Surgery Lab Drug Calculation Table: Hernia Repair

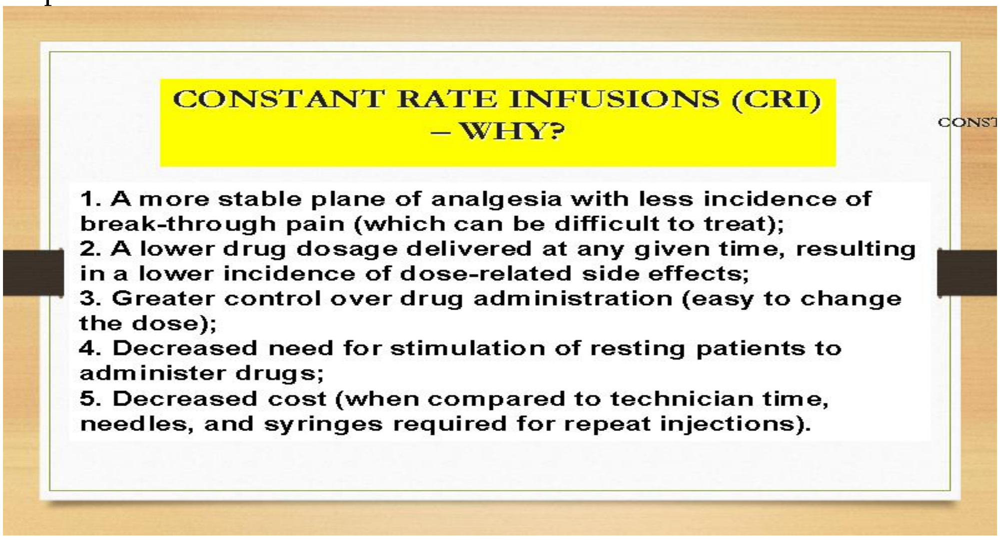
Sex: Female
Species: Caprine
Breed: Anglo Nubian mix
AGE: 4 months
ID: Kid Rock

BCS: 1.5-2/5
Temperature: 39.5 °C (normal)
Pulse: 136 beats/min) Slightly elevated

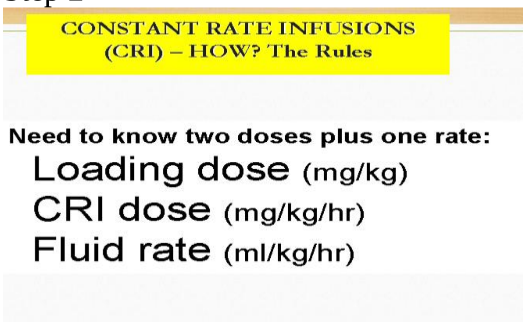
Respiration rate: (28 breaths/min) normal
MM: (Pink/moist) normal
CRT: (<2 secs) normal
ASA grade: 2

Calculating CRI

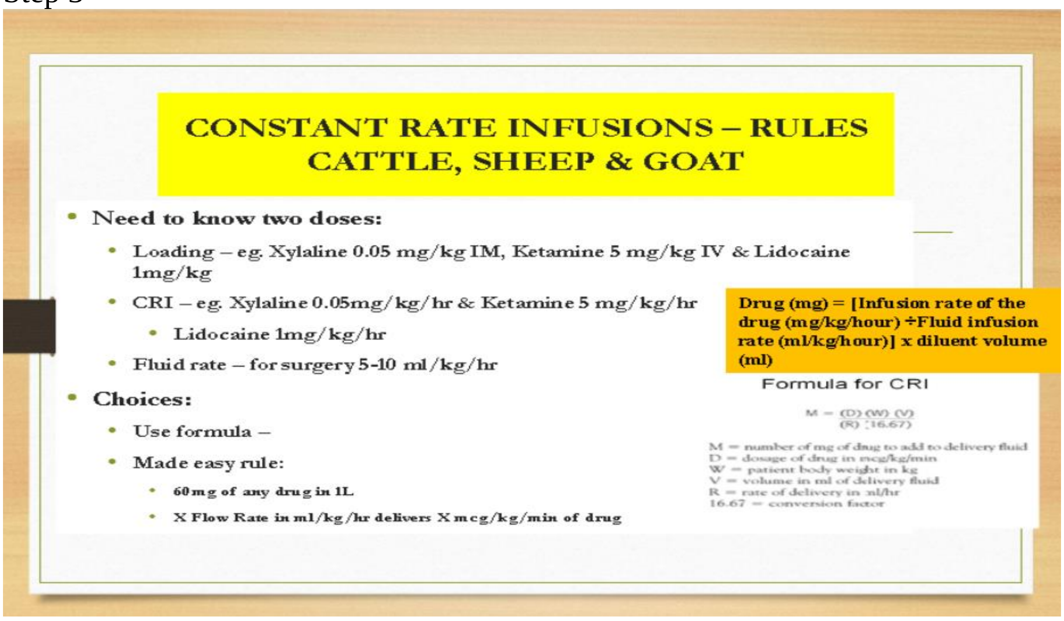
Step 1



Step 2



Step 3



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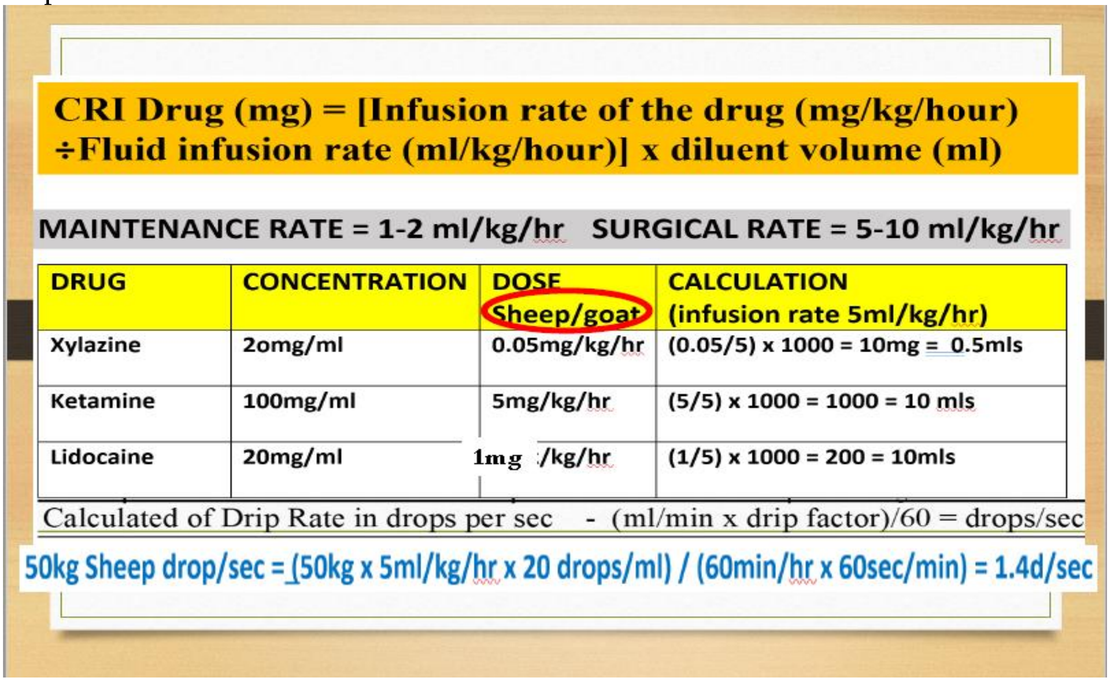
Step 4



CRI Drug (mg) = [Infusion rate of the drug (mg/kg/hour) ÷Fluid infusion rate (ml/kg/hour)] x diluent volume (ml)

MAINTENANCE RATE = 1-2 ml/kg/hr SURGICAL RATE = 5-10 ml/kg/hr

DRUG	CONCENTRATION	DOSE Sheep/goat	CALCULATION (infusion rate 5ml/kg/hr)
Xylazine	2omg/ml	0.05mg/kg/hr	(0.05/5) x 1000 = 10mg = 0.5mls
Ketamine	100mg/ml	5mg/kg/hr	(5/5) x 1000 = 1000 = 10 mls
Lidocaine	20mg/ml	1mg /kg/hr	(1/5) x 1000 = 200 = 10mls

Calculated of Drip Rate in drops per sec - (ml/min x drip factor)/60 = drops/sec

50kg Sheep drop/sec = (50kg x 5ml/kg/hr x 20 drops/ml) / (60min/hr x 60sec/min) = 1.4d/sec

CALCULATIONS

Type of drug	Dose (mg/kg)	Conc. (mg/ml)	Weight / kg	Volume (ml)	Time given
Sedative/Anaesthetic					
Step 1: Loading dose/CRI dose					
Xylazine	0.05	20 (2%)	8.4	$V = \frac{0.05 \times 8.4}{20} = 0.021$	
Ketamine	5	100 (10%)	8.4	$V = \frac{5 \times 8.4}{100} = 0.42$	
Lidocaine	1	20 (2%)	8.4	$V = \frac{1 \times 8.4}{20} = 0.42$ Same volume was used for lumbosacral epidural.	
Lidocaine toxic dose	10	20 (2%)	8.4	$V = \frac{10 \times 8.4}{20} = 4.2$ Half toxic dose= 2.1 ml	

Loading dose and CRI dose is the same for this Lab.
Dilution for Xylazine to new concentration of 1mg/kg and volume of 10 ml.
V1C1=V2C2→ V1 x 20= 10 x 1

$V1 = \frac{10 \times 1}{20}$ = 0.5 ml. Add 9.5ml of normal saline to make up volume.

Fluid rate for short procedures = 10 ml/kg/hr
Fluid rate for long procedures= 5 ml/kg/hr. (Used in this lab)
Normal infusion set:20 drops =1ml
Paediatric infusion set: 60 drops=1ml
One bag of sodium chloride=1000 ml

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Step 2: Fluid rate

Drug	Conc. (mg/ml)	Dose (ml/kg/hr)	Infusion rate (5ml/kg/hr)
Xylazine	20	0.05	$V = \frac{0.05}{5} x1000 = 10 \rightarrow \frac{10}{20} = 0.5\text{ml}$
Ketamine	100	5	$V = \frac{5}{5} x1000 = 1000 \rightarrow \frac{1000}{100} = 10\text{ml}$
Lidocaine	20	1	$V = \frac{1}{5} x1000 = 200 \rightarrow \frac{200}{20} = 10\text{ml}$

Step 3: Calculation of drip rate

$$\text{Normal line} = \frac{8.4\text{kg} \times 5\text{mg/kg/hr} \times 20\text{drops/ml}}{60 \times 60} = \frac{840}{3600} = 0.233\ drops/sec$$

$$\text{Paediatric line} = \frac{8.4\text{kg} \times 5\text{mg/kg/hr} \times 60\text{drops/ml}}{60 \times 60} = \frac{2520}{3600} = 0.7\ drops/sec$$

To ensure that the drip rate is accurate remove volume equivalent to the volume of drugs to be placed in the infusion bag.

		Antibiotics			
Type of Drug	**Dose (mg/kg)**	**Conc. (mg/ml)**	**Weight / kg**	**Volume (ml)**	**Time given**
Pen Strep	20,000	200,000 *IU*	8.4	$V = \frac{20,000 \times 8.4}{200,000} = 0.84$	
		Anti-inflammatory/Analgesic			
Flunixin	1.1	50 (5%)	8.4	$V = \frac{1.1 \times 8.4}{50} = 0.1848\ (0.2)$	
		Reversal / Emergency			
Tolazoline	4 x (0.05)	100 (10%)	8.4	$V = \frac{4(0.05) \times 8.4}{100} = 0.0168\ (0.02)$	
Atropine	1.8	15	8.4	$V = \frac{1.8 \times 8.4}{15} = 1.008$	
Epinephrine	0.2	1 (0.1%)	8.4	$V = \frac{0.2 \times 8.4}{1} = 1.68$	
Toxic dose for Lidocaine	10	20 (2%)	8.4	$V = \frac{10 \times 8.4}{20} = 4.2$ Half toxic dose= 2.1 ml	
Other drugs					
Diazepam	2.4	10	8.4	$V = \frac{2.4 \times 8.4}{10} = 2$	
Ketamine	24	100 (10%)	8.4	$V = \frac{24 \times 8.4}{100} = 2.016$	

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