#3823 - Posters

Early Effective Analgesia For Traumatic Rib Fractures: Is Timing A Priority?

Trauma / Varia Trauma

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Introduction
There is a high mortality in patients who acquire pneumonia after sustaining rib fractures. Published data shows that provision of epidural analgesia is the gold standard in the prevention of pneumonia in these subjects. However use of epidural analgesia requires appropriately trained staff which may delay the onset of effective analgesia (defined as the ability to breathe deeply and cough productively), and the technique can have variable benefit even in expert hands. As a consequence, the time taken to achieve effective analgesia may be unnecessarily prolonged.
Objectives
To examine the hypothesis that the time taken to establish effective analgesia has a significant impact on the incidence of respiratory morbidity, and length of hospital stay in patients sustaining rib fractures.
Methods
We retrospectively analysed patients admitted over 12 months to critical care units (ICS Level 3 and 1-2) at our large teaching hospital. Patients aged >16 years with more than or equal to 1 traumatic rib fracture were included. Data collected were; time to effective analgesia (ability to breathe deeply and cough productively), hospital acquired pneumonia (HAP) incidence, injury severity score (ISS), critical care and total hospital length of stay (LOS). Data was analysed using Student's unpaired t-test.
Results
24 patients were identified. Initial modes of analgesia included epidural (n=12 50%), opioids (n=11 46%), intercostal nerve block (n=1 4%). There were 3 epidural-to-opioid conversions to establish effective analgesia. Patients were divided into 2 groups; early effective analgesia (<12 hours n=10) and late (>12 hours n=14). There was no significant difference in ISS between groups. Early effective analgesia was significantly (p=0.027) associated with reduced incidence of pneumonia when compared to late analgesia (n=2 20% vs n=7 50%). Early effective analgesia was also significantly (p=0.001) associated with reduced mean critical care LOS when compared to late analgesia (6 vs 10 days) and significantly (p=0.001) associated with reduced mean hospital LOS (9 vs 16 days). 30 day mortality rate was 0%.
Conclusions
This data suggests that early effective analgesia limits morbidity and reduces lengths of stay, but further research with a larger cohort is necessary. Priority should be given to timely implementation of simple effective analgesia, such as opioids, as delayed epidural catheter placement does not eliminate risk. We suggest that high risk patients be prioritised (possibly through scoring systems) for immediate critical care admission and selection of optimum analgesic technique.