Is there a role for patient-controlled analgesia in the emergency department?

One of the commonest reasons that patients present to emergency departments is pain (Todd et al, 2007). When patients are asked about their experiences in UK emergency departments, they are usually happy with the care they received overall, but many state that more could be done to address their pain (Healthcare Commission, 2012). There is a myriad of different analgesic agents that can be used to treat pain but, despite this, effective relief of pain in emergency patients is difficult to achieve.

Routine care for patients in moderate or severe pain who present to emergency departments usually involves intravenous morphine, delivered by a nurse. Although effective initially, this intravenous bolus approach has several potential weaknesses. Regular reassessment of pain and the delivery of repeated boluses of opioid analgesia are dependant on nursing resources and in reality often do not happen in busy emergency departments. Also, there is frequently a significant period while patients are admitted to a hospital ward before their analgesic needs are reviewed by the admitting medical team. This leads to 'analgesic gaps' where further episodes of moderate or severe pain occur (Arendts and Fry, 2006).

In addition to the humanitarian imperative to provide high quality pain relief to patients, it is well established that poorly relieved acute pain results in a number of unfavourable physiological responses, which may impact on recovery from acute illness and injury (Sinatra, 2010). Poorly controlled acute pain also increases the risk of developing chronic pain, disability and high health-care use (Lavand'homme, 2011; Radresa et al, 2014).

Patient-controlled analgesia

Patient-controlled analgesia is used to good effect elsewhere in most hospitals, but not usually in emergency patients. A recent study (published by the authors in linked papers in the *BMJ*) (Smith et al, 2015a, b) explored the use of patient-controlled analgesia in patients presenting to emergency departments with non-traumatic abdominal pain or pain from traumatic injury. This study initiated patient-controlled analgesia in the emergency department, which was then seamlessly continued as the patient transferred to an inpatient ward.

The results of this study showed a significant improvement in pain scores for patients with abdominal pain who were allocated to receive patient-controlled analgesia, suggesting that there may be a benefit in giving patient-controlled analgesia to this group. Patients spent significantly less time in moderate or severe pain, and were more likely to be very or perfectly satisfied with their pain management. As has been demonstrated in previous studies of patient-controlled analgesia, opioid intake was roughly doubled in patients given this analgesic modality.

In patients with traumatic injuries, a modest (but non-significant) reduction in pain was seen in patients allocated to the patient-controlled analgesia group compared with the routine care group. Patients in the patient-controlled analgesia group were more likely to be very or perfectly satisfied with their pain management.

Managing pain in the emergency department

So where does this leave us in terms of what we should do for patients in pain in our emergency departments?

It is clear that patients are more satisfied with this approach to delivery of opioid analgesia, and it certainly delivers more drug than if analgesia is given as nurse-delivered boluses. Patient-controlled analgesia should therefore be part of the armoury of analgesic options available to patients and clinicians in the emergency setting. It also appears that not all patients benefit equally from this approach and careful patient selection is likely to optimize outcome. Patient-controlled analgesia would seem to be an appropriate choice for patients likely to require repeated doses of intravenous morphine, or those who are predicted to be difficult to manage, such as those with pelvic and spinal injuries, abdominal pain or burns.

The apparent reduced efficacy of this therapy in patients with pain of traumatic origin may reflect the impact of non-pharmacological interventions to reduce pain such as immobilization of fractures by splintage. Additionally, other techniques such as regional anaesthesia may be more appropriate for certain injuries or patient groups, such as hip fracture in elderly patients. Also, new methods of delivering potent analgesics, without the need for intravenous access, are now used in emergency departments around the world, including intranasal and inhalational routes (Coffey et al, 2014; Kendall et al, 2015).

This research has answered one question, but many remain. Further areas of research include the study of novel methods of drug delivery (intranasal, buccal, inhaled), new drugs (such as methoxyflurane), or new ways of administering established atypical analgesics (such as ketamine). It is essential that patient preference and acceptability

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KEY POINTS

- Pain is common in emergency patients, but is often difficult to manage effectively.
- Patient-controlled analgesia is more effective than usual care in some groups of emergency patients.
- Patient-controlled analgesia should be available for use in emergency departments.
- Patient-controlled analgesia may be particularly useful when managing patients with ongoing requirements for repeated opioid doses.

remain at the heart of these research efforts, and that outcomes measured are relevant to the emergency department patient population.

Conclusions

Multimodal analgesia including opiates is effective at managing pain in emergency patients, but significant improvements can be gained by using patient-controlled analgesia in some groups. Patient-controlled analgesia should be considered as an option when managing patients with ongoing requirements for repeated opioid doses, and should be continued in a seamless manner onto the admitting wards to minimize the risk of analgesic gaps.

Analgesic utopia may still be a long way off, but perhaps the use of patient-controlled analgesia will go some way to optimizing pain relief for those most in need of it. **BJHM**

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