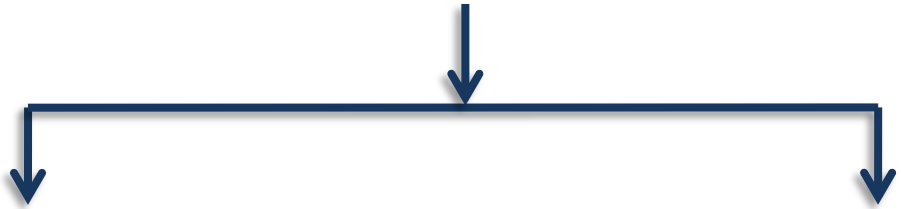
IV calculations (IV flow rate)

- The physician orders the medication, strength and amount, as well as, the type and amount of diluent.
- It is important that the person responsible for the IV understand the actions of the medication, flow rate, adverse reactions and antidotes.

IV calculations (IV flow rate)



find out total hourly volume (ml/hr)

calculate drops/min

ml / hr = $\frac{\text{total volume (TV)}}{\text{total time (hours)}}$

drops / min = total hourly volume x $\frac{\text{drop factor (DF)}}{\text{time (min)}}$

IV flow rate (drops / min) = $\frac{TV}{T_1} \times \frac{DF}{T_2}$

IV calculations (IV flow rate)

TV: volume to infuse (ml)

T_1: time to infuse (hr)

DF: drop factor. the number of drops in 1 ml (or 1 cc).

T_2: time in minutes.

(It is always 60 unless you are going to infuse for less than 60 minutes)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

Drop factors of 10, 12, 15, and 60 (microdrip) are the most common. The drop factor is determined by the manufacturer and is found on the IV tubing package.

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

How many drops/min to infuse 1000 ml in 6 hours. The drop factor for the tubing is 10.

$$\text{drops / min} = \frac{1000 \text{ ml}}{6 \text{ hr}} \times \frac{10}{60 \text{ min}}$$

$$= 27.8$$

$$= 28 \text{ drops/min}$$

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

Calculate the IV flow rate if D_5W is to infuse at 83 ml/hr. the drop factor is 10.

$$\text{drops / min} = 83 \times \frac{10}{60}$$

$$= 13.8$$

$$= 14 \text{ drops/min}$$

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

Calculate the IV flow rate if D_5W is to infuse at 83 ml/hr. the drop factor is 10.

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

This abbreviation means "Dextrose 5% in Water"

strength

1. **D_5LR. "Dextrose 5 % in Lactated Ringer's“**
2. **D_5NS 1000 ml IV q.8 hr. "administer 1000 ml 5% Dextrose in normal saline by IV routr every 8 hours”**
3. **D_5 1/4 NS 500 ml**

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

Infuse Ancef 1 g/50 ml IV q.6 h. The IV handbook states that this can be given in 20 minutes. What rate will you set on the IV pump?

When using an IV pump, the rate is in ml/hr.
Therefore, you do not need to determine a drop factor.

$$\text{Rate} = \frac{50 \text{ ml}}{20/60 \text{ hours}} = 150 \text{ ml/hr}$$

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

1000 ml to infuse in 8 hours with a microdrip set. Calculate the drop/min.

When the IV tubing is microdrip (60 d/ml) the drop/min will be the same as the ml/hr

$$\text{drops / min} = \frac{1000}{8} \times \frac{60}{60}$$

$$= 125 \times 1 = 125 \text{ drop/min}$$

IV calculations (IV flow rate)

$$\text{IV flow rate (drops / min)} = \frac{TV}{T_1} \times \frac{DF}{T_2}$$

Gentamycin 40 mg/100 ml IV q.6 h. drop factor 15 d/ml. your drug book says you can give this in 45 min. How many drops/min to will you infuse it?

$$\text{drops/min} = \frac{100 \text{ ml}}{1 \text{ hr}} \times \frac{15}{45 \text{ min}} = 33 \text{ drops/min}$$