



AMERICAN COLLEGE OF
VETERINARY ANESTHESIA
AND ANALGESIA

American College of Veterinary Anesthesiologists' position paper on the treatment of pain in animals

The American College of Veterinary Anesthesiologists (ACVA) believes that animal pain and suffering are clinically important conditions that adversely affect an animal's quality of life, either in the short or long term. Furthermore, the ACVA endorses a philosophy that promotes prevention and alleviation of animal pain and suffering as an important and tenable therapeutic goal. Clinically, unrelieved pain does not provide any benefit in animals; therefore, veterinarians should strive to manage pain in animals under their care. The ACVA acknowledges that complete elimination of pain in individual animals may not be obtainable or desirable. Rather than being aimed at eliminating all pain, therapeutic strategies should be aimed at improving an animal's ability to cope with pain, thereby decreasing suffering. Treatment of pain can be considered successful if the degree of pain does not prevent an animal from engaging in relatively normal activities, such as eating, sleeping, ambulating, grooming, and interacting with other members of its species or its care givers. The ACVA also recognizes that management of pain in many animals is problematic at best and may not be feasible under certain circumstances. Nevertheless, every attempt should be made to prevent or alleviate pain in animals unless there are compelling reasons to withhold treatment. The ACVA's position is in accordance with the Veterinarians' Oath, in which each member admitted to our profession pledges to "... use my scientific knowledge and skills for the benefit of society through ...the relief of animal suffering...." The ACVA's position is also in accordance with recommendations of the National Research Council published in the "*Guide for the Care and Use of Laboratory Animals*".

Effective treatment of pain in animals is often a complex and difficult task. The various species treated by veterinarians have different reactions to noxious stimuli (eg, tissue trauma), manifest a wide variety of clinical signs suggestive of, but not pathognomonic for, pain, and have disparate responses to treatment. Even within a single species, there is a tremendous amount of variation in individual responses to noxious stimuli and requirements for analgesia. In addition, economic constraints accompany many decisions made in veterinary medicine. Thus, the ACVA encourages veterinarians and veterinary support staff to increase their knowledge and skills of pain recognition and management and to apply them to overcome the challenges to providing effective and safe management of pain in animals.

Definition of Pain

Pain has been defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.¹ Pain is a complex phenomenon involving pathophysiological and psychological components that are frequently difficult to recognize and interpret in animals. Suffering is a term frequently used in conjunction with pain, implying the conscious endurance of pain or distress. Suffering may refer to a wide range of intense and unpleasant subjective states that may be of physical or psychologic origin.² Nociception is the detection, transduction, and transmission of noxious stimuli. When nociceptors (ie, free nerve endings) are stimulated by thermal, mechanical, or chemical tissue damage, they send impulses to the central nervous system for interpretation and modulation. Pain is a sensory and emotional response to noxious stimuli that is unique to the individual; an individual animal may or may not experience pain in response to nociception.

An individual's response to pain varies with many factors, including age (eg, young animals generally have a lower tolerance to acute pain but are less sensitive to emotional stress or anxiety associated with an anticipated painful procedure), sex, health status (eg, ill animals are less capable of tolerating pain than are healthy individuals; severely debilitated animals still experience pain but may not be able to respond), species variation (eg, cows tend to be stoic whereas cats are more excitable), and breed differences (eg, working breeds of dogs vs. toy breeds).

It is generally assumed that if a procedure is painful in human beings, then it must also be painful in animals. It may be useful to draw parallels between people and animals, but the severity of pain produced by various procedures is not always similar. Because it is so difficult to compare the experience of pain in animals to that in people, it is preferable to empirically administer analgesics preemptively if there is any question that a procedure will induce pain in an animal.

Types of Pain

Acute pain varies in severity from mild to severe, is generally of short duration, and is induced by a traumatic, surgical, or disease process. The more severe the pain, the more difficult it is for an animal to cope with the pain. Acute pain may last for days to weeks, depending on the degree and extent of tissue trauma. Acute postoperative and traumatic pain accounts for much of the pain observed and treated by veterinarians. The intensity of acute pain following a tissue insult is greatest within the first 24 to 72 hours after the insult. Acute pain frequently responds favorably to analgesic drugs. Chronic pain, lasts from months to years and is pain that persists beyond the time usually required for an injury to heal or is associated with a chronic pathologic process. Chronic pain is often more difficult to treat than acute pain and may require an extensive diagnostic work-up and multiple therapeutic approaches.

Importance of Pain

Is it important whether an animal feels pain?

Pain certainly may have a protective role in minimizing tissue damage. Animals learn many things about their environment through pain, and acute pain frequently serves to change behavior and prevent further tissue damage. However, pain may also serve as a stimulus for destructive behavior. The metabolic and functional derangements characteristic of the stress response following an injury may be important for survival in untreated patients. In contrast, these same adaptations may be detrimental in patients under veterinary care. Unrelieved pain can induce suffering. Pain and suffering are associated with maladaptive physiological responses and maladaptive behaviors. As

stated previously, there are no beneficial effects of unrelieved pain in animals under veterinary care.

The need to provide adequate analgesia to animals may be more compelling now than ever before. During the last decade, many veterinary practitioners have adopted anesthetic practices which result in rapid recoveries following surgery. Anesthetic drugs such as propofol, diazepam-ketamine, and isoflurane are known for providing quick recoveries from anesthesia. Unless drugs with analgesic properties (i.e., opioids, α -2 agonists, local anesthetics, nonsteroidal anti-inflammatory drugs) are used, rapid recovery from anesthesia is often associated with intense acute pain following a surgical procedure. In addition, a greater emphasis on intraoperative patient monitoring has improved the safety of anesthesia allowing many practitioners to perform much more invasive procedures than previously possible. The more invasive the procedure, the greater the tissue damage and the greater the degree of postoperative pain. The prevention and treatment of pain and suffering are becoming recognized as an essential part of overall patient management in human medicine. Not surprisingly, many of our clients expect that veterinarians will also be able to recognize and effectively manage animal pain and suffering.

Recognizing Pain

Species-specific and individual responses to pain are quite variable; therefore, it is essential that veterinary staff evaluating animals for pain have a thorough understanding of typical species-specific and individual behaviors. An important part of determining whether an animal is in pain is the ability to recognize departures from normal behavior and appearance of that animal. In this regard, the animal's owner or handler may be able to recognize subtle behaviors indicative of pain that would otherwise go unnoticed. The following are some examples of behaviors indicative of pain; however, these examples are not intended to be all-inclusive for all species.

- Changes in personality or attitude. A normally quiet and docile animal becomes suddenly aggressive, or an aggressive animal becomes quiet. An animal may attempt to bite, especially when a painful area is palpated. The animal may

not interact with the clinician in a normal manner, but may seem to be unresponsive or withdrawn.

- Abnormal vocalization, especially when a painful area is palpated or the animal is forced to move. For example, dogs whine or whimper, cats hiss or growl, pigs grunt and squeal excessively, primates grunt or scream, rats squeak at an unusual pitch, mice chatter. Vocalization tends to be an insensitive and nonspecific indicator of pain and should not be relied on as the sole criterion for determining whether an animal requires treatment for pain.
- Licking, biting, scratching or shaking of a painful area. If excessive, these behaviors can lead to self-mutilation.
- Changes in the appearance of the haircoat. Ruffled fur, a greasy appearance indicative of a lack of grooming, and piloerection may be indicative of pain.
- Changes in posture or ambulation. Limping or carrying of a painful appendage; tensing of abdominal and back muscles to produce a tucked up appearance is especially noticeable in dogs, cats, and rodents.
- Changes in activity level. An animal may become restless and pace or repetitively lie down, get up, and lie down again. In contrast, an animal may be recumbent and lethargic or reluctant to move with guarding of the painful area.
- Changes in appetite, such as a decrease in food and water consumption leading to weight loss and dehydration.
- Changes in facial expression. Eyes become dull and pupils may be dilated. Pinning of the ears, grimacing, and a sleepy or photophobic appearance may be evident.
- Excessive sweating or salivation. Horses frequently sweat in response to pain; however, cattle do not. Stressed rodents often salivate excessively.
- Oculonasal discharge. Rats when stressed often shed porphyrin pigment in their tears and appear to be bleeding from their eyes and nose.
- Teeth grinding is frequently heard in rabbits, cattle, sheep, and goats experiencing pain.
- Changes in bowel movements or urination, such as diarrhea with soiling of the perineum, dysuria, and tenesmus.

Other parameters that are indicative of pain include increases in heart rate, respiratory rate, and body temperature. Blood samples can be evaluated for elevations in glucose, corticosteroid, and catecholamine concentrations.

To more accurately assess the degree of pain anticipated during recovery from a surgical procedure, it is helpful to have some knowledge of the procedure itself. Surgery of the eye and periorbital structures is painful to most animals, as are surgeries involving the ears, nose, and teeth. On awakening from anesthesia, animals may shake their heads excessively, rub or paw at the painful area, and vocalize. Orthopedic procedures are generally painful because of trauma to large muscle masses. Amputation, especially high on the limb, and thoracotomy induce severe pain. Surgeries involving the cervical vertebrae are usually more painful than are procedures involving the thoracic or lumbar vertebrae. Perirectal procedures are generally painful and animals can be seen rubbing and scooting on their perineum in response to pain. Abdominal pain may be difficult to detect or the animal may appear to hunch its back and tuck in its abdomen. Horses may kick at their abdomen or roll onto their backs.

The diagnosis of pain in veterinary medicine is seldom made on the basis of a single observation or laboratory value. Instead, it is subjective in nature and is dependent on a combination of good examination skills, familiarity with species, breed, and individual behavior, knowledge of the degree of pain associated with particular surgical procedures and illnesses, and recognition of the signs of discomfort and pain.

Regardless of the clinical signs demonstrated, if there is any doubt that an animal may be experiencing pain, then a trial treatment with analgesics is indicated.

Treatment of Pain

Treatment of pain must be tailored to the individual animal, and should be based, in part, on the species, breed, age, procedure performed and degree of tissue trauma, individual behavioral characteristics, degree of pain, health status, and availability of drugs and techniques. Selection of the most appropriate analgesic drug or technique requires professional veterinary judgement as to which drug or technique best meets the clinical and humane requirements of the individual animal. The overall therapeutic

approach may use a combination of pharmacologic and nonpharmacologic approaches. Pharmacologic approaches involve use of drugs with known analgesic properties, such as opioids, α -2 agonists, local anesthetics, and nonsteroidal antiinflammatory drugs. Drugs with sedative properties (eg, acepromazine maleate) generally lack analgesic properties, but may be needed to decrease anxiety and enhance the efficacy of concurrently administered analgesics. Sedatives and tranquilizers should not be relied on as sole sources of analgesia. The specific agents to be administered, and the dose, route, and frequency of administration are tailored to the individual animal. It is well established that the dose of an analgesic needed to control pain varies a great deal from individual to individual and that the duration of action of the drug also varies greatly. Consequently it is important to monitor the effects of therapy carefully and modify the dose or frequency of administration according to the needs of the animal. Administering analgesic drugs before the onset of pain (preemptive analgesia) may allow for better control of pain during the postoperative period. Although all analgesics, tranquilizers, and local anesthetics possess some undesirable properties, deleterious adverse effects can be minimized by selection of appropriate drugs and dosages for given individuals. Use of a combination of analgesic drugs from different drug classes (ie, multimodal analgesia) may greatly enhance analgesic effects while allowing for reduced dosages and minimizing adverse effects.

Nonpharmacological approaches to alleviating pain in animals include good husbandry practices, nutritional support, acupuncture, and allowing interaction with owners (companion animals). Animals should be kept in clean, well-ventilated areas with as little stress as possible. Careful attention should be made to ensure that nutritional needs are met. For companion animals, interactions with care givers may decrease stress and allow the animal to better cope with pain. Concurrent illnesses or injuries should be treated in accordance with good veterinary practices.

REFERENCES

1. IASP Subcommittee on Taxonomy. Pain Terms: a list of definitions and notes on usage. Recommended by the IASP Subcommittee on Taxonomy. Pain 1979; 6:249.

2. Thurman JC, Tranquilli WJ, Benson GJ, eds. *Lumb & Jones' veterinary anesthesia*. 3rd ed. Baltimore: The Williams & Wilkins Co, 1996;40-60

SELECTED BIBLIOGRAPHY

Hansen B, ed. Pain. *Semin Vet Med Surg* 1997;12:55-142.

Short CE, Van Poznak A. Animal pain. New York: Churchill Livingstone Inc, 1992.

Wall PD, Melzack R. Textbook of Pain. 3rd ed. Edinburgh: Churchill Livingstone Inc, 1994.

National Research Council. *Recognition and alleviation of pain and distress in laboratory animals*. Washington DC: National Academy Press, 1992; 32-52.

Soma LR. Behavioral changes and the assessment of pain in animals, in *Proceedings*. 2nd Int Congr of Vet Anesthesia, 1985; 38-41.

Wright EM, Marcella KL, Woodson JF. Animal pain: evaluation and control. *Lab Anim* 1985; 19: 20-36.

Flecknell PA The relief of pain in laboratory animals. *Lab Anim* 1984; 18: 147-160.

Sanford J, Ewbank R, Molony V, et al. Guidelines for the recognition and assessment of pain in animals. *Vet Rec* 1986; 118: 334-338.

Johnson JM. The veterinarian's responsibility: assessing and managing acute pain in dogs and cats. Part I. *Compend Contin Educ Pract Vet* 1991;13:804-807