Anaesthesia and Analgesia for Rabbits

Abstract
This CPD lecture for Vet Nurses focuses on anaesthesia and analgesia for rabbits. It takes a detailed and informative look at many aspects involved in anaesthesia of rabbits such as preoxygenation, intubation, premedication and issues such as dehydration, hypothermia and stress. Types of analgesia and gut motility agents are also discussed.

Learning outcomes
- Knowledge of rabbit anaesthetics
- Increased confidence in monitoring rabbit anaesthetics

Course Notes

Before anaesthetising the rabbit, check:
- The rabbit’s health status
  - Does the owner have any concerns?
  - Has it been eating and drinking properly?
  - Is the rabbit passing normal droppings?
  - Are gut sounds present?
  - Any nasal discharge or wheezing?
  - Is the rabbit grooming properly?
  - Does the rabbit move freely?
  - Are the rabbit’s heart and lungs clear?
  - Has it lost weight recently?
  - The urgency of the procedure
  - Does the procedure need doing straight away?
  - Would stabilisation with fluids, feeding and medication, make the rabbit’s anaesthetic safer?
  - Is surgery the correct option? Would medical management prove just as effective or more-so? Or could anaesthesia be prevented?

Emergencies increase the risk factor
If the procedure needs doing straight away, take necessary precautions to minimise the risks:
- Open vein and open airway!!!!!
- IV fluids
- Analgesia
- Prokinetic medication
- Intensive monitoring
- Warmth
- Keep stress to a minimum
Consider-
  - Low grade respiratory infections
  - Respiratory system anatomy
  - Hypothermia
  - Dehydration
  - Stress
  - Affects of drugs
  - Ability to get the rabbit eating as soon as possible post-operatively

Low-grade respiratory infection
  - The majority of rabbits suffer some degree of low-grade respiratory infection all their lives
  - Most cope without ever showing outward signs of illness
  - But when anaesthetised their respiratory rate slows. The respiratory secretions which are already thickened/increased due to chronic infection and block the airways
  - This blockage causes hypoxaemia.
  - Rabbits are obligate nose breathers
  - Mouth breathing in rabbits is an extremely poor sign
  - Their soft palates are permanently locked around the epiglottis
  - If the rabbit has a blocked nose, for whatever reason, then respiratory arrest is much more likely under anaesthesia, especially if the rabbit is not intubated

Hypothermia
  - Normal body temperature 38.3 – 39.4 degrees Celsius
  - Rabbits are very prone to hypothermia, especially the smaller breeds
  - Inhaled gases have cooling effects
  - Muscular activity is much reduced during anaesthesia
  - Warmth should be given to all rabbits undergoing anaesthesia
  - Heat pads, hot hands, heated tables, warm airflow systems etc. can all be used
  - Care should be taken not to burn the rabbit

Dehydration
  - Respiratory losses are increased when gaseous anaesthesia agents are used, due to their drying properties
  - An IV line should be placed into all rabbits undergoing anaesthesia and fluids given
  - The marginal ear vein, saphenous and cephalic veins can all be used
  - EMLA cream should be applied to the area at least 30 minutes prior to cannulation

Stress
  - Rabbits do not cope well with stress
  - Stress will have a knock-on effect on the rabbits BP, HR, RR, glucose levels and slow down the GI tract
  - Try and keep stress to a minimum
  - Keep the rabbit in a quiet environment, away from all predators
  - Approach the rabbit slowly and quietly, avoiding sudden movements
Pre op Checks

- Gain an accurate weight, to the nearest 10g to ensure accurate drug dosing
- Ensure the rabbit hasn’t been fasted and is eating and passing faeces normally
- Food can be withheld for 30-60 minutes prior to induction to ensure no food is in the mouth
- Blood work to assess renal, liver function and PCV volume may be useful in older or ill rabbits.

Choice of premedicant anaesthetic

- Depends on the procedure and health status of the rabbit
- Many combinations can be used
- Is generally best to use what you are used to using, so you know how rabbits react under anaesthesia
- All have pros and cons and no anaesthetic combination is ‘safe’ or ideal for all rabbits and all procedures
- Premedication is useful as it helps provide a smooth induction/recovery and lessens breath holding with Isoflurane.

Preoxygenation

- When the rabbit is sleepy enough to tolerate a mask, but not sufficiently sedated to have an ET tube placed, they should be placed onto masked oxygen for at least 2 minutes, more if possible
- Ensure the rabbit is kept warm during this time
- Keep the rabbit in sternal recumbency

Intubation

- All rabbits should be intubated
- Tube sizes will vary from a 2-4.5mm
- The ‘blind’ technique, as well as visualisation with a specific laryngoscope or otoscope is possible
- Ensure the rabbit is deep enough before attempting intubation
- Local anaesthetic spray is required
- Placing the rabbit in sternal recumbency and holding their neck upright is an unnatural position for a rabbit.
- Lying the rabbit on their back and tubing this way is often easier
- Check the tube is in place by placing a microscope slide over the connector to look for condensation
- Prolonged intubation should not be encouraged and if the rabbit is not intubated after 2 minutes of attempting then the procedure will need to be done with a face mask

V-Gel

- I-gel is used in human medicine
- V-gel is the veterinary form
- Manufactured for cats and rabbits
- 6 sizes for both cats and rabbits, depending upon the size of the patient
- Slides into the throat and creates a pressure seal around the airway and oesophageal structures
- Tied in place like a ‘normal’ ET tube
- Can place the device within 6 seconds
- Should be used with a capnograph to monitor Carbon Dioxide levels and ensure correct placement
Can perform IPPV with V-gel
Sterilised in an autoclave on a 121 degree setting after each use
Each tube can be used 40 times before needing to be replaced

Face masks pros and cons
- Quick and easy to use
- Different sizes available
- Easy to visualise the patient
- H&S issues
- Increased dead space
- Breath holding
- Higher flow rates
- Increases stress
- Tongue can obstruct airway
- Mask can obstruct nose
- X6 mortality rate

Sevoflurane or Isoflurane
- Sevoflurane is generally better tolerated than Isoflurane with rabbits
- There is normally less breath holding due to its less irritant properties
- Induction is therefore smoother and quicker than with Isoflurane
- Isoflurane is licensed for use on rabbits in the UK
- Using a premedicant will help lessen the breath holding with Isoflurane

Monitoring during surgery
- A pulse oximeter can be useful. Clipped to the ear artery, ventral aspect of the tail against the coccygeal artery or ear – most can cope with high rabbit heartrate
- A Doppler probe against the heart for changes in strength and rhythm works well
- Oesophageal stethoscopes are useful in rabbits
- Capnograph works well with rabbits
- A constant check should be kept on the rabbits HR and RR but one mean or another
- Temperature should be monitored as it is easy to overheat rabbits, as well as them become hypothermic through lack of heating.

Monitoring reflexes
- The eye position should not be used to assess anaesthetic depth in rabbits, as it is unreliable
- Limb pinch techniques are useful
- Palpebral reflex can be retained into deeper planes of anaesthesia in rabbits especially when Ketamine has been administered
- Pedal reflex, especially in the forelimbs remains until a medium depth of anaesthesia
- Ear pinch is a useful indicator that a surgical plane of anaesthesia has been achieved
Anaesthetic emergencies

- Rabbits die very quietly and very quickly
- If IV access and an ET tube are placed, this allows for quicker and more effective responses should an emergency arise
- The rabbit should be monitored constantly for any problems which may be arising
- Any drop/increase in HR rate/rhythm, RR rate/rhythm, MM colour and capnography/pulse oximeter readings should be acted upon straight away
- If the rabbit stops breathing and HR stops then:
  - If possible reverse the premedicant immediately
  - Switch off gaseous anaesthetic
  - Commence IPPV. Will need to change to a T-piece
  - Administer adrenaline – via ET tube or I/V using copious amounts of saline to flush. Do not give intra-cardiac
  - Start gentle manual chest compressions

Why give analgesia?

- Analgesia is vitally important to ensure a quick and smooth recovery process after surgery
- Rabbits who are given adequate amounts of analgesia will be seen to be eating, drinking, grooming and mobilising much sooner than those who are not given enough
- If something is painful in people, dogs and cats then it is going to be in rabbits – assume pain
- The choice of analgesia or combination to be given depends on the rabbits health status
- Elderly rabbits whose renal function may be compromised, should not be given NSAID’s
- Full-agonists such as Pethidine and Morphine will act to depress respiration, so are contraindicated in respiratory disease cases
- The frequency that the pain relief needs giving may also have a deciding factor

When to give analgesia?

- Analgesia should be given prior to the onset of pain (wind up effect). This will give the most effective pain relief
- Analgesia can be given as part of routine premedicants
- Continuation of analgesia should be given for as long as necessary, which may be days after the initial surgery
- Rabbits should have pain relief continued at home after surgery

Gut motility agents

- These should be given alongside any anaesthetic, since anaesthesia slows down the GI tract to some degree.
Remember-

- Where possibly only anaesthetise healthy rabbits
- Careful pre-op checks are needed
- Use anaesthetic agents you are familiar with
- Place an IV catheter and ET tube
- Keep a constant check on the rabbits vital signs
- Use plenty of analgesia and prokinetic agents
- Do not become complacent with rabbit anaesthesia