PATIENTS’ EXPERIENCES of wound pain are subjective and multicausal in nature. However, optimal pain management is an essential part of the nurse’s role and needs to be prioritised. Acute pain occurs following injury to the body and generally dissipates when the injury heals. It is short-term pain of less than 12 weeks duration (British Pain Society (BPS) 2008). Acute pain serves a useful purpose in warning healthcare professionals that deferring treatment may result in life-threatening consequences; for example, severe abdominal pain may signal appendicitis, which can lead to peritonitis. In acute wound-related pain, ‘pain that occurs after tissue injury has a protective role, alerting the body to damage and inducing rest to allow tissue regeneration’ (Wulf and Baron 2002).

Chronic pain serves no useful function, persisting beyond the time one would expect normal healing to occur. It is continuous long-term pain that may last anywhere from six weeks to three months after the onset of symptoms (BPS 2008). Chronic wound-related pain affects patients’ wellbeing, level of function and quality of life (Goodridge et al 2005). Pain of this nature may also result in reduced social activities, increased family tensions for patients and care givers, limited employment and financial hardship.

Incidence of acute and chronic pain

A UK survey conducted by Bruster et al (1994), of recently discharged patients (n = 3,162) from 36 NHS hospitals, showed that 33% (n = 1042) of patients (medical and surgical) in moderate or severe pain experienced pain all or most of the time. Whelan et al (2004) carried out a prospective cohort study on 5,584 inpatients and found that 59% of patients had pain; 28% described severe pain, 19% described moderate pain and the remainder reported mild pain. A study by Blyth et al (2001) investigated the incidence of chronic pain in a random selection of 17,543 adult patients. Pain was defined as ‘pain experienced every day for three months in the six months prior to interview’. Chronic pain was reported in 17% of males and 20% of females. A similar study carried out by Elliott et al (1999), using the chronic pain definition of ‘pain or discomfort, that persisted continuously or intermittently for longer than three months’, found that 50.4% of respondents reported having chronic pain. It was also noted that reporting of chronic pain increased with age in both men and women from about one third in those aged 25-34 years to almost two thirds in those aged over 65 years (Elliott et al 1999).

Pain is frequently reported in patients with leg ulcers, with between 17% and 65% of individuals experiencing severe or continuous pain (Dallam et al 1995, Ebbeskog et al 1996). Nemeth et al (2003) suggested that the prevalence of pain in patients with pure or mixed venous ulcers is approximately 50%, with more than half of patients using analgesia as part of their treatment regimen. Similarly, Puntillo et al (2002) examined 5,957 patients undergoing procedures such as drain
removal, non-burn dressing and central venous pressure catheter insertion, and found that:

- Pain intensity increased at the time of the procedure.
- Around 63% of patients received no analgesia.
- Less than 20% of patients received opiates.
- Mean dose of opiate, if used, was 6.44mg morphine equivalent. No reliable recommendation for a morphine-equivalent dose for procedural pain is available, although a range of 1-10mg intravenous administration has been suggested (Puntillo et al 2002).
- Around 10% of patients received a combination of drugs, including local anaesthetics and/or anxiolytics and non-steroidal drugs as part of the treatment regimen.

Unrelieved pain remains a problem. Carr and Jacox (1992) found that analgesics failed to relieve pain in about half of post-operative patients. Pain that is poorly managed in the acute phase may lead to cardiovascular, pulmonary, thromboembolic or gastrointestinal complications (Middleton 2003).

These physical complications need to be considered as well as the potential emotional and psychological effects that may occur as a result of prolonged hospitalisation, medication anxiety and depression. The cost to the NHS of treating pain should also be considered (BPS 2008).

**Nociceptive and neuropathic pain**

Pain can be divided into nociceptive and neuropathic pain. It is important that nurses recognise the differences between the two to understand the nature of the pain experience and to determine how best to treat pain.

**Nociceptive pain** This is mediated by receptors that are located in skin, bone, connective tissue, muscle and viscera (AnaesthesiaUK 2009). The International Association for the Study of Pain (1994) defined a nociceptor as ‘a receptor preferentially sensitive to a noxious stimulus or to a stimulus which would become noxious if prolonged’. A noxious stimulus is defined as one which is damaging to normal tissues.

Nociceptive pain can be described as either somatic, for example as a result of wound debridement, or visceral, for example deep pain that is difficult to isolate and locate. Acute nociceptive pain is usually time limited and generally dissipates when the injury heals (Gruener 2004).

**Neuropathic pain** This can be described as ‘burning’, ‘shocking’ or ‘shooting’ in nature and is produced by damage to, or pressure on, nerves in the peripheral or central nervous systems (Johnson 2004). Neuropathic pain can manifest itself as excruciating pain in the wound bed (hyperalgesia) or in the surrounding skin (alodynia). Alldynia is defined as pain resulting from a stimulus that ordinarily does not elicit a painful response, for example delicate touch or a light draught of air on the open wound.

In relation to chronic wounds, pain of neuropathic origin may be found in people whose wounds have been open for some time. For these patients conventional analgesia aimed at tissue-based pain may not ease the pain and individuals may require different and often mixed agents; for example, drugs such as paracetamol, non-steriodals and opioids may be supplemented by drugs that have proven efficacy in relieving neuropathic pain, such as amitriptyline or gabapentin (McQuay and Moore 1998). However, the mechanism of action of antidepressant drugs in the treatment of neuropathic pain remains unclear (Saarto and Wiffen 2007).

It is important to note that some patients may experience both nociceptive and neuropathic pain, alternatively termed ‘mixed pain’. The patient might also experience acute exacerbations of pain, for example during dressing changes (incident pain).

**Causes of wound-related pain**

Wound pain is complex and can occur as a result of many factors. These include:

- Nociceptive pain, for example fractures, burns and inflammation.
- Neuropathic pain, for example peripheral neuropathy.
- An ‘inflammatory soup’ (Goodwin 1998) of macrophages and lymphocytes, histamine, serotonin, bradykinin, substance P, prostaglandins and cytokines in affected peripheral tissues, for example in a chronic wound, may result in patients experiencing increased sensitivity to pain; for example, pain may be triggered by a small stimuli, such as a light touch.
- Infection at the wound site.
- The presence of oedema.
- Iatrogenic causes, for example debridement, bandaging and wound cleansing.

The effect of these factors will be influenced by the patient’s unique daily cycle, and pain episodes
might be triggered throughout the day. This emphasises the importance of individualised patient assessment.

A 24-hour cycle is now outlined to highlight some of the problems encountered by a patient with a venous leg ulcer in need of bandaging. **On walking** There may be pain on movement during waking. Pain may result from bandage or dressing slippage during the night. Analgesia may also have worn off overnight and there may be stiffness in the joints as a result of immobility. **Mid morning** There may be anticipatory pain resulting from the patient’s thoughts about the impending change of dressing. Pain may occur at dressing removal because of drying out of the wound bed and surrounding tissue and subsequent adherence of the dressing to the skin. **Midday** Venous disease may result in restricted mobility, causing the individual to sit in a chair with his or her legs in a dependant position. This may contribute to dependant oedema and swollen legs, resulting in pain. **Night-time** There may have been sleep disturbance because of pain. Pain can occur as a result of pressure on the wound bed during sleeping. Pain may also result from limb elevation during the night.

It is important that the nurse’s role encompasses the identification and assessment of the origin of pain to implement the most appropriate treatment strategy and minimise patient discomfort.

The effect of pain

Pain can affect individuals physically, emotionally, psychologically and socially (Langemo 2005). Arterial and venous leg ulcers can cause considerable pain. In a systematic review of the impact of leg ulcers on patients’ daily life, Persoon et al (2004) found that leg ulcers pose a threat to physical functioning and have a negative effect on psychological and social functioning. Other problems included (Persoon et al 2004):

- Pain.
- Immobility.
- Sleep disturbance.
- Lack of energy.
- Limitations in work and leisure activities.
- Lack of self-esteem.

Pain control is essential in effective wound management and nurses need to have a good working knowledge of the causes and types of pain associated with wounds to provide timely, effective and individualised care.

Pain assessment

One of the failures of modern medicine is the inadequate assessment and treatment of pain (Reddy et al 2003). The management of pain in patients with chronic wounds requires an individualised, patient-centred approach. This should be based on accurate patient assessment, which should include:

- Patients’ reporting of pain, both numerical and descriptive.
- Non-verbal cues of pain.
- Location, duration, intensity and onset of pain.
- The effect of pain on the patient’s quality of life.
- Efficacy of current analgesia.

Pain rating scales are available to help patients to identify and express the location, intensity and duration of pain. The visual analogue scale (VAS) uses numerical ratings from zero to ten, with verbal descriptors including ‘no pain’ and ‘worst pain’. The VAS is easy to use and can provide precise scores in research where large patient numbers are involved. However, it does not allow for pain descriptors to be used, which might yield important information about the nature of the pain.

The verbal rating scale (VRS) uses a list of descriptors to help the patient describe increasing pain intensity. Words commonly used may include ‘no pain’, ‘mild pain’, ‘moderate pain’ and ‘severe pain’. This tool is easy to understand, but lacks the level of precision of the zero to ten VAS scale, and it could be argued that it might be confusing for patients who might have used the VAS scale in the past. Briggs and Closs (1999) demonstrated that the VRS proved most efficient in the reporting of acute pain, with only 0.5% of patients unable to score their pain as opposed to 14% of patients who were unable to use the VAS. In relation to chronic pain, Cork et al (2004) showed excellent correlation between the VRS and VAS, although the VRS showed a tendency to be higher than the VAS (P=0.068). Cork et al (2004) proposed that the VRS provides a useful alternative to VAS scores in the assessment of chronic pain.

These tools can provide valuable information about the severity of patients’ pain. However, assessment needs to continue at different times throughout the day to identify if pain is associated with interventions, such as dressing changes, which might otherwise give a false high score.
The McGill Pain Questionnaire (MPQ) (Melzack 1987) consists of 102 pain descriptors in groups that allow the patient and practitioner to describe not only the nature, but also the severity of pain. The diagrams incorporated can also be used to mark areas of pain. The questionnaire, because of its complexity, may take some time to complete.

Although widely used, clinical practice has demonstrated variations between VAS and the MPQ scoring. VAS scores were significantly higher in patients with neuropathic pain compared to cancer pain. MPQ total score (pain rating index) related to neuropathic pain was significantly higher than scores reported in the other pain groups (Majani et al 2003).

The Short-Form McGill Pain Questionnaire (SF-MPQ) (Melzack 1987) consists of 14 descriptors of pain, which are rated on an intensity scale of zero = none, one = mild, two = moderate and three = severe (Figure 1). The SF-MPQ also includes the present pain intensity index of the standard MPQ and VAS. This allows the practitioner to assess the efficacy of current medication regimens.

Communication of pain severity using the traditional VAS or VRS may be problematic for some patients, such as those who are cognitively impaired. Patients with dementia may not be able to indicate accurately the location of pain (Kerr et al 2006), as dementia can affect motor, cognitive, language and social and emotional abilities of individuals. Smith (2005) noted that patients with dementia are likely to have one or more chronic health conditions that cause pain. In patients with cognitive impairments, observation of non-verbal cues, such as alteration in posture, facial expressions, bracing, rubbing, guarding, facial contortion and agitation are vital.

Use of the above assessment tools can help the practitioner to identify the types of pain and then plan treatment accordingly.

**Treatment**

Pharmacological treatment of wound-related pain is based on the World Health Organization’s (2009) three-step pain relief ladder developed for cancer pain relief (Figure 2). The patient’s pain is managed by either stepping up or down the ladder as appropriate. At any time other supportive non-drug therapies may be used to help relieve pain, for example transcutaneous electric nerve stimulation.

The aim of giving mixed agents, or multimodal analgesia, is to provide superior dynamic pain relief with reduced analgesic-related side effects (Joshi 2005).

The evidence-based pharmacological treatment of neuropathic pain includes anticonvulsants and antidepressants, for example gabapentin and amitriptyline (McQuay and Moore 1998). The use of opioids in neuropathic pain remains controversial.
although use over the short to intermediate term may be of benefit in some patients (Eisenberg et al 2005). Sedation can be a troublesome side effect of drugs such as gabapentin and amitriptyline and patient education is vital to ensure that individuals remain vigilant for such complications.

Case studies and small trials (Twillman et al 1999, Grocott 2000) support the use of topical opioids such as diamorphine in a gel preparation for treating wound-related pain, but without larger controlled studies the evidence is not compelling (Ashfield 2005). Initial findings of similar dressings that contain a non-steroidal anti-inflammatory drug, for example Biatain Ibu®, are promising (Gottrup et al 2007, Jørgensen et al 2008), but these are relatively new products and evidence is at present limited.


De Jong et al (2007) conducted a systematic review of the use of non-pharmaceutical interventions in the treatment of pain for dressing changes in patients with burns. Relaxation, imagery, distraction, music therapy and rapid induction hypnosis were found to have positive outcomes for patients. There were, however, methodological shortcomings in the reviewed literature and further research is needed.

Multimodal analgesia may be more effective in providing pain relief than relying on one drug. As different analgesics have different modes of action, side effects may be reduced (Melzack and Wall 2003). Timing of administration is vital to achieve optimum analgesia. For example, medicines should be given ‘by the clock’ and potentially painful interventions such as dressing changes planned

References


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accordingly; for example, if Oramorph® is used, this needs to be given at least 30 minutes before the procedure.

It is important to note that the sight of the wound, previous painful experience, lack of pain assessment, trauma to the wound bed if there has been dressing adherence, cold cleansing solutions, nursing technique and wounds with an ischaemic element may contribute to patients’ pain.


Conclusion

Pain is a multi-faceted unique experience requiring individualised assessment to ensure the correct treatment options are implemented. Pharmacological treatments should be multi-modal and the importance of debilitating side effects such as constipation, nausea and sedation should not be overlooked.

The psychological affect of wound-related pain on patient wellbeing and quality of life also needs to be considered in the patient’s overall plan of care NS