

Pain

(Acute, Chronic, and Post-operative)

Basics

OVERVIEW

- Pain is an unpleasant sensory or emotional experience associated with actual or potential (adaptive) tissue damage; altered sensory paths occur with chronic or long-term pain
- The inability for the pet to communicate does not negate the possibility of the presence of pain and the need for appropriate pain-relieving treatment
- “Acute” is the medical term for “sudden”; “chronic” is the medical term for “long-term”; and “post-operative” is the medical term for “following surgery”

GENETICS

- Age, sex, breeding strain, and species can alter responses to harmful or injurious stimuli (known as “noxious stimuli”)
- Recently, genes have been described that modify individual behavioral responses to harmful or injurious stimuli (noxious stimuli) in several species

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs
- Cats

SIGNS/OBSERVED CHANGES IN THE PET

- Behavioral signs of pain and distress vary considerably among individual pets
- Experience, environment, age, species, and other factors can modify the intensity of the reaction to harmful or injurious stimuli (noxious stimuli) or to altered thresholds associated with maladaptive or chronic pain
- The most obvious clinical signs of distress in the dog and cat include vocalization; agitation; abnormal posture or gait; thrashing; being overly sensitive to touch (known as “hyperesthesia”) or extremely sensitive to painful stimuli (known as “hyperalgesia”); and being extremely sensitive to stimuli that normally would not cause discomfort or pain, but the pet responds with a painful response (known as “allodynia”)
- More subtle signs include trembling, depression, reduced appetite, stupor, and biting
- Rapid breathing (known as “tachypnea”), rapid heart rate (known as “tachycardia”), dilated pupils (known as “mydriasis”), and increased blood pressure (known as “hypertension”) are signs observed with the stress response that also may accompany pain; these are non-specific signs that may be seen with many non-painful conditions
- Clinical signs associated with long-term (chronic) pain may be very subtle or difficult to evaluate, since the pet may compensate for the pain; chronic pain often is associated with decreased activity, lameness, or depression



CAUSES

- Pain can be caused by tissue disruption associated with trauma or surgery, and also by long-term (chronic) degenerative changes, such as osteoarthritis (form of joint inflammation [arthritis] characterized by chronic deterioration or degeneration of the joint cartilage)
- Pain that outlives the initial tissue damage may indicate altered nervous system processing

RISK FACTORS

- Trauma
- Surgery
- Pain intensity may not always correlate with the degree of tissue damage; however, more invasive soft tissue and orthopedic surgical procedures likely are associated with a greater pain than less invasive surgical procedures
- Inflammatory disease, conditions such as osteoarthritis in senior pets; may lead to change in behavior, warrants further evaluation

Treatment

HEALTH CARE

- Medications to decrease pain (known as “analgesics”) and to produce a loss of ability to perceive pain (known as “anesthetics”); drug selection depends on species, pain intensity, and underlying cause of pain
- Treat the underlying cause at the same time, if possible
- General good management and nursing practices to make the pet comfortable (for example, use of padded bedding)
- Non-pharmacologic nursing care and treatments, including bandaging and hydrotherapy (which may be achieved with a whirlpool bath) may be appropriate
- Acupuncture and prescribed physical therapy (such as massage, trigger-point manipulation, stem cell or plasma component therapy and chiropractic manipulation) may be useful additional treatment options for certain conditions
- If the pet's quality of life is not acceptable, euthanasia may be the most humane option

ACTIVITY

- Rehabilitation medicine and weight loss is a useful adjunct for some painful conditions
- Cage rest, limited activity, or physical therapy may be useful for certain types of pain

DIET

- Dietary changes to help treat the underlying condition (such as weight reduction to help treat hip dysplasia) may be beneficial
- Many supplements and nutraceuticals are marketed commercially; they claim to have beneficial effects on joint cartilage
- Commercial prescription veterinary diets are marketed specifically for dogs with mobility issues due to conditions such as osteoarthritis (form of joint inflammation [arthritis] characterized by chronic deterioration or degeneration of the joint cartilage)

SURGERY

- Surgical treatment of the underlying condition causing pain may be the best treatment
- Surgical disruption of nerves (known as “neurectomy”) to halt pain transmission is not always associated with positive results; may result in worsening of the painful condition

Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Opioids, alone or in combination with other classes of drugs (such as sedative/tranquilizers or nonsteroidal anti-inflammatory drugs [NSAIDs]) are used widely for the management of sudden (acute) post-operative pain; examples of opioids include morphine, hydromorphone, and fentanyl for moderate-to-severe pain; buprenorphine and butorphanol for mild-to-moderate pain
- NSAIDs are used most commonly for the long-term (chronic) treatment of painful conditions in dogs; newer NSAIDs have improved safety when administered over a prolonged period, but gastrointestinal and kidney side effects are still possible—talk to your pet's veterinarian about possible side effects
- The safety and effectiveness of most NSAIDs have not been well demonstrated in cats, and their long-term use in cats is limited
- Treatment of pain related to disorders of the nervous system or to altered nervous system processing (known as “neuropathic pain”) is challenging; neuropathic pain does not always respond well to traditional pain relievers (analgesics), such as opioids and NSAIDs, although these drugs usually are tried initially; if the pet does not respond to analgesics, other medications (such as tricyclic antidepressants or antiepileptic drugs) and other alternative (complementary) therapies may be effective
- Other analgesic medications (such as gabapentin, amantidine, and amitriptyline, tramadol) may be beneficial for pets that have pain of long-term (chronic) disease or from nervous system injury
- Non-traditional medical treatments are common but should be evaluated for safety and effectiveness before use
- “Regenerative medicine” or “stem-cell therapy” has become more common in the last few years; used for treatment of long-term (chronic) osteoarthritis in dogs and horses; “osteoarthritis” is a form of joint inflammation (arthritis) characterized by chronic deterioration or degeneration of the joint cartilage

Follow-Up Care

PATIENT MONITORING

- Frequent evaluation of the effectiveness of medications designed to decrease pain (analgesics) should be performed
- Pets receiving long-term (chronic) medications to decrease pain (analgesics), especially nonsteroidal anti-inflammatory drugs, should be evaluated periodically with bloodwork (such as serum biochemistry profile) to monitor gastrointestinal, liver, and kidney function
- Careful follow-up and monitoring are important, especially when treating pets following trauma and in the immediate period following surgery

PREVENTIONS AND AVOIDANCE

- Although some degree of pain is usually an unavoidable consequence of trauma or surgery, when possible, the administration of medications to decrease pain (analgesics) early in treatment or before the pet experiences pain may provide better control of the pain
- Use of anesthetic techniques incorporating premedications and local and regional pain relief techniques, where appropriate, is an effective means to decrease pain (known as “preemptive analgesia”)

EXPECTED COURSE AND PROGNOSIS

- Sudden (acute) pain associated with trauma or surgery usually resolves with tissue healing
- Opioids may be most effective for the 12–24 hours following surgery, whereas nonsteroidal anti-inflammatory drugs may be better after that period
- Some NSAIDs are effective medications to decrease pain (analgesics), when given immediately after surgery
- When pain signs persist beyond the normal course of a few days to weeks, suspect persistent disease, injury, or central nervous system changes; if pain signs persist, your veterinarian may consult an anesthesiologist or a specialist trained in pain management for suggestions about appropriate therapy

Key Points

- Understand what to expect and to look for when your pet is receiving medications to relieve pain (analgesics)
- The veterinarian will explain the effects of the prescribed medication as well as side effects; if you have any questions, ask your pet's veterinarian

- Effectiveness of medications to relieve pain (analgesics) varies and several drugs may need to be tried before an effective treatment is found for your individual pet
- You know your pet better than anyone; talk to your veterinarian about participating in evaluation of your pet for pain, especially long-term (chronic) pain

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