

MOH CLINICAL PRACTICE GUIDELINES 4/2007

Osteoarthritis of the Knees



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Executive summary of recommendations

Details of recommendations can be found in the main text at the pages indicated.

Diagnostic Approach to Joint Pain and Osteoarthritis

GPP The diagnosis of osteoarthritis is made clinically based on history and physical examination, with laboratory and radiologic investigations selectively undertaken to exclude inflammatory arthritis, secondary osteoarthritis, and non-articular causes of joint pain (pg 10).

GPP

Analgesics in Osteoarthritis of the Knees

A Paracetamol (acetaminophen) should be considered as the first line of treatment for relieving pain and improving physical functioning in osteoarthritis (pg 13).

Grade A, Level 1+

A Non-selective non-steroidal anti-inflammatory drugs should be used for the acute relief of pain and improvement in function for as short a period as possible. The benefits of using non-steroidal anti-inflammatory drugs should be weighed against the potential adverse reactions, especially with long-term use, in individuals at risk (pg 13).

Grade A, Level 1+

GPP The selection of a non-steroidal anti-inflammatory drug for prescription for osteoarthritis knee should be based upon relative safety, patient acceptability and cost effectiveness (pg 13).

GPP

GPP Patients who develop hypersensitivity reactions to non-selective non-steroidal anti-inflammatory drugs are usually able to tolerate cyclo-oxygenase 2 selective inhibitors. These should preferably be prescribed following demonstration of tolerance through supervised drug provocation tests (pg 14).

GPP

A Patients with moderately high risk for gastroduodenal bleeds should receive concomitant gastroprotective agents (GPA) when using non-selective non-steroidal anti-inflammatory drugs (pg 14).

Risk factors for gastrointestinal complications include:

- age greater than 60 years
- previous history of gastrointestinal events (e.g. peptic ulcer disease)
- concomitant corticosteroid use.

Grade A, Level 1+

A Recommended prophylactic gastroprotective agents (GPA) against gastroduodenal ulcers include (pg 15):

- standard dose of proton-pump inhibitors (omeprazole 20 mg once daily)
- misoprostol 400-800 mcg/day
- double dose of H2-receptor antagonists (famotidine 40 mg bd, ranitidine 300 mg bd)

Grade A, Level 1+

A Cyclo-oxygenase 2 selective inhibitors may be used acutely in the reduction of pain from osteoarthritis of the knees. Although these drugs have relatively lower risk of gastroduodenal adverse effects, long-term use has been associated with myocardial and cerebral infarction (pg 16).

Grade A, Level 1+

GPP When non-steroidal anti-inflammatory drugs (including both cyclo-oxygenase 2 selective and non-selective non-steroidal anti-inflammatory drugs) are needed for the management of an individual patient, they should be prescribed at the lowest effective dose. The duration of treatment should be periodically reviewed and kept as short as possible (pg 16).

GPP

GPP All non-steroidal anti-inflammatory drugs should not be prescribed in patients who have recently undergone coronary artery bypass graft (CABG) surgery and revascularization procedures (pg 16).

GPP

GPP The benefits and risks of celecoxib and etoricoxib should be carefully assessed before they are prescribed to any individual patient, taking into consideration other available therapeutic options (pg 16).

GPP

GPP Celecoxib or etoricoxib should not be prescribed for patients with established ischaemic heart disease, stroke or congestive heart failure (pg 16).

GPP

GPP Caution should be exercised when prescribing celecoxib or etoricoxib to patients who have the following risk factors: hypertension, hyperlipidaemia, diabetes and smoking, as well as patients with peripheral arterial disease (pg 17).

GPP

GPP Etoricoxib should not be prescribed for patients with hypertension whose blood pressure has not been adequately controlled (pg 17).

GPP

A Meloxicam and nimesulide are two non-steroidal anti-inflammatory drugs with preferential cyclo-oxygenase 2 inhibition which may be used in the short term relief of pain from osteoarthritis of the knees (pg 17).

Grade A, Level 1+

A Tramadol may be used as an alternative to non-steroidal anti-inflammatory drugs for pain relief and improvement in physical functioning, especially where the risks of adverse effects from non-steroidal anti-inflammatory drugs outweigh the benefits (pg 18).

Grade A, Level 1+

GPP Oral corticosteroids are not indicated for management of knee osteoarthritis (pg 18).

GPP

Glucosamine/chondroitin in the Treatment of Osteoarthritis

B Patients who have failed to respond to analgesics and non-pharmacologic measures and want to try glucosamine may be given glucosamine sulphate 1500 mg once daily as pharmacologic studies suggest that maximal benefit is better achieved at this dose (pg 20).

Grade B, Level 2++

B Patients who are already taking glucosamine and report improvement in symptoms may discontinue after a period of 6 months as evidence suggest that regular use for more than 6 months is no more effective than placebo in the relief of joint pain (pg 20).

Grade B, Level 1+

GPP Patients allergic to shellfish should be warned about possible allergic reactions to glucosamine (pg 20).

GPP

Intra-articular Injections

B Viscosupplementation can be used for treatment of osteoarthritis of the knee, where general measures or systemic therapies have failed or are contraindicated. It is effective with beneficial effects on pain, function and patient global assessment; and at different post injection periods but especially at the 5 to 13 week post injection period when compared with placebo (pg 21).

Grade B, Level 1+

GPP In Singapore, data on effectiveness are too limited to allow any conclusions to be drawn regarding cost-effectiveness of viscosupplementation. However, in view of the relative high cost of viscosupplementation and its comparable efficacy with other forms of systemic intervention, it should be considered only if general measures and systemic therapies have failed or are contraindicated (pg 21).

GPP

B In patients with knee osteoarthritis who are symptomatic despite general measures and systemic therapies, evidence supports short term (up to two weeks) improvement of symptoms from intra-articular corticosteroid injection (pg 22).

Grade B, Level 1-

GPP Regular use of intra-articular steroids is not recommended for osteoarthritis of the knees in the general practice setting (pg 22).

GPP

Topical non-steroidal anti-inflammatory drugs (NSAIDs) and medications

A Topical non-steroidal anti-inflammatory drugs (NSAIDs) can be considered for the short-term symptomatic relief of pain in osteoarthritis. Side effects of topical NSAIDs are usually minor (pg 23).

Grade A, Level 1+

A Topical capsaicin may also be considered in relieving pain due to osteoarthritis. Transient local burning sensation may occur at the site of application (pg 23).

Grade A, Level 1+

Non-pharmacological Management

A Regular knee strengthening and aerobic exercises should be encouraged and taught to patients with osteoarthritis of the knees, as these improve functional ability, aerobic and endurance capacity and reduce knee pain (pg 24).

Grade A, Level 1+

A Weight loss can result in significant changes in knee joint biomechanics with improved knee function for stair climbing and other daily activities. It is most effectively achieved by a combination of exercise and dietary control (pg 25).

Grade A, Level 1+

A Regular water-based exercise or exercises in the pool are recommended as these exercises reduce pain and improve physical function in patients with osteoarthritis of the knees (pg 25).

Grade A, Level 1++

B Transcutaneous electrical nerve stimulation, in the form of strong burst mode with high frequency, should be used to provide short-term relief of osteoarthritis of the knee pain, reduce stiffness and improve knee range of motion, with effects lasting for 4 weeks (pg 26).

Grade B, Level 1+

B Interferential current may be used to reduce pain and increase in knee range of motion for osteoarthritis of the knee patients (pg 26).

Grade B, Level 1+

A Taping may be used to shift the patella medially and provide effective relief of pain in osteoarthritis of the knee (pg 26).

Grade A, Level 1++

B Lateral wedge insoles (tilt angle of 8.5 to 11 degrees) should be used to provide pain relief for osteoarthritis of the knee with medial osteoarthritis symptoms (pg 27).

Grade B, Level 1+

B Valgus knee brace and knee sleeves may be used to provide significant improvement in functional tasks and unloading of varus deformity (pg 27).

Grade B, Level 1+

A Manual therapy applied to the knee together with an exercise programme may be used to improve knee function and pain relief for patients with osteoarthritis of the knee (pg 27).

Grade A, Level 1+

A Needle electro-acupuncture may be used as an adjunct for symptomatic relief of pain and improvement of knee function (pg 28).

Grade A, Level 1++

Surgery

GPP A referral to the orthopaedic surgeon should be made when conservative management mentioned previously has failed (pg 30).

GPP

Cost-effectiveness Issues

GPP Pain medications are important in managing osteoarthritis symptoms and should be used concurrently with nutritional, physical, and educational interventions. Doctors should consider efficacy, adverse side effects, dosing frequency, and cost to the patient when recommending osteoarthritis treatments (pg 32).

GPP

C For mild to moderate osteoarthritis pain, paracetamol is the drug of choice as it is cost-effective and has minimal side-effects. In treating moderate to severe osteoarthritis pain, the use of non-steroidal anti-inflammatory drugs and COX-2 specific inhibitors (for a patient who is at high risk of adverse upper gastrointestinal events) should be considered only if the patient is not responding to paracetamol (pg 32).

Grade C, Level 2+

C For patients who have failed medical therapy and who are suitable for surgical interventions, both unicompartmental and total knee arthroplasty are cost effective in terms of quality of life gain (pg 32).

Grade C, Level 2+

Levels of evidence and grades of recommendation

Levels of evidence

Level	Type of Evidence
1 ⁺⁺	High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias.
1 ⁺	Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias.
1 ⁻	Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias
2 ⁺⁺	High quality systematic reviews of case control or cohort studies. High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
2 ⁺	Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2 ⁻	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, e.g. case reports, case series
4	Expert opinion

Grades of recommendation

Grade	Recommendation
A	At least one meta-analysis, systematic review of RCTs, or RCT rated as 1 ⁺⁺ and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1 ⁺ , directly applicable to the target population, and demonstrating overall consistency of results
B	A body of evidence including studies rated as 2 ⁺⁺ , directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1 ⁺⁺ or 1 ⁺
C	A body of evidence including studies rated as 2 ⁺ , directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2 ⁺⁺
D	Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2 ⁺
GPP (good practice points)	Recommended best practice based on the clinical experience of the guideline development group.