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**MANAGEMENT OF THORACIC TRAUMA USING A REGIONAL BLOCK ROOM IN A TERTIARY TRAUMA CENTRE**

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**Background and Aims** A dedicated regional block room, the first in Scotland, was introduced to Queen Elizabeth University Hospital in 2020, as the West of Scotland Major Trauma Centre was established. Acute Pain Services (APS) maintained a database of all trauma patients receiving regional anaesthesia for rib fractures. We aim to describe this population, injury severity, regional techniques employed and outcomes measures. **Methods** This was a retrospective observational study of patients identified by APS database between 2017 and July 2021. Data was collected from electronic notes. Clinical Frailty Scale<sup>1</sup> and Trauma Injury Severity Score<sup>2</sup> were employed. Outcome measures included time to first block attempt, intravenous morphine equivalent dose (MED) 24-hours post-block compared to 24-hours pre-block, invasive ventilation, critical care length of stay (LOS) and survival to hospital discharge. Caldicott Guardian approval was obtained. **Results** 104 patients were identified (Figures 1 to 3). Mean time to first block was 39.1 hours, median 23 hours. 22.1% required invasive ventilation and mean critical care LOS was 6.9 days. In patients with isolated chest trauma, there was a mean reduction in intravenous MED of 25.8mg. Observed survival to hospital discharge was 93.3%.

Figure 1: Comorbidity profile

| Comorbidity                         | Number of Patients (%) |
|-------------------------------------|------------------------|
| BMI >40                             | 6 (5.8%)               |
| Anticoagulated                      | 12 (11.5%)             |
| Chronic Pain                        | 15 (14.4%)             |
| Severe Respiratory Disease          | 19 (18.3%)             |
| Age >65                             | 49 (47.1%)             |
|                                     | Mean/Median            |
| Median Clinical Frailty Scale Score | 3                      |
| Mean Age [Years]                    | 63.6                   |

**Abstract B40 Figure 1**

Figure 2: Injury Severity Measures

| Severity Measure                     | Number of Patients (%) |
|--------------------------------------|------------------------|
| Bilateral Fractures                  | 26 (25%)               |
| Flail Chest                          | 51 (49%)               |
| Isolated Chest Trauma                | 36 (34.6%)             |
|                                      | Mean                   |
| Number of Rib Fractures              | 7.5                    |
| Injury Severity Score                | 16.0                   |
| Revised Trauma Score                 | 7.5                    |
| Trauma Injury Severity Score (TRISS) | 0.93                   |

**Abstract B40 Figure 2**

Figure 3: Regional anaesthesia technique

| Technique                                | Number of Patients (%) |
|------------------------------------------|------------------------|
| Erector Spinae Plane Block               | 77 (74%)               |
| Serratus Anterior Plane Block            | 21 (20%)               |
| Bilateral Pectointercostal Fascial Block | 2 (1.9%)               |
| Epidural                                 | 2 (1.9%)               |
| Paravertebral Block                      | 2 (1.9%)               |
| Total                                    | 104                    |

**Abstract B40 Figure 3**

**Conclusions** Patients with rib fractures are at significant risk of pulmonary complications without timely access to high quality analgesia. We observed a mean reduction in opioid consumption following regional technique in the isolated chest trauma cohort. Provision of regional analgesia was facilitated by a dedicated block room during a time of increasing demand. Our next goal is to develop a rib fracture pathway to further improve patient care.

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**DEVELOPING A REALISTIC AND ECONOMICAL ULTRASOUND GUIDED BLOCK PHANTOM USING HIGH FIDELITY TISSUE MIMICKING TECHNIQUES, 3D PRINTING, AND INNOVATIVE MATERIALS**

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**Background and Aims** Ultrasound-guided regional anaesthesia education continues to rely on patient or live-model based training. Teaching phantoms with accurate sonoanatomy are scarce; those which are available lack realism<sup>1</sup> and are prohibitively expensive<sup>2</sup>. We evaluated the feasibility of a novel manufacturing process to create low-cost high-fidelity USGRA training phantoms, exemplified by an ESP block simulator. **Methods** A 3D model of a container enclosing a thoracic spine fragment was designed using CT segmentation and Fusion 360 CAD (Figure 1/A). This was 3D printed by fused deposition modelling of biodegradable polylactic acid. The enclosure was filled with mineral oil resin gel wax and 0.05% TiO<sub>2</sub> (Figure 1/B), facilitating a tissue-like image. Silicone and polypropylene were interspersed within the gel to simulate muscle layers. The complete phantom was incorporated into a manikin torso covered with silicone 'skin', establishing a life-like presence (Figure 1/C). The materials cost was € 18, and 15 hours required for 3D-printing. Anaesthetists of all grades (n=23, 10 consultants, 13 trainees) were invited to evaluate the phantom.