Exploring pain management in older people with hip fracture

This article outlines evidence on pain management in older people with hip fracture

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INTRODUCTION
The number of people over 65 in the UK is increasing and by 2050 the percentage is projected to be 36% of the population. It has been suggested that the over-80s group will triple (International Association for the Study of Pain, 2006).

Pain is common in people over 65. Studies report that daily pain affects around 25–50% of the population in the community and 80% in long-term care facilities (American Geriatrics Society Panel on Persistent Pain in Older Persons, 2002). Furthermore, of those in care, 50% are cognitively impaired (Epps, 2001), thus greatly increasing the number of people over 65 in the UK (Bottle and Aylin, 2006). Pain can be exacerbated by movement, and so pain management is important to look at ways to improve the care pathway to ensure fewer complications, which makes assessing and managing pain challenging.

OLDER PEOPLE AND HIP FRACTURE
Falls are common among older people, often resulting in fractures, particularly the neck of femur. Hip fracture can have serious consequences, with a mortality rate of 10% at one month after a fall, 20% at four months and 30% at one year (Parker and Johansen, 2006). The average age for this group of patients who fall and fracture their neck of femur is over 80 and 75% of these are female. A large percentage have significant co-morbidities and are often taking numerous medications. In addition to a fractured neck of femur, older patients often present in A&E with acute medical problems such as chest or urinary infections, or heart failure, which may well have been the cause of the fall. This group of patients are likely to be malnourished on admission and show a rapid deterioration in nutritional status during admission (Nematy et al, 2006).

PAIN MANAGEMENT
Improving pain relief and relieving suffering is at the core of nursing. Patients awaiting theatre for hip fixation require basic nursing care such as pain relief, preventing pressure ulcers and nutrition. Inadequate pain management prevents all of these care tasks from being performed effectively. Therefore, improving pain management is paramount to ensure these patients are in optimum condition before surgery. Fractures cause significant pain which can be exacerbated by movement, and so pain control for patients with a fractured neck of femur in the immediate post-trauma period can be difficult to manage safely and effectively. Consequently, provision of adequate effective analgesia is a very important component in the care pathway for these patients.

While the emergency management of major trauma has been extensively analysed in the last few years, trauma analgesia has received comparatively little attention. Reluctance to deliver adequate pain relief in the acute stage of trauma originates, at least in part, from a widely held belief that analgesia may precipitate or disguise cardiorespiratory deterioration (Coleman, 2003). In reality, current evidence shows that uncontrolled pain may actually harm patients by impairing cardiac, pulmonary and endocrine functioning (Macintyre and Schug, 2007).

A growing body of research supports the link between serious post-operative complications such as deep vein
thrombosis, infections, sepsis, paralytic ileus, acute renal failure and uncontrolled pain (Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine, 2005). In addition, pain can interfere with sleep, impairs immune functioning and lowers patients’ quality of life (Arnstein, 2002).

The physiological changes that result from pain and injury are a result of activating both the peripheral and central nervous systems. Trauma and injury induce a complex ‘stress response’, which is characterised by hormonal changes and an inflammatory response leading to malaise, hyperthermia and immunosuppression. Effective analgesia is capable of modifying many of the pathophysiological responses, preventing or reducing complications and assisting recovery. It is very important that nursing staff undertake regular pain assessment and evaluation of effect in order to ensure that patients do not experience severe pain and side-effects from analgesia.

UNDER-TREATED PAIN
Older people are at a higher risk of complications owing to unrelieved or under-treated pain and this group is therefore particularly likely to benefit from effective pain management. However, a number of factors may combine to make pain control more difficult than in younger patients (Macintyre and Schug, 2007). They include:

- Co-morbid diseases and concurrent medications, putting patients at risk of drug–drug and disease–drug interactions;
- Diminished functional status and physiological reserve;
- Age-related changes in pharmacodynamics and pharmacokinetics;
- Altered pain responses;
- Difficulties in pain assessment, including problems related to cognitive impairment and communication.

Pharmacokinetics
The pharmacokinetics (absorption, distribution, metabolism and excretion) of many drugs are altered in older people, owing to physiological decline that occurs with ageing and the increasing likelihood of concurrent disease. Physiological changes can vary widely between people, with the most significant related to cardiac output and renal function. In addition changes in liver function and protein binding may have some effect.

Pharmacodynamics
It is not fully understood how these age-related changes in response to drugs occur. Studies indicate that in older people the brain’s sensitivity to opioids is increased by about 50%. It is not clear if this is due to alterations in the number and/or function of opioid receptors in the central nervous system or to other factors.

Changes in pain perception
The widespread belief that older patients experience less pain lacks scientific support. In experimental models of acute pain using heat and pressure, these suggest that pain thresholds and pain tolerance do change. However, the relevance of these studies in the clinical setting is uncertain but may indicate there could be deterioration in the early warning function of pain (Macintyre and Schug, 2007).

There is evidence that chronic pain is more prevalent in older people, and it has been suggested that altered physiology of peripheral and central pain mechanisms, combined with psychological attitudes, such as stoicism and reluctance to confirm the presence of pain, are all key factors (Pickering, 2005). In older patients with cognitive impairment and communication difficulties, there is no evidence to suggest they may feel less pain, or that they may fabricate or exaggerate this pain (Bruce and Kopp, 2001).

PAIN ASSESSMENT
Pain is a personal experience, which inevitably leads to problems with assessment. This is an important component of overall pain management and should be performed routinely by nursing staff. Self-reporting of pain is considered to be the best approach to pain assessment.

A key issue with older patients who can self-report pain is their reluctance to complain and report increased levels of pain. Reasons for this may include: belief that pain is a normal part of the ageing process; they do not want to be seen as a nuisance; and pain may delay their discharge from hospital (Bruckenthal and D’Arcy, 2007; Closs et al, 2002). In addition, psychological and cultural factors, problems related to cognitive impairment and communication.

REFERENCES


In 2005–2006, 68,416 patients with a fractured neck of femur were operated on in England, costing the NHS at least £384m (NHS Institute for Innovation and Improvement, 2006).

Locally, the number of patients admitted to Poole Hospital NHS Foundation Trust with fractured neck of femur in 2007 was over 800, the second highest in the UK.

such as fear, anxiety, depression, implications of the traumatic event, loss of independence, feelings of isolation, quality of social support available and family, will all affect pain reporting and ultimately assessment and management.

Other problems associated with pain assessment include disparity between patients’ report of pain and healthcare workers’ reporting and documentation of it. Frequency and intensity of pain has been shown to be significantly underestimated by healthcare assistants and trained staff, which affects pain assessment (Kane et al, 2004). Recent studies have highlighted a range of factors which impede accurate pain assessment in patients with cognitive impairment or memory loss. These include: changes in communication and mobility; reluctance to report pain and feelings that pain will not be taken seriously; not recognising sensations as pain; and not being prepared to take an active part in pain control (Closs et al, 2002; Kedziera, 2001; Kovach et al, 1999; Brockopp et al, 1996).

**ANALGESIC DRUGS AND OLDER PEOPLE**

The most common method of acute pain management involves systemic opioids, paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs). This multimodal approach – a combination of two or more analgesic modalities with differing analgesic mechanisms – is considered to be best practice to enhance analgesia and reduce side-effects (Myles and Power, 2007).

Paracetamol is relatively safe and effective as an adjunct but will not give sufficient relief alone for a fracture. NSAIDs significantly increase the risk of upper gastrointestinal haemorrhage and renal failure, particularly in this group of patients (Pirmohamed et al, 2004). Opioids are effective analgesics but safe and effective doses are difficult to titrate in older people. Many doctors are reluctant to prescribe opioid analgesics and nursing staff are often hesitant to administer them for fear of side-effects (Pasero and McCaffery, 1997a; 1997b). Inadequate doses of opioids and under-treated pain have been shown to increase the risk of delirium (Morrison et al, 2003a) and slow post-operative mobilisation and recovery (Morrison et al, 2003b). Older patients generally appear to require less opioid than younger patients, therefore careful titration at appropriate dose intervals is required to prevent undesirable side-effects such as increased sedation, confusion, nausea, constipation and respiratory depression.

Pain assessment and administration of analgesia depends on nurses’ decision-making. Willson (2000) conducted a study looking at factors which affected the administration of analgesia to patients following repair of a fractured hip. She identified that the decision made by nurses to administer analgesia is not simply a matter of education and adherence to the drug prescription but a consequence of interplay of several factors. These include: organisation of the ward; demands of the shift; concerns about the use of opioid analgesia; and the way in which information is communicated. Willson (2000) found in some cases nurses were prepared to accept a more alert patient able to participate in rehabilitation instead of adequate pain relief. The author suggested the nurses may be ‘playing it safe’ by avoiding the consequences associated with perceived risk of side-effects, which can occur with opioid analgesia.

Many patients admitted with a fractured hip often have other co-morbidities which create further challenges to pain management. Therefore pain relief which is long-lasting, does not cause any significant side-effects and does not require extra work for ward nursing staff is appealing. Training nurses to administer a femoral nerve block is one way of addressing this dilemma.
In-depth
EXTRA
VERSION

The technique involves identifying the femoral nerve in the groin with the use of a nerve stimulator and injecting local anaesthetic solution in close proximity to the femoral and adjacent nerves. A number of studies support the use of FNb for pain relief following fractured neck of femur (Fletcher et al, 2003; Haddad and Williams, 1995).

What are the benefits and risks of FNb?
FNb is a relatively simple procedure with good evidence to suggest the onset of analgesia is fast and effective, thus significantly reducing the patient’s requirement for cumulative doses of opioids and NSAIDs.

Analgesic effect usually lasts 6–8 hours but may be present for up to 24 hours (Harper, 2001). There is some evidence that FNb may give better analgesia for lower, intertrochanteric fractures, than for higher cervical fractures. Significant improvement in pain scores are seen for both types (Fletcher et al, 2003).

Use of local anaesthetic blocks has also been associated with a reduction in post-operative respiratory infections (Parker and Johansen, 2006). Improved pain relief will allow patients to move around the bed more easily to eat and drink.

Published evidence suggests that FNb carries a very low risk of adverse events (Fletcher et al, 2003; Haddad and Williams, 1995). Possible risks include haematoma, nerve damage, infection and intravascular injection with toxicity. These are complications shared by all regional blocks and can be minimised by ensuring that nurses use a careful technique, strict exclusion criteria (see Box 1) and the use of levobupivacaine (rather than bupivacaine).

Levobupivacaine carries lower risk of central nervous system and cardiovascular system toxicity and may cause shorter motor blockade and longer sensory blockade (Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine, 2005).

REFERENCES


