using CAPCIL.

#1 DISTRIBUTION - Dose Increase

Gertrude Thompson
MR#: 190522
Account#: 15028
Admission Date: 7/18/94
Physician: Jack Long, Infectious Disease
Location: 4 West, Room 408, Bed C
Female Black
DOB: 2/5/1956
5'4" (163 cm), 220 lbs. (99.79 kg)

Gertrude is an overweight woman with a kidney infection. She has been admitted to the hospital with low back pain, fever, and chills. Lab results show an elevated WBC. The diagnosis is pyelonephritis. She has a long history of lower urinary tract infections, with no other complicating diseases except obesity. Serum creatinine is 0.7 mg/dL and stays stable with twice weekly monitoring. She is currently on Ampicillin PO 500 mg Q6H and Gentamicin IVB 80 mg Q8H over 20 min. which began at 8:00 am, 7/19/94. After 48 hours fever persists. Since aminoglycosides distribute to IBW plus fat tissue, the problem of inadequate antibiotic dosage is identified. Physician orders a Kinetics consult.

#2 METABOLISM - Partitioning

John K. Williams
MR#: 182666
Account#: 16588
Admission Date: 8/01/94
Physician: Brenda Spencer, Internal Medicine
Location: MJCU, Bed 4
Male Caucasian
DOB: 8/2/1967
5'10" (178 cm), 163 lbs. (73.94 kg)

John Williams is a 27 year old white male admitted to the hospital on 8/01/94 for chronic gastric pain. His medical history includes asthma for many years, and since admission, he is on (0.65 mg/kg/hr) TheoDur® 300 mg Q8H (7:00 am; 3:00 pm; 11:00 pm) to control shortness of breath and wheezing. He had received 9 days treatment of a 10-day Erythromycin regimen when he was admitted (07/24/94, 7:00 am to 08/02/94, 11:00 pm). The physician is confused by the patient's

erratic theophylline levels and has requested kinetic consults on August 3 (2:45 pm) and August 6, 1994 (3:00 pm).

August 3, 1994

The patient is now off Erythromycin therapy. Theophylline half-life and dosing requirements will change. Serum drug concentration obtained today at 2:30 pm is 8.3 $\mu\text{g}/\text{ml}$. Check $t_{1/2}$ before and alter curve fitting.

#3 EXCRETION - Renal Impairment

Mary 3. Jones

MR#: 165225

Account#: 15022

Admission Date: 8/13/94

Physician: John Smith, Internal Medicine

Location: 6 East, Room 665, Bed A

Female Caucasian

DOB: 6/20/1915

5'7" (170 cm), 125 lbs (56.70 kg)

Mary 3. Jones is a hospitalized patient being treated for an infection with gram negative rods. The patient initially was admitted with peritonitis and ambulatory dialysis. After culture and sensitivity results, gentamicin had been chosen to treat the infection and was started at a dose of 80 mg WB over 30 minutes every 8 hours beginning at 8:00 am; 8/13/94. The patient was well hydrated during therapy to minimize risk of toxicity. On 8/15/94 patient continues to complain of malaise and loss of appetite. Patient has elevated WBC and temperature of 101.0 F. The measured peak concentration at steady state was 10.2 $\mu\text{g}/\text{ml}$ (8/15/94; 9:00 am) and a trough concentration was 6.2 $\mu\text{g}/\text{ml}$ (8/15/94; 3:30 pm). The patient has deteriorating renal function (8/13/94; 08:00 am; $\text{SCr} = 2.0 \text{ m}\sim\text{o}$) and therapy requires intervention by pharmacist since dosage and monitoring have been unsatisfactory. Estimated creatinine clearance had not been calculated prior to the start of therapy.