

Table showing drugs used in eye surgeries assuming our cow was 450 kg.

Drug Trade Name	Active Ingredient	Uses	Contraindications	Adverse Effects	WDT	Concentration and Dose	Volume
Xylazine	Xylazine	It is an Alpha-2-Adrenoceptor stimulant that results in sedation, muscle relaxation and analgesia.	<p>This drug should not be used in:</p> <ol style="list-style-type: none"> 1. Animals with cardiac and respiratory distress. 2. Animals with renal or hepatic 3. Cows in the last trimester of pregnancy 4. Ruminants that are debilitated, dehydrated or have a urinary tract infection. <p>NB: When given the animal should remain in sternal recumbency to avoid bloat.</p>	<ol style="list-style-type: none"> 1. Ruminal Tympany 2. Hypersalivation 3. Hypothermia 4. Regurgitation 5. Ataxia 	<p>Meat: 1 days</p> <p>Milk: 0 days</p>	<p>Dose : 0.05mg/kg</p> <p>Conc- 20mg/ml</p>	$V = (WD)/C$ $= (450\text{kg} \times 0.05/\text{kg})/20\text{mg/ml}$ $= 1.125 \text{ mls}$

Ketamine	2-(2-chlorophenyl)-2-(methylamino)cyclohexan-1-ol	This drug is used for general anesthesia during surgery. It is an induction agent.	Should not be used in patients with significant hypertension, heart failure and/or arterial aneurysms as it can be dangerous. NB: This drug should not be used alone as it does not cause muscle relaxation.	<ol style="list-style-type: none"> 1. Inability to move rigid muscles. 2. Increase in body temperature. 3. Rapid heart rate. 	Meat: 3 days Milk - 48 hours	Conc- 100mg/ml Dose: 2mg/kg	$V = (WD)/C$ $= (450 \text{ kg} \times 2 \text{ mg/kg}) / 100 \text{ mg/ml}$ $= 2.25 \text{ mls}$
Lidocaine	Lidocaine Hydrochloride	Lidocaine can: 1. Can block the conduction of nerve fibres resulting in muscle paralysis and loss of sensation. 2. Used for topical, infiltration, intravenous, regional and conduction anesthesia.	If it is being used in conjunction with Epinephrine: Do not use in: 1. Intra-articular administration 2. Epidural administration 3. Intradigital administration 4. Intravenous administration 5. Treatment of ventricular arrhythmias -6. Cardiac and Hepatic insufficiency	In a case of overdose, you can get convulsions followed by CNS depression.	Meat - 28 days Milk - 15 days	Concentration - 20mg/ml Dose- 1.0mg/kg Toxic dose 10mg/kg	$V = (WD)/C$ $= (450 \text{ kg} \times 1.0 \text{ mg/kg}) / 20 \text{ mg/ml}$ $= 22.5 \text{ mls}$ Toxic dose = 225 mls NB: for subconjunctival injections no more than 1 ml should be given

		3.Can be used in extradural and spinal injections					
Tolazoline	Tolazoline Hydrochloride	This drug is a sedative antagonist, it is an Alpha-adrenoceptor blocking drug, it reverses the effects of xylazine.	Do not use in animals showing signs of stress, debilitation, cardiac disease, hypovolemia or shock.	Causes gastrointestinal disturbances, tachycardia and mild hypertension	Meat - 96 hours Milk - 48 hours	Conc - 20mg/ml Dose- 0.1mg/kg	$V = (WD)/C$ = (450 kgx0.1mg/kg)/20mg/ml = 2.25 mls
Proparacaine	Proparacaine hydrochloride	Numb the eye before eye surgeries	Prolonged use can cause permanent corneal opacification with visual loss	Prolonged use can delay wound healing	None	Within 1 min and can last for 15 - 30 mins	1.For tonometry, instill 1 drop to 2 drops immediately before measurement is made. 2. For use as an aid in the treatment of otitis, instill 2 drops into the ear every 5

							minutes for 3 doses. 3.For minor surgery, instill 1 drop or more drops
Combikel 40 LA	Pen-strep (procaine benzylpenicillin, dihydrostreptomycin sulphate)	An antibiotic that combats gram positive and gram negative bacteria.	In animals with shock, septicemia, the absorption of the antibiotic can be diminished therefore it should not be used on these animals.	Hypersensitivity and CNS effects	Meat: 30 days Milk: 10 days	Dosage : 40,000IU/kg Concentration: 200,000 IU/ml	$V = (D \times W)/C$ $= (40,000 \times 450) / 200,000$ $= 90 \text{ ml}$ Administered 2x every 3 days
Banamine	Flunixin Meglumine	This is an NSAID that for is used for the treatment of inflammation associated with bovine respiratory disease and acute mastitis.	Should not used in cows with hypersensitivity reactions. NB: IM route should only be used when IV route is not available since using IM can cause tissue reactions/irritations.	Can cause anaphylactic reaction, gastrointestinal irritation, ulceration and vomiting.	12-48 hours for milk cows 5-14 days for beef	Dosage : 2.2 mg/kg Concentration: 50 mg/ml	$V = (D \times W)/C$ $= (2.2 \times 450) / 50$ $= 19.8 \text{ ml}$

Tetanus	Tetanus antitoxin	Recommended for use in immunocompromised animals (eg goats) or those who have suffered wounds that may or may not be contaminated with soil.	Do not use in animals with history of hypersensitivity reactions.	Can cause anaphylactic shock	Meat: 21 days Milk: 24 hours	Dose rate: 1-2 mg/kg 1500 units SC/IM for prevention	Prevention dosage: 1500 units SC/IM
Povidone-Iodine solution	Povidone-Iodine (titratable iodine 1.0%)	It is a topical, bacterial, virucidal and fungicidal agent. It liberates Free iodine, which kills eukaryotic/prokaryotic cells through iodination of lipids and oxidation of cytoplasmic and membrane compounds. Used for	When the colour is lost, this indicates a reduction in activity. NB: Do not use together with other disinfectants, detergents and antiseptics.	Iodine toxicity, irritation to the skin	None	Contact time must be for at least 2 minutes for the solution to be effective, therefore rapid rinsing or removal of the solution before 2 minutes reduces the effect.	

		antiseptic preparation of surgical sites, treatment of infections, teat dip, navel dip, uterine lavage and wound disinfection.					
Neomycin Sterile ointment	Neomycin sulfate	Antibiotic ointment or Eye drops	Prolonged administration can cause overgrowth of organism that are not susceptible to neomycin	Elevation of intraocular pressure with possible development of glaucoma Infrequent optic nerve damage Posterior sub capsular cataract formation Delayed wound healing	None	Administer 3 - 4 x daily (ophthalmic)	Not indicated

Atropine	Atropine Sulfate	<p>This drug can act as a pre-anesthetic to either reduce or prevent secretions from the respiratory tract. (Treat the effects of Xylazine)</p> <p>Also treats sinus bradycardia.</p>	<p>DO NOT USE: in patients with glaucoma, myocardia ischemia, has a hypersensitivity to anticholinergic drugs, severe ulcerative colitis, obstructive uropathy.</p>	<ol style="list-style-type: none"> 1. Dry mouth 2. Dysphagia 3. Ataxia 4. Respiratory depression 5. Seizures 	<p>Meat - 14 days</p> <p>Milk - None</p>	<p>Concentration - 0.54mg/ml</p> <p>Dose: 0.04mg/kg</p>	$V = (WD)/C$ $= (450kg \times 0.04mg/kg)/0.54mg/ml$ $= 33.33mls$
Epinephrine		Treat anaphylactic reactions	Hypersensitivity to epinephrine, narrow closed glaucoma, during general anesthesia with halothane	Anxiety, tremor, excitability, arrhythmias, vomiting	None	<p>Dose: 0.02mg/kg</p> <p>Concentration: 1 mg/ml</p>	$V = (D \times W)/C$ $= (0.02 \times 450)/1$ $= 9 \text{ ml}$