



Module 1864

Acute and chronic pain management

From this CPD module on acute and chronic pain management you will learn:

- The different classifications of pain
- How pain is measured and the consequences of long-term pain
- How the 'pain ladder' is used in the management of pain
- The pharmacist's role in pain management

CHARLENE ROBB, PHARMACIST

Everyone will have experienced pain. However, the level of pain and how it affects different individuals varies widely. Pain is described as being 'acute' if it is of recent onset, limited duration and is related to a pathological process, disease or injury. In contrast, 'chronic' pain is continuous, long-term pain lasting either more than 12 weeks, or beyond the point at which healing is expected to have occurred (eg after trauma or surgery).

Chronic pain is often divided into two types:

- nociceptive pain – caused by thermal, mechanical, or chemical stimulation of pain receptors
- neuropathic pain – related to damage or dysfunction of the peripheral or central nervous system.

No estimates are available for acute pain, but the estimated prevalence of chronic pain among UK adults is 43%, according to a review published in *BMJ Open* in 2016 (see bit.ly/CDBmjpain), with between 10% and 14% of the adult population reporting pain that is moderately or severely limiting.

According to the study, the prevalence of people living with chronic pain increases with

age, affecting 62% of over-75-year-olds. Pain is reported more frequently by women, and there is a growing body of evidence to show that the pain threshold in women is lower than that of men.

How is pain measured?

Each person has a different tolerance to pain, with descriptions of pain often differing widely in patients with similar illnesses. Therefore, all treatments must be tailored to the individual.

A description of the pain is important, documenting details such as where the pain is located, what the pain is like (eg sharp, aching, tingling, throbbing), how severe the pain is, when it occurs, and what exacerbates or relieves it. A pain diary, which includes an activity log, can be a useful tool to enable links to be made between time, actions and pain.

As pain is subjective, the patient's self-reported pain provides the most valid measure of their experience. Approaches to the measurement of pain include:

- **verbal rating scales** – a list of adjectives describing different levels of pain intensity (eg mild, moderate or severe); the patient is asked to mark the adjective which best reflects their

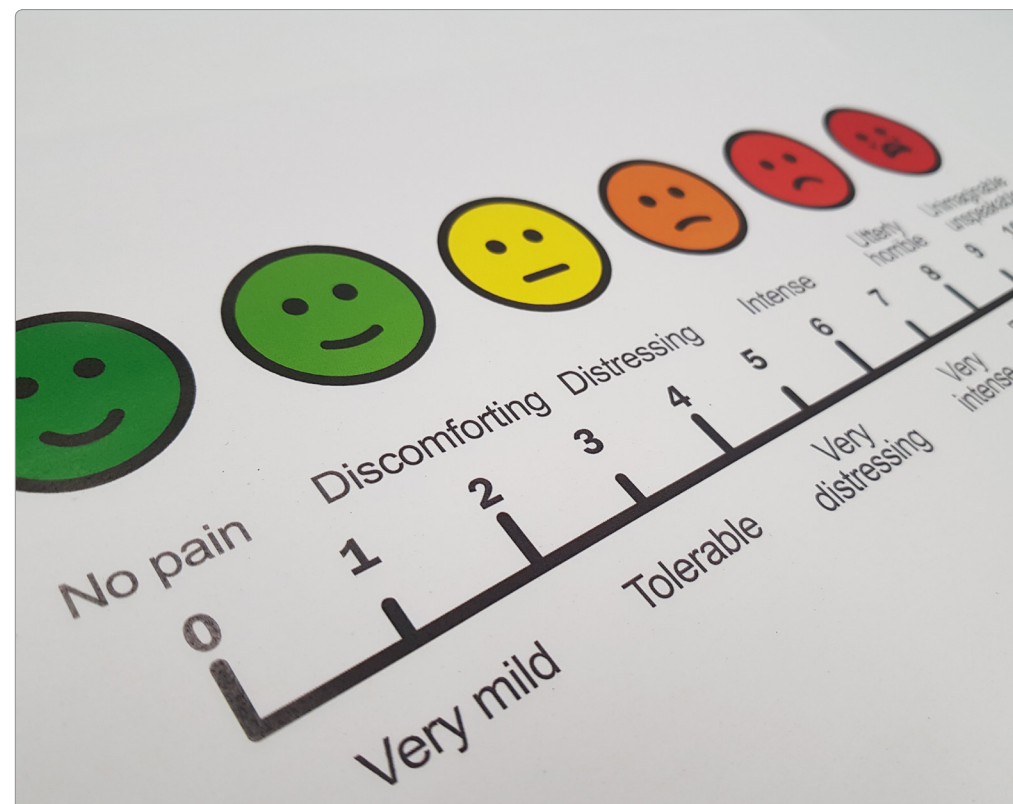
pain intensity

- **visual analogue scales** – a straight line with endpoints defining extreme limits, such as 'no pain at all' and 'pain as bad as it could be'; the patient is asked to mark their pain level on the line between the two endpoints, with the distance between 'no pain at all' and the mark defining the subject's pain
- **numerical rating scales** – the patient is asked to circle a number between 0 and, for example, 10, which best reflects their pain intensity; 0 usually represents 'no pain at all' whereas the upper limit represents 'the worst pain possible'.

Difficulty communicating pain is a common barrier that can inhibit effective treatment, and a number of specialised tools have been

developed for use in these circumstances:

- **children** – the 'faces pain scale' (tinyurl.com/CDfacesofpain) is a self-report measure of pain intensity developed for children aged over three years old. It consists of face drawings depicting different intensities of pain, alongside either a description of the pain (eg 'hurts a little bit') or numerical score (eg 0-10)
- **language** – the British Pain Society has produced a series of pain scales (available to download in multiple languages from tinyurl.com/painscales), which are designed to encourage improved assessment of patients for whom English is not their first language
- **cognitive impairment** – patients with impaired cognitive function, such as dementia,



have limited capacity to self-report, which means that assessment relies in large part on observational methods. The Abbey pain scale, which comprises assessment of key pain indicators including vocalisation (eg whimpering, groaning) and facial expressions (eg grimacing, frightened), may be used in these circumstances.

Consequences of pain

Pain can have a substantial impact on a patient's quality of life, with numerous related problems arising.

Daily activities

Chronic pain diminishes a patient's ability to be physically active and can even cause disability. Walking, performing chores, participating in social activities and maintaining an independent lifestyle can all be limited.

Work

The impact of pain in the workplace is also an important issue. Patients affected by pain often have a reduction in their efficiency or productivity, in addition to problems with absenteeism. Often this causes problems with employment, with 25% of people suffering from chronic pain in the UK losing their job as a result.

Psychological illness

Chronic pain is associated with a high prevalence of psychological illness. Lack of sleep, fear, anxiety and depression are all common problems associated with chronic pain.

Family

Chronic pain not only affects the patient, but also their family and social circle. Family members often undertake activities, such as care duties, which they may find difficult to cope with. Relatives may suffer negative effects that produce physical and psychological deterioration.

Pharmacological treatments for pain

The aim of treatment is not only to reduce pain, but also to improve mood and function. There is considerable variation in patient responses to analgesia, even with the same pain syndrome. Therefore, before initiation of pharmacological treatment, a number of points should be considered:

- severity of the pain
- type of pain
- comorbidities
- interactions with other medication
- risk of drug misuse
- previous drug efficacy and adverse event profile.

The pain ladder

A wide range of analgesics have been used in the treatment of pain, leading the World Health Organisation (WHO) to develop an analgesic treatment ladder (see tinyurl.com/CDpainladder). Originally designed for the treatment of cancer pain, it is now widely used to guide treatment of acute and chronic pain.

For the ladder to be effective, a patient requires regular reassessment of pain relief and side effects. There is increasing evidence that variations in drug responses are linked to genetic factors, thus if a patient fails to respond, it is worthwhile considering a different agent from the same class of drug (eg an alternative opioid). Adjuvant medicines, whose primary function is not analgesia, can also be used.

The steps of the pain ladder are:

- step 1: non-opioid (eg aspirin, paracetamol, NSAID) ± adjuvant
- step 2: opioid for mild to moderate pain (eg codeine) ± non-opioid ± adjuvant
- step 3: opioid for moderate to severe pain (eg morphine) ± non-opioid ± adjuvant.

Paracetamol

Paracetamol is a suitable first-line choice for people with mild to moderate pain. There are no contraindications for its use; however, it should

be used with caution in patients with hepatic impairment. While side effects from paracetamol are rare, daily doses above the maximum recommended may require urgent admission to hospital, as this can lead to hepatotoxicity.

NSAIDs

Nonsteroidal anti-inflammatory drugs (NSAIDs) act by inhibiting cyclo-oxygenase (COX) enzymes. COX-1 produces prostaglandins that are involved with gastric mucosal integrity and platelet-initiated blood clotting, and therefore thought to be responsible for the many side effects of the NSAID drug class. COX-2 produces prostaglandins that mediate pain and inflammation, and its inhibition is responsible for the analgesic and anti-inflammatory effects of NSAIDs.

NSAIDs vary for selectivity of COX-1 and COX-2 enzymes. Non-selective NSAIDs, such as ibuprofen, diclofenac and naproxen act on all COX enzymes. Selective COX-2 inhibitors include

celecoxib and etoricoxib.

The most common adverse effects of non-selective NSAIDs are upper gastrointestinal complications such as dyspepsia, ulcer, perforation, obstruction or bleeding. Cardiovascular (eg myocardial infarction, stroke) and renal complications are less common, but serious. Selective COX-2 inhibitors increase the risk of atherothrombosis (the formation of a blood clot in an artery) and therefore caution should be used in patients with associated risk factors.

Aspirin is not recommended for analgesia, as the doses required for pain relief often cause intolerable side effects. Additionally, a large number of contraindications and interactions exist due to its antiplatelet effect.

Antiepileptic drugs

Antiepileptic drugs, such as gabapentin and pregabalin, can be used as initial treatment for



neuropathic pain. Both of these drugs play a role in the modulation of calcium channels that are involved in pain. Side effects of antiepileptic drugs, such as dizziness, usually relate to acute toxicity, therefore careful dose titration is important. Some antiepileptic medicines may not have marketing authorisation for the treatment of pain.

Antidepressants

Patients with chronic pain often have depression, but antidepressants can also be prescribed for their specific analgesic (rather than mood-altering) effects. Amitriptyline and duloxetine are recommended by the National Institute for Health and care Excellence (Nice) as initial treatments for neuropathic pain. Doses necessary to improve pain are often lower than those used to treat depression.

The exact mechanism of analgesic action is still unknown; however, it is believed to be related to the blockage of central nervous system (CNS) monoamine uptake, in addition to interactions with receptors and channels. Side effects can include sedation and anticholinergic effects.

When prescribed as a night-time dose, the sedative effect may benefit those whose sleep is disturbed due to pain. Daytime sedation should stop within three to four days, with pain relief taking a week or longer.

Opioids

An opioid is any drug which interacts with opioid receptors, which are widely distributed in both the CNS and the peripheral nervous system (PNS). When receptors are activated by opioids or endorphins, they are involved in pain modulation and other functions.

Therefore, when an opioid is given for pain, analgesia may be accompanied by a diverse array of side effects, including gastrointestinal disturbance (nausea, vomiting and constipation), respiratory depression and CNS depression (drowsiness, sedation). Dependence, tolerance, and addiction can be problematic, and should be

considered before prescribing, with signs of abuse and addiction monitored.

Opioids are often split into two groups: weak and strong. Weak opioids include codeine, dihydrocodeine and tramadol, and should be prescribed for mild to moderate pain in patients who have had an inadequate response to paracetamol and/or an NSAID. Analgesics bought over-the-counter (OTC) that contain codeine should be used for no longer than three days, as they can cause addiction and lead to medication over-use headaches.

Strong opioids include morphine, diamorphine, hydromorphone, oxycodone, fentanyl, buprenorphine and methadone. There is no clear evidence that any particular opioid is better than any other in terms of efficacy for pain relief, with opioid rotation being a suitable approach, especially if side effects are unacceptable. Dose conversion tables are available for strong opioids; however, conversion factors are an approximate guide only.

It should be noted that the ability to metabolise codeine, tramadol and some strong opioids varies considerably between individuals: ultra-rapid metabolisers have increased risk of toxicity, while a reduced therapeutic effect is found in poor metabolisers. This may account for patients claiming varying responses to their medicine.

Topical treatments

A number of topical formulations are available for the treatment of pain:

- NSAIDs – eg ibuprofen and diclofenac, provide anti-inflammatory effects and tend to have less frequent gastrointestinal side effects than their oral equivalents
- capsaicin – topical capsaicin is available as a low-dose cream (0.025% or 0.075%) or high-dose patch (8%); it can be considered for those with localised neuropathic pain who wish to avoid, or who cannot tolerate, oral treatments
- lidocaine – a local anaesthetic which comes as ointments, gels, creams and adhesive patches
- topical rubefacients – these cause irritation

and reddening of the skin, due to increased blood flow, and are marketed as pain relievers. However, there is limited evidence as to their efficacy.

Non-pharmacological treatments

Manual therapies

Manual therapy is an umbrella term that encompasses many forms of hands-on treatment, including manipulation and mobilisation of muscles and joints via physiotherapy, exercise, or electrotherapy. These treatments should be included within a multidisciplinary treatment plan.

Psychological therapies

Psychological therapies include cognitive behavioural therapy (CBT), mindfulness, meditation, acceptance and commitment therapy. Referral should be considered for patients with moderate to high levels of distress, difficulty adjusting to life with pain, or struggling to change

behaviour to maintain normal activities.

Complementary therapies

Acupuncture has been shown to be beneficial for knee, hip, back and neck pain caused by a variety of underlying causes. Limited evidence is available for other complementary therapies, such as herbal medicines, aromatherapy and homeopathy.

Pain clinics

GPs may refer patients to specialist pain clinics run by the NHS. Pain clinics offer a wide range of treatments and support, and aim to support the development of self-help skills to control and relieve pain.

The pharmacist's role in pain management

Pharmacists have many roles within pain management, including the supply and



preparation of medicines, providing medicine information to both patients and other healthcare professionals, undertaking medicines use reviews, and optimising pharmacotherapy for patients. Pharmacists working within pain management services may also be involved with formulary management and guideline development.

In the pharmacy, you are in an optimal position to regularly review pain medication adherence, side effects and the efficacy of prescribed pain medication. An awareness of OTC purchasing of pain medication is also important. You should consult the patient when possible to assess their pain and if the medication is suitable. A referral to a GP may be required if, for example, they have found OTC pain relief ineffective when used correctly. Dependence should be considered if a patient is regularly purchasing opioid-based



analgesics (see C+D Update module *Codeine use at tinyurl.com/CDcodeineuse*).

You need to be aware that some OTC preparations may not be suitable for all patients. For example, effervescent preparations, with high salt content, should be avoided in hypertensive patients.

You should consider if it is suitable to include pain medication within medication dosette packs on an individual basis. Pain medication that is prescribed on a 'when required' basis should not be placed into medication trays.

Take care to ensure that patients are aware that paracetamol is often contained in other treatments, including cough and cold medicines.

You should also offer advice on the safe disposal of controlled opioid pain medication – ie it should be handed back to the pharmacy, and not placed in a patient's home bin.

Acute and chronic pain management CPD

Reflect

How is pain measured? What are the steps in the WHO pain ladder? Which adjuvant medicines, whose primary functions are not analgesia, are licensed for use in pain management?

Plan

This article contains information about pain management, including its classification, how pain can be measured, and the consequences of long-term pain. Using the WHO pain ladder to decide analgesic treatment is also discussed

Act

- Read more about pain and pain relief on the Patient website at tinyurl.com/painmanagement1
- Find out more about neuropathic pain and its management on the Patient website at tinyurl.com/painmanagement2
- Find out about pain assessment and pain diaries from the Action on Pain website at tinyurl.com/painmanagement3
- Read more about pain relief techniques on the Pain Support website at tinyurl.com/painmanagement4
- Think about the advice you could give about pain relief to patients, and make sure you have reliable sources of information to recommend
- Identify any patients who might benefit from a medicines use review or patient consultation

Evaluate

Are you now confident in your knowledge of the different types of pain and the WHO pain ladder? Could you give advice about pain management to patients and carers?

Take the 5-minute test online

1. Over 56% of the adult population of the UK suffer from chronic pain.
True or false
2. The prevalence of people living with chronic pain increases with age.
True or false
3. Chronic pain is continuous, long-term pain that has lasted 12 weeks or more.
True or false
4. Lack of sleep, fear, anxiety, and depression are all common problems associated with chronic pain.
True or false
5. Step two of the WHO pain ladder involves the use of an opioid for moderate to severe pain, along with a non-opioid and an adjuvant medicine.
True or false
6. NSAIDs act by inhibiting cyclo-oxygenase (COX) enzymes.
True or false
7. Selective COX-2 inhibitors include diclofenac, naproxen and celecoxib.
True or false
8. Aspirin is not recommended for analgesia as the doses required for pain relief often cause intolerable side effects.
True or false
9. Gabapentin and pregabalin can be used as initial treatment of neuropathic pain.
True or false
10. When using antidepressants for pain relief, the doses are often higher than those used to treat depression.
True or false