What is Constant Rate Infusion?

CRI refers to the continuous administration of a small quantity of a drug, intravenously, over a period of time with the goal of maintaining the drug’s concentration within the patient at a level adequate to produce for the drug to produce its pharmacological effect.

To used CRI correctly you should know:

* Fluid rate for the species
* Drug dosage
* Dosing interval
* Volume of fluid to be administered

Why is CRI used:

* Allows for greater control of drug administration compared to injection and “topping up”
* Produces a more stable plan of anesthesia resulting in less breakthrough
* Slow administration of drug over prolonged period of time results in less dose related side effects
* Decreased cost (does not need a technician)
* Allows complex procedures to be performed when facilities and general anesthesia not available

Calculations: Amount of drug to be placed in bag

 $Drug (mg)=\frac{Drug Infusion rate \left(mg\kg\hr\right) × Dilutent volume (ml)}{Fluid rate (ml\kg\hr)}$

Sheep R49:

Weight: 33.8Kg

Drug dosage:

Xylazine – 0.05mg/kg/hr

Ketamine – 5mg/kg/hr

Lidocaine – 1mg/kg/hr

$Xylanine \left(mg\right)=\frac{0.05\left(mg\kg\hr\right) × 1000 \left(ml\right)}{5 \left(ml\kg\hr\right)}=10mg$

$Ketamine \left(mg\right)=\frac{5 \left(mg\kg\hr\right) × 1000 \left(ml\right)}{5 \left(ml\kg\hr\right)}=1000mg$

$Lidocaine \left(mg\right)=\frac{1\left(mg\kg\hr\right) × 1000 \left(ml\right)}{5 \left(ml\kg\hr\right)}=200mg$

Volume of Drug to be placed in bag:

$Dose \left(ml\right)=\frac{Drug needed (mg)}{Concentration (mg\ml)}$

$Dose of xylazine\left(ml\right)=\frac{10}{ 20 (mg\ml)}=0.5ml$

Withdraw 20.5ml of Fluids then add the calculated volumes to the bag

$Dose of ketamine\left(ml\right)=\frac{1000}{ 100 (mg\ml)}=10ml$

$Dose of lidocaine\left(ml\right)=\frac{200}{ 20 (mg\ml)}=10ml$

Drip rate:

Drip set – 20drop/ml

Fluid rate – 5ml/kg/hr

$Drip rate=\frac{5\left(ml\kg\60mins\right) × 33.8kg × 20(drips\ml)}{ 60mins × 60 secs}=0.9drips/\sec(=1 drips per second)$