



Non-operative management of knee osteoarthritis

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Osteoarthritis is a failure of hyaline cartilage. Whilst many patients suffer from osteoarthritis, not all patients are surgical candidates. The symptoms may be mild, the patient may prefer not to undergo surgery or otherwise nonoperative products such as surgery. A number of conservative options are available.

Non-medical treatments

Whilst there are no large scientific studies on the use of heat, ultrasound, low energy laser or acupuncture, individual patients may find benefit from these modalities. They are worth considering, with a review of efficacy after an agreed time (say, a month). TENS has been shown to provide significant benefit, but only while in use. Heat-wedges to reduce load have in limited knee OA has been shown to be of benefit.

Exercise

Of all the non-operative interventions for OA, exercise gives the strongest evidence of pain relief. Patients should be encouraged to undertake a gentle exercise program. Aerobic exercises to increase strength and stamina – swimming, walking, and cycling are especially useful. Strength and flexibility training reduce pain by helping to stabilise the joint.

Mechanical aids

Walking stick. A simple walking stick can provide significant symptomatic relief. Use of this and effective exercise may be limited by a perception that use is a sign of “getting older”.

Wedges. By “relaxing” the affected compartment in unicompartimental osteoarthritis, patients can expect significant improvement in their symptoms. It can be seen from these weight-bearing X-rays, the effect is real (Figure 1). Bases of this type are expensive, often approaching £200. They are made to measure and must be correctly fitted to gain maximal benefit. Low-expensive “off the shelf” (below) hinged braces can also help. These assist by keeping the knee more and also providing firm compression.

Medication

Paracetamol 1 g provides an excellent starting point for relief of the symptoms of OA.

NSAIDs. For those needing stronger pain relief, a wide variety of NSAIDs exist. All NSAIDs work by blocking the effect of the enzyme cyclooxygenase, critical to production of prostaglandins



■ Figure 1



■ Arthroscopic view – done in arthroscopy with degenerative change of the meniscus

that cause the swelling and pain of OA. Traditional NSAIDs inhibit COX-1 and COX-2, whereas NSAIDs inhibit COX-2 selectively. This allows the protective effect of COX-1 on the gut and reducing possible side-effects as a result. There is no evidence that the COX-2 inhibitors are any better or worse in the relief of symptoms. Care must be taken to treat the dose to the desired effect.

Side effects. Those with only mild failure can suffer as osteoarthritis in the area and analgesic need to be monitored. Peptic ulceration can be caused by standard NSAIDs – patients need to be warned of the early symptoms. COX-2 inhibitors can result in the exacerbation of a pre-existing renal/renalisation.

Joint and cartilage supplements

Glucosamine is a precursor of glycosaminoglycan, used in the formation and repair of cartilage. Chondroitin is the most abundant glycosaminoglycan in cartilage. If the two are taken alone the consumption of either as supplements increases the quantity of these cartilage building blocks within any joint. Despite this, patients experienced more pain reduction when taking the joint supplements than patients receiving a placebo (Miller-Fabrizio et al.). The improvement experienced by these patients was similar to improvements experienced by patients taking NSAIDs. As glucosamine and chondroitin have few side effects, they should be considered as a part of the treatment of OA.



■ Hinged knee brace



■ The x-ray changes of osteoarthritis – loss of joint space, subchondral sclerosis, cyst formation and osteophytes



■ Histopathology – shows cartilage loss, and chondral sclerosis, surface of hyaline cartilage, shows matrix loss at macroscopic level, the thin layer below

glue, however the risk of infection needs to be weighed against the benefit. Generally, if a “good effect” is obtained for “maximum period”, then it is worth considering a repeat injection.

Hyaluronan is a natural fluid component responsible for its viscoelasticity, degraded by OA by catalytic enzymes. Viscoaugmentation with synthetic long-chain hyaluronan (Synvisc) can help. Several clinical trials show improvement in symptoms after three weekly injections of Synvisc in these patients after repeat. Generally, results persist for approximately 6 months. The results of repeat/one hour courses established. Synvisc is generally well tolerated. Side effects less than NSAIDs include temporary pain, swelling, and stiffness. Other side effects, such as rash, have been reported rarely.

When conservative measures fail

A variety of surgical treatment alternatives are available when symptoms deteriorate, ranging from arthroscopic debridement (useful in selected cases) through to the alternative of unicompartimental arthroplasty and total knee replacement. All alternatives are discussed with the patient and an appropriate plan of management established.

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