

Pain Management

Multimodal Management of Osteoarthritis: Rick Wall, DVM, CCRP, DAAPM, CMTPT

Osteoarthritis is a progressive degenerative disease that affects both dogs and cats. In addition to the degenerative damage of osseous and cartilage structures within the joint, both periarticular tissues and the functional muscles of a joint are affected. Pain can be mild to very severe, the later fulfilling the definition of chronic pain.

The resultant articular dysfunction from osteoarthritis creates increased demand and overload of the functional unit muscles of a joint leading to muscle dysfunction and myalgia. Ambulation and posture may be altered placing stress on areas of the body not adjacent to the diseased joint(s). Disease progression maybe appreciated as decreases in functional abilities or activities. Early recognition is imperative and the duty of the primary care veterinarian. A detailed clinical history and thorough clinical examination are a necessity for early detection. Education of the veterinary staff on osteoarthritis will additionally assist in identifying patients with the disease. Early detection offers the opportunity to develop a multimodal management program to slow progression and prevent more debilitating aspects of the disease.

In the obese patient weight loss offers the greatest rewards for both clinical improvement and slowing of progression. Disease modifying osteoarthritic agents (Adequan© and diets rich in omega-3 fish oil like Hill's J/D©) and routine controlled exercise are important aspects of the early management program.

In patients with more severe OA aggressive pain management is needed enable controlled exercise and maintenance of musculoskeletal and cardiovascular condition. In these patients analgesia is always the first priority. Additionally, a formal rehabilitation program, supervised by a veterinarian with knowledge of physical medicine and rehabilitation, may benefit the more severe patient suffering from physical impairments of osteoarthritis and chronic pain. Any decrease in function is always considered an increase in pain in the osteoarthritic patient!

Therapeutic Guidelines for the Management of Osteoarthritis Medical Analgesia

NSAIDS_ several excellent FDA approved options, always attempt minimum effective dose and routine monitoring

Tramadol- 5mg/kg 4-6 times daily. Initially dose for several days to weeks until pain is better managed in patients with severe pain. Then have client keep on hand for escape drug to use for breakthrough pain

Amantadine- 1-4 mg/kg four times daily. For chronic pain patients. This medication was once recommended to be dosed until chronic pain was brought under control (2-4 weeks) however current thinking is that many chronic pain patients may need to be on this indefinitely. This drug is to be used in conjunction with other analgesics. Works well combined with an NSAID.

Gabapentin – 5-10mg/kg ever 12 – 24 hours. Initial dosing of 10 mg/kg once daily at bedtime for 7-14 days. This allows the patient to become more accustomed to the medication and the owners do not notice the sedation. Then increase to twice daily, from that point the dose can be titrated upward to manage severe or increasing pain. Doses of up to 40 mg/kg twice daily are not uncommon.

Amitriptyline– 0.25-.5 mg/kg every 12 hours. Low dose thought to stimulate the descending pain inhibition pathway within the central nervous system.

Adequan ©- disease modifying osteoarthritic agent. Following initial induction of 2 injections per week for 4 weeks, booster dosing every 2-4 weeks, based on patient need. Clients are instructed on administration of via subcutaneous injections at home and Adequan © is dispensed.

Omega 3 fatty acid diets – (Hill's J/D) Science supports that Eicosapentaenoic acid (EPA) fraction of omega 3 fatty acids have both anti-inflammatory and anti-cartilage degradation effects. Diets are really the only way to assure delivery of adequate levels (EPA – 50 to 100 mg/kg)

Physical Medicine Analgesia TENS- transcutaneous electrical stimulation, small units are cheap and readily available on internet. Assist in the management of pain by inhibiting pain signals within the dorsal horn of the spinal cord (Gate Theory).

Analgesic acupuncture – Analgesic activity is thought to be related to the local release of endorphins and the stimulation of the descending pain inhibition pathway within the central nervous system. Treatment of Myofascial Trigger Points (MTrPs) that occur in muscles due to mechanical overuse of the muscle(s) in the OA patient.

Deep tissue massage, myofascial release techniques, trigger Point dry needling (TrP-DN), trigger point injections and intramuscular electrical stimulation (IES- electrical stimulation attached to the acupuncture needle located in the MTrP). Low Level Laser Therapy – reduces myofascial pain associated with osteoarthritis

Pulsed electromagnetic field therapy – promotes angiogenesis, thought to reduce pain by lowering edema within the bone. May reduce myofascial pain

Extracorporeal shock wave Bioelectric whirlpool – warm water whirlpool combined with TENS therapy Weight Management

Regular exercise – 20 to 60 minutes of controlled leash walking daily. Rehabilitation – simple therapeutic exercise in less severe cases combined with passive joint range of motion exercises. More Severely compromised patients with cardiovascular and/or musculoskeletal decline require more involved rehabilitation under the supervision of a veterinarian with experience in physical medicine and rehabilitation.

Adult stem cell therapy – Primitive cells present in almost every tissue that are self-renewing, able to become different tissue types and signal other cells to come in and repair tissue. Grades of Osteoarthritis – Based on Clinical Findings and Patient History General Comment: The severity and subsequent therapeutic decisions on the management of OA should not result from radiographic findings but rather they should be based upon clinical findings and history. Grade 1 Radiographic evidence of OA however no owner complaints and no clinical abnormalities noted on examination. Possible therapy – weight management, controlled Exercise, Adequan, and J/D Grade 2 Mild clinical signs but little negative effect on quality of life. Client notices minor difficulty getting up and down, getting in and out of car, minor difficulty with steps and stairs. Mild discomfort on examination, slight reduction in range of motion (ROM) of the joint(s) may be noticed. Possible Therapy – weight management, controlled Exercise, pharmaceutical pain management +/- (usually only NSAIDS), Adequan and j/d. Grade 3 The patient is in mild to

moderate chronic pain with more noticeable clinical signs. Patient quality of life is affected – decreased exercise tolerance, may not get in and out of car without help, and less active. Pain is easily elicited on examination, moderate reduced ROM and myofascial pain. The client recognizes a problem however often blame clinical signs on increasing age of patient Possible Therapy- weight management, controlled Exercise, pharmaceutical pain management (NSAIDS, amantadine +/-, tramadol for breakthrough pain), physical medicine (analgesic acupuncture, MTrP therapy, TENS, low level laser, Bioelectric whirlpool, etc) Adequan, j/d and Rehabilitation therapy +/-.

Grade 4 The patient is in moderate to severe pain, chronic pain. Activity is limited to short walks and unable to perform any exercise. Disuse muscle atrophy is evident with significantly reduced joint ROM and myofascial pain. The patient has significant decrease in quality of life. Cardiovascular and musculoskeletal compromise. Possible therapy – weight management, controlled Exercise, pharmaceutical pain management (NSAIDS, amantadine +/-, tramadol for breakthrough pain, gabapentin +/-, amitriptyline +/-), physical medicine (analgesic acupuncture, MTrP therapy, TENS, low level laser, Bioelectric whirlpool, etc) Adequan, j/d and Rehabilitation therapy.

Grade 5 The patient is in severe chronic pain with little, if any, quality of life. There is severe disuse atrophy and decreased joint range of motion. Patient may need assistance rising making simple necessities such as eating, drinking, urinating and defecating difficult. Patient is difficulty to examine due to the severity of pain and weakness. Severe cardiovascular and musculoskeletal compromise. The disease is life threatening.

Best Therapy is prevention of Grade 5 osteoarthritis! Identify patients at risk of OA All large breed dogs over 6 years. All giant breed dogs over 4 years. All dogs with congenital issues – hip dysplasia, elbow dysplasia, etc. All athletes. All cats 10 and above.

Questions to ask of owners: Is there difficulty getting in and out of car? Is there difficulty getting up and down? Is there difficulty with steps and stairs? Have you noticed any decrease in ability or desire to exercise or go on walks? If a male – do they still hike leg to urinate? Any problems noticed while defecating? Do they stay in the same spot or do they walk around during bowel movement? Is your dog sleeping well? Restlessness? Cats – Do they still jump on counters, furniture, etc? Cats – Have they changed their response to brushing? Cats – Have their grooming habits changed? Cats- Do they avoid being picked up?