Pharmacological Therapy of Ankle Arthritis

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Ankle arthritis has been shown to have a high clinical impact, comparable to the morbidity associated with hip arthritis(1), with over thirty five thousand ankle arthrodesis performed annually in the United States. While usually highly successful, known issues of ankle arthrodesis lies in alteration of gait (shortened stride length, loss of ankle motion, up to one third may limp(2), and certain percentage of cases not healing, leading into non-unions(3). Alternatives, such as an TAA has had increasing success but the long term success of the third generation is still unknown(4).

Prior to the initiation of surgical management, clinicians should consider in the use of pharmacological treatment of ankle arthritis. (5). Conservative treatment is generally used as the initial treatment prior to any surgery to buy time for younger patients who are not joint preserving candidates and in patients whom are contraindicated for TAA or arthrodesis.

Controversy exists in the use and efficacy of the following for treatment of ankle OA:

a. Oral chondroitin sulfate and glucosamine
b. Local platelet rich plasma
c. Local corticosteroid
d. NSAID & Transdermal Cream
e. Local hyaluronic acid

a. Oral chondroitin sulfate and glucosamine:

The original belief was the oral use of chondroitin sulfate and glucosamine -these substrate would facilitate the repair of the damaged cartilage. Glucosamine was supposed to act as the substrate for formation of chondroitin sulfate and to stimulate synovial production of hyaluronic acid. Chondroitin sulfate seems to act in similar manner.

Clinical benefit of oral chondroitin sulfate and glucosamine has not been proven in ankle arthritis. Furthermore, Cochrane review of 20 studies and 2570 patients could not substantiate the use and its superiority in knee arthritis,(6)
b. Local platelet rich plasma:
The use of local blood product concentrated at the time of application has certain autologous appeal, with increasing popularity in the Orthobiologics realm. While controversy exists regarding PRP about the presence or absence of leukocytes, fibrin or the extent of PRP concentration, literature does exist on its role in knee arthritis (7). In contrast, no evidence of the efficacy of PRP for ankle OA exists in the literature.

c. Local corticosteroid:
Corticosteroid may play a role in mitigating symptoms of ankle arthritis but due to their catabolic nature, theoretical damage to the soft tissue envelope (discoloration, skin thinning, soft tissue fat loss) may occur after multiple injections. Studies of the cartilage in the joint has not shown repeated corticosteroid injection has a severe deleterious effect (8,9).

Local injection of corticosteroid mixed with anesthetic agent, such as Lidocaine is commonly part of the diagnostic work-up, for an injection may not only reduce the extent of inflammation but also provide information that the injected joint is the source of the pain.

The efficacy of intra-articular corticosteroid injection for ankle arthritis has not been studied. In the presence of knee arthritis, meta-analysis has shown slightly longer and superior effect, compared to systemic NSAID but its long term effect was not shown (10,11).

d. NSAID
Oral NSAID has been used successfully for the treatment of ankle arthritis symptoms, with variable effect upon the extent of pain and inflammation. While oral NSAID have been reliable, care must be taken in their use, with significant side effect and potential morbidity exist. Significant number of patients annually present to the emergency room for GI bleed/symptoms after oral NSAID (12).

No specific evidence exists about the efficacy of NSAID for ankle arthritis but their value has been substantiated and proven in several level I arthritis studies.

No specific evidence exists about the transdermal NSAID or the compound medication currently utilized for ankle arthritis.

2 Local Hyaluronic acid(HA)

Local HA injection theoretically is thought to help ankle OA via its physical properties and the supposedly anti-inflammatory and anabolic effects (13). The role of local HA injection for ankle OA(non FDA indicated use) remain highly controversial in the treatment of ankle osteoarthritis. We plan to discuss the existing data, the optimal dose and ideal population for this local treatment(14,15,16,17).
References