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.**

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Key terms: analgesia; acute trauma; protocol; audit

There have been very few studies to assess the adequacy of analgesia prescribed in accident and emergency (A&E) departments. Those that have been published[eg 1] have shown inadequate provision of analgesia. We aimed to assess the use of analgesia within our department and identify shortcomings. Having done this we devised a protocol for intervention and assessed whether this was successful. We chose acute skeletal injuries as a well defined group of unequivocally painful injuries that could readily be assessed.

Methods

One hundred consecutive referrals to the fracture clinic and 100 orthopaedic admissions were analysed for the following data: (1) patient's sex and age; (2) injury sustained; (3) analgesia given in A&E department: drug used, dosage, route of administration.

Patients with significant head injuries, referrals from other hospitals, admissions without fractures (that is, nerve or tendon injuries), and patients with injuries over 12 hours old were not included.

The results of this audit were presented at a staff meeting. An analgesic protocol (figure) was then introduced and circulated through the department to all staff.

Over the following one month a further 100 consecutive referrals to fracture clinic and 100 orthopaedic admissions were then assessed using the same criteria.

Results

FRACTURE CLINIC REFERRALS

These were divided into four groups: forearm, lower leg/ankle, hand/foot, and others. The numbers of fractures assessed in the initial and repeat audit are shown in table 1. The analgesia given is detailed in table 2.

Fracture clinic referrals receiving unsatisfactory analgesia were reduced from 91% to 69%, a difference of 22% (95% confidence interval 10·9% to 33·1%, $P < 0.001$).

ORTHOPAEDIC ADMISSIONS

These were also divided into four groups: neck of femur, forearm, lower leg/ankle, and others. The numbers of fractures assessed are given in table 3 and the analgesics used in table 4.

Orthopaedic admissions receiving unsatisfactory analgesia were reduced from 39% to 22%, a fall of 17% (95% confidence interval 4·2% to 29·8%, $P = 0.009$). The number of orthopaedic admissions receiving intravenous opiates increased by 28%, from 9% to 37% (95% confidence interval 16·3% to 39·7%, $P < 0.001$). The most appreciable improvements in analgesia used were obtained treating patients with fractured neck of femur (table 5).

Discussion

The management of pain in acute trauma is often neglected.[1 2] Patients arriving at A&E departments with acute trauma are unlikely to have received sufficient analgesia,[3] 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.[4–6] 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.[4] 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.[6 7]

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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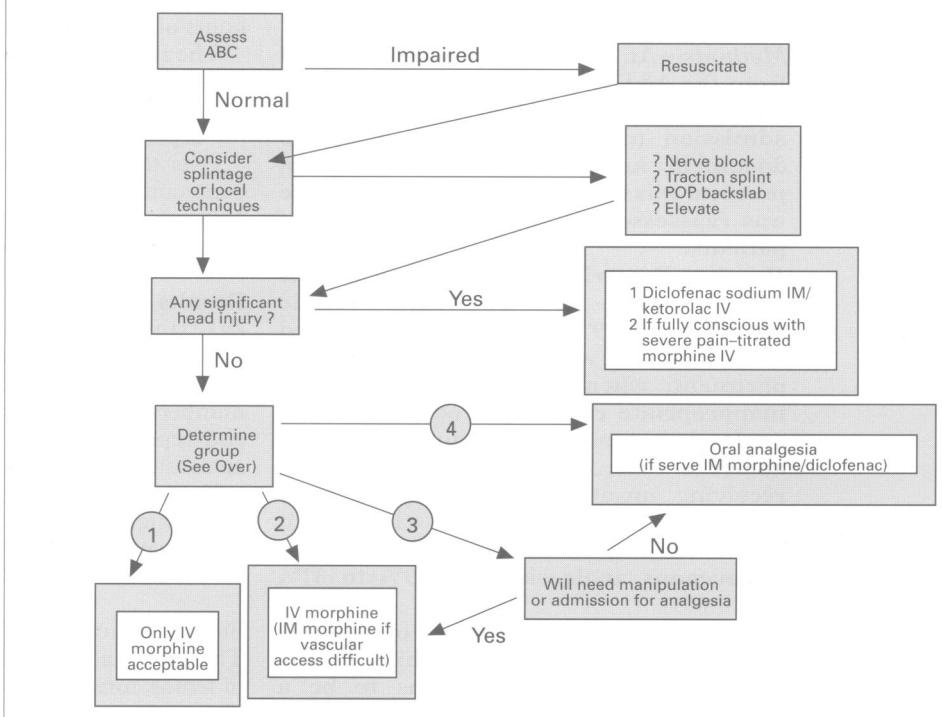

Notes : 1 Act on clinical suspicion–do not wait for *x* rays.
2 Use Entonox during assessment.
3 All opiates must be given with an IV anti-emetic in adult patients.
4 Avoid NSAIDS in patients with peptic ulcer disease, asthma, renal failure, the elderly and those taking anticoagulants.

B

Group 1	Multiple trauma # Femoral shaft Unstable pelvic # Unstable spinal # Dislocated hip # acetabulum # Tib and fib Dislocated elbow	Group 3	# Tibia *or* fibula Malleolar # Tarsal/metatarsal # Calcaneal # Supracondylar # elbow # olecranon # radius and/or ulna
Group 2	# Neck of femur # Tibial plateau Dislocated shoulder Stable spinal # # > 2 ribs # humeral shaft	Group 4	# Neck of humerus # Sternum # clavicle # coccyx/sacrum Simple hand/foot #s/dislocations # Pubic ramus AC dislocation # < 2 ribs Avulsion #

Protocol for analgesia administration. #, fracture

Table 1 Fracture clinic referrals

Fracture site	*Initial audit*	*Repeat audit*
Forearm	35	42
Lower leg/ankle	13	17
Hand/foot	35	17
Others	17	24

Table 2 Analgesia given to fracture clinic referrals

	Initial audit	*Repeat audit*
No analgesia offered	91	69
Declined analgesia	0	4
Paracetamol	4	5
Compound codeine-paracetamol	1	4
Oral diclofenac	0	3
IM diclofenac	4	8
IM opiate	0	3
IV opiate	0	3
Local anaesthetic block	0	1

IM, intramuscular; IV, intravenous.

Table 3 Orthopaedic admissions

	Initial audit	*Repeat audit*
Neck of femur	15	32
Forearm	32	18
Lower leg/ankle	17	17
Others	36	33

Table 4 Analgesia given to orthopaedic admissions

	Initial audit	*Repeat audit*
No analgesia offered	39	22
Declined analgesia	0	2
Paracetamol	1	2
Oral diclofenac	1	1
IM diclofenac	16	12
IM opiate	31	23
IV opiate	9	37
Local anaesthetic block	0	1
Oral morphine	3	0

IM, intramuscular; IV, intravenous.

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

	Initial audit	*Repeat audit*
No analgesia offered	4 (27%)	2 (6%)
IV opiate	0	16 (50%)
IM opiate	8 (53%)	10 (31·5%)
IM diclofenac	3 (20%)	3 (9·5%)
Declined analgesia	0	1 (3%)
Total	15	32

IV, intravenous; IM, intramuscular.

audit. This is surprising, as the relief of pain is one of the principal interventions available to the emergency physician. Indeed, for many of the patients in our study it may be the only intervention made before referral for specialist care. In addition – as our study proves – the provision of analgesia is readily amenable to audit and as such provides a powerful indicator of the quality of medical care in A&E. Perhaps this should be addressed by the Patients Charter.

It is evident that other countries and other specialties have given this subject more attention than our specialty in the United Kingdom. Authoritative guidelines relating to analgesia in acute trauma have been published in the USA[6] and Canada[8] to act as a standard of care for patients. Although widely circulated medical publications[4 9] have approached the subject in the United Kingdom, as yet no coordinated guidelines or standards have been developed. Progress in other specialties is likewise more impressive; the problem of inadequate postoperative analgesia has long been recognised[10] and innovative techniques produced to counter it,[11] while the management of both chronic and cancer related pain is becoming a specialty in itself.

The reasons behind the neglect of analgesia are not clear. Ethnicity has been cited as a possible factor in determining analgesia use[12] and children may also be denied adequate analgesia.[13] There may be a latent period after injury before pain develops, which could be a factor in the assessment of analgesic requirements in A&E.[14] Clearly further work is required in this area. In the meantime the development of guidelines and standards of care by a nationally recognised organisation in A&E medicine should be addressed with urgency.

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.

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