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This second article in a three-part series on osteoarthritis discusses pharmacological and non-pharmacological management. The third part will be published online

OSTEOARTHRITIS PART 2 OF 3 | PART 3 WILL BE PUBLISHED ON NURSINGTIMES.NET ON 28 FEBRUARY

Osteoarthritis 2: pain management and treatment strategies

In this article...

5 key points

1 Osteoarthritis (OA) is a painful, progressive joint disorder

2 Paracetamol is usually the first line drug treatment for managing OA pain

3 Non-steroidal anti-inflammatory drugs are associated with gastric problems, dyspepsia and thrombus formation

4 Obesity is a risk factor for OA

5 More than 114,000 replacements or revisions for hip or knee joints were carried out in the UK last year

Heberden's nodes are a sign of OA

Author Amelia Swift is a lecturer in nursing at the University of Birmingham.

Abstract Swift A (2012) Osteoarthritis 2: pain management and treatment strategies. *Nursing Times;* 108: 8, 25-27. Osteoarthritis (OA) is a painful, progressive joint disorder. This article discusses pharmacological management of OA, such as non-steroidal anti-inflammatory drugs and opioids, and non-pharmacological management, including weight reduction, acupuncture and joint replacement surgery. The third part, to be published online, will cover the physical, psychological and social impact of OA.

Osteoarthritis (OA) is a painful, progressive joint disorder that can cause stiffness, fatigue, depression and anxiety. Many people with the condition have difficulty in sleeping and carrying out everyday activities, and it can lead to loss of work and social isolation, reducing quality of life.

Most people who visit their GP with OA symptoms will have experienced pain and associated disability for three months or more; one in eight will be using a walking aid and 75% will have tried analgesics (Birrell et al, 2000). This shows many people with symptomatic OA try to self-manage the condition before seeking help.

People with the condition require an individualised treatment package.

Guidelines on the management of OA use a combination of systematic reviews and Delphi techniques to form a consensus about how the condition should be treated (Zhang et al, 2010; NICE, 2008). In a systematic review, a group of experts appraise evidence and retain the high-quality papers to form the guidance. The Delphi technique involves a facilitator consulting a group of experts to reduce a lengthy list of potential treatments to a mutually agreeable smaller list of the "best" available treatments.

Pharmacological management

Medications used to manage OA pain include paracetamol, non-steroidal anti-inflammatory drugs (NSAIDs) and opioids.

Paracetamol

Paracetamol is usually the first-line pharmacological treatment for managing OA pain. Although it can be as effective as NSAIDs in some people, evidence suggests paracetamol has only a modest effect in reducing pain, and no effect on stiffness or function (Towheed et al, 2006). NICE recommends trying paracetamol first because, although NSAIDs provide better pain relief, paracetamol has fewer side-effects (NICE, 2008). Paracetamol is a relatively safe drug when taken at doses of less than 4,000mg per day, but it can cause gastric irritation if taken in high doses over a long period (Rahme et al, 2002).

According to NICE (2008), paracetamol and codeine combinations have no demonstrable benefit over paracetamol alone. Comparisons of paracetamol-dextropropoxyphene with NSAIDs tend to favour NSAIDs (NICE, 2008).

Non-steroidal anti-inflammatory drugs

NICE (2008) recommends using NSAIDs to manage OA pain, but they carry risks. Around 10-20% of people who use oral NSAIDs experience dyspepsia, and risk gastric complications (Wolfe et al, 1999).

The development of Cox-2 selective anti-inflammatory drugs reduced the incidence of gastric side-effects, but highlighted another problem of NSAIDs – the risk of thrombus formation, particularly with long-term use, in older people and in those with other prothrombotic risk factors. This increases the risk of myocardial infarction and stroke (Cannon et al, 2006). NSAIDs are

also associated with a slight increase in the risk of renal failure (Adam, 2011).

The risk of adverse events associated with NSAID use decreases significantly when topical gels are used instead of oral preparations. This has led to topical NSAIDs being suggested as a first-line treatment for managing OA (Zhang et al, 2010).

Opioids

Opioids can be extremely effective in the management of pain. However, their benefits can be outweighed by side-effects such as nausea, vomiting, dizziness and constipation, which affect a lot of people who use these drugs (Zhang et al, 2010). A recent review that explored the use of extended-release opioids in OA found they would help to improve sleep (Turk and Cohen, 2010).

Long-term use of opioids is associated with tolerance, where sensitivity to the analgesic effects of opioids decreases over time, and hyperalgesia, where sensitivity to painful stimuli increases. Tolerance leads to a need to increase the dose of the drug, which could increase adverse effects without relieving pain. This can make clinicians reluctant to use opioids to control long-term, non-malignant pain. However, some studies suggest concerns about this are overstated, and that very few people have this problem (Schneider and Kirsh, 2010).

Patients and practitioners can be fearful about the risks of addiction with opioid use. Portenoy (1990) developed criteria to identify addiction in people with chronic pain, taking into consideration the "normal" behaviours of a patient in pain that could be misconstrued as addiction (Box 1); addition is diagnosed if drug-taking has persisted for at least a month and at least three of nine of the criteria are present. The criteria should be used with caution; a study by Hojsted et al (2010) found that, according to Portenoy's criteria, almost one in five of a group of people with chronic pain were addicted to their opioid medication.

Tramadol

Tramadol is a synthetic analgesic that, in addition to having a morphine-like mode of action, is also a serotonin and noradrenalin reuptake inhibitor (Mongin, 2007).

This offers a theoretical advantage over other opioid preparations because it can increase the concentration of serotonin and noradrenalin in the central nervous system.

Its side-effects include nausea, vomiting, drowsiness, constipation and headache. In trials exploring the use of tramadol in OA, these side-effects were mild or moderate, most often occurring during the initial titration phase rather than the maintenance phase (Langley et al, 2010). However, these reactions may reduce concordance and might also lead to secondary harms such as an increase in falls.

Tricyclic antidepressants

Tricyclic antidepressants (TCAs) work by blocking the uptake of serotonin and noradrenaline from synapses in the brain and spinal cord. These neurotransmitters are involved in inhibiting pain signals, and blocking their removal from synapses improves the body's inhibition of pain signals. Theoretically, TCAs should be helpful in OA pain, but only one study has explored this. The study was inconclusive in terms of pain relief, but support is emerging for the benefits of TCAs in OA pain (NICE, 2008).

Corticosteroids or hyaluronic acid injections

Steroid or hyaluronic acid injections into the knee joints can bring partial pain relief for up to three months, and are often sought by people with OA (NICE 2008).

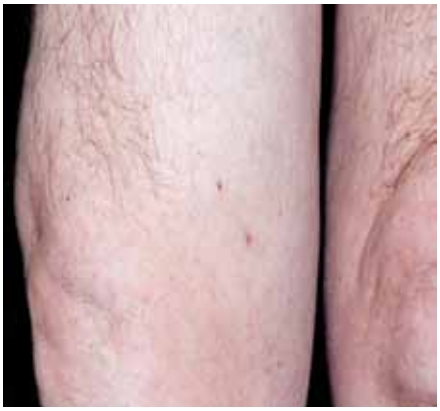
However, there is a lack of placebo-controlled trials, and some trials suggest efficacy is limited (Avouac et al, 2007). There is also a risk of joint infection, and steroids can cause blood glucose instability in people with diabetes (Habib and Safia, 2009).

Capsaicin

Capsaicin, which is a topical cream, causes localised burning pain but, as it takes a while for the body to synthesise the capsaicin, the period of burning is followed by pain relief. Using the cream twice daily often means the burning sensation does not return after the first application. A half-strength version is available for those who find it hard to tolerate the full strength preparation (Schnitzer et al, 1995).

BOX 1. PORTENOY'S CRITERIA FOR ADDICTION IN PEOPLE WITH CHRONIC PAIN

- Intense desire for the drug
- Overwhelming concern for its availability
- Compulsive drug use
- Unsanctioned escalation of dose
- Continued use despite significant side-effects
- Use of drugs to treat non-pain symptoms
- Unapproved use of drugs when no pain is present
- Efforts to manipulate the medical system or staff to obtain drugs
- Acquisition of drugs from elsewhere



Swollen knee in a man with osteoarthritis

Nutraceuticals and herbal products

Glucosamine is one of the more popular nutraceutical products in the UK, but there is little evidence that it is effective and it is not recommended by NICE (2008).

There is some evidence that rose hip powder, devil's claw and egg-shell membrane have some efficacy in pain relief, but research is in the early stages (Zhang et al, 2010; Ruff et al, 2009). There is also evidence some people benefit from eliminating certain foods from their diet, and from following eating plans such as a Mediterranean diet (Rayman and Pattison, 2008).

Non-pharmacological management

Non-pharmacological management strategies include: exercise; transcutaneous electrical nerve stimulation (TENS); acupuncture; heat or cold; weight reduction; joint supports; walking aids; surgery.

Exercise

People with OA need to maintain fitness, stamina and suppleness to facilitate confidence, independence and quality of life. Exercise can also help to alleviate pain, and fitness has a positive influence on post-operative recovery for those who have had joint replacements (Pisters et al, 2010).

Evidence suggests aerobic exercise leads to a better outcome than strengthening exercises, which are more effective than water-based exercises (Zhang et al, 2010). Physiotherapists can give advice about exercise, although most people just need advice to keep fit and active.

Improvements in physical function and pain can lead to improvements in depression (Lim et al, 2005).

TENS and acupuncture

Acupuncture and TENS have been shown to be helpful in relieving pain (Itoh et al, 2008).

Evidence suggests, while acupuncture can be expensive, it can help to alleviate pain and stiffness, and improve function (Zhang et al, 2010). TENS – the application of an electrical stimulus across sensory nerve pathways – stimulates the production of endorphins. This has been shown to have a positive effect on pain, and is a technique people with can do themselves (NICE, 2008).

Heat or cold

The application of superficial heat or cold to joints can provide short-term pain relief (Denegar et al, 2010).

Heat can be applied in numerous ways, including immersion in warm water, heat packs heated at home in the microwave, heat pads and wax. Cold is usually applied with an ice massage or by applying cold packs to the affected area.

Although there is little evidence to support the use of heat, anecdotal evidence supports it. Using a safe system is important; hot water bottles have been known to damage the skin as the temperature can be too high for direct application to skin. This is particularly important for older people.

Weight reduction

Obesity is a major risk factor in the development of OA, and is associated with a greater need for joint replacement surgery (Turley et al, 2006).

Weight reduction is thought to be a beneficial pain management strategy, but there is no strong evidence to support this. Advice on weight is based on expert opinion rather than randomised controlled trials or systematic reviews (Zhang et al, 2010).

Weight reduction is one of three core interventions in NICE (2008) guidance on OA, along with information and exercise. This could be due to the overall health benefits of a normal BMI, and because obesity is a contraindication for surgery. Obesity is associated with higher anaesthetic risk, greater risk of mechanical failure of the joint replacement and a greater risk of infection after surgery (Samson et al, 2010).

Braces, sleeves and walking aids

People with OA often use walking aids but many people do not obtain them by prescription (van der Esch et al, 2003). This creates a potential problem of incorrect technique and sizing, which can increase risk of falls and contribute to misalignment leading to the development of musculoskeletal pain in other places.

Use of walking aids or knee braces can help to reduce pain (NICE, 2008). Knee braces are more effective than neoprene sleeves (Brouwer et al, 2005).

Joint replacement

Replacement of the hip or knee joint can be an effective management strategy. In 2010, more than 114,000 hip and knee replacements or revisions were carried out in the UK (www.njrcentre.org.uk).

Surgery can be helpful in terms of pain reduction and restoration of function, but improvement is not guaranteed. Most people benefit from it, but around a quarter report ongoing moderate to severe pain five to eight years after surgery. Around one fifth of patients say they have not recovered sufficient function after surgery (Jones et al, 2000). Reasons include issues to do with the joints and prosthesis, and issues relating to the preoperative pain mechanism (Wylde et al, 2011; 2007).

Summary

The management of OA involves both medical and surgical options. Nurses can help patients decide which therapies will help relieve their pain, and improve function and quality of life. **NT**

The full version of this article can be found on nursingtimes.net

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