Introduction

Many older people are troubled by chronic knee pain that can have a major effect on their quality of life. Helping our patients to cope with knee pain can be challenging. Because of an ageing population and increasing obesity, the number of older people with disabling knee pain is set to increase substantially. The focus of this article is on chronic knee pain in the elderly – that is, pain in or around the knee that has been present for at least 3 months.

Knee pain or osteoarthritis?

There is a loose relationship between knee pain and radiological osteoarthritis (OA) of the knee. Many older people with radiological OA are pain free, and many people with knee pain have little radiological evidence of OA. Since the management of knee pain is largely symptomatic, and not dependent on the presence of radiological OA, it is more sensible to consider the management of knee pain than the management of knee OA. When I refer to OA in this article, it is because that is the diagnostic label used in the original studies.

Epidemiology of chronic knee pain in older people

A quarter of those aged 50 or over report chronic knee pain; for two-thirds of these (17% of all older people) it is severe or disabling. Around 4.5 million people in the UK, well over 100 patients per GP, have severe or disabling knee pain.

Clinical features

For patients aged over 50 with knee pain, the American College of Rheumatology clinical criteria for the diagnosis of knee OA require morning stiffness to be less than 30 minutes and for there to be no palpable warmth. It is these patients, without an inflammatory arthritis, who may have crepitus, bony tenderness, bony enlargement, an effusion (usually small) or muscle wasting, who are the subject of this article.

Differential diagnosis

(adapted, with permission, from the Primary Care Rheumatology Society knee osteoarthritis guidelines. http://www.pcrsociety.com/guidelines/knee_osteoarthritis.html)

For patients with an acute exacerbation consider possible ‘red flag’ conditions needing urgent treatment or referral:
- sepsis (fever/systemically unwell)
- gout/pseudogout/haemarthrosis (marked effusion, warmth, erythema)
- malignancy/avascular necrosis (progressive, severe pain, predominantly at night).

For patients with chronic problems consider:
- referred pain from hip or back (normal knee examination)
- meniscal tear or osteochondral bodies (history of locking and/or giving way)
- prepatellar bursitis (discrete swelling away from the joint)
- fibromyalgia (pain in multiple sites)
- rheumatoid arthritis/psoriatic arthritis/reactive arthritis (marked inflammation, severe early morning stiffness, large tense effusion).

Investigations

• No investigations are normally required.
• If there is concern about possible ‘red flag’ problems consider full blood count, erythrocyte sedimentation rate (ESR)/plasma viscosity (PV)/C-reactive protein (CRP) and serum urate tests.
• Knee x-rays are rarely indicated.
Treatment

Most studies are on people with radiological OA recruited from secondary care and have focused on short-term outcomes. These findings may not always be directly generalisable to the long-term management of chronic knee pain in the community. Apart from trials of non-steroidal anti-inflammatory drugs (NSAIDs) for OA there are relatively few studies comparing conservative treatments for knee pain.

Lifestyle advice

- **Weight loss**
  There is a strong relationship between obesity and knee pain/OA. Reducing obesity should reduce knee pain. However, in a study of an intensive intervention a 5% loss of body weight did not reduce knee pain disability in patients with OA, except when combined with an exercise regimen.

- **Educational and behaviour change**
  Notwithstanding the popularity of these approaches there is insufficient evidence to recommend their use.

Analgesics

Painkillers are the commonest primary care treatment for chronic knee pain. Paracetamol, mild opiates and NSAIDs – both traditional and the newer cyclo-oxygenase (COX-2) inhibitors – all provide short-term pain relief. There are no data to suggest that any drug group or individual preparation is any better than any other.

- The gastrointestinal and renal complications of NSAIDs are well known. COX-2 inhibitors reduce, but do not eliminate, the risk of gastrointestinal bleeding. There may be a cardioprotective effect from taking some traditional NSAIDs. There is an increase in cardiovascular events from at least one COX-2 inhibitor; it is not known if all COX-2 inhibitors increase cardiovascular events. Some observational data suggest that widespread use of COX-2 inhibitors increases overall healthcare costs, without affecting the incidence of either gastrointestinal or cardiac events.

- If a traditional NSAID is used, low-dose ibuprofen (≤ 1200 mg/day) has the lowest incidence of gastrointestinal adverse events. Since only 60% of people will find NSAIDs beneficial, if they are not clearly effective there may be little point in continuing with them or repeated changing to alternative NSAIDs.

- Increasing patients’ awareness of adverse events from traditional NSAIDs and COX-2 inhibitors might reduce demand for these products, even if the alternatives were less effective. The choice of which analgesic to use is determined by a balance between risks and benefits for an individual patient and health service costs.

Topical medication

The effect of topical preparations may be a combination of the pharmacological properties of any active ingredients on intra-articular and periarticular structures, central and peripheral sensitisation, the physical effect of rubbing, plus any expectation of benefit from rubbing the affected part. Even if their effectiveness is low these preparations may be useful if they reduce NSAID-related adverse events.

- **NSAIDs**
  A meta-analysis of short-term studies (< 3 weeks) on topical NSAIDs for OA (most but not all of the included studies were of knee OA) found them to be more effective than placebo, but less effective than oral NSAIDs.

- **Capsaicin**
  Studies of OA that included some patients with knee OA suggest capsaicin might be helpful.

- **Rubefacients**
  There is little evidence to support the use of rubefacients, but as they are comparatively cheap and have very few systemic side-effects they are worth considering – not least because of their popularity with patients.

Physiotherapy

- **Exercise regimens**
  A number of different exercise regimens for knee pain/OA have been shown to produce beneficial effects on pain and disability. Increased exercise may have beneficial cardiovascular effects, and any improvement in pain and disability may reduce medication use. GP advice simply to exercise more may be less effective than following specific regimens. Consider referral to physiotherapy for those with severe or disabling pain.

- **Knee taping**
  Two randomised controlled trials (RCTs) have found that medial taping of the kneecap has a beneficial effect.

- **Others**
  A wide range of other local treatments have been suggested, but there are few objective data to support their use.

Complementary and alternative medicine

• **Glucosamine/chondroitin**  
  A number of reviews have found evidence to suggest that these related compounds improve knee pain. Glucosamine may reduce progression of joint-space narrowing in people with radiological knee OA. Most of the evidence of effectiveness comes from studies using glucosamine sulphate 1500 mg daily. Publication bias and poor quality studies might mean that these benefits have been overstated. However, since the incidence of adverse events is low it is reasonable to suggest that patients with chronic knee pain try them.

• **Acupuncture**  
  There is some evidence to suggest that this is helpful.

• **Others**  
  Chiropractic, homeopathy, osteopathy, and other complementary approaches are used for knee pain; there are few objective data to support these specific approaches.

Intra-articular treatment

• **Steroids**  
  Steroids provide some short-term relief (1–4 weeks) but there is no evidence for a long-term benefit. It is plausible that joint aspiration alone would be as effective.

• **Hyaluronan injections**  
  Cartilage and synovial fluid include hyaluronan (hyaluronic acid), a high molecular weight polysaccharide. Several studies suggest that for people with radiological OA hyaluronan injections provide some relief for up to 6 months.

• **Others**  
  It is not known if other intra-articular treatments such as radioactive isotopes, glycosaminoglycan polysulphuric acid and morphine are effective.

Surgical treatment

• **Arthroscopic lavage**  
  There are few data to support the use of arthroscopic lavage.

• **Partial or total knee replacement**  
  Although there are few RCTs of knee replacement there is a large amount of observational evidence that knee replacements reduce pain and improve function. The 30-day mortality rate was 0.63% in one large American cohort study. Incidence of deep vein thrombosis is 24%. The failure rate is around 1% over 10 years. Severity of radiological change may not predict outcome from surgery. Around 12–20% of people continue with at least moderate knee pain following surgery. The balance of risks and benefits of knee and hip replacement are similar.

Prevention of knee pain and knee pain disability

Although there is no hard evidence to support it, it seems reasonable to advise avoiding obesity and maintaining physical activity as primary prevention. Since pain-related fear may be responsible for a large proportion of the disability related to hip and knee OA, reassuring patients that exercise will not damage their knee might be beneficial.

Key practice points

• Radiological change does not inform the diagnosis and management of knee pain in older people.

• Avoid NSAIDs or COX-2 inhibitors.

• Exercise regimens are helpful.

• Glucosamine might have a long-term beneficial effect.

• Pain-related fear might contribute to disability.

References

A fully-referenced version of this paper is available on the Arthritis Research Campaign website at [www.arc.org.uk/about_arth/med_reports/series5/ho/6525/6525.htm](http://www.arc.org.uk/about_arth/med_reports/series5/ho/6525/6525.htm).
COMMENT

Peter Brooks, MBBS (Monash), FRACP, FAFRM, FAFPHM, FRCP (Edin), MD Hon.Causa (Lund)
Executive Dean, Health Sciences
University of Queensland, Australia

Chronic knee pain is becoming increasingly common in our ageing population and is a frequent cause of mobility restriction. As the author points out, the most important issue is diagnosis – exclude ‘red flag’ conditions such as crystal arthritis or sepsis or inflammatory arthritis. Don’t waste time (or money) on investigations, at least initially – they are usually unhelpful. Weight loss and exercise can reduce pain and should be encouraged, particularly if the patient is likely to need surgery in the longer term.

In relation to pharmacotherapy I would argue with Professor Underwood on two points:

• By all means begin with analgesics, but accept that the majority of patients will require anti-inflammatory agents at some stage – often intermittently. Patient preferences are for NSAIDs rather than analgesics. Get the patient to self-medicate, taking the smallest possible dose for the shortest time required.

• The other issue is that patients have individual responses to NSAIDs – at least the non-selective ones – and there is no reason to believe that this phenomenon does not exist with the COX-1 sparing agents. If a patient requires anti-inflammatory therapy and is not responding to one agent try another – it might just relieve that pain and disability.

This is a common condition and yet can be treated very effectively, often by simple means. Remember that in the event of failure of medical treatment there is knee replacement – one of the most cost-effective operations there is in medicine. Don’t be afraid to persuade your patient to see a surgeon – they may be able to provide great benefit.