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Advances in Pain Control

At my veterinary school graduation, my classmates and I took an oath to alleviate pain and suffering in animals. Unfortunately, the recognition and treatment of pain in animals has been overlooked or underestimated by veterinarians. Thankfully, this is changing. Over the last ten years the veterinary community has undergone a transformation in how animal pain is viewed and interpreted, with incredible gains being made in our recognition, understanding, and treatment of pain.

Pain sensation is difficult to measure objectively, especially in animals, as they cannot communicate to us verbally. They cannot express where the pain is, or use descriptors such as throbbing, dull, sharp, or stabbing. Thus, an animal's pain is what **we** interpret it to be. We must rely on behavioral cues which can sometimes go unnoticed or be misinterpreted. Achieving effective analgesia in cats is especially challenging, as they tend to mask their suffering. In addition, many of our analgesics may not be suitable for cats.

Strategies for Pain Management

Currently, we have two main strategies: pre-emptive analgesia and multi-modality therapy.

Pre-emptive analgesia means giving pain medication before the patient is exposed to the painful procedure. Introduced in recent years, the concept has gained acceptance as a cost-effective means of controlling post-operative pain and improving overall outcome, especially for elective procedures such as spaying and neutering.

The second strategy, **multi-modality therapy**, has become the cornerstone of effective pain management in animals. This involves the combined administration of several different analgesic drug classes or techniques. The reasoning behind multi-modality therapy is the knowledge that various classes of analgesic drugs have additive or synergistic effects when administered together. After pain receptors are stimulated, several steps must occur physiologically before pain is perceived. The rationale behind multi-modality therapy is to combine drugs that disrupt the development of pain at the various individual steps

Classes of drugs

There are several pharmacologic classes of drugs available to treat pain. **Opioids, alpha-2 agonists, non-steroidal anti-inflammatory drugs, local anesthetics,**

and **adjuvant analgesic agents** have all been employed in controlling animal pain. Unfortunately, cats are particularly susceptible to exhibiting adverse effects from classes of drugs, especially the opioids (confusion, agitation, anxiety), alpha-2 agonists (vomiting), and NSAIDS (this group includes aspirin and acetaminophen, both of which can be harmful, and even lethal, to cats). One particular opioid, called fentanyl, is becoming a very popular method of achieving excellent pain control in cats.

Fentanyl Patches

The relatively new science of transdermal drug administration (delivering drugs into the bloodstream via application of gels or patches) is becoming more commonplace in veterinary medicine. The fentanyl patch has probably become the most commonly used transdermal drug in veterinary medicine.

Fentanyl is a synthetic opioid that is 75 to 100 times more potent than morphine. Given intravenously, it has a short duration of action (30 to 60 minutes), requiring frequent dosing or expensive pumps that allow a slow, constant intravenous infusion. The development of a transdermal fentanyl patch, however, has allowed fentanyl to be administered at a constant rate without the need for expensive equipment. After clipping the hair and gently cleaning the skin, a 25 microgram patch is applied to the skin. In dogs, patches are usually applied on the back of the neck, while in cats, the patch adheres better to the side of the chest, and bandaging is seldom required. Application of a fentanyl patch incorporates both pain management strategies: applied several hours before surgery, it achieves pre-emptive analgesia; afterward, it serves as one component of a multiple-drug post-operative pain management protocol.

Several years ago, a study reported in the Journal of the AVMA suggested that for cats undergoing declaw surgery, administration of butorphanol (an opioid) the day of surgery and the first full day after surgery provides very effective analgesia. I had been utilizing butorphanol in this manner (i.e. both pre-emptively and post-operatively) ever since. In 1998, the AVMA Journal published results of a clinical trial showing that a 25 microgram fentanyl patch, applied 6 hours before declawing, was safe and effective. A recent report, again in the Journal of the AVMA, compared transdermal fentanyl with butorphanol for pain management in cats undergoing declawing. The verdict: there was no difference between fentanyl and butorphanol. Both drugs provided equal, effective analgesia. Advantages of the fentanyl patch is that repeated administration of the drug is not required. Disadvantages are the increased cost: transdermal fentanyl can cost 3 to 5 times as much as butorphanol. Depending on individual circumstances, I use both methods.

Two decades ago, the concept of pain, as it related to our patients, barely registered a blip on the radar screen of most veterinary academicians and practitioners, believing that pain perception in animals was somehow different from pain experienced by humans. We now recognize that animals perceive pain much the same way that humans do, and that we have a moral obligation to protect pets from pain and suffering. Our understanding of animal behavior and animal physiology is increasing and evolving, allowing us to develop more practical and potent methods of providing analgesia for our patients.