Use of Regional Anaesthesia in Patients with Rib Fractures in Aberdeen Royal Infirmary

Dr M Smart BMBS
Core Trainee, Aberdeen Royal Infirmary
m.smart1@nhs.net

Dr C Patterson MBChB FRCA
Consultant Anaesthetist, Aberdeen Royal Infirmary
Colin.patterson2@nhs.net

Introduction
Rib fractures are common injuries, seen in a wide range of patients and a wide range of patterns. Providing good analgesia in some of these patients can be challenging, usually due to:
• Poor response to opioids
• Complex injuries
• Excess opioid side effects

Traditionally Thoracic Epidurals (TE) were used to help these patients, but the use is limited by contraindications, side effects, technical skills and need for HDU care.

Similarly to other centres, Aberdeen Royal Infirmary’s Acute Pain Service (APS) has started to use Erector Spinae Plane (ESP) and Serratus Anterior Plane (SAP) blocks and catheters to provide analgesia for these patients.

Methods
Retrospective data collection through the APS specific database of patients with rib fractures, with missing data sought from other APS database and Trak where needed. Data was analysed using Excel. Only patients who had a TE, ESP or SAP were analysed.

Results
Between 1/11/17 and 16/9/19 there were 181 patients known to the APS with rib fractures. The age groups of the 47 patients from this cohort who received a regional technique can be seen in table 1 (range 33-91 years, mean 69 years).

Of these 47 patients: 11 had a TE, 23 had SAP block and 16 ESP block. One patient had TE then SAP, 2 had an ESP and SAP block (not concurrently). The use of each technique, by month, can be seen in Figure 1.

‘Rib Scores’ were available in 46 patients. Scores ranged from 2 – 60 (mean 12.5, SD 10.3).

Data on the duration of ESP or SAP blocks were available for 11 patients. The duration of infusions can be seen in Figure 2.

Table 1. Age of patients

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>51-60</td>
<td>12</td>
<td>25.5</td>
</tr>
<tr>
<td>61-70</td>
<td>6</td>
<td>12.8</td>
</tr>
<tr>
<td>71-80</td>
<td>14</td>
<td>29.8</td>
</tr>
<tr>
<td>&gt;80</td>
<td>10</td>
<td>21.3</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

Conclusions
Patients requiring regional anaesthesia after rib fracture present in a variety of ages and a variety of injuries. Local data shows the use of regional anaesthesia to manage pain after rib fractures is changing. TE’s have been replaced with ESP and SAP blocks and catheters.

The data does not demonstrate efficacy of the techniques, but that they have been embraced by the acute pain team, HDU team, cardiothoracic surgery and physiotherapy. ESP and SAP techniques have advantages over thoracic epidurals, but the best method of assessing efficacy, outcomes, choice of technique and dosing has yet to be demonstrated.