Dealing with acute and chronic pain: part two — management

Julie Gregory

Pain is a subjective individual experience (Strong et al, 2002), which is not just a simple response to an unpleasant sensation. It is affected by psychological and social factors, such as the site and nature of the injury, personality, age, gender, anxiety, understanding and cultural factors (Godfrey, 2005). Uncontrolled pain can have harmful physiological, psychological and emotional effects on an individual (Williams and Salerno, 2012).

This article, the second in a two-part series on pain, provides an update on the management of acute and chronic non-malignant pain (the first part of this article, on the assessment of pain, appeared in Journal of Community Nursing 28[4]: 83–86).

KEYWORDS:
Pain ■ Pain management ■ Pharmacology ■ Analgesia

Pain management
Community nurses need to have an understanding of pain management options available to help their patients. The reduction of pain to a tolerable level is necessary to prevent complications and enable patients to function.

Once pain has been identified and assessed it is managed using pharmacological and non-pharmacological interventions, often in combination. It has already been established that pain is an individual experience and the effectiveness of interventions can vary between individuals, with wide differences in the reaction to both pharmacological and non-pharmacological pain measures.

Pharmacological pain management
There is a choice of analgesic drugs available depending on the nature, severity and the individual patient’s reaction to medication. When advocating the use of analgesia community nurses should consider expense. Some analgesia can be purchased very cheaply compared to the cost of a prescription. Patients should be advised to prevent pain by taking analgesia regularly, rather than waiting for pain to occur and then taking analgesia, as this leads to the individual ‘chasing the pain’ rather than managing or controlling it.

The effectiveness of analgesia has been studied and systematic reviews of randomised controlled trials produced. The results of these studies can be found at the Oxford Pain Site (http://www.medicine.ox.ac.uk/bandolier/Extraforbando/APain.pdf).

The three main classes of analgesia include:
- Paracetamol (simple analgesia)
- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Opioids.

The science — what is pain?
Pain manifests as an unpleasant sensation conveyed to the brain by sensory neurons and signals actual or potential damage to the body. Pain is more than simply a physical sensation — it is also a perception representing a person’s subjective interpretation of discomfort. This perception provides the person with information on the location of the pain as well as its intensity. The conscious and unconscious responses to pain — including the emotional response — further defines the overall concept of pain.
These are well established and incorporated into the World Health Organization (WHO, 1996) analgesic ladder. The analgesic ladder relates to the intensity of pain:

- **Step 1 = mild pain**, paracetamol and NSAIDs
- **Step 2 = moderate pain**, paracetamol, NSAIDs and mild opiates
- **Step 3 = severe pain**, paracetamol, NSAIDs and strong opiates.

**Simple analgesia**

Paracetamol is widely available from many outlets; it is cheap and can be taken orally as tablets, capsules, syrup or soluble preparations. There are very few contraindications for paracetamol, but they should be avoided in active liver disease. Side-effects or allergy are rare (Bond and Simpson, 2006).

The daily maximum dose of 4g should never be exceeded, as it can cause liver damage and/or failure. It is important to stress this aspect and to check that patients are not taking any other medication that may contain paracetamol, such as cough and flu remedies, or combination analgesia, such as co-dydramol.

**Non-steroidal anti-inflammatory drugs (NSAIDs)**

NSAIDs include ibuprofen and diclofenac, which are available from many shops and are relatively inexpensive to buy. Some NSAIDs are available on prescription only, for example, naproxen and celecoxib. They are available orally and as NSAID gels for mild-to-moderate musculo-skeletal pain. They act by blocking the prostaglandins responsible for some of the inflammatory response to tissue damage (Bond and Simpson, 2006).

Systematic reviews of randomised controlled trials of NSAIDs have found them to be effective for mild-to-moderate pain associated with dysmenorrhea, joint and muscle pain, post-surgical pain, toothache, etc. They can reduce swelling and pain at site and improve mobility (McQuay and Moore, 1998). Some patients find that one NSAID is more effective than others (Bond and Simpson, 2006).

There are a number of contra-indications and drug interactions associated with NSAIDs (Table 1). They should be taken for as short a period of time as possible to prevent complications. Peptic irritation, ulcers and bleeding are associated with their use and the risk increases with longer duration and the age of the patient.

<table>
<thead>
<tr>
<th>NSAIDs can cause renal impairment and damage, particularly in people who are dehydrated or elderly</th>
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<tbody>
<tr>
<td>The use of proton pump inhibitor to prevent gastric irritation is recommended in people at risk and over the age of 65 years (Brown et al, 2006). Taking NSAIDs with food is recommended to reduce gastric irritation, but the inhibition of prostaglandins leads to gastric ulcers because prostaglandins play a part in replacing gastric mucus (Brown et al, 2006). Celecoxib is a relatively expensive and new NSAID with a lower incidence of gastric bleeding, but they can still occur.</td>
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</tbody>
</table>

NSAIDs can cause renal impairment and damage, particularly in people who are dehydrated or elderly. There is increasing evidence that they can increase the risk of cardiovascular events. They affect platelets and, therefore, increase risk of bruising. It is important to establish if the patient is allergic to aspirin or NSAIDs, as bronchospasm can occur with one in 10 patients with asthma taking NSAIDs (Bond and Simpson, 2006). All these factors need to be carefully considered before prescribing, dispensing, or advising the use of NSAIDs.

Combining analgesia with different modes of action has been found to enhance pain relief and can reduce the dose of the individual medication, while still obtaining similar pain relief. Doherty et al (2011) combined paracetamol and ibuprofen to obtain excellent or good treatment of pain compared to paracetamol alone for patients with knee pain associated with osteoarthritis.

**Opioid analgesia**

Analgesia derived from the opium poppy is classed as opioid analgesia. They are regulated under the misuse of drugs act and strong opioids are classed as controlled drugs (CD). A prescription is always required for strong opioid analgesia. Opiates are agonist-type drugs that combine with opiate receptors found mainly in the peripheral areas of the body, the spinal cord and brain (Bond and Simpson, 2006).

They interfere with the transmission of the pain signal within the spinal cord and change an individual’s perception of the pain (Williams and Salerno, 2012).

Systematic reviews describe them as effective and there is evidence that they are more effective when used in combination with paracetamol and NSAIDs (Doherty et al, 2011). They are sometimes divided into weak and strong opiates. Codiene and tramadol are often described as weak opioids. Morphine, oxycodeone, buprenorphine and fentanyl are commonly used strong opioids. The effects and side-effects of all opioid analgesia are similar and are summarised in Table 2.
When prescribing or advising a patient about taking oral opioid analgesia it is important to consider possible side-effects. Anticipate constipation and inform the patient how to prevent it with adequate fluids and proactively adding laxatives to a prescription. Anti-emetics may be required initially; this side-effect is reduced for many patients over time. Antihistamines can also help with itchiness and rashes, which also become less of a problem after a few days.

Many healthcare professionals and members of the public fear addiction and avoid using opioid analgesia as a result (Hawthorn and Redmond, 1998; Bennett and Carr, 2002). However, addiction is rare and the importance of good pain control should be emphasised.

**Weak opiates**

Codeine and tramadol are used for moderate to severe pain and are pro-drugs for morphine (designed to improve bioavailability when a drug itself is poorly absorbed). Once absorbed they are converted (between 10–20%) into the active metabolite associated with morphine in the liver. For example, 60mgs codeine is approximately equivalent to 6–12mgs morphine. However, 10% of people do not have the enzyme to convert weak opiates and do not find them effective (Bond and Simpson, 2006). Tramadol has less of an effect on respiratory function and a lower effect on gut motility, resulting in less constipation compared to codeine (Bond and Simpson, 2006).

**Strong opiates**

Morphine is considered the cornerstone of pain relief for severe pain. It is relatively cheap and available in many forms. Table 3 lists the formulation and doses of commonly used strong opioids. The dose of morphine required to achieve pain relief in different individuals varies. Therefore, the dose needs to be adjusted according to the patient’s reaction (Bond and Simpson, 2006). In acute pain, immediate release oral morphine liquid takes approximately 20 minutes to up to an hour to be effective. Morphine is metabolised in the liver, many metabolites are conjugated with glucuronic acid and excreted via the kidneys. Care needs to be taken in poor renal function, due to its high plasma concentrations leading to increased sedation and respiratory depression (Bond and Simpson, 2006).

Buprenorphine has both agonist and antagonist activity that is available for chronic non-malignant pain in patch form. There is a lower side-effect profile as a result of this, but it does not reverse the effects of morphine if required for acute pain.

**Oxycodone is more expensive than morphine. The metabolite produced by oxycodone accumulates less than morphine and some patients experience less nausea and other side-effects. Targinact® (Napp Pharmaceuticals) is a new analgesic that combines oxycodin with oral naloxone. It is licensed for chronic non-malignant pain and palliative care, where constipation is impacting on the patient’s quality of life.**

Fentanyl is a very strong opioid analgesic and is available as a mucosal preparation and transdermal patches. The patches are relatively expensive compared to oral morphine, but do not depend on the kidneys for excretion and are, therefore, appropriate when renal impairment is a problem. They are available from 12mcgs (equivalent of between 30mgs and 50mgs of morphine), and up to 100mcgs. They are licenced for use when an individual has been established on opioid analgesia and for chronic non-malignant pain and palliative care. They are unsuitable for acute pain because they can take up to 12 hours to provide analgesia.

**Nitrous oxide 50% and oxygen 50% (Entonox®, BOC Healthcare) is a medical gas indicated for procedural pain. It has been traditionally used in maternity, emergency departments and increasingly in hospital wards and departments for painful procedures. It is effective quickly — within a few deep breaths — is easy to use and provides the patient with an element of control and distraction from the procedure. It has few side-effects, mainly nausea, and can be particularly helpful in managing facilitation and anxiety.**
used with other analgesics and is considered safe for all age groups (Gregory, 2008). Long-term use has been associated with neurological and bone marrow problems, which should be monitored if it is used regularly (Bond and Simpson, 2006). It has been safely introduced into health centres and district nursing teams to reduce the pain associated with wound care (Gregory, 2008).

**Adjunct medication**

There are a number of medications whose primary purpose is not analgesic but which have been found to help reduce neuropathic pain. These include antidepressants and antiepileptics (British Geriatric Society, 2013). Neuropathic pain is associated with damage to the peripheral or central nervous system. The pain associated with neuropathic pain is described as shooting, burning, tingling or electric, but it is not associated with movement and can be highly sensitive to the slightest touch. It also does not tend to respond to conventional analgesia. The assessment of this type of pain is essential to ensure appropriate treatment.

Antidepressants have been used for a number of years to help with neuropathic pain such as diabetic neuropathy. The starting dose should be low because it causes sedation. They do not provide immediate pain relief and patients should be asked to persevere with the medication for maximum benefit. The side-effects, including urinary retention, sedation and postural hypotension (increasing the risk of falls) and cardiac arrhythmias, mean that they are frequently discontinued by patients (Bond and Simpson, 2006).

Nortriptyline may have fewer adverse effects (British Geriatric Society, 2013). Duloxetine has better tolerability and is recommended by the National Institute for Health and Care Excellence (NICE, 2012) for neuropathic pain. It is important to stress its analgesic properties to patients and that they are not being treated for depression.

Antiepileptics drugs, such as gabapentin and pregabalin, have replaced carbamazepine and sodium valproate, which were traditionally used for neuropathic pain. They have demonstrated analgesic effects with fewer side-effects. When introducing gabapentin, a complicated titrating dosage regimen is required initially. Side-effects include sedation and dizziness. Pregabalin is more expensive and, taken twice a day, does not require a titration regimen (Bond and Simpson, 2006).

Analgesia provides pain relief but many of the medications have side-effects and interact with other medication. The prescription or advice provided by community nurses needs to be tailored to the individual needs of the patient.

**Non-pharmacological pain interventions**

Pain is not just a physical event; it is a biopsychosocial experience which is influenced by many factors, both psychological and physical. It responds to a variety of treatments and often a combination of strategies is required to provide pain relief.

Psychological interventions help people to cope with their pain. Also known as cognitive-behavioural therapies (CBT), they can be relatively simple or complex interventions. Their aim is to decrease or change the individual’s perception of pain (Hawthorn and Redmond, 1998). Some of the strategies include:

- The use of distraction
- Music therapy
- Meditation
- Guided imagery
- Relaxation.

**Distraction**

This involves taking the patient’s mind off the pain. It is a useful strategy that is frequently used during procedures such as dressing change where focusing the mind on other stimuli reduces the pain intensity. Each individual will choose his or her way of distracting themselves from pain but suggestions that may help include:

- Imaginative inattention: involves imagining oneself doing something pleasant, for example, walking in a forest, or sitting on a beach
- Mental distraction: involves carrying out a mental activity, such as counting, reciting a poem or prayer
- Behavioural task distraction: involves tasks, for example, reading a book, listening to the radio, watching TV, or playing a computer game (Hawthorn and Redmond, 1998).

Nurses should bear in mind that the ability to distract an individual from pain does not mean that the pain is somehow less valid.

**Music therapy**

Music has been found to be effective in reducing pain by distraction, relaxation, anxiety reduction and increased feelings of control (Hawthorn and Redmond, 1998). The choice of music is important and should be chosen to ensure it helps the patient relax.

**Meditation and relaxation**

Pain, muscle tension and anxiety are closely linked and helping an individual to reduce muscle tension and anxiety will reduce pain intensity. The technique used depends on the context and the individual patient. Deep
breathing exercises are a form of distraction and help patients to relax. Progressive muscle relaxation (starting, for example, at the feet and systematically working up to the head and face) takes longer and involves the patient concentrating on various groups of muscles, tensing and releasing them before moving to the next set of muscles (Hawthorn and Redmond, 1998).

**Physical therapies**
The use of heat and cold, massage, and transcutaneous electrical nerve stimulation (TENS) are all forms of physical therapy that stimulate the nerve fibres involved in touch and temperature, bombarding the nerve pathways within the dorsal horn of the spinal cord (also known as the gate control area). This stimulation helps to ‘close’ the gate and reduce pain impulses.

Heat pads, warm baths or showers increase the blood supply to muscles, provide comfort and help to reduce muscle tension. Heat pads should be wrapped in a towel and the temperature should not be too extreme, as this could cause burns or scalds. They should be used with caution in people with peripheral vascular disease.

Cold packs, crushed ice or frozen vegetables should always be wrapped in a towel to protect the skin. Cold causes vaso-constriction and, in an acute injury, reduces swelling and pain. Cold packs should not be left in place for prolonged periods of time as the body increases profusion to heat the area. They can be useful in hot swollen joints, but should be avoided with peripheral vascular disease as this constriction increases pain.

Massage or rubbing a painful area is natural following an injury and can help. It is thought to calm the pain by reducing muscle spasm and tension, improving superficial circulation to the area and reducing swelling (Hawthorn and Redmond, 1998). Some people do not like physical contact and the idea of massage may increase their anxiety. It should not be used if there are any open wounds, burns or bleeding disorders.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Formulation</th>
<th>Dose</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Codeine</td>
<td>Tablets</td>
<td>10mgs, 30mgs, QDS</td>
<td>Has limited effectiveness when taken alone, effectiveness increases when combined with paracetamol Associated with constipation</td>
</tr>
<tr>
<td></td>
<td>Liquid formulation as codeine phosphate</td>
<td>10mgs in 5ml, as required</td>
<td>10mgs, 30mgs, 60mgs, 90mgs</td>
</tr>
<tr>
<td></td>
<td>Tablets: immediate release and MR (12 or 24-hourly)</td>
<td>10mgs in 1ml, as required</td>
<td>10mgs, 30mgs, 60mgs, 90mgs</td>
</tr>
<tr>
<td></td>
<td>Injection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tramadol</td>
<td>Tablets and capsules</td>
<td>50mgs, 100mgs, QDS</td>
<td>Should not be taken by people with a history of seizures or taking antidepressants Can cause agitation, increased heart rate</td>
</tr>
<tr>
<td></td>
<td>Immediate release and modified release (MR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td>Liquid</td>
<td>10mgs in 5ml, as required</td>
<td>Most commonly used strong opiate analgesia</td>
</tr>
<tr>
<td></td>
<td>Tablets: immediate release and MR (12 or 24-hourly)</td>
<td>10mgs in 5ml, as required</td>
<td>10mgs, 30mgs, 60mgs, 90mgs</td>
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<tr>
<td></td>
<td>Injection</td>
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<tr>
<td>Oxycodeone</td>
<td>OxyNorm liquid or tablets</td>
<td>5mgs, 10mgs</td>
<td>Used when side-effects of morphine are not tolerated Metabolite accumulates less than morphine in renal impairment</td>
</tr>
<tr>
<td></td>
<td>OxyContin capsules (MR)</td>
<td>5mgs, 10mgs</td>
<td>Dose difference needs to be recognised 10mgs oxycontin = 20mgs morphine sulphate</td>
</tr>
<tr>
<td></td>
<td>Injection</td>
<td></td>
<td></td>
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<tr>
<td>Fentanyl</td>
<td>Oral mucosal lozenges</td>
<td>200-1600mcgs</td>
<td>Used for breakthrough pain associated with long-term pain Rubbed against the cheek, not sucked or chewed Used only when a patient has been stabilised and is tolerant to opiates For chronic non-malignant pain Not dependant on kidneys for excretion 25mcgs patch equivalent to between 90 and 120mgs of oral morphine Change every three days and alter sites, upper body recommended</td>
</tr>
<tr>
<td></td>
<td>Patches</td>
<td>12-100mcgs/hour</td>
<td></td>
</tr>
<tr>
<td>Rupen-orphine</td>
<td>Patches</td>
<td>5-140mcgs</td>
<td>BuTrans 5mcg patch = 30mgs codeine a day Seven-day patch Licensed for arthritis pain Lower constipation and other side-effects</td>
</tr>
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</table>

TENS, or using electrodes placed on the skin via self-adhesive pads, has variable effects on individuals. There is some trial and error in applying the pads, with the patient placing them for best effect and being in control of the amount of stimulation. The devices are small and lightweight and can be purchased at varying degrees of cost. Some dexterity is needed to apply the pads and adjust the intensity of stimulation. There are few contra-indications for TENS, with patients with cardiac pacemakers being the most significant. Some individuals do experience skin irritation from the adhesive pads.

Exercise and physical activity are important to prevent disability, loss of independence and further pain. There is no evidence that one type of exercise is better than another (British Geriatric Society, 2013). Individual patients’ ability and preference should be considered before suggesting exercise. Gradually increasing activity or pacing is frequently used for patients with chronic non-malignant pain. To provide benefit, the pain should be tolerable before exercise and the amount of activity slowly increased. Exercise increases muscle tone, improves balance and produces feelings of well-being as a result of the production of endorphins.
Complementary therapies
Complementary therapies can be useful, but require further training by practitioners before they are used. Acupuncture and acupressure involve the application of needles or pressure to specific points. They have been used to provide pain relief and improved function (British Geriatric Society, 2013) and are available from some NHS pain clinics and physiotherapists.

Aromatherapy and reflexology use essential oils and are combined with the effects of massage. However, they do not appear to be widely available from NHS centres and, along with many other complementary therapies, can incur a cost for the patient.

These therapies do provide pain relief and help some patients. Community nurses should recommend that patients check the qualifications of complementary therapists and, if possible, obtain recommendations from other patients before attending their clinics.

EVALUATION/REASSESSMENT
Evaluation or reassessment of pain to establish the effectiveness of interventions is as important as the initial assessment. Monitoring side-effects, such as gastric irritation and constipation, to ensure patients continue with their medication may be necessary.

Alternative medications or titration of the dose may be needed to provide adequate pain relief with lower side-effects. The use of non-pharmacological interventions can be suggested and encouraged once pain is tolerable. For many patients, an increase in improvement in activity may be as important as the reduction of pain intensity and should be included in the evaluation of pain management interventions.

CONCLUSION
The management of pain should be a patient-centred activity, starting with comprehensive assessment of the pain. If assessment is inadequate, pain management interventions can be ineffective.

The interventions used to manage pain should be decided with the patient and not necessarily dependent on medical interventions. The effectiveness of analgesia is variable and subject to individual reaction to the effects and side-effects of the medication.

Community nurses need to provide information about the importance of pain relief, prepare patients for any side-effects of medication and include advice about the importance of non-pharmacological interventions to provide holistic, comprehensive pain management. JCN

REFERENCES

KEY POINTS
- Pain is a subjective individual experience, which is not just a simple response to an unpleasant sensation.
- Pain is affected by psychological and social factors, such as the site and nature of the injury, personality, age, gender, anxiety, understanding and cultural factors.
- Uncontrolled pain can have harmful physiological, psychological and emotional effects on an individual.
- The management of pain should be a patient-centred activity, starting with comprehensive assessment of the pain. If assessment is inadequate, pain management interventions can be ineffective.
- Evaluation or reassessment of pain to establish the effectiveness of interventions is as important as the initial assessment. Monitoring side-effects is also necessary to ensure that patients continue with their medication.
- Community nurses can provide information about the importance of pain relief and prepare patients for any side-effects of medication.