Nursing Management Strategies for Osteoarthritis

Abstract
This lecture looks at different aspects of nursing involved in canine osteoarthritis cases, such as nurse clinics, weight management and exercise advice, and monitoring the patients progress. It looks at surgical and medical management options and concludes with a case study of a Total Hip Replacement case.

Learning outcomes

- An understanding of osteoarthritis and different options available for treatment
- An understanding of nursing management strategies and the importance of the nurses role in osteoarthritis cases
- The confidence to advise clients on the different aspects of care involved in helping their dog with osteoarthritis

Course Notes

Osteoarthritis, (OA) is a slow progressive, low-grade inflammatory syndrome that affects tissues of the joint: cartilage, bone and synovium as well as surrounding ligaments, tendons and muscles (Innes 1995).

Osteoarthritis affects approximately 20% of dogs over the age of one, including all breeds, ages and sizes and can be divided into two categories; primary and secondary. Primary OA is idiopathic, where no initiating cause is identified. This form of osteoarthritis is uncommon in dogs, as a causative factor is usually identifiable (Innes1995).

Secondary OA occurs when a primary disease or other causative factor develops into OA. Secondary OA is the most common form of OA in dogs, causes of the disease include:

- Trauma
- Developmental
- Inflammatory
- Joint disease
- Metabolic
- Congenital
(Cited from Innes 1995)

Dogs can present with a history of lameness that is either acute or chronic and of varying severity, from mild to complete disability depending upon the arthropathy. Clinical signs may include:

- Muscular asymmetry (due to disuse atrophy)
- Joint enlargement ( due to effusion or fibrosis)
- Abnormalities in range of motion ( often reduced)
- Instability (often with erosive arthritis)
- Crepitus
- Pain
Changes occurring with OA within the joint are currently irreversible. However, early recognition of clinical signs and identification via diagnostic imaging may provide an owner more options for treatment. The primary aims of treatment are to ameliorating the pain and disability associated with the disease (MacPhail 2000). Changes in lifestyle of the patient may also be adopted in an attempt to slow the progression of the disease.

There are two main management approaches to treating OA: surgical and medical. Surgery may be indicated for treatment in secondary OA, which generally involves surgical correction of the underlying disease in an attempt to ameliorate the clinical signs associated with and progression of OA.

The goals of therapy are to:

- Relieve pain
- Reduce inflammation
- Improve joint mobility
- Increase activity level
- Prevent further cartilage denegation
- Improve quality of life

(Cited from MacPhail 2000)

These goals can primarily be achieved through a multimodal treatment approach. The general management strategies used for OA in dogs are:

1. Medical management
2. Weight management/Nutritional
3. Exercise moderation/Physical rehabilitation therapy
4. Surgery
5. Alternative methods

The management of osteoarthritis is generally conservative during nursing clinics and an individual treatment program can be devised and agreed for the animal by consideration of each therapeutic modality (if appropriate to the patient).

**Medical treatments** for OA have conventionally compromised non-steroidal anti-inflammatory drugs (NSAIDs). NSAIDs are often prescribed in the management of the clinical signs of OA due to their ability to reduce joint pain and inflammation, although they do not significantly alter the progression of the disease (McLaughlin 2000).

- The use of corticosteroids in the treatment of OA is controversial. Intra-articular therapy was once very popular in human medicine but fell in to disrepute. In veterinary use they have been used to manage end-stage OA as an alternative to NSAID’s however, any enhanced efficacy in terms of their long term analgesic or anti-inflammatory benefit is controversial (Innes 1995).

- Nutraceuticals, such as glucosamine and chondroitin, can be prescribed to dogs with OA to provide the ‘building blocks’ of cartilage in an attempt to slow the progression of cartilage loss within the osteoarthritic joint. Any long term efficacy that these supplementation provide both in humans as well as dogs are controversial and there is a lack of robust objective studies demonstrating a clear benefit in both species.

Omega 3 fatty acids such as those found in cod liver oil have been shown in ex vivo and in vitro studies to reduce inflammation within the joint and can help improve clinical signs of OA (Schoenherr 2005). Eicosapentaenoic acid (EPA) have also been shown to block the genes that produce cartilage-destroying enzymes.
Once animals are prescribed medication(s) it is important for the VN to warn owners to be vigilant of any occurrence of vomiting and diarrhoea, or other adverse reactions to drug treatment – especially with the use of NSAID’s. A major concern for the client is that their pet is in pain and it is therefore important for the VN to have knowledge and understanding of drug therapy options.

**Weight control** can potentially have a profound effect both on the clinical severity of signs a patient with OA may exhibit as well as the rate of progression of these signs and osteoarthritis change within the joint(s). Within nursing clinics owners should be informed of their dog’s optimum body weight at the time of initial consultation. From this measurement a weight loss plan can be formulated, from which a daily nutritional requirement can be recommended. The weight of the dog and the body condition score should be recorded at each subsequent visit to monitor progress of the patient.

**Exercise** routines should be individually evaluated for each patient and adjusted accordingly to clinical signs of pain and inflammation. The dog should not be forced to exercise during times of aggravation because inflammation may damage articular cartilage OA and exacerbate clinical signs. Unrealistic demands placed upon owners and their pets will decrease compliance and may exacerbate the severity of clinical signs.

### Physical therapy modalities

<table>
<thead>
<tr>
<th>Treatment Modalities</th>
<th>Application</th>
<th>Advantages</th>
<th>Contraindications</th>
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<tbody>
<tr>
<td>Heat</td>
<td>Warm compress, heat wraps, warm water, blankets, electric heat pads and infrared lamps.</td>
<td>Relieves extremity joint stiffness, pain, and increase muscle relaxation, tissue elasticity, local circulation and capillary pressure.</td>
<td>When tissues are actively inflamed it can exacerbate haemorrhage and oedema. Decrease/absent sensation, poor thermoregulation, bleeding disorders.</td>
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<tr>
<td>Massage</td>
<td>Gentle manipulation of the muscles and soft tissues. Massage can be applied to one area or the entire body.</td>
<td>Massage is effective in moving fluid into the lymphatic system and moving fluid from the extremities to the central body core which can help mobilise and soften adhesions, limit and relieve muscle and tendon contracture, and decrease fibrosis.</td>
<td>Clinical signs can worsen with cold damp weather.</td>
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<td>Passive range of movement(ROM)/stretches</td>
<td>Artificial manipulation of a joint through a full range of motion the joint may be moved through.</td>
<td>Improves function of affected joint and muscles.</td>
<td>Do not use when motion may result in injury/instability or uncomfortable to the patient.</td>
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Therapeutic exercise

Exercise appropriate muscle groups by performing voluntary active motion of affected joint/limb eg:- Sit-to-stands, weaving and balancing

Implements pain free ROM, limb usage, muscle mass, strength and overall ability to function. Assisting devices can be used such as:- balls, weights, balance boards, tunnels, treadmills and swimming pools.

Do not use when motion may result in injury/instability or uncomfortable to the patient.

Aquatic therapy

Underwater treadmill, Swimming

Aquatic therapy assists in the rehabilitation of OA patients and is ideal for obese patients as it provides safe, controlled and stable exercise. Exercise in water improves muscle strength and endurance by providing resistance to practice ROM, and agility. Water creates an environment of reduced gravity thus, decreases concussive forces on the joints, allowing painful patients to exercise more comfortably and weak patients to stand and ambulate with confidence.

Infection, afraid of water, Must have supervision.

(Fossum 2007)

All rehabilitation therapy should be delivered in an environment as quiet and free of distraction as possible. At home, and when hospitalised, a well padded warm bed can help prevent injury. Other considerations such as non-slip flooring and ramps to avoid stair use may also be effective. Additionally, assistive devices can have an important role in the overall well-being and functional abilities of an animal with orthopaedic impairments. Treatment should include a balance of client instruction, moderate medication and surgery if applicable.

Other treatments

Acupuncture is commonly requested by client for their pets with OA, as this therapy is thought to help the body heal itself. This is accomplished through nerve stimulation, increased blood circulation, muscle spasm relief, and endorphin and endogenous cortisol release (MacPhail 2000). Although this alternative therapy may appeal to some owners in the treatment of OA, it is important to note that little objective research currently supports its efficacy.

Monitoring process

Once a treatment plan has been established within the nursing clinics, the VN’s role is to support the owner and monitor the progress of the patient.
References


And This video may be of interest:
http://www.youtube.com/watch?v=vXm3FDwAsGI