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# Osteoarthritis management of the knee

## Treatment options post the NSAID cardiotoxicity controversy

This series of articles facilitated by the Cochrane Musculoskeletal Group (CMSG) aims to place the findings of recent Cochrane musculoskeletal reviews in a context immediately relevant to general practitioners. This article considers treatment options for osteoarthritis management of the knee post the 'NSAID cardiotoxicity controversy'.

**Osteoarthritis (OA) is a common, chronic musculoskeletal condition affecting at least 1.2 million Australians. It is the leading cause of pain and disability in the community, particularly affecting women,<sup>1</sup> and the seventh most commonly managed condition in general practice.<sup>2</sup> Although the pathogenesis is not fully understood, the factors involved include biomechanical stresses affecting the articular cartilage and subchondral bone, biochemical changes in the articular cartilage and genetic susceptibility.<sup>3</sup> Knee and hip joints usually cause the most morbidity.<sup>4</sup> Patients with OA complain of pain which typically worsens with weight bearing and is relieved with rest.<sup>3</sup> They may also have joint stiffness, particularly after a period of inactivity.**

Goals for managing OA are to reduce pain, improve and maintain joint mobility, and limit functional impairment. Management is individualised and often involves a combination of nonpharmacological and pharmacological approaches. Intra-articular (IA) treatments for knee osteoarthritis are often promoted as an option when oral medication fails.<sup>4</sup> Surgery is usually reserved for patients when all other methods have failed to alleviate pain and disability.

Corticosteroid and hyaluronan/hylan (HA) products are the two classes of medication injectable into the knee joint. Although this article is restricted to OA of the knee for the purpose of examining systematic reviews, IA corticosteroids have also been researched as a treatment

**Table 1. Key review results – intra-articular corticosteroid for osteoarthritis of the knee<sup>6</sup>**

- 28 randomised controlled trials (RCTs) comparing all types of IA corticosteroids used for OA in the knees of humans to all other treatments
- IA corticosteroids were more effective than placebo on pain reduction and global patient assessment at 1 week postinjection, with some evidence that this response continued for the first 2–3 weeks postinjection. No evidence to suggest that the effect on pain reduction was sustained in the longer term at 4–24 weeks postinjection. No evidence to suggest that IA corticosteroids had an effect on knee joint function
- IA corticosteroids had a quicker onset of action than HA products but had a shorter duration of benefit
- The review supported the use of IA corticosteroids as a short term option in the treatment of OA of the knee, especially for patients with obvious signs of inflammation and in significant pain

modality for other affected joints such as the hips and shoulders.<sup>5</sup>

Hyaluronan is a natural substance of synovial fluid in joints that acts as a lubricant and shock absorber in a healthy joint. Osteoarthritis reduces the synovial

fluid's ability to lubricate and protect the joint.<sup>6</sup> Although the exact mechanism of action with HA treatment is not clear, it is thought to increase the viscoelasticity of the synovial fluid and restore the trans-synovial flow.

There has been confusion within the medical profession as to the extent these

medications help joint pain and function. We sought to obtain evidence from some recent Cochrane reviews about the benefit or not of IA treatments on knee osteoarthritis. The review results are summarised in *Table 1* and *2* and how these results might affect practice are shown in *Table 3*.

## Conclusion

The reviews support both the safety and efficacy for IA corticosteroid and HA product use. It appears that HA products are longer lasting than IA corticosteroids but are more expensive and must be given more often in the initial course. There may be a place for corticosteroids in patients with an acute inflammatory episode of OA of the knee. Intra-articular treatment is often viewed as a management option before surgical intervention when oral medication fails.

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**Table 2. Key review results – viscosupplementation for osteoarthritis of the knee<sup>7</sup>**

- 76 RCTs comparing HA products to any other treatment
- The HA products examined in the review were of widely different molecular weights and formulation. The results in this review have been presented by product instead of class because of product differences
- There were statistically significant differences in the reduction of knee joint pain and improved joint function between HA products and placebo at 1–4 weeks, with a larger effect at 5–13 weeks postinjection
- Comparable efficacy was found when HA products were compared against NSAIDs and longer term benefits when compared against IA corticosteroids
- No statistical significant difference was found in the safety profile apart from a higher incidence of injection site pain
- There was support for safety and efficacy of HA products

**Table 3. Putting evidence into practice**

### Case study 1

Mr Louis, 60 years of age, is a builder with a 5 year history of moderately severe OA of his right knee. He is not keen on surgery at this stage. He had a recent flare up of pain with a positive patella tap sign on examination. The pain has not improved with stepped therapy using paracetamol then nonselective and selective NSAIDs. How do you manage him from here?

You could consider offering Mr Louis drainage and an IA corticosteroid injection into the right knee joint to settle his acute exacerbation of osteoarthritis. Three corticosteroid preparations are available in Australia for musculoskeletal injection.<sup>5</sup> The overall effect of the injection is not likely to last more than several weeks but may be satisfactory to reduce his pain to a more tolerable level, especially if there is evidence of chondrocalcinosis on X-ray.

### Case study 2

Mrs Mahoney, 55 years of age, has OA of her left knee. She is taking paracetamol and maximum dose NSAIDs but continues to have problems with knee stiffness, which interferes with playing golf. She enquires about a series of injections she saw promoted on television the previous evening called 'hylan'.

Mrs Mahoney is enquiring about HA products which have multiple brand names. In Australia, Synvisc and OsteoArtz are available. A Cochrane review supported the use of HA products for pain relief and knee joint function and the evidence shows it is safe.<sup>7</sup> You discuss with Mrs Mahoney the treatment course including possible side effects. Synvisc injections are given weekly for 3 weeks while Osteoartz injections are given weekly for 5 weeks. Both contain the same compound derived from rooster combs. Local injection site pain and local reactions are the most common side effects. Acute joint pain with effusion is less common. The cost may be a problem for Mrs Mahoney at ~\$450 each plus the consultation fee for administering the treatment. The medication may be covered by private health insurance depending on the level of coverage and the insurer.