

Old joints...new ideas: Chronic Arthritis and Pain in Feline Patients

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Arthritis is defined as swelling or inflammation in one or more joints. In cats, we can see three types of arthritis:

- Infectious: Caused by septic/penetrative bacterial wounds or calicivirus
- Immune mediated: Hallmarked by marked swelling of the joints, this form can present as both erosive and non-erosive in cats. In people immune mediated arthritis has been linked with *Bartonella henselae* infection whereas in cats it has been associated with *Mycoplasma* infection.
- Degenerative joint disease (DJD): Also called osteoarthritis, this is the “wear and tear” form of arthritis that will develop in all cats as their joints age and the protective cartilage wears out. Within the DJD joint, the inflammatory mediators are numerous and include serotonin, nerve growth factor (NGF), Substance P, and prostaglandins.

It is apparent that all cats will suffer from DJD as they age. 50% of six-year-old cats will have joint change that we can document on radiographs; 90% of cats will have change by the age of 12 and 100% of cats will have change by the age of 15 years. This parallels DJD progression in humans as we see our joints undergo significant change from our 40's to 60's and 70's. As DJD progresses, loss of function and pain increases. Although loss of function can be serious, it is the pain aspect (and pain management) that has generated much attention in cats in recent years.

Pain, and pain perception, are complex. Acute pain is there to help prevent further injury and to protect damaged tissues while they heal. However, maladaptive pain or chronic pain is pain that extends beyond the healing period and is neither helpful nor protective. Expansion of pain fields, allodynia, and hyperalgesia are all features of maladaptive pain. To further complicate the pain picture, the brain plays an active role in pain perception and can influence how a patient feels. It is these pronociceptive changes at the brain level which could explain why drugs that target neurotransmitters (such as SSRIs) are indicated in people with fibromyalgia and joint pain.

Historically, our way of diagnosing DJD (and thus gauging pain in a cat) was to take radiographs. Human studies have shown that the degree of joint change on imaging does not correlate with patient pain. Presuming this hold true for cats, we must now look to other means at assessing joint pain in this species. Although we have better diagnostic tools for acute pain in cats (e.g. feline grimace scale), the nature of DJD pain is that it is chronic. Unlike acute pain, chronic pain is silent and can manifest in the cat that is “slowing down” or “getting old” to their caregivers (especially as, unlike dogs, caregivers are typically not taking their cats out for long walks every day to catch those mobility changes). Fortunately, there are emerging resources that should improve our ability to diagnose chronic pain in this purrfect species.

Having established that cats will get DJD as they age and that the condition is going to cause them chronic pain how do we manage their cat? Client education is essential as we must correct the

prevalent misconception that “dogs get arthritis and cats get old”. Once we have clients on board with treating DJD in their feline companions, our care plan can then focus on environmental modification, nutraceutical supplementation, and pain control.

Environmental modification is a very underappreciated aspect of joint care. Much in the same way we might use handlebars and lift chairs to help humans experiencing mobility challenges, simple changes in the home can go along way to improve the daily lives of cats. Changes can include raised food bowls, heating blankets, pet stairs, and litter boxes with lower openings. Client education will also come into play as, it does not matter how joint-friendly the litter box is, if the cat must jump over a baby gate to gain access.

Nutraceuticals are an interesting aspect of joint care and may have greater benefit earlier in joint change, when we seek a more protective roll, rather than for pain prevention we need to seek in later stages. The science with supplements, such as glucosamine/chondroitin, appears to be quite mixed in human research whereas we can see a stronger argument for reaching for others (e.g. Omega-3's/fish oil). Supplement quality as well as the complex nature of DJD pain (and the chemical make-up of the inflammatory microenvironment) might explain this limited supportive evidence. Regardless, barring allergies or other sensitivities, supplements are going to be safe for the cat and might have the advantage of having caregivers thinking about joint health at an earlier stage of disease progression.

Just as our awareness of feline pain has improved, so to have the available pain control medication for use in DJD-afflicted cats. Thinking back to what was historically available to now, both the NSAID drug class and narcotic drug classes have undergone huge developments. We now have safer options for longer term use including drugs such as meloxicam, robenicoxib, and buprenorphine. In 2022, the first monoclonal antibody therapy for cats launched with the release of Frunevetmab (Solensia®) – a drug that targets NGF to alleviate DJD pain. Compared to other drug classes, monoclonal antibodies have the advantages of being both safer in cases of disease comorbidities and have lower risk of drug interactions.

Resources/References:

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