A protocol to improve analgesia use in the accident and emergency department

S W Goodacre, R K Roden

Abstract
Objective—To assess the use of analgesia in an accident and emergency (A&E) department and identify shortcomings.
Setting—University teaching hospital.
Methods—An audit of patients referred from the A&E department to orthopaedic fracture clinic (n = 100) or for orthopaedic admission (n = 100) was carried out to document analgesia use. An analgesia protocol was introduced and analgesia use was reassessed on the same numbers of patients.
Results—Prescribing of analgesia was initially poor: 91% of fracture clinic referrals and 39% of admissions received no analgesia while in the A&E department; when given, it was often by inappropriate routes. Introduction of an analgesia protocol significantly improved analgesia use: fracture clinic referrals receiving unsatisfactory analgesia were reduced from 91% to 69% (P < 0.001). There was a marked increase in the use of intravenous analgesia, from 9% to 37% (P < 0.001).
Conclusions—Large numbers of patients still receive no analgesia while in the A&E department. This seems to be a common problem requiring intervention at a national level. The absence of a coordinated approach to improving analgesia provision for acute trauma in the United Kingdom should be addressed urgently.

Key terms: analgesia; acute trauma; protocol; audit

Discussion
The management of pain in acute trauma is often neglected. Patients arriving at A&E departments with acute trauma are unlikely to have received sufficient analgesia, so responsibility lies with the attending doctor. Our study showed that before intervention many patients received no analgesia at all. The introduction of a protocol, however, significantly improved management. The protocol also led to more appropriate analgesic use. Intravenous analgesia is superior to intramuscular analgesia for reasons of speed of onset, reliability of uptake, and the ability to titrate doses to response. The number of orthopaedic admissions receiving intravenous
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opiates increased by 28% following the introduction of the protocol.

We were particularly successful in improving analgesia for patients with fractured neck of femur. Perhaps the value of intravenous titration of doses is better appreciated in the elderly population who typically suffer this injury.

In spite of this progress, many patients still receive no analgesia or inappropriate analgesia. The use of intramuscular diclofenac was unchanged by our protocol. Its use in acute trauma has not been fully assessed and it has no clear advantages over other forms of analgesia. Its use may owe more to its convenience to the physician than to proven efficacy for these injuries. When opiates are contraindicated, however, ketorolac may provide a useful alternative.

Analgesia seems to be a neglected area in the management of acute trauma; few studies have been published and there is little evidence of

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**Analgesia guidelines**

- **Assess ABC**
  - **Normal**
  - **Impaired**
  - **Resuscitate**

- **Consider**
  - Splintage
  - or local techniques

- **Any significant head injury?**
  - **Yes**
  - **No**

- **Determine group**
  - (See Over)
  - **If severe**
    - **IM morphine**
    - **IV morphine**
    - **Naloxone**
  - **IV morphine**
    - **Unconscious**
    - **Vascular access difficult**

- **IV morphine acceptable**

- **Oral analgesia**
  - (if severe)
  - **IM morphine**
  - **Diclofenac**
  - **Ketorolac**

- **Notes:**
  1. Act on clinical suspicion—do not wait for x rays.
  2. Use Entonox during assessment.
  3. All opiates must be given with an IV anti-emetic in adult patients.
  4. Avoid NSAIDS in patients with peptic ulcer disease, asthma, renal failure, the elderly and those taking anticoagulants.

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**Group 1**
- Multiple trauma
  - Femoral shaft
  - Unstable pelvic
  - Unstable spinal
  - Dislocated hip
  - Acetabulum
  - Tib and fib
  - Dislocated elbow

**Group 2**
- Neck of femur
  - Tibial plateau
  - Dislocated shoulder
  - Stable spinal
  - > 2 ribs
  - Humeral shaft

**Group 3**
- Tibia or fibula
  - Mallolar
  - Tarsal/metatarsal
  - Supracondylar elbow
  - Olecranon
  - radius and/or ulna

**Group 4**
- Neck of humerus
  - Sternum
  - Clavicle
  - Coccyx/sacrum
  - Simple hand/foot
  - 2 ribs
  - Ac dislocation
  - < 2 ribs
  - Avulsion

**Protocol for analgesia administration. #, fracture**
Improving analgesia use in the A&E department

Table 1 Fracture clinic referrals

<table>
<thead>
<tr>
<th>Fracture site</th>
<th>Initial audit</th>
<th>Repeat audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forearm</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>Lower leg/ankle</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Hand/foot</td>
<td>35</td>
<td>17</td>
</tr>
<tr>
<td>Others</td>
<td>17</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 2 Analgesia given to fracture clinic referrals

<table>
<thead>
<tr>
<th></th>
<th>Initial audit</th>
<th>Repeat audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>No analgesia offered</td>
<td>91</td>
<td>69</td>
</tr>
<tr>
<td>Declined analgesia</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Compound codeine-paracetamol</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Oral diclofenac</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>IM diclofenac</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>IM opiate</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>IV opiate</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Local anaesthetic block</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IM, intramuscular; IV, intravenous.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 Orthopaedic admissions

<table>
<thead>
<tr>
<th></th>
<th>Initial audit</th>
<th>Repeat audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck of femur</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>Forearm</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Lower leg/ankle</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Others</td>
<td>36</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 4 Analgesia given to orthopaedic admissions

<table>
<thead>
<tr>
<th></th>
<th>Initial audit</th>
<th>Repeat audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>No analgesia offered</td>
<td>39</td>
<td>22</td>
</tr>
<tr>
<td>Declined analgesia</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Oral diclofenac</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>IM diclofenac</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>IM opiate</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>IV opiate</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>Local anaesthetic block</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Oral morphine</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>IM, intramuscular; IV, intravenous.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Analgesia given to orthopaedic admissions with fractured neck of femur

<table>
<thead>
<tr>
<th></th>
<th>Initial audit</th>
<th>Repeat audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>No analgesia offered</td>
<td>4 (27%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>IV opiate</td>
<td>0</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>IM opiate</td>
<td>8 (53%)</td>
<td>10 (31-5%)</td>
</tr>
<tr>
<td>IM diclofenic</td>
<td>3 (20%)</td>
<td>3 (9-5%)</td>
</tr>
<tr>
<td>Declined analgesia</td>
<td>0</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>IV, intravenous; IM, intramuscular.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

The use of audit and a protocol can improve the provision of analgesia in the A&E department when introduced locally. However, only limited improvements will be achieved until nationally recognised guidelines are developed. This important area of patient care deserves much more attention.

We thank Dr Liddy Goyder for help with statistical analysis.