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.**

SOFT TISSUE SURGERY

Soft tissue surgery may cause mild, moderate, or severe postoperative pain. Preventive and multimodal analgesic techniques should be employed, and local anaesthetic techniques included whenever possible. The balance between pre-, intra-, and postoperative analgesia will depend on the severity of the preoperative condition and the location and magnitude of surgical trauma. Where postoperative pain is not successfully controlled with NSAIDs, alternative or additional analgesics or analgesic techniques should be employed. Major soft tissue surgery may lead to chronic pain which may have a neuropathic component. To date no veterinary studies have been performed assessing the benefit of adding gabapentin to the perioperative anaesthetic and analgesic protocol in surgical situations where there is significant nerve damage. However, based on its use in human medicine there may be potential value for use in the prevention of neuropathic pain. Note: The choice of opioid, alpha2 adrenoceptor agonist or NSAID used will vary based on availability and contraindications. Loco-regional anaesthetic techniques such as intra-articular, incisional, and specific nerve blocks, wound infusion catheters or combinations thereof before and/or after surgery are highly recommended in all cases. Such techniques become mandatory when opioids and other controlled analgesic drugs are not available.

Minor soft tissue surgery

Pre-and intraoperative: Combination of an opioid, NSAID ± alpha2 adrenoceptor agonist ± ketamine (cats). Local anaesthetic techniques.
Postoperative analgesia: NSAIDs (unless administered preoperatively) ± opioid and/or non-drug therapies.

Protocol without controlled drugs:
Pre-and intraoperative: NSAID ± alpha2 adrenoreceptor agonist + metamizole (dipyrone) or paracetamol (acetaminophen) – not in cats ± gabapentin
Same as above but without the opioid.

Protocol with limited availability of analgesic drugs:
Pre- and intraoperative: Combination of alpha2 adrenoceptor agonists, tramadol, a NSAID and local anaesthetic technique.
Immediate and later postoperative (24 h): NSAID (unless administered preoperatively), paracetamol (acetaminophen) (not in cats) or dypirone, and non-drug therapies.

Major soft tissue surgery

Preoperative: Same as for minor soft tissue surgery.
Intraoperative: Boluses or infusions of opioids ± alpha2 adrenoceptor agonists ± ketamine ± lidocaine. These drugs may not be required if an effective local anaesthetic block has been performed.
Immediate and later postoperative (24 hours): NSAID (unless administered preoperatively), continuous infusions or boluses of drugs used intraoperatively as needed ± other adjunctive drugs and non-drug therapies such as cold therapy and acupuncture.

Protocol without controlled drugs:
Preoperative: Same as for minor soft tissue surgery.
See above, without the opioid. Injectable tramadol may be administered in the perioperative period. The use of local anaesthetic techniques, particularly regional blocks, lidocaine infusion intra- and postoperative, non-drug therapies combined with NSAIDs becomes critical when opioids are not available.

Protocol with limited availability of analgesic drugs:

See above without opioids. A combination of low dose alpha2 adrenoreceptor agonist, NSAID (unless administered preoperatively), gabapentin, paracetamol (acetaminophen) (not in cats) or dipyrone, amantadine, non-drug therapies, further regional blocks or continuous wound block (wound catheters). Later postoperative days: NSAID as required non-drug therapies, further regional blocks or continuous wound block (wound catheters).

Example of a protocol for a cat undergoing a surgical removal of injection site sarcoma (major soft tissue surgery)

Preoperative: NSAID (24h dose; one approved in cats), methadone 0.3 mg/kg IM, ketamine 5 mg/kg and midazolam 0.25 mg/kg IM.
Induction of anaesthesia: Propofol to effect IV.
Maintenance of anaesthesia: Inhalation anaesthesia with constant rate infusions of fentanyl 5-10 µg/kg/h following a loading dose of 5 µg/kg IV, and ketamine at 2-10 µg/kg/min following a loading dose of 0.5 mg/kg IV. Infiltration anaesthesia with local anaesthetics, consider placement of a wound infusion catheter.
Immediate postoperative (24 hours): Constant rate infusions of fentanyl 1–3 µg/kg/h and ketamine 2-10 µg/kg/min. Cold therapy ± acupuncture. Wound therapy catheter with administration of bupivacaine 0.5% (up to 2 mg/kg every 8 hours).
Later postoperative days: Buprenorphine 0.02 mg/kg OTM (or IV if catheter available), every 6-8h for up to 3 days after surgery (where available, the high concentration formulation of buprenorphine (1.8 mg/mL) or the buprenorphine transdermal formulation can be used instead. NSAID (same drug as preoperative, starting 24 hours after preoperative dose), every 24h after surgery. Please see labels for approved-NSAIDs for use in cats. Continue with non-drug techniques and re-evaluate the need for analgesics at follow-up appointments.

If pain cannot be controlled or ameliorated with available techniques and the prognosis is poor, consider euthanasia.

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

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