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Abstract Title

Rib fracture care: Are we at breaking point? – A retrospective analgesic review and proposed development of prospective analgesic stratification to improve patient outcomes.

Background

Within the Emergency Department (ED) blunt chest trauma represents approximately 15% of all trauma seen. Chest wall injuries, such as rib fractures, are common. Despite the frequency of patients seen within local practice, in the absence of a cardiothoracic ward, there is no obvious central place of care for isolated blunt chest injury. Aggressive use of analgesia to reduce respiratory complications of inadequately managed pain is well evidenced. This often does not occur due to organisational challenges of where analgesia can be safely delivered. Thoracic epidurals are currently managed within the Intensive Care Unit (ICU), with PCA within ICU or surgical wards. Respiratory teams cannot manage advanced analgesia but can comfortably provide effective respiratory care. A reactive approach currently decides analgesic method based upon occurrence of deterioration, with no standardisation of care. However, expert centres are increasingly advocating the use of a chest injury pathway with analgesia according to prospective risk stratification.

Aims and objectives

To inform the development of an adult chest injury pathway where care and analgesia is stratified under the speciality care of specific teams. To audit current analgesic practice and improve patient outcomes.

Methods

Retrospective audit of adult patients with rib fractures from trauma, admitted to a district general hospital over a 6-month period. Patients identified through TARN, WebPACS imaging system and ED software database, cross-referenced, then imaging and notes reviewed. Demographics, severity and characteristics of injury were recorded, along with pathway through hospital, respiratory support and analgesic requirements, and outcomes including length of stay (LOS) and 30-day mortality.

Results

43 patients identified after review of 2461 imaging reports and 58 sets of notes. Median age 67 (range 32-96). Median 5 fractures (range 1-22). 8 had flail chest (19%). 40 (93%) had unilateral injury. Median hospital LOS 6 days (range 1-25), with median ICU LOS 3 days (range 1-7). 30-day mortality was 11.6%. 12 patients went to Clinical Decisions Unit (28%), 11 ICU (25%), 11 medicine (25%), 4 general surgery (9%) and 5 to orthopaedics (12%). 3 patients deteriorated with poorly controlled pain and respiratory failure on the ward and required ICU admission. 10 patients (23%) received Acute Pain Service (APS) referrals, with 5 receiving advanced interventions as a result. 2 patients received epidurals, 16 received PCA opioid. 20 patients had chest injury score >20, indicative of need for epidural under the new pathway, with 18 scoring 11-20 indicative of need for PCA. 14 (33%) patients had contraindications to neuraxial analgesia (spinal fracture, intracranial bleed, anticoagulation). Of these, 4 received PCAs and

2 deteriorated and were palliated.

Conclusions

The audit demonstrates significant under-analgesia in accordance with regional trauma network guidance. Frequent delayed access to advanced analgesia secondary to clinical environment was noted. It is proposed to change our present 'reactive' analgesic protocol to one based around a risk score using a validated 'Chest Injury Score' to prospectively stratify analgesia. Analgesia would be identified according to injury severity/comorbidities with referrals to the APS at point of admission, facilitating clear analgesic structure. ED and respiratory wards would receive PCA training by the APS, enabling early advanced analgesia and to provide a dedicated hospital pathway for patient care in the less severely injured. Given the high prevalence of epidural contraindications and predominantly unilateral injury pattern, regional catheter based anaesthetic techniques may play a role in future practice.