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This covers a huge spectrum of disease management, from the chronically, mildly painful osteoarthritic patient with a normal life expectancy that requires analgesia over several years to the terminally ill cancer patient who may need analgesia for only days to weeks.

Whenever pain is being managed out of the hospital environment, it is the owner or carer that becomes responsible for assessing the animal’s pain. Many owners are exceptionally observant, and as they know their animals well are able to detect changes at an early stage, others will require some guidance. Pain diaries that owners complete are useful tools to help monitor their pet’s progress. Assessment on a regular basis including by telephone is useful to refine therapy. Ethical and welfare considerations must always come first and the owners must be counselled to this effect. The range of analgesic techniques and drugs within the hospital setting very wide and reasonably well addressed however as an adjunct to palliative care we need to develop analgesic methods which can be given within the animal’s home setting. There are certain pre-requisites for chronic pain relief

• the technique for drug administration should not require veterinary knowledge.
• It should be easily applied in the animal’s home surroundings by the carer.
• It should not be dangerous for the carer, society or the animal.
• If requiring veterinary skills, the effects should last days and not hours, thus only needing periodic attendance at the veterinary surgery.
• It should be acceptable to carer, veterinary surgeon and the animal.

DRUGS

Means of administration:
• Oral or transmucosal dosing
• Subcutaneous administration
• Intramuscular and intravenous injections are generally reserved for rapid control of acute pain e.g intra-operative pain breakthrough and are not really applicable to control of chronic pain. However in people chronically implanted devices are occasionally used to allow patient controlled analgesia.
• Chronic epidural administration may be used in a hospital for pain relief for several days but is impractical in a home setting.
• Rectal administration.
• Sustained release.

• Transdermal administration of fentanyl. The advantage of these patches is that they can be applied in the veterinary surgery every few days, require little owner maintenance and provide analgesia by an opioid. However there is a risk of the patch being eaten by accident either by the animal or owners’ children. There is also the abuse potential as with all pure opioids.

OSTEOARTHRITIS (OA)

This subject is extremely well reviewed elsewhere (Johnston 2008, Papich 2008, Lascelles et al 2007) and this abstract will serve to highlight salient points only. The treatment of OA is generally aimed at the palliation of clinical signs rather than treating the underlying pathology. It has recently been suggested that OA may have a neuropathic pain component. Pain management is generally centred around pharmacological agents but the benefits of weight reduction, lifestyle and exercise modification (regular low impact exercise) and physical rehabilitation must not be underestimated.

Physical therapy that may be beneficial includes:
• Cryotherapy
• Moist heat
• Passive range of motion exercises
• Stretching and balance exercises
• Massage therapy
• Therapeutic ultrasound
• Laser
• TENS

Close liaison with rehabilitation specialists is important should any of these treatment modalities be contemplated. Acupuncture may also play a useful part in pain management. Pharmacological management in OA in dogs and cats is generally centred around NSAIDS. Their pharmacology has been extensively reviewed elsewhere (Papich 2008, Lascelles et al 2007). NSAIDS in common use for OA management in the dog include carprofen, meloxicam, tepoxalin and firocoxib. Many animals either do not tolerate NSAIDS due to GI side effects, can not be prescribed them due to concommitant pathology or do not gain sufficient pain relief from them. It is logical that multi-modal analgesic management is likely to be of benefit in refractory cases. Options to consider include: (Note that most of these drugs are not licensed in these species at least in the UK)

• Tramadol, a weak OP3 agonist that has been used alongside ketoprofen (dogs 2-5mg/kg bid-QID) but may cause some sedation and other behavioural side effects especially where pain is not severe. It may be prudent to avoid giving...
tramadol with any serotonin reuptake inhibitors (eg tricyclic antidepressants) because of the risk of serotonin syndrome which has been seen in people.

- Gabapentin (dog/cat 5-10mg/kg bid increasing up to 20mg/kg bid, some cats require less). This drug is demonstrably effective in neuropathic pain in people and has been recommended for OA in the dog (Karas 2009) although clinical data is lacking. The doses in domestic species are empirically and occasionally sedation can occur.
- Amantadine and NMDA receptor antagonist has also been recommended in OA (Karas 2009, Johnston 2008) and one study (Lascelles et al 2008) has shown benefit when administered (3-5mg/kg SID) with meloxicam.
- Polysulphated glycosaminoglycan and pentosan polysulphate are classified as disease modifying drugs in osteoarthritis and have some clinical evidence to support their use.
- Nutritional supplements may also be of benefit, but the clinical evidence to support their use is limited
  - Green lipped mussel
  - P45FP
  - Omega 3 based diets

CANCER PAIN

Cancer pain can be extremely debilitating, and in the final stages of the animal’s life - preventing suffering is the most commonly cited concern of owner. Gaynor (2008) provides an excellent review of the management of cancer pain in dogs and cats. Bone cancer pain can be particularly difficult to control because of periosteal stretch and abnormal osteoclast activity. Reduction of cancer cell mass is generally a major means of providing immediate analgesia. This can be achieved by surgery, chemotherapy and radiation with the caveat that in situ massive cell death can result in a whole body generalised systemic inflammatory response that may progress to multiple organ failure and death (tumour lysis syndrome). Sufficient longer-term analgesia is essential to enhance the quality of life of these patients. The WHO guidelines recommend an approach based on non-opioids for mild to moderate pain (with adjuvant analgesics if necessary), increasing to a combination of opioids and non-opioids for more severe pain. Pain diaries and assessment are extremely important as cancer pain is associated with end of life decision making. It may seem insensitive to advise someone to allow euthanasia for their pet as the kindest option when a relative is suffering from the same condition. But as veterinary surgeons we should also remember that our responsibility is to the animal and not the owner. This is an important distinction.

The following classes of drugs may all be applicable for use in the cancer patient.

- Opioids including codeine, transmucosal buprenorphine (cats, limited data in dogs) and transdermal fentanyl. In the UK oral codeine/paracetamol combinations (dogs) are sometimes well tolerated. Oral sustained release morphine is useful but often associated with sedation.
- Non-steroidal anti-inflammatory drugs.
- Paracetamol (dogs) (in addition to NSAIDS)
- Corticosteroid
- Tramadol
- Amantadine (?neuropathic pain)
- Tricyclic antidepressants (neuropathic pain)
- Local anaesthetic techniques? Lidocaine dermal patches
- Gabapentin (neuropathic pain)
- Bisphosphonate drugs can effectively prevent loss of bone that occurs from metastatic lesions, reduce the risk of fractures, and decrease pain by inhibiting bone resorption. It is thought that bisphosphonates inhibit osteoclasts and induce apoptosis (cell death) in these cells, effectively reducing the detrimental impact that cancer cells have on bone density.

Where an NSAID is not tolerated, there are contra-indications to its use or it does not provide adequate analgesia, paracetamol is often well tolerated (dogs) although it can cause hepatotoxicity. Gabapentin may be a useful adjuvant where neuropathic pain is present, as may tricyclics. Tramadol can provide good analgesia but with less sedation than opioids. Where opioids are included in an analgesic regimen, significant sedation and constipation may occur which may markedly compromise the animals quality of life. Therefore they should be reserved for cases where other pharmacological and therapeutic options have failed. All analgesics have side effects but longer term toxicities may not be relevant when administration is likely to be for only days/weeks.

PHYSICAL TECHNIQUES

- Sensory neurectomy.
- Therapeutic surgery.
- Stimulation induced analgesia
- Acupuncture
- Palliative radiation therapy.

CONCLUSIONS

- If an animal doesn’t respond to one analgesic regime, try changing.
- Different animals will respond differently.
- Not all pain is the same.
- Owner involvement is essential as is regular communication to help refine therapy.

References