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: DOGS

Castration and ovariohysterectomy/ovariectomy in dogs 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:

- Analgesia: opioid
- Sedation: Acepromazine and/or benzodiazepines (midazolam or diazepam 0.25–0.4 mg/kg IM; diazepam is best given IV – painful IM); alpha2 adrenoceptor agonist

Induction of anaesthesia:

- Intravenous: Propofol to effect (3–5 mg/kg), ketamine (3–5 mg/kg) + diazepam or midazolam (0.25 mg/kg), or alfaxalone (1–2 mg/kg)
- Intramuscular: Opioid + Alpha2 adrenoceptor agonist + ketamine (3–5 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).

Maintenance of anaesthesia: Inhalation anaesthesia or propofol, alfaxalone or ketamine (1/3 or ½ of initial dose) to effect; venous access is recommended. Equipment should also be available for endotracheal intubation.
Local anaesthetic techniques: Intra-testicular block, incisional 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 (3–5 mg/kg), ketamine (3–5 mg/kg) or alfaxalone (1–2 mg/kg)
- Intramuscular: Alpha2 adrenoceptor agonist + 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 injectable or inhalant agent; venous access is recommended.
Otherwise, same as above

Ovariohysterectomy/ovariectomy

Preoperative:

- Analgesia: Opioid
- Sedation: Acepromazine and/or benzodiazepines or alpha2 adrenoceptor agonist

Induction of anaesthesia:

• Intravenous: Propofol to effect (3–5 mg/kg), ketamine (3–5 mg/kg) + diazepam/midazolam (0.25 mg/kg) or alfaxalone (1–2 mg/kg).
• Intramuscular: Opioid + Alpha2 adrenoceptor agonist + ketamine (5.0–7.5 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).
Maintenance of anaesthesia: Inhalation anaesthesia, or propofol, alfaxolone, ketamine (1/3 or ½ of initial dose) to effect; venous access is recommended.

Local anaesthetic techniques: Incisional and intraperitoneal/ovarium ligament block. *Postoperative analgesia:* NSAID.

Protocol without controlled drugs:
Preoperative: Combination of a NSAID and an alpha2 adrenoceptor agonist + metamizole/Dypirone (20–50 mg/kg slow IV or deep IM).
Induction of anaesthesia:

- Intravenous: Propofol to effect (3–5 mg/kg), ketamine (3–5 mg/kg) or alfaxalone (1–2 mg/kg)
- Intramuscular: Alpha2 adrenoceptor agonist + tiletamine/zolazepam (3–4 mg/kg).

Postoperative analgesia: NSAID ± metamizole (dipyrone)
Otherwise, same as above.

Protocol with limited availability of analgesic drugs:
Preoperative: Combination of a NSAID and an alpha2 adrenoceptor agonist + metamizole/Dypirone (20–50 mg/kg slow IV or deep IM).
Induction and maintenance of anaesthesia: Any available induction agent; venous access is recommended.
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, mild exercise, nursing care 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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Monteiro, B.P., Lascelles, B.D.X., Murrell, J., Robertson, S., Steagall, P.V.M. and Wright, B. (2023), 2022 WSAVA guidelines for the recognition, assessment and treatment of pain. J Small Anim Pract, 64: 177-254. https://doi.org/10.1111/jsap.13566