The following pain management protocol is tiered to ensure a global relevance, recognizing that not all analgesic modalities are available to veterinary practitioners and vary from region to region around the world. Its implementation will be guided by the various analgesic modalities available along with the needs of the individual patient requiring treatment. This protocol is reproduced from the WSAVA Pain Committee guidelines, a succinct yet comprehensive review of pain assessment, various pain modalities, and the treatment of various clinically painful scenarios in both dogs and cats. The WSAVA Pain Committee Guidelines are published in the Journal of Small Animal Practice and is available for open access at the Pain Committee pages of **www.wsava.org.**

CASTRATION AND OVARIOHYSTERECTOMY/OVARIECTOMY: CATS

Castration and ovariohysterectomy/ovariectomy in cats are associated with pain of varying severity and is influenced by the degree of surgical trauma. For this reason, surgery should be performed with careful tissue handling and adherence to good surgical principles. General anaesthesia and preventive/multimodal analgesia techniques are strongly recommended. Postoperative treatment with analgesics may be required for up to 3 days after surgery especially after ovariohysterectomy/ovariectomy, or if laparotomy is required in males (e.g. a cryptorchid) to remove a testicle. The same NSAID should be used pre- and postoperatively.

Castration

Preoperative: Neuroleptanalgesia to include opioid + acepromazine (0.01–0.05 mg/kg) OR alpha2 +/– ketamine (5–10 mg/kg IM: the higher doses are selected for cats that are more dicult to handle)
Induction of anaesthesia: In some cats an opioid, an alpha2 adrenoceptor agonist and ketamine will provide sufficient analgesia and anaesthesia for a castration.
• Intravenous: Propofol to effect (3–10 mg/kg), ketamine (3–5 mg/kg) + diazepam or midazolam (0.25 mg/kg), or alfaxalone (3–5 mg/kg).
Note: if an alpha2 adrenoceptor agonist has been used preoperatively these doses may be lower.
• Intramuscular: An alpha2 adrenoceptor agonist + ketamine (5–10 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).
Maintenance of anaesthesia: Inhalation anaesthesia or ketamine or propofol or alfaxalone IV to effect.
Note: in many cases a castration can be completed without the need for maintenance anaesthesia drugs; however, there should be a plan for extending the anaesthesia time in the event the cat becomes responsive or complications arise. Equipment should also be available for endotracheal intubation.
Local anaesthetic techniques: Intra-testicular block and pre- and/or post-surgery skin infiltration with lidocaine.
Postoperative analgesia: NSAID.

Protocol without controlled drugs
Preoperative: combination of a NSAID and an alpha2 adrenoceptor agonist.
Induction of anaesthesia:

- Intravenous: Propofol to effect (3–10 mg/kg) or alfaxalone (3–5 mg/kg).
- Intramuscular: An alpha2 adrenoceptor agonist + ketamine (5–10 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).

Otherwise, same as above.

Protocol with limited availability of analgesic drugs
Preoperative: Alpha2 adrenoceptor agonist ± NSAID.
Induction and maintenance of anaesthesia: Any available induction agents; injectable or inhalant.
Otherwise, same as above.

Ovariohysterectomy/ovariectomy

Preoperative: Neuroleptanalgesia to include opioid + acepromazine (0.01–0.05 mg/kg) OR alpha2 +/– ketamine (5–10 mg/kg IM: the higher doses are selected for cats that are more difficult to handle)
Induction of anaesthesia:
• Intravenous: Propofol to effect (3–10 mg/kg), ketamine (3–5 mg/kg) + diazepam or midazolam (0.25 mg/kg), or alfaxalone (3–5 mg/kg). Note: if an alpha2 adrenoceptor agonist has been used preoperatively these doses may be lower

• Intramuscular: An alpha2 adrenoceptor agonist + ketamine (5–10 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).
Maintenance of anaesthesia: Inhalation anaesthesia or ketamine or propofol or alfaxalone IV to effect (1/3 or 1/2 of initial dose). Note: in many cases an ovariohysterectomy or ovariectomy can be completed without the need for maintenance anaesthesia drugs; however, there should be a plan for extending the anaesthesia time in the event the cat becomes responsive or complications arise; venous access is recommended.
Local anaesthetic techniques: Incisional and intraperitoneal/ovarium ligament block with lidocaine.
Postoperative analgesia: NSAID.

Protocol without controlled drugs
Preoperative: Combination of a NSAID and an alpha2 adrenoceptor agonist.
Induction of anaesthesia:

- Intravenous: Propofol to effect (3–10 mg/kg) or or alfaxalone (3–5 mg/kg).
- Intramuscular: An alpha2 adrenoceptor agonist + ketamine (5–10 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).

Otherwise, same as above

Protocol with limited availability of analgesic drugs
Preoperative: Alpha2 adrenoceptor agonist ± NSAID.
Induction and maintenance of anaesthesia: Any available induction agents; injectable or inhalant.
Otherwise, same as above

Analgesia may be supplemented after most surgical techniques by application of non-drug modalities such as cold therapy, photobiomodulation therapy, acupuncture, nursing care, mild exercise and massage

For additional pharmaceutical dosing information, see the dosing tables in the WSAVA Pain Committee Treatise at www.wsava.org

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