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Analgesia in mice

SCOPE

The need for analgesia:
Australian code of practice for the care and use of animals for scientific purposes (8th Edition 2013), states (3.3.8) that;
'*the use of local and general anaesthetics, analgesics and sedatives must be considered as part of a plan to manage pain and distress, and such use should at least parallel their use in current veterinary or medical practice'*

Monitoring the animals regularly and acting promptly to alleviate pain and distress is also a Code requirement and details must be included in protocol applications, including any monitoring sheets which will be used to record the wellbeing of the animal.

AUTHORISATION TO UNDERTAKE PROCEDURE

Animal technicians and investigators authorised by the AEC, or assessed as competent by BRC training assessor

SPECIAL REQUIREMENTS/SAFETY

- Buprenorphine is an S8 drug and use must be authorised and recorded
- Carprofen is an S4 drug and use must be authorised and recorded
- The authorisation to use analgesia agents is in AEC protocol or given by veterinary surgeon

PROCEDURE

1. Non-steroidal anti-inflamatories (NSAIDS)

Non-steroidal anti-inflamatories (NSAIDS) are drugs that inhibit the production of chemicals that activate the peripheral pain receptors. These receptors are responsible for the pain resulting from tissue damage caused by surgery. NSAIDS are generally not suitable for mice with bleeding disorders, renal or hepatic insufficiency.

Carprofen (*Rimadyl)* provides up to 24 hours of anti-inflammatory action in rodents.
Dose rate: 5mg/kg
Dilute 1 in 50 with sterile saline or water for injection. This can be labelled and stored in fridge for up to 4 weeks.
Administer 0.1ml/20g mouse sub/cut- at the time of surgery

2. Opioids

This group of agents work by binding to sites in the brain preventing pain sensations from being stimulated. Most opioids cause respiratory depression and reduce gastro-enteric activity by slowing peristalsis.

Buprenorphine *(Temgesic)* Duration of action is 6-8 hours – this can be repeated if symptoms of pain persist.
Dose rate for mice: 0.05 -0.1mg/kg subcutaneous
Dilute Temgesic 1 in 20ml water for injection – this can be labelled and stored in fridge up to 4 weeks
Administer 0.1ml/20g mouse sub/cut [equivalent to 0.075mg/kg]
Due to respiratory depression effects buprenorphine is administered as mouse is starting to recover from Ketamine/Xylazine anaesthetic

3. Acetaminophen (Paracetamol)

Paracetamol can be used to alleviate mild pain in rodents and can be administered to rodents if stronger analgesics are not appropriate. Paracetamol can be administered in the drinking water. Paediatric preparations are suitable (Tylenol 1-2mg/ml in drinking water.) Give 24hrs before surgery and for 24hrs post-surgery.

ASSOCIATED PROCEDURE/S

- SOP 53 *Subcutaneous injection in mice*

REFERENCES

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