

ANAESTHESIA OF DOGS IN FIELD CONDITIONS

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'There are no safe anaesthetic agents; there are no safe anaesthetic procedures; There are only safe anaesthetists'- Robert Smith.

Introduction:

Though many veterinarians in the field are enthusiastic in doing large animal surgeries especially caesarean sections, many are unwilling to do surgery in small animals due to the apparent risk involved in general anaesthesia and low confidence in using anaesthetics. Actually there is certain amount of risk involved in general anaesthesia depending on various factors like age, health status, disease condition etc. and due to the fact that, routine laboratory examination to ascertain the health status of veterinary patients cannot be conducted in all cases. Some of us prefer to use Xylazine alone for minor as well as for major surgery which is not a safe practice for the patient, client and for the operating team. The combination of several drugs in reduced dosages is used to provide chemical restraint and anaesthesia while avoiding unwanted side effects and toxicity. We would rather advice general anaesthesia for even simple surgeries like castration, hematoma operation etc. We would like to mention few anaesthetic regimens which are simple and safe for field use.

Precautions

For the calculation of the dose it's always advisable to take the body weight before start of surgery. Deworm and detick at least a week before surgery in all elective cases. Bathing the dog on the morning of surgery to remove dirt will be ideal. Adult dogs should be fasted by withholding food and water for 12 hours prior to surgery. Young ones should be fasted for much less time as they are prone to hypoglycemia.

Anaesthetic Regimen - 1

Atropine sulphate + Xylazine hydrochloride + Ketamine hydrochloride + Diazepam

Premedication

1. Atropine @ 0.04 mg/kg I/M or S/C
(1 ml/15 kg b.wt). Avoid / restrict the dosage in patients with tachycardia.

2. After 10 minutes

Xylazine @ 2mg/kg I/M or 1mg/kg I/V
(Preferably give 1.5mg/kg I/M. In healthy patients 2mg/kg I/M can be used safely. I/V route is avoided due to associated complications like bradycardia and atrioventricular block). The antidote for Xylazine is Yohimbine, which is administered at the rate of 0.1 mg/kg I/V

in cases of overdosing, to fasten recovery from sedation and to reverse the adverse cardiovascular side effects.

Induction

3. At peak sedation,
Ketamine @ 5-10 mg/kg I/M

We routinely use 5 mg/kg I/M. Please note that the eyes should be covered with a piece of cloth to prevent retinal damage. It is advisable to smear the cornea with an ophthalmic ointment to prevent drying of cornea as the pupils dilate and eyelids remain open in Ketamine anaesthesia.

[NB: Occasionally we have met with respiratory arrest and severe convulsions. It is always safe to have Doxapram and Diazepam to tackle these situations. In all the above cases we have been successful in managing the crisis.] Doxapram (CAROPRAM) can be administered at the rate of around 1 ml slow IV in cases of respiratory arrest / depression.

Maintenance of Anaesthesia

For safety of the patient and timely administration of anaesthetics during the course of surgery always maintain an I/V line with Ringer's Lactate solution.

Xylazine and Ketamine mixture @ 1:1 is loaded in a syringe and attached to the I/V line. In another syringe Diazepam is loaded and attached to the I/V line. Diazepam can be given

@ 0.1 to 0.5mg/kg slow I/V (Max – 10 mg) to provide adequate muscle relaxation and to control convulsions. Normally to deepen the anaesthesia, Xylazine and Ketamine mixture can be given and to provide muscle relaxation and controlling convulsions, Diazepam can be given as and when required.

II. *Atropine sulphate + Triflupromazine hydrochloride + Thiopentone sodium*

Premedication

1. Atropine @ 0.04mg/kg I/M or S/C
2. After 10 minutes

Triflupromazine @ 1-2 mg/kg I/V can be given. Triflupromazine (Siquil) is available in 5 ml vials (20 mg/ml). Please note that Siquil can cause severe hypovolaemic shock when given to agitated, nervous dogs and hence use with caution or better use Xylazine in such cases.

Induction

3. I/V line is started. (Ringer's Lactate)

Thiopentone @ 12.5mg/kg I/V to effect with Premedication (25mg/kg I/V without Premedication.)

Thiopentone should be diluted with distilled water. To 0.5gm (500 mg) vial, add 20ml of distilled water. This will give a 2.5% solution. (i.e. 25mg/1ml). In case of critically ill patients, caesarean sections and smaller breeds like Pomeranian, it is advisable to reduce the concentration to 1.25%.

For induction ½ the dose of Thiopentone is given intravenously as a slow bolus injection and thereafter as very slow I/V to effect anaesthesia. Check pedal as well as palpebral reflexes. Apnoea (cessation of respiration) is a complication encountered during induction with Thiopentone. Normally respiration will resume without any assistance. Doxapram, a respiratory stimulant @ 1-2 mg/kg I/V can be given if warranted. The mouth should be kept open with the tongue pulled out throughout the anaesthesia to maintain airway patency. To keep the mouth open, the plastic cap of a

20 G disposable needle can be cut at the closed end and then fixed between the upper and lower canine of one side. Intubation is not a must. Having an endotracheal tube of adequate size and an Ambu bag is always good.

Maintenance of Anaesthesia

For maintenance, Thiopentone should be administered intermittently whenever the animal shows any signs of recovery. Careful monitoring of heart rate and respiration is essential throughout the surgery. The additional increments should be approximately 1/3rd to 1/4th of the initial dose, again given to effect as slow I/V.

Care During Recovery Period:

During the recovery period the animal should be kept in a warm enclosure and the neck should be kept in an extended position to keep the airway patent, as the muscles are in a relaxed state. No water or food should be given till the animal completely recovers from anaesthesia.

Drug Presentations

Atropine Sulphate – '**Atropine Sulphate**'. 1ml amp. (0.6 mg/ml)

Xylazine Hydrochloride – '**Xylaxin**'. 2ml and 10 ml vial. (20mg/ml)

Triflupromazine - '**Siquil**'. 5 ml vial (20mg/ml)

Ketamine Hydrochloride – '**Ketmin**', '**Aneket**'. 10ml vial (50 mg/ml). 10mg/ml vials also available.

Thiopentone sodium – '**Thipen**', '**Thiosol**'. (500mg and 1000 mg vials)

Diazepam – '**Calm pose**'. 2 ml vial (5 mg/ml)

Doxapram hydrochloride – '**Caropram**'. 5 ml and 20 ml vials (20 mg/ml)

Conclusions

General anaesthesia is preferred for almost all surgeries in dog and is safe. The possible complications though rare can be successfully tackled in most cases. Once we start to use them routinely it appears simple and you will feel confident about it. Anaesthesia and monitoring of the patient should be done preferably by another member of the team other than the surgeon or his assistant. It may not be feasible in all situations and in such cases the assistant has to take over the role of the anaesthetist.