Analgesia Techniques Workshop
IVECCS 2004 – San Diego
Leslie Carter, VTS (ECC), Colorado State University

Continuous Rate Infusions

A controlled rate infusion pump is required since the rate of drug delivery must be precisely controlled.

Need to know:

- Dose of drug
- Patient's body weight
- Fluid rate if drug to be delivered in fluids
- Drug concentration

$$\frac{\text{? drug} \quad \text{mls/hr}}{\text{? fluid} \quad \text{mls/hr}} = \frac{\mathbf{X}\ \text{mls}}{\text{mls quantity of 'carrier' fluid (often 1 liter)}}$$

Solve equation for **X** to find how much drug to put into IV fluid.

Example 1: Give 2 mg/kg/day of metoclopramide to a 30 kg dog receiving 1990 mls fluid/day (83 mls/hr).

$$2\ \text{mg/kg/day} = \frac{2\ \text{mg}}{\text{kg}} \times 30\ \text{kg} = \frac{60\ \text{mg}}{24\ \text{hrs}} = \frac{2.5\ \text{mg}}{\text{hr}}$$

$$\frac{2.5\ \text{mg}}{\text{hr}} \times \frac{1\ \text{ml}}{5\ \text{mg}} = \frac{0.5\ \text{mls}}{\text{hr}}\ \text{of drug}$$

$$\frac{0.5\ \text{mls/hr drug}}{83\ \text{mls/hr fluid}} = \frac{\mathbf{x}\ \text{mls}}{1000\ \text{mls fluid}}$$

Solve for **X** = 6.02 mls metoclopramide to put in a liter of fluid; set pump to deliver 83 mls/hr.

Example 2: Give 2 mcg/kg/min of dobutamine to a 10 kg dog receiving 370 mls fluid/day (15 mls/hr).

$$2\ \text{mcg/kg/min} = \frac{2\ \text{mcg}}{\text{kg}} \times 10\ \text{kg} = \frac{20\ \text{mcg}}{\text{min}}$$

$$\frac{20\ \text{mcg}}{\text{min}} \times \frac{1\ \text{mg}}{1000\ \text{mcg}} \times \frac{60\ \text{min}}{1\ \text{hr}} \times \frac{1\ \text{ml}}{12.5\ \text{mg}} = \frac{0.096\ \text{mls}}{\text{hr}}\ \text{drug}$$

$$\frac{0.096\ \text{mls/hr drug}}{15\ \text{mls/hr fluid}} = \frac{\mathbf{X}}{100\ \text{mls fluid in Buretrol}}$$

Solve for **X** = 0.64 mls dobutamine to put in 100 mls fluid; set pump to deliver 15 mls/hr (100 mls of fluid in a Buretrol used here instead of an entire liter since drug volume is so small; conserves cost; easier to vary dose)