



Optimising the management of osteoarthritis

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Abstract

History and examination are sufficient to diagnose OA in most cases. Joint pain and stiffness (lasting \leq 30 minutes in the morning), which is worse with weight bearing or usage, in a patient aged 45 or over, is indicative of OA. On examination, in small joints there may be tenderness, deformity or Heberden's or Bouchard's nodes; in hip joints (where pain is felt in the groin and buttocks), restriction of internal rotation; and in knee joints, effusions (including Baker's cysts), crepitus and bony enlargement. Muscle strengthening and aerobic exercise remain core treatments and exercise should be tailored to the individual. In overweight patients, there is a dose-response relationship between weight loss and improvement in symptoms, particularly for knee OA. Pharmacological therapy should be used 'at the lowest effective dose for the shortest possible time' in combination with non-pharmacological therapy. Referral for joint replacement should be based on severity of symptoms and failure of conservative treatment, and should not be influenced by factors such as age, gender or comorbidities.

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Osteoarthritis of the knee



THE GLOBAL PREVALENCE OF OSTEOARTHRITIS (OA) HAS INCREASED MORE THAN 100% IN THE PAST THREE

decades.¹ Standardised prevalence in the UK is 10.7%.²

Both genetic and lifestyle factors are important in OA.³ OA is strongly associated with ageing and has a higher incidence and prevalence in women; approximately 18% of women and 10% of men over 60 have OA.⁴ The strongest identifiable risk factor is often trauma (e.g. anterior cruciate ligament and meniscus injury in the knee), although the relevant exposure may be repetitive minor trauma over a long period, which may explain the relationship between elite sports or certain occupations and OA.

Obesity and muscle weakness are risk factors for OA pain though it is unclear if they are risk factors for incident OA structural pathology. However, both are important targets for intervention.

DIAGNOSIS

NICE published a new guideline on OA in October 2022.⁵ History and examination

are sufficient to diagnose OA in most cases. Joint pain and stiffness (lasting no longer than 30 minutes in the morning), which is worse with weight bearing or usage in a patient aged 45 years or over, is indicative of OA.

On examination, in small joints there may be tenderness, deformity or Heberden's or Bouchard's nodes; in hip joints (where pain is felt in the groin and buttocks), restriction of internal rotation; and in knee joints, effusions (including Baker's cysts), crepitus and bony enlargement.⁶

It is important to determine if there is functional muscle loss. Inability to open jars or dropping heavy kettles may signify loss of grip strength, and difficulties getting out of the bath or deep chairs may signify loss of quadriceps strength. These findings may indicate reversible and treatable causes of pain which is likely to be caused by tendinitis/OA.

If there is concern about the possibility of inflammatory arthritis (e.g. because of morning stiffness lasting at least 60 minutes or synovial swelling of hand joints), tests for CRP, anti-CCP antibody

How should patients be examined?

What are the evidence-based management options?

How should patients be monitored and followed up?

and rheumatoid factor should be carried out.

The NICE guideline on rheumatoid arthritis states that adults with persistent synovitis should be urgently referred if the smaller joints of the hands and feet or multiple joints are involved or the patient presents more than three months after the commencement of symptoms even if the above blood tests are normal.⁷

It is important to bear in mind that while first attacks of gout are often in the big toe and mid-foot, other joints may also be affected so previous episodes of gout should be enquired about. Note that serum urate levels may be unreliable (and can be misleadingly lowered) during acute attacks, although CRP levels will generally be elevated.

Imaging, especially X-ray, is often not very useful in the diagnosis of OA because of its poor relationship to symptoms.⁸

Many people with structural abnormalities on X-ray or MRI have no symptoms, so the presence of pathology detected on imaging does not mean this is the cause of symptoms. »

Diagnostic tests including imaging may be useful where there is a potential differential diagnosis to consider.

REFERRAL

If a diagnosis of inflammatory arthropathy is considered, patients may require urgent referral to rheumatology for investigations and early treatment, even if blood tests are normal.⁵

Management of OA involves an interdisciplinary approach. All patients with OA should be instructed on appropriate muscle strengthening and physical activity, and these should be customised to the individual. This might include referral to physiotherapy, and NICE supports exercise sessions including those where the exercises are part of a treatment package.

Treatment packages involve any of the management options for OA (pharmacological or non-pharmacological) alongside either a behavioural approach or education sessions.

It is important to explain to patients that exercise does not cause further damage in OA and is in fact likely to improve symptoms.

MANAGEMENT

Non-pharmacological therapies

Muscle strengthening and aerobic exercise remain core treatments and exercise should be tailored to the individual.

In overweight patients, there is a dose-response relationship between weight loss and improvement in symptoms, particularly for knee OA, and NICE highlights that 10% weight loss is more likely to achieve greater pain relief than 5%. In addition to improving pain, weight loss is likely to improve function and patients' quality of life.⁵ When managing obesity, patients should be advised on ways to improve their diet, with emphasis on nutritional balance and reduced intake for longer term weight change.⁹

Acupuncture is not recommended by NICE as there is a lack of convincing evidence for efficacy, and potential for adverse effects. Electrotherapies including transcutaneous electrical nerve stimulation (TENS) are now also not recommended.

While walking aids may be helpful for some patients, and help with unsteady gait, there is currently insufficient evidence for the use of other supportive devices such as braces or taping. The literature in this area is often difficult to interpret, as there are limitations in trial design for devices, for example, difficulty in blinding and much

heterogeneity in types of devices.

NICE continues to recommend against the use of glucosamine because of lack of evidence of efficacy. Stem cell therapy is an area of ongoing research and not yet recommended for use in practice.

Pharmacological therapies

Paracetamol is now recommended just for short-term use and when other pharmacological options are not appropriate for the individual; this is based on its lack of efficacy in trials when compared with placebo.

The latest guidance also moves away from the routine use of opioids, because of both limited efficacy data and safety concerns. Strong opioids are not recommended and if weak opioids are used, for example, low-dose codeine, these should only be used short term.

Pharmacological therapy should be used 'at the lowest effective dose for the shortest possible time' in combination with the previously mentioned non-pharmacological therapy.

Patients with knee OA may be offered topical NSAIDs and patients with OA affecting other joints may also be offered this despite lesser evidence for other sites. Topical capsaicin has shown some benefits in knee OA but costs more than topical NSAIDs, and no recommendation is made for its clinical use.

Oral NSAIDs reduce pain and are still recommended but should only be used for short-term management because of the risk of adverse effects especially in patients with comorbidities. The co-prescription of gastroprotective agents should be offered while patients are taking NSAIDs, particularly for those at greater risk of gastrointestinal events.

Intra-articular corticosteroids may be offered as an alternative if the above pharmacological options are not effective, as a shared decision with patients, with the NICE guideline acknowledging that their analgesic effect may be relatively short-lived (only lasting for 2-10 weeks).

No other intra-articular therapies are recommended by NICE.

Some international guidelines, for example, the Osteoarthritis Research Society International (OARSI),¹⁰ the American College of Rheumatology (ACR),¹¹ and European Alliance of Associations for Rheumatology (EULAR) - non-pharmacological management,¹² have also used systematic literature reviews and expert consensus to derive their recommendations. Generally, they have similar recommendations to NICE but

differ on some therapies. Table 1, p23, provides a summary of these different recommendations.

The ACR guideline conditionally recommends the use of cognitive behaviour therapy for hand, hip and knee OA because of its benefits for chronic pain but suggests further research is required to elucidate potential benefits for OA pain. The ACR also recommends that acupuncture may be recommended conditionally because of evidence of efficacy in reducing pain but acknowledges that limitations in study design restrict interpretation of these findings.

The ACR recommends tramadol preferentially over other opioids if required for pain, though the evidence base for this is unclear. OARSI conditionally recommends duloxetine (a serotonin-noradrenaline reuptake inhibitor) for patients with knee OA with concomitant depression. NICE currently does not make a recommendation on the use of antidepressants for OA because of the lack of evidence in treating OA symptoms, though patients with OA and clinical depression will still need appropriate evaluation and treatment.

OARSI conditionally recommends use of intra-articular hyaluronan in knee OA stating that this may be safer and have longer lasting effects than intra-articular corticosteroid injections. NICE guidance still recommends against intra-articular hyaluronan because of the lack of consistent, clinically important benefits across the published literature.

Platelet rich plasma (PRP) injections are not included in the latest NICE guideline but are strongly recommended against by OARSI and the ACR because of lack of quality evidence for their efficacy. Recently Bennell and colleagues conducted a large, well designed, randomised controlled trial comparing PRP injections with placebo in knee OA, and reported no significant difference in pain after one year.¹³

Tailoring treatment to the patient

The impact on each individual's physical and mental wellbeing as well as occupation should be taken into account when planning management.

The trajectories of pain may differ depending on the joint affected. Once a hip joint has become chronically and moderately painful, it is likely that hip replacement becomes an important consideration. Referral for joint replacement should be based on severity of symptoms and failure of conservative treatment, and should not

be influenced by factors such as age, gender or comorbidities. Arthroscopic management including lavage should not be used in OA.

Only a relatively small proportion of people with knee OA will require joint replacement and here quadriceps muscle strengthening may be the most appropriate target for most patients together with optimisation of pharmacological therapy.

Individual small joint OA of the fingers may be painful for one to two years while deformity is occurring, and then patients are left with stiff but not painful

fingers. However, when loss of grip strength occurs over this painful period of months to years, exercise interventions aimed at grip muscle strengthening is required.

Taking comorbidities into account is clearly important when prescribing drug therapies. For example, NSAIDs should not be prescribed to patients with ischaemic heart disease and can lead to aggravation of hypertension and renal impairment which are common conditions in the typical age group with OA i.e. over 60.¹⁴

MONITORING AND FOLLOW-UP

Previous NICE OA guidelines suggested annual follow-up for some patients if they had: multiple joints affected; severe symptoms; comorbidities or been prescribed medications regularly. However, the new NICE guidance emphasises patient-led follow-up for most patients, based on their symptom burden. This reinforces the importance of patient education to enable effective self-management of symptoms.

This should again be tailored to the individual patient. For example, if patients are prescribed NSAIDs, they >>

Table 1

A comparison of major guideline recommendations for osteoarthritis in different sites

	NICE 2022 ⁵	ACR 2019 ¹¹			OARS 2019* ¹⁰			EULAR 2013** ¹²	
		Hand	Knee	Hip	Knee	Hip	Polyarticular	Knee	Hip
Non-pharmacological									
Patient education	+	+			+			+	
Exercise	+	+			+			+	
Weight loss if overweight	+		+	+	+	(+)	(+)	+	
Manual therapy	(+)§		(-)	(-)					
Acupuncture	-	(+)							
Electrotherapy (e.g. TENS)	-	(-)§f							
Walking aids (e.g. walking stick)	(+)§		+	+	(+)			(+)	
Other devices (e.g. orthoses, braces, taping)	(-)	(+)f	(+)f	(-)f	(-)f			(+)f	
CBT		(+)			(+)	(+)	(+)	~	
Pharmacological									
Topical NSAIDs	(+)§	(+)	+		+		(+)		
Oral NSAIDs	(+)	+			(+)				
Paracetamol	(-)	(+)			(-)				
Weak opioids	(-)	(+)f			-				
Strong opioids	-	(-)			-				
Duloxetine		(+)			~	-	-		
Chondroitin		(+)	-	-					
Topical capsaicin	~	(-)	(+)		-				
Glucosamine	-	-							
IA hyaluronan	-	(-) §	(-)	-	(+)	-	-		
IA corticosteroids	(+)	(+)	+	+	(+)	-	-		
IA platelet rich plasma			-	-	-				

* recommendations vary based on comorbidities

** non-pharmacological guidelines

(-) = conditionally recommended against

- = recommended against

(+) = conditionally recommended

+ = recommended

§ = recommendation varies according to anatomical site

f = recommendation varies according to device/agent

~ = not conclusive/no recommendation

■ = not included

IA = intra-articular

CBT = cognitive behaviour therapy

TENS = transcutaneous electrical nerve stimulation

NSAIDs = non-steroidal anti-inflammatory drugs

key points

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History and examination are sufficient to diagnose

osteoarthritis (OA) in most cases. Joint pain and stiffness (lasting no longer than 30 minutes in the morning), which is worse with weight bearing or usage, in a patient aged 45 years or over, is indicative of OA. On examination, in small joints there may be tenderness, deformity or Heberden's or Bouchard's nodes; in hip joints (where pain is felt in the groin and buttocks), restriction of internal rotation; and in knee joints, effusions (including Baker's cysts), crepitus and bony enlargement.

NICE published a new guideline on OA in October 2022.

Muscle strengthening and aerobic exercise remain core treatments and exercise should be tailored to the individual. In overweight patients, there is a dose-response relationship between weight loss and improvement in symptoms, particularly for knee OA; 10% weight loss is more likely to achieve greater pain relief than 5%. In addition to improving pain, weight loss is likely to improve function and patients' quality of life.

Paracetamol is now recommended just for short-term use

and when other pharmacological options are not appropriate. Strong opioids are not recommended and if weak opioids are used, for example, low-dose codeine, these should only be used short term. Pharmacological therapy should be used 'at the lowest effective dose for the shortest possible time' in combination with non-pharmacological therapy. Patients with knee OA may be offered topical NSAIDs and patients with OA affecting other joints may also be offered this despite lesser evidence for other sites.

Oral NSAIDs reduce pain and are still recommended

but should only be used for short-term management due to risk of adverse effects especially in those with comorbidities. The co-prescription of gastroprotective agents should be offered while patients are taking NSAIDs, particularly for those at greater risk of gastrointestinal events. Intra-articular corticosteroids may be offered as an alternative if the above pharmacological options are not effective.

The impact on each individual's physical and mental

wellbeing as well as occupation should be taken into account when planning management. The trajectories of pain may differ depending on the joint affected. Once a hip joint has become chronically and moderately painful, it is likely that hip replacement becomes an important consideration. Referral for joint replacement should be based on severity of symptoms and failure of conservative treatment, and should not be influenced by factors such as age, gender or comorbidities. Only a relatively small proportion of people with knee OA will require joint replacement and quadriceps muscle strengthening may be the most appropriate target for most patients together with optimisation of pharmacological therapy.

should be monitored (including blood pressure and renal function) depending on risk.¹⁴ In usual practice, patients will already often be reviewed if they have ongoing prescriptions. NICE suggests that optimal follow-up for OA (patient-led versus routine) is an area for future research.

Other areas for future research suggested by NICE include comparing supervised with non-supervised exercise programmes, topical NSAIDs with topical capsaicin, and the use of devices for lower limb OA.

CONCLUSION

OA management remains challenging with few evidence-based therapies. The importance of beneficial non-pharmacological therapies, especially muscle strengthening, and increased activity must therefore remain at the forefront of efforts to reduce the impact of this disease on patients.

Competing interests

Professor Philip Conaghan was a member of the development group for the NICE guideline on osteoarthritis (NG226). Dr Alexandra Ross has no competing interests

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The views expressed in this article are those of the authors and not necessarily those of NICE⁵

REFERENCES

- 1 Long H, Liu Q, Yin H et al. Prevalence trends of site-specific osteoarthritis from 1990 to 2019: findings from the global burden of disease study 2019. *Arthritis Rheumatol* 2022;74(7):1172-83
- 2 Swain S, Sarmanova A, Mallen C et al. Trends in incidence and prevalence of osteoarthritis in the United Kingdom: findings from the Clinical Practice Research Datalink (CPRD). *Osteoarthritis Cartilage* 2020;28(6):792-801
- 3 Allen KD, Thoma LM, Golightly YM. Epidemiology of osteoarthritis. *Osteoarthritis Cartilage* 2022;30(2):184-95
- 4 Glyn-Jones S, Palmer AJR, Agricola R et al. Osteoarthritis. *Lancet* 2015;386 (9991):376-87
- 5 National Institute for Health and Care Excellence. NG226. Osteoarthritis in over 16s: diagnosis and management. NICE. London. 2022 www.nice.org.uk/guidance/ng226
- 6 Katz JN, Arant KR, Loeser RF. Diagnosis and treatment of hip and knee osteoarthritis: a review. *JAMA* 2021; 325(6):568-78
- 7 National Institute for Health and Care Excellence. NG100. Rheumatoid arthritis in adults: management. NICE. London. 2020 www.nice.org.uk/guidance/ng100/chapter/Recommendations#referral-diagnosis-and-investigations
- 8 Neogi T. The epidemiology and impact of pain in osteoarthritis. *Osteoarthritis Cartilage* 2013;21(9):1145-53
- 9 National Institute for Health and Care Excellence. CG189. Obesity: identification, assessment and management. NICE. London. 2014 www.nice.org.uk/guidance/cg189/resources/obesity-identification-assessment-and-management-pdf-35109821097925
- 10 Bannuru RR, Osani MC, Vaysbrot EE et al. OARSi guidelines for the non-surgical management of knee, hip, and polyarticular osteoarthritis. *Osteoarthritis Cartilage* 2019;27(11):1578-89
- 11 Kolasinski SL, Neogi T, Hochberg MC et al. Guideline for the management of osteoarthritis of the hand, hip, and knee. *Arthritis Care Res* 2020;72(2):149-62
- 12 Fernandes L, Hagen KB, Bijlsma JWJ et al. EULAR recommendations for the non-pharmacological core management of hip and knee osteoarthritis. *Ann Rheum Dis* 2013;72(7):1125-35
- 13 Bennell KL, Paterson KL, Metcalf BR et al. Effect of intra-articular platelet-rich plasma vs placebo injection on pain and medial tibial cartilage volume in patients with knee osteoarthritis: The RESTORE randomized clinical trial. *JAMA* 2021;326(20):2021-30

¹⁴ National Institute for Health and Care Excellence. Clinical knowledge summaries. Scenario: NSAIDs prescribing issues 2020 cks.nice.org.uk/topics/nsaids-prescribing-issues/management/nsaids-prescribing-issues/#monitoring [Last accessed 27 Oct 2022]

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