Treatment of pain in small animals: principles of analgesic therapy, including NSAIDS (Papich, MG).

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There are many NSAIDs available that have been used to treat osteoarthritis and pain. Many are registered for use in people (but we use them in animals also) and several are approved for use specifically for animals, particularly dogs. There has been a tremendous amount of information published on NSAIDs in the last 10 years. The non-steroidal anti-inflammatory drugs (NSAIDs) have been among the most rapidly expanding group of drugs for dogs. Older approved drugs include carprofen (Rimadyl) and etodolac (EtoGesic). We now have several new additions such as deracoxib (Deramaxx), firocoxib (Previcox, Equioxx), tepoxalin (Zubrin), meloxicam (Metacam), and in some countries, robenacoxib and mavicoxib. The nonsteroidal anti-inflammatory drugs (NSAID) act to inhibit the isoenzymes of cyclo-oxygenase (COX). Cyclo-oxygenase 1 (COX 1) is a constitutive enzyme expressed in tissues (Meade et al 1994). Prostaglandins, prostacyclin, and thromboxane synthesized by this enzyme are responsible for normal physiological functions. Cyclo-oxygenase 2 (COX-2), on the other hand, is inducible and synthesized by macrophages and inflammatory cells after stimulation by cytokines and other mediators of inflammation. In some tissues, COX-2 may be constitutive, or may be induced to maintain favorable conditions in healthy tissue. The target of recently-developed NSAID has been COX-2, with the goal of producing analgesia and suppressing inflammation without inhibiting physiologically important prostanoids. Whether or not selective inhibition of COX-2 is the safest and most effective approach for animal treatment has yet to be established.

For chronic administration in dogs, such as treatment of myositis, arthritis, and osteoarthritis, drugs that have been administered in the U.S. to small animals were listed previously. Veterinarians also have used human-label drugs such as aspirin, piroxicam, and naproxen. If these human-label drugs are considered, consult appropriate references for accurate dosing because it may differ from the human dose schedule. For long-term use to treat osteoarthritis, there are no controlled studies to indicate which drugs is the safest and most effective. When drugs are compared to one another, it is difficult, using subjective measurements, to demonstrate differences between among the drugs when evaluating them for efficacy or safety. Without a very large number of patients, the statistical power to detect differences among drugs in clinical veterinary studies is difficult. It is a rational approach to consider a rotating schedule of two or more drugs to identify which drug is better tolerated, effective, and easier to administer in each patient.

For cats, meloxicam is commonly used in cats because it can be injected for the initial use, and follow-up is possible with oral treatment. The oral solution has been palatable for cats, but the dose should be reduced compared to the canine dose. Robenacoxib also is approved for cats. In addition, ketoprofen, aspirin (at an extended interval), and occasionally other drugs listed for dogs have been used off-label. For short-term use, carprofen, deracoxib, and flunixin have been used.