Nonoperative Treatment of Unicompartmental Arthritis

From Bracing to Injection

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KEYWORDS

• Nonoperative treatment • Unicompartmental arthritis • Osteoarthritis • Knee

KEY POINTS

- The primary treatment goals for osteoarthritis (OA) of the knee are to reduce pain, improve joint mobility, and limit functional impairment.
- Pharmacologic treatment options included NSAIDs, COX II inhibitors, and oral non-narcotic analgesics.
- The role of bracing to reduce knee pain in patients with unicompartmental knee OA is helpful to promote a physically active lifestyle and offload the affected joint.
- The use of viscosupplementation for mild to moderate arthritis of the knee and steroid injections for severe arthritis may have value in appropriately selected patients.
- Conservative modalities of the treatment of OA of the knee should be considered before consideration of more aggressive surgical approaches.

INTRODUCTION

The published recommendations for the nonoperative treatment of osteoarthritis (OA) of the knee include weight loss, physical therapy to strengthen lower-extremity musculature, nonsteroidal antiinflammatories, nutritional supplements, topical treatments, and steroid injections. Evidenced-based results have been mixed using these treatment modalities.[1] The results using unloader braces and viscosupplementation have also been variable.[2,3] This article reviews the use of conservative treatment of OA of the knee.

TREATMENT GOALS FOR OA OF THE KNEE

The primary treatment goals for OA of the knee are to reduce pain, improve joint mobility, and limit functional impairment. The secondary goals are to reduce disease

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progression, improve muscular strength, and, therefore, preserve patients' independence and quality of life.[4] The most effective methods for nonoperatively managing the arthritic knee are behavioral or lifestyle changes. These changes include activity modification, weight loss, and a home therapy and strengthening program. The ultimate goal is to delay joint replacement surgery for as long as possible. Multiple nonpharmacologic treatments have been used, including exercise, weight reduction, thermal modalities, acupuncture, transcutaneous electrical nerve stimulation, shoe insoles and heel wedges, knee braces, and external walking aides, such as canes or walkers.[5]

The Arthritis, Diet, and Activity Promotion Trial was an 18-month-long randomized, single-blinded, clinical trial to determine the impact of exercise and weight loss on the function, pain, and mobility in older overweight and obese adults who had OA of the knee. The investigators found that the combination of modest weight loss plus moderate exercise provided better overall improvements in self-reported measures of function and pain and in performance measures of mobility in older, overweight, and obese adults who had knee OA compared with either intervention alone.[6]

Pharmacologic treatment options include oral analgesics, such as acetaminophen, tramadol, or opioids. Nonsteroidal antiinflammatory drugs (NSAIDs) are the second most commonly prescribe drugs, including ibuprofen (Advil, Motrin) and naproxen (Naprosyn, Aleve). Topical analgesics and patches include diclofenac epolamine (Flector) patches, capsaicin, and lidocaine. Nutraceuticals, such as glucosamine and chondroitin, have also been used. Corticosteroid injections are frequently used for short-term pain relief in patients with significant changes of OA.[7]

The American Geriatric Society considers acetaminophen the initial therapy for mild to moderate musculoskeletal pain, whereas NSAIDs and cyclooxygenase-2 (COX-2) inhibitors, such as celecoxib (Celebrex), are considered secondary therapies. However, some investigators confirmed that acetaminophen is less effective than NSAIDs in relieving OA pain and has no effect on knee stiffness or function in patients with symptomatic knee arthritis.[7,8] An L1 study comparing diclofenac versus acetaminophen, 4000 mg/d, in 82 patients with symptomatic OA of the medial compartment of the knee found acetaminophen to be ineffective.[9] Furthermore, there is a risk of hepatotoxicity, especially if more than 3 g/d are ingested.[10]

Other analgesic medicines include serotonin norepinephrine reuptake inhibitors (SNRIs), such as duloxetine, which are indicated for the management of chronic musculoskeletal pain secondary to chronic OA and chronic lumbar disk disease and spondylosis. SNRIs have been shown to improve pain scores in 2 pivotal trials, but it can result in nausea, fatigue, and constipation and may result in hypertension and abnormal blood sugars in patients with diabetes.[11,12]

Tramadol is useful as a weak opioid agonist and SNRI but runs some risk of abuse. Complications include drowsiness, dizziness, headache, nausea, seizures, and serotonin syndrome. There seems to be less abuse than opioids with respect to drug addiction.[13]

NSAIDs are more effective than acetaminophen for OA pain and are usually the initial treatment modality of OA for orthopedists.[14] NSAIDs reduce pain and inflammation associated with OA by inhibiting the production of prostaglandins in the COX pathway.[15–17] However, usage of NSAIDS results in up to a 30% incidence of peptic ulcers, especially in elderly patients.[18] Furthermore, there is an increase in cardiovascular and cerebrovascular risks and up to 16 500 deaths each year directly or indirectly related to the use of NSAIDS, even in recommended dosages.[18–20] A proton pump inhibitor can be coadministered for higher-risk patients.[7]