Acute pain in the emergency department: the challenges

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KEY WORDS

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SUMMARY POINTS

- Acute pain is the reason that the majority of patients present to the emergency department.
- Failure to adequately treat acute pain in the emergency department has been labelled a public health problem.
- The College of Emergency Medicine has set standards for the timelines and adequacy in management of pain in both adults and children.
- Joint Care Quality Commission and College of Emergency Medicine national audit demonstrates the gap between standards and current practice.
- The new Department of Health clinical quality indicators for emergency medicine do not include a measure of pain.
- Untreated pain can have short and long term effects, including sensitisation to pain episodes in later life.
- A range of non-pharmacological and pharmacological interventions have been shown to be effective for procedural pain management in infants and children, and are most effective when used in combination.
- Developmental changes in pain responses, analgesic response and drug pharmacokinetics need to be taken into account when planning procedural pain management for neonates.
- Comprehensive evidence based guidelines are available to guide effective procedural pain management in neonates, infants and older children.

Introduction

'All stressors in health care converge in the emergency department (ED). The clearest window on the.... health care system is provided by the ED...this certainly seems to be the case with regards to the management of pain'(1).

Almost twenty million people attend emergency departments (ED) each year in the UK (2). This number has increased by 6–7% year

on year (3). The prevalence of acute pain in the ED has been widely recognised; acute pain is one of the most commonly cited reasons for ED attendance (4). Indeed, evidence supports the statement that around 7 out of 10 patients come to the ED because they are in pain (4).

The North American perspective

In the USA acute pain has been widely acknowledged as a public health problem (1, 5, 6). The Joint Commission on Accreditation of Healthcare Organisations (JCAHCO) sets standards by which all healthcare organisations are measured and has the jurisdiction to levy financial penalties for organisations unable to meet the pre-specified standards. JCAHCO made recommendations over ten years ago advocating pain assessment on admission and discharge (7). However, despite this, there is no convincing body of evidence from the USA that improvements have been made; as one author comments 'there is little evidence that such documentation has improved pain management and understanding in the ED' (6).

Pain in the emergency department

The result of the Pain and Emergency Medicine Initiative (PEMI) multicentre study was published in 2007 (4). This was a prospective observational multicentre study of the patient experience of moderate to severe pain and recruited patients from 20 North American emergency departments. The study recruited only 840 patients from all sites. Although the number of patients having pain assessments was over 80% (in line with the JCAHCO recommendations) only 60% of patients received any analgesia, often after lengthy delays (median 90 minutes, range 0-962 minutes) and any reassessment of pain was uncommon. The authors concluded that moderate to severe acute pain is inadequately managed in the ED (4). This partly resulted in further revisions in the JCAHCO standards, and a joint statement by the American College of Emergency Physicians in collaboration with the American Pain Society, American Society for Pain Management Nursing and the Emergency Nurses Association on the timelines and adequacy of analgesia, which emphasised the responsibility of both the nurse and the physician in managing pain (8).

The state of play in the UK

The UK experience has been different from the USA in some respects, although parallels exist. The College of Emergency Medicine (CEM) has been cognisant of the need for a prioritised improvement in the management of acute pain. The Clinical Effectiveness Committee of the CEM has published evidence-based guidelines on the treatment of pain in both adults and children (9, 10). These guidelines incorporate the need for prompt recognition of pain, as well as the accurate numerical recording of pain scores. They also set the standard for the treatment of pain within 20 minutes of arrival in the ED and reassessment within 60 minutes. It is acknowledged by the authors that the evidence base for the guidelines is poor.

The UK experience differs in that there has been transparent data collection across the UK allowing a comprehensive review of current practice nationwide. The Care Quality Commission (CQC) has worked collaboratively with the CEM to undertake national annual audits on the management of acute pain in both adults and children

in the ED (11). The purpose of these audits is twofold: firstly, enabling current performance in emergency departments to be assessed against CEM clinical effectiveness standards and the results to be compared to other departments; and secondly to monitor progress nationally and to enable individual hospitals to compare current and previous audit results. Collectively, over 70% of UK emergency departments routinely contributed to the data.

It is widely recognised that the treatment of pain in children has in the past been inadequate (12). National audit data for the UK has been collected by CEM and CQC on the management of moderate to severe pain in children aged between 5 and 15 years presenting to EDs. Each department is required to audit the management of 50 consecutive cases attending with acute pain. The audit has been undertaken annually since 2003 (with the exception of 2006). The most recent audit return for 2009 represents data from over 5,000 children. The audit findings demonstrated a progressive increase in the number of children having pain scores recorded on arrival (56% in 2009). Appropriate analgesia (the correct dose and via the correct route) was delivered in 60% of cases, with 72% receiving pain relief within 60 minutes of arrival in the department. Although there has been an improvement in the indices recorded since 2003, the figures fall considerably short of the CEM recommendations.

The second national CEM/CQC audit primarily concerns pain management of patients with a fractured neck of femur. Clear evidence exists of under-prescribing of analgesia in the elderly (12, 13). This dovetails with the National Institute for Innovation and Improvement integrated care pathway for the management for patients with a fractured neck of femur (14). This is a multidisciplinary pathway which was established in response to the high mortality and morbidity associated with this common presentation in the UK. The audit has taken place annually since 2004 and the most recent audit (2009) reflects over 5,000 patients. The audit figures show that 62% patients had a pain score taken on arrival, the proportion of patients receiving pain relief within 60 minutes was 46%, and 72% were deemed to have had appropriate analgesia administered according to the guidelines. These latest findings again fall short of the CEM standards.

Ongoing work on acute pain in the ED

Interestingly the detail regarding what 'appropriate analgesia' actually consists of is missing from the national audits. The CEM audits state that analgesia must be given in accordance with 'local guidance'. However, there is controversy regarding best practice for acute pain management in many conditions, including those in the CEM audits. For example, there is good evidence that a 'three in one' femoral nerve block with bupivacaine combined with IV morphine was more effective than IV morphine alone in patients with a fractured neck of femur in the emergency department (15, 16). There is increasing evidence that a fascia iliaca block (FIB) is a reasonable alternative with significantly improved pain scores and reduced IV morphine requirement (16). The FIB trial is a two group randomised equivalence trial investigating the effects of the fascia-iliaca block

versus the 'three-in-one' block in patients with a fractured neck of femur. It is on the UK Clinical Research Network Study Portfolio and is currently recruiting (17). Further high quality evidence may lead to clearer guidance from the CEM regarding what is deemed to be appropriate analgesia and may encourage wider use of regional blocks.

The most recent CEM executive summary of the national audit voices concern about the wide variation across the country between the better performing trusts and those below the 25th centile (11). Additionally the report comments that, despite over 70% of EDs participating in the audit, it might be assumed that those departments who do not participate are likely to be the ones which are performing poorly in managing acute pain. It notes that the current focus on quality indicators could lead to local and national pressure to comply with the audit. Although the aims are laudable there is little practical advice within the document to set out how to achieve the targets and neither is there any statutory requirement to comply with the data collection.

Discussion

It is widely acknowledged that acute pain represents a significant part of the ED workload and there is evidence that is not well managed in the ED. National audit data exist to demonstrate that acute pain is not well recognised and suggest that it is inadequately managed, both through delayed administration of analgesia and under-treatment. Alternatively, it could be posited that documentation is not of a sufficiently high standard to disprove this.

It is important to consider the reasons why this may be the case. In the ED acute pain represents a huge spectrum of disease processes. Every single attendance requires a history, examination and the appropriate investigations to facilitate patient management and their ultimate disposal. For example, a 70 year-old man presenting to the department complaining of chest pain may be correctly identified as having an acute anterior myocardial infarction through accurate history taking, examination and correct ECG interpretation. He needs anti-platelet therapy and a trip to the catheter suite for primary angioplasty. Hospitals are measured on how quickly this particular pathway is delivered for a valid reason. Timely intervention in acute myocardial infarction, both in terms of delivery of anti-platelet therapy and primary intervention, saves lives (18), and in many cases treatment of the underlying condition is also of analgesic benefit.

Barriers to acute pain management in the ED

The priority for the clinician in the ED is often reaching the correct diagnosis and this is likely to hold true for patients too (1). Emergency physicians manage risk and the emergency department is a high-risk environment (19). Adverse events are related to diagnostic errors, management errors and incorrect discharge disposal (20) with a significant mortality and morbidity (21). This goes some way to explaining the widespread belief that acute pain is a 'diagnostic

indicator rather than an outcome deserving of attention in its own right' (4).

There is evidence too that ED overcrowding is associated with poor quality of care for patients with severe pain. A retrospective cohort study undertaken in a single centre in North America reviewed the notes of all patients in a 12 month period complaining of severe pain at triage (over 13,000 patients). Multivariate analysis demonstrated that the times of departmental overcrowding were significantly associated with either a lack of analgesia or long delays in the delivery of analgesia (22). Evidence also exists to demonstrate that particular groups, including older adults with hip fractures, are at risk of delays in pain management at times of ED overcrowding (13).

Ethnicity is also relevant in any discussion on the ED management of acute pain. A single centre retrospective review of around 300 patients with long bone fractures in inner London found no disparity between the different ethnic groups and delivery of analgesia (23). However, a larger multicentre study on over 67,000 patients presenting with migraine, back pain and long bone fractures found that, although all groups were as likely to receive analgesia, the prescribing of opioids was more common in whites (24).

The attitude of the healthcare worker in the ED may also be contributory to the problem through working in a 'culture that supports significant detachment from patients' (1). It is 'possible that the observation of painful experiences on a daily basis may blunt a clinician's capacity to appreciate pain' (12). It is proposed that a tolerance or even a detachment from it may develop. The reasons are complex and difficult to fully elucidate: the high volume of patients passing through the departments may be partly to blame (1).

Future directions

Some aspects of performance in emergency medicine in the UK have been under close scrutiny for some time now. The four-hour waiting time standard launched in 2004 changed patient pathways through the emergency department beyond recognition. Eight new clinical quality indicators have recently replaced the four hour target (25). The national clinical director for urgent and emergency care has developed the new indicators working in collaboration with the CEM, the Royal College of Nursing and the Department of Health. The indicators have an ambitious aim:

'to present a comprehensive and balanced view of the care delivered.....and accurately reflect the experience and safety of patients and the effectiveness of the care they receive' (25).

The rate of unplanned returns is one of the new clinical quality indicators (25). The rationale behind this is that it is widely accepted that patients may re-attend because of the wrong initial diagnosis, the wrong treatment or poor explanation by clinicians. A prospective observational cohort study at a single centre found an association between unplanned returns and painful conditions (26).

All indicators are numerical except one narrative indicator. This final indicator is designed to reflect the experience of patients and what has been done to improve services in the light of results. Whilst it is anticipated that local audit will continue to be important to monitor standards of care, arguably, it is a failing of the new indicators that pain management did not feature more prominently.

Evidence exists for multi-faceted interventions to improve the delivery of pain relief in the ED (27). Perhaps predictably, education is a significant element in any process of change and improvement. In August 2010 a new curriculum for trainees in emergency medicine in the UK was implemented. Pain management is given a much higher focus than the previous iterations of the curriculum (28).

'If improvement of pain is to occur, then there needs to be modification of the teaching of pain and pain management at the medical school level, continuing on through residency training' (6).

Summary

The research evidence of the management of acute pain in the ED is drawn largely from observational cohort studies with few high quality studies. National guidance (which frames parameters of the national audit) is therefore bereft of a good evidence base of support, except that which demonstrates a failure to deliver reduction in acute pain. In the absence of high quality evidence, guidance remains no more than consensus statements of good intent. National audits demonstrating substandard practice will probably continue when there is no local or national accountability for the results.

In summary, acute pain has been labelled a public health problem. As one author acknowledges: 'Frankly, everyone knows that their child or their spouse or they themselves may one day be dependent on an emergency department in a time of pain and suffering' (1). Numbers attending the ED (in the UK) are increasing year upon year. Management of acute pain, perhaps not surprisingly, is worst when departments are busiest. Those sent home in pain are more likely to re-attend. Pain management is worse in the more vulnerable groups, including the elderly and children. Unfortunately, attitudes of staff prevalent in the department may be a contributory factor. In the UK, national audit data has continued to demonstrate that current standards fall well below those deemed to be acceptable by national guidance. Sadly, new clinical quality indicators have neglected to address this problem directly. As suggested by the challenges and barriers discussed in this paper, the new generation of emergency physicians are going to have their work cut out for them.

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