

Improving joint pain and function in osteoarthritis

Owens C, Conaghan PG. Improving joint pain and function in osteoarthritis.

Practitioner 2016;260(1799):17-20

Dr Clare Owens
MBBS BSc
Rheumatology Fellow,
Leeds Institute of Rheumatic and Musculoskeletal Medicine,
University of Leeds, Leeds, UK

Professor Philip G Conaghan
MBBS PhD FRACP FRCP
Professor of Musculoskeletal Medicine,
NIHR Leeds Musculoskeletal Biomedical Research Unit,
Chapel Allerton Hospital,
Leeds Teaching Hospitals NHS Trust,
Leeds, UK



Practitioner
Medical Publishing Ltd

Improving joint pain and function in osteoarthritis

AUTHORS

Dr Clare Owens

MBBS BSc
Rheumatology Fellow,
Leeds Institute of
Rheumatic and
Musculoskeletal Medicine,
University of Leeds,
Leeds, UK

Professor Philip G Conaghan

MBBS PhD FRACP FRCP
Professor of Musculoskeletal
Medicine, NIHR Leeds
Musculoskeletal
Biomedical Research Unit,
Chapel Allerton Hospital,
Leeds Teaching Hospitals
NHS Trust, Leeds, UK



Osteoarthritis
of the hands

How should osteoarthritis be diagnosed?

What are the key elements of self-management?

Which patients should be referred for surgery?



IN OUR RAPIDLY AGEING AND INCREASINGLY OBESE SOCIETY OSTEOARTHRITIS HAS BECOME A MAJOR

chronic pain condition. It affects more than 10% of adults and accounts for almost 10% of health service resources. Osteoarthritis is by far the most common type of arthritis¹ and it is estimated that the number of people living in England with the condition is approximately 7.3 million, with a slightly higher prevalence in women.²

The impact of osteoarthritis is amplified by underuse of effective

muscle strengthening exercises and a focus on often less effective and poorly tolerated analgesic therapies.

Patients with osteoarthritis commonly suffer from poorly controlled pain, lack of mobility and substantially reduced quality of life. Osteoarthritis can also be associated with altered mood, coping abilities and sleep patterns.¹ As a further complication, people over 50 commonly have joint pain in multiple sites; a greater number of painful joints is associated with a higher degree of functional impairment and a poorer quality of life.³ Moreover, these patients

may also have a high level of comorbid conditions which further complicates osteoarthritis therapy.

PATHOLOGY OF OSTEOARTHRITIS

There is a complex interplay between genetic, lifestyle and environmental risk factors in osteoarthritis. Although traditionally considered to be primarily a disease of cartilage, there is now ample evidence that typical clinical osteoarthritis involves multiple tissue pathologies. Loss of cartilage, meniscal damage and root tears, synovitis,

damage to adjacent supporting soft tissue structures such as tendons and ligaments, and weak muscles are all thought to contribute to the development or progression of osteoarthritis.⁴ Genetic factors are complex and differ according to anatomical site.⁴

'There is now ample evidence that typical clinical osteoarthritis involves multiple tissue pathologies'

Increased BMI is associated with a higher incidence of knee osteoarthritis⁵ through mechanisms that are thought to relate to the biomechanical effects of excess stress and loading on the joint in addition to meta-inflammatory factors – a term often referring to low-grade

chronic inflammation.^{5,6,7} Anatomical abnormalities such as valgus alignment or previous joint trauma including meniscectomy, anterior cruciate ligament rupture and fracture through the joint are also associated with increased incidence of osteoarthritis.⁴

Pain is the main presenting symptom. However, we still have a poor understanding of the causes of pain in osteoarthritis. Given the benefits of intra-articular corticosteroids (albeit short-term) and NSAIDs, it seems likely that peripheral nociception is highly important, though spinal and central mechanisms of pain may play a role.

While x-rays have only a very crude relationship to symptoms, modern imaging studies have demonstrated that synovitis and subchondral bone pathology are associated with pain, and not surprisingly these are highly innervated structures.

Recent studies with anti-nerve growth factor (anti-NGF) antibodies (which have been successful analgesics in osteoarthritis trials but associated with

significant side effects such as rapidly progressive osteoarthritis) have opened up a field looking at peripheral pain molecular pathways and a number of therapeutic agents targeting these pathways are in clinical development.^{8,9}

DIAGNOSIS AND ASSESSMENT

NICE published a quality standard for osteoarthritis¹ in June 2015, see table 1, below, which follows on from their earlier clinical guideline (CG177) published in 2014.¹⁰ It states that the diagnosis should be made clinically without investigations if the patient has activity-related joint pain in addition to early morning joint stiffness lasting less than 30 minutes.¹

It is always important to consider the differential diagnosis or coexisting conditions such as crystal or inflammatory arthritis which can cause similar, or contribute to more pronounced, musculoskeletal symptoms.

'Increased BMI is associated with a higher incidence of knee osteoarthritis'

A history of prolonged morning stiffness lasting more than 60 minutes or a previous history of podagra are still very useful, and in these cases where an alternative diagnosis is possible, imaging and/or additional directed investigations (for example, rheumatoid factor and anti-CCP antibodies if rheumatoid arthritis is suspected) may be needed.

Patient assessment should consider not only the generic characteristics of pain, but also the impact of pain on the individual including impact on daily activities, quality of life and mood.¹ This not only enables patient-centred treatment but fosters self-management and direction to any support the patient may need. It also promotes patient empowerment by enabling the patient to focus on their individual goals, and is associated with improved patient satisfaction and development of skills such as problem solving, goal setting and coping strategies.¹

MANAGEMENT

Current osteoarthritis therapy is focused on symptoms and there are no licensed structure-modifying therapies. Treatment can be considered in terms of lifestyle modification/non-pharmacological,

Table 1

NICE osteoarthritis quality statements QS87¹

Statement 1

Adults aged 45 or over are diagnosed with osteoarthritis clinically without investigations if they have activity-related joint pain and any morning joint stiffness lasts no longer than 30 minutes.

Statement 2

Adults newly diagnosed with osteoarthritis have an assessment that includes pain, impact on daily activities and quality of life.

Statement 3

Adults with osteoarthritis participate in developing a self-management plan that directs them to any support they may need.

Statement 4

Adults with osteoarthritis are advised to participate in muscle strengthening and aerobic exercise.

Statement 5

Adults with osteoarthritis who are overweight or obese are offered support to lose weight.

Statement 6

Adults with osteoarthritis discuss and agree the timing of their next review with their primary healthcare team.

Statement 7

Adults with osteoarthritis are supported with non-surgical core treatments for at least 3 months before any referral for consideration of joint surgery.

Statement 8

Healthcare professionals do not use scoring tools to identify which adults with osteoarthritis are eligible for referral for consideration of joint surgery.

key points

SELECTED BY

Dr Matthew Lockyer
GP, Suffolk

Osteoarthritis has become a major chronic pain condition.

It affects more than 10% of adults and accounts for almost 10% of health service resources. The impact of osteoarthritis is amplified by underuse of effective muscle strengthening exercises and a focus on often less effective and poorly tolerated analgesic therapies. Although traditionally considered to be primarily a disease of cartilage, there is now ample evidence that typical clinical osteoarthritis involves multiple tissue pathologies.

Increased BMI is associated with a higher incidence

of knee osteoarthritis. Anatomical abnormalities such as valgus alignment or previous joint trauma including meniscectomy, anterior cruciate ligament rupture and fracture through the joint are also associated with increased incidence of osteoarthritis.

Pain is the main presenting symptom. However, we still

have a poor understanding of the causes of pain in osteoarthritis. In patients aged 45 or over the diagnosis should be made clinically without investigations if the patient has activity-related joint pain in addition to early morning joint stiffness lasting less than 30 minutes.

Patient education in the form of both verbal and

written information about osteoarthritis and its management (for example, patient leaflets from Arthritis Research UK) is key. Non-pharmacological therapies including targeted muscle strengthening, aerobic exercise, weight loss if overweight, aids and orthotic devices are integral in the long-term management of osteoarthritis. Strategies to improve adherence to exercise or muscle strengthening activities are a major priority. Muscle strengthening and aerobic exercise have been shown to improve joint pain and function. Weight loss not only improves joint pain and function but has a myriad of other health benefits, reducing the incidence of lifestyle associated diseases such as cardiovascular disease and type 2 diabetes, and mechanical stress on the joints.

Conventional analgesia provides variable benefit to

patients with osteoarthritis. Pharmacological management should be tailored to the individual and depends on factors such as pain severity and time of day when pain is most troublesome. Topical capsaicin has also been found to be cost effective in comparison with placebo in the treatment of hand or knee osteoarthritis. Patients with osteoarthritis should be supported with non-surgical core treatments for at least three months prior to referral for consideration of joint surgery. There is no evidence to support the use of scoring tools to identify which patients are eligible for referral for orthopaedic surgery. Arthroscopy with debridement is not useful for most patients with knee osteoarthritis.

pharmacological and surgical interventions.

The NICE quality standard focuses on improving symptom control, promoting self-management and improving the consistency of referrals for consideration of joint surgery.¹

Non-pharmacological management

Patient education in the form of both verbal and written information about osteoarthritis and its management (for example, patient leaflets available from the Arthritis Research UK website, see Useful information box, p20) are key to the long-term management of patients with osteoarthritis. This may also include dietary advice, information about weight management programmes, behavioural approaches and access to local services such as exercise classes and physiotherapy. NICE emphasises that patients should be encouraged to participate in the development of a self-management plan that directs the patient to any support they may need.¹

Exercise: Muscle strengthening and aerobic exercise are recommended as part of essential management and have been shown to improve joint pain and function.¹ Muscle strengthening targeted to affected joints (e.g. forearm exercises for those who cannot undo jars or quadriceps exercises for those whose legs 'give way' or have difficulty getting out of chairs) is likely to improve symptoms dramatically. Strengthening can be followed by increasing aerobic exercise (e.g. by using an exercise bike or cross-trainer) to maintain strength and improve general fitness. Strategies to improve adherence to exercise or muscle strengthening activities are a major priority.

'Muscle strengthening targeted to affected joints is likely to improve symptoms dramatically'

In patients who are overweight, it is vital that weight loss should be encouraged in a supportive manner with sign posting to local resources. Weight loss not only improves joint pain and function but has a myriad of other

health benefits, reducing the incidence of lifestyle associated diseases such as cardiovascular disease and type 2 diabetes, and mechanical stress on the joints.

'Weight loss should be encouraged in a supportive manner with sign posting to local resources'

Aids and devices such as footwear with sufficient arch support; insoles to correct for pes planus and aid shock absorption; or walking aids to reduce hip or knee pain can contribute to a substantial therapeutic benefit and improvement in patient functionality.

Pharmacological treatments

Conventional analgesia provides variable benefit to patients with osteoarthritis. Pharmacological management should be tailored to the individual and depends on factors such as pain severity and time of day when pain is most troublesome, in addition to comorbidities and concurrent medications. It is important to remember to ask about OTC therapies. Potential analgesics include topical and oral NSAIDs, and oral and occasionally topical opioid medications. Clearly oral NSAIDs and opioids carry significant risks.

Timing of delivery of analgesia is also important, for instance, to improve adherence to exercise or muscle strengthening activities, patients can be advised to take analgesia pre-emptively.

Topical capsaicin has also been found to be cost effective in comparison with placebo in the treatment of hand or knee osteoarthritis.¹¹ Intra-articular corticosteroid injections may be an option for short-term pain relief in patients with inadequate response to oral medications.¹²

Surgery

The NICE quality standard suggests that patients with osteoarthritis should be supported with non-surgical core treatments for at least three months prior to referral for consideration of joint surgery.¹

Arthroscopy with debridement is not useful for most patients with knee osteoarthritis, but can be considered in patients with true locking (as opposed to gelling, severe pain/stiffness after sitting in a fixed position for a period,

»

which is often mistaken for locking). NICE also suggests that scoring tools should not be used to identify which patients are eligible for referral to orthopaedic services. Furthermore, patients who have undertaken non-pharmacological therapy prior to surgery are more likely to have improved outcomes in the long term following surgery.

'Scoring tools should not be used to identify which patients are eligible for referral to orthopaedic services'

FUTURE DEVELOPMENTS

Research is underway to develop novel treatment strategies to reduce pain and to slow structural progression in osteoarthritis. There are a large number of current trials testing novel or repurposed therapies in the treatment of osteoarthritis, although as yet none of these treatments are licensed.

Symptomatic therapies targeting pain pathways (e.g. anti-NGF monoclonal antibodies), synovial inflammation (e.g. methotrexate) and subchondral bone abnormalities (e.g. zoledronic acid) are currently being evaluated in large phase trials. Structure modification aimed at both cartilage and bone targets continues to be explored.

CONCLUSION

Osteoarthritis is one of the leading causes of chronic pain and disability worldwide.

Currently treatments are centred on symptom control. Holistic assessment of patients with osteoarthritis is imperative and in an often busy primary care setting, assessment and implementation of an appropriate management plan may need to take place over more than one consultation.

Strategies to improve adherence to simple and safe therapies such as muscle strengthening, and access to such therapies that can be delivered in the community with minimal primary care involvement, are urgently needed.

REFERENCES

- 1 National Institute for Health and Care Excellence. QS87. Osteoarthritis. NICE. London. 2015 www.nice.org.uk/guidance/qs87
- 2 Arthritis Research UK (July 2013). Osteoarthritis in general practice. www.arthritisresearchuk.org/policy-and-public-affairs/reports-and-resources/reports.aspx
- 3 Laslett L, Otahal P, Hensor E et al. Understanding the biomechanical "spread" of joint pain: knee pain predicts subsequent shoulder pain and this is mediated by leg weakness. Data from the osteoarthritis initiative. *Osteoarthritis Cartilage* 2015; 23(2):A353
- 4 Wenham C, Conaghan P. Optimising pain control in osteoarthritis. *Practitioner* 2010;254(1735):23-26
- 5 Felson DT. Clinical practice. Osteoarthritis of the knee. *N Engl J Med* 2006;354:841-48
- 6 Sowers MR, Karvonen-Gutierrez CA. The evolving role of obesity in knee osteoarthritis. *Curr Opin Rheumatol* 2010;22:533-37
- 7 Felson DT, Goggins J, Niu J et al. The effect of body weight on progression of knee osteoarthritis is dependent on alignment. *Arthritis Rheum* 2004;50:3904-09
- 8 Mapp PI, Walsh DA. Mechanisms and targets of angiogenesis and nerve growth in osteoarthritis. *Nat Rev Rheumatol* 2012;8(7):390-408
- 9 Malfait AM, Miller RJ. Emerging targets for the management of osteoarthritis pain. *Curr Osteoporos Rep* 2016;14(6):260-68
- 10 National Institute for Health and Care Excellence. CG177. Osteoarthritis. NICE. London. 2014 www.nice.org.uk/guidance/cg177
- 11 Zhang W, Moskowitz R, Nuki G et al. OARSI recommendations for the management of hip and knee osteoarthritis, Part II: OARSI evidence-based, expert consensus guidelines. *Osteoarthritis Cartilage* 2008;16:137-62
- 12 Juni P, Hari R, Rutjes AW et al. Intraarticular corticosteroid for knee osteoarthritis. *Cochrane Database Syst Rev* 2015 Oct 22;(10):CD005328

Useful information

Arthritis Research UK

Patient information leaflets
www.arthritisresearchuk.org/arthritis-information/conditions/osteoarthritis/what-is-osteoarthritis.aspx

We welcome your feedback

If you wish to comment on this article or have a question for the authors, write to:
editor@thepractitioner.co.uk