

TRAUMA AND THE OLDER PERSON

# Chest trauma Case discussion

Participant resource kit





#### **Queensland Trauma Education**

The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

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#### **Queensland Trauma Education**

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## About this training resource kit

This resource kit provides healthcare workers with the knowledge to effectively assess and manage the elderly patient with blunt chest trauma.

#### National Safety and Quality Health Service (NSQHS) Standards













#### Learning objectives

By the end of this session the participant will be able to:

- Recognise the risk for significant injury with low velocity trauma in the elderly.
- Assess the impact of co-morbidities and frailty on injury and management options.
- Perform a multi-disciplinary approach to care.
- Understand a patient centred focus with attention to the barriers to effective treatment.

#### **Supporting resources**

Clinical Practice Guideline: Flowchart: Blunt Chest Trauma - Queensland Health

#### Flowchart: Blunt Chest Trauma

Follow ATLS/EMST guidelines for initial assessment and management of all trauma patients

# For specific blunt chest trauma: Assessment and Management

If the patient is unable to cough, take a deep breath or mobilise – an inpatient admission is required.

Consider an ICU review when any clinical deterioration is detected (e.g. ↑ 02 or flow demand, ↑WOB, ↑ADDS score, ↓SpO2 or multiple red flags present). Escalate care as per local guidelines.

Arrange a review by the appropriate clinical team

Consider transfer to a major trauma centre and ensure early activation of the retrieval process<sup>35</sup> through **RSQ** (1300 799 127) where applicable

#### Red flags for potential deterioration

Age >55years
Uncontrolled pain

#### Previous lung disease:

Smoker, COPD, asthma Morbid obesity

#### Respiratory compromise:

↑WOB, ↑RR, ↓SpO2 ≥3 fractured ribs Shallow breathing Inability to cough

#### **Associated injuries:**

Pneumothorax or haemothorax Pulmonary contusion Flail chest

#### Admission

#### **Intensive Care/High Dependency Unit:**

Respiratory management above ward-level care

Haemodynamic monitoring requirement Inotrope requirement

And/or other injuries requiring ICU management

#### **Ward Admission**

Admission to either a surgical or medical ward bed will be dependent on local patient admission procedures. The patient management should be supported by the appropriate treating team/s.

#### **Telemetry Bed**

If there is clinical concern for cardiac contusion or a new ECG change and/or elevated troponin:

Continuous cardiac monitoring (telemetry) is indicated for 24 to 48hrs<sup>1,2</sup> Cardiology review/admission for consideration of echo

#### **Transfer to Major Trauma Centre**

Consider transfer to a major trauma centre for the following patients, as per local guidelines.

Ensure early activation of retrieval with RSQ Significant major trauma involving more than one body region

Patients requiring ventilatory support
Haemothorax with significant ICC drainage
Large tracheobronchial injury, cardiac
tamponade, clinical flail chest
Sternal fracture with cardiac contusion
Mediastinal or great vessel injury<sup>3</sup>
Consideration of surgical rib fixation<sup>4</sup>

Clinical Practice Guideline - Blunt chest trauma

#### Ward-based Care

Consider respiratory adjuncts, analgesia requirements, and prevention of complications



#### Respiratory Adjuncts

Incentive Spirometry
Hourly deep
breathing
Supported cough
Daily review by
Physiotherapist
Consider HFNP
(Flow/Fi02 and
target SpO2 to be
documented in the
patients' medical
record)



#### Analgesia

Referral to the Acute Pain Management Service (or equivalent if available) once a decision is made to admit the patient. If any RED FLAG risk factors are present, also refer for consideration of a Regional Block or PCA. Ensure regular oral analgesia is available Simple analgesia - paracetamol (age/weight appropriate dose)

**NSAID** - if clinically appropriate, review every 3 days

**Oral Opioids -** immediate or slow release or PRN

Patient Controlled Analgesia (PCA) - Opioid Regional blocks - Erector Spinae Plane (ESP), Serratus Anterior Plane (SAP), Intercostal Nerve (ICN), paravertebral Epidural

**Other -** Ketamine - continuous infusion, Gabapentinoids



#### Complication Prevention

Early documented clearance to mobilise Encourage sitting out of the bed Elevate bedhead Daily chest physiotherapy Early nutrition Regular aperients VTE prophylaxis (chemical and/or mechanical)



#### **Discharge Planning**

Wean HFNP and analgesia as clinically indicated

Liaise with multidisciplinary team on any barriers to discharge such as mobility, carer support, home environment, return to work/activity limitations

Discharge home when pain well controlled on oral analgesics and respiratory function optimised

- Provide prescriptions for oral analgesia and aperients if required
- Ensure opioid weaning plan is documented in the Discharge Summary for the GP
- Arrange all follow up appointments including GP follow up within 3 days of discharge
- Provide patient with an information leaflet or relevant handout
- Arrange all follow up appointments including GP follow up within 3 days of discharge

#### Consideration for special patient groups

**Elderly frail patients aged >65** - Early recognition, low threshold for CT, GP/Geriatrician/medical input, and opioid sparing analgesia strategies i.e. regional blocks.

Obstetric trauma patients Refer to Maternity and Neonatal Clinical Guideline *Trauma in Pregnancy*<sup>5</sup> Paediatric trauma patients Refer to Paediatric Trauma Service: *Trauma Guidelines 11<sup>th</sup> Edition*<sup>6</sup>

Clinical Practice Guideline - Blunt chest trauma

# Overview of blunt chest trauma in the older person

The poorer outcomes in the elderly trauma population with rib fractures following blunt chest trauma is likely to be multifactorial and related in part to reduced physiological reserve and the contribution of medical comorbidities. They also suffer an increased rate of complications from the injury and hospital admission when compared to a younger cohort.<sup>1,2</sup>

Given the increased susceptibility to complications, the provision of adequate analgesia to allow the patient with rib fractures to maintain an appropriate respiratory tidal volume will prevent atelectasis, pneumonia and other pulmonary complications.<sup>3</sup>

#### **Further reading**

Comprehensive approach to the management of the patient with multiple rib fractures: a review and introduction of a bundled rib fracture management protocol	
Publication	Trauma Surgery & Acute Care
Link	http://dx.doi.org/10.1136/tsaco-2016-000064

Rib fractures in the elderly	
Publication	J Trauma
Link	https://pubmed.ncbi.nlm.nih.gov/10866248/

# **Acronyms and abbreviations**

Term	Definition
СТ	computed tomography
PCA	patient controlled analgesia

### References

- Witt CE, Bulger EM. Comprehensive approach to the management of the patient with multiple rib fractures: a review and introduction of a bundled rib fracture management protocol. *Trauma Surgery & Acute Care Open 2017;2*:e000064. <a href="http://dx.doi.org/10.1136/tsaco-2016-000064">http://dx.doi.org/10.1136/tsaco-2016-000064</a>
- Bulger E, Arneson M, Mock C, Jurkovich G. Rib Fractures in the Elderly. The Journal of Trauma: Injury, Infection, and Critical Care: June 2000 – 48:6 – p1040-1047 <a href="https://pubmed.ncbi.nlm.nih.gov/10866248/">https://pubmed.ncbi.nlm.nih.gov/10866248/</a>

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