



Dosage Calculations VIII – Sample Scenario

Review Formulas:

$$1\text{g} = 1000\text{mg}$$

$$1\text{mg} = 1000\text{mcg}$$

$$1\text{kg} = 2.2\text{lb}$$

$$\frac{D}{H} \times Q = \text{Dosage}$$

$$\text{Equivalency: } \frac{C_1}{V_1} = \frac{C_2}{V_2} \text{ where C is concentration}$$

$$\text{where V is volume}$$

$$\text{IV gtts/min} = \frac{\text{total mLs infused}}{\text{time in minutes}} \times \text{gtt factor}$$

$$\text{IV mL/hr} = \frac{\text{total IV fluid (mLs)}}{\text{\# of hours}}$$

Sample Scenario and Questions:

Not all information provided is needed for each question; only choose the information pertinent to answer each question. Some of the doses are excessive!

Dr. Shepherd has met with a 198lb patient, Meredith, who needs antibiotics before an operation to remove a cerebral abscess. He orders 0.25mg/kg of amoxicillin Q4H for 36 hours. Amoxicillin comes in either 100mg tablets or a suspension of 0.2gm/mL. During the operation, Dr. Shepherd orders 100mcg/kg IV morphine Q1H for the duration of the 12 hour operation, as well as 0.3mg/kg IV Ceftriaxone Q2H. After surgery, Meredith requires IV morphine 50mcg/kg Q6H for 5 days and 0.15mg/kg IV Ceftriaxone Q4H for 10 days. Morphine comes in 100mg/mL and Ceftriaxone comes in 27mg/mL. She also requires a heparin infusion of 5 units/kg/hour at a rate of 1mL/hour for 3 days. The drop factor (# of drops/mL) of the amoxicillin set is 15, of the morphine set is 10, of the Ceftriaxone set is 20.

1. How much amoxicillin will Meredith receive before the operation? How much is her first dose?
2. How will you administer the amoxicillin? How will you prepare the medication? What volume will she receive per dose?



3. How much morphine will Meredith receive in the first two hours of the operation?

4. How much morphine does Meredith receive each minute during the procedure assuming there is a continuous flow of morphine?

5. How much total morphine will Meredith receive in the hospital?

6. Calculate the amount of Ceftriaxone Meredith will receive during her hospital stay.

7. How many drops of Ceftriaxone are required per dose during Merediths recovery?

8. How will you prepare the Heparin? How many units of Heparin will you administer after three days?

Answers:

1. 22.5mg/dose; 202.5mg total
2. By IV. Dilute: 1mL amoxicillin + 9mL saline = 20mg/mL amoxicillin $22.5/20 = 1.125\text{mL}$
3. $9\text{mg/hr} = 18\text{mg}/2\text{h}$ 4. $0.15\text{mg}/\text{min}$ 5. 198mg 6. 972mg
7. dose = $13.5\text{mg/hr} = 0.5\text{mL} = 10$ drops 8. 450units/hr; 32400 units total

