Management of Acute Rib Fractures in University Hospital Monklands

TARGET AUDIENCE	University Hospital Monklands teams caring for patients with acute, traumatic rib fractures. Emergency Department, Surgical and Medical teams, Acute Pain/ Intensive Care
PATIENT GROUP	Adult inpatients admitted with acute, traumatic rib fractures

Clinical Guidelines Summary

Chest Injury Score	
Age	**+1** for every 10 years over age 10
Rib Fractures	**+3** for each individual fracture
Oxygen saturation on air	**+2** for every 5% lower than 95%
Chronic lung disease	**+5**
Anticoagulant/antiplatelet use	**+4** (excludes aspirin 75mg)

Score 0-9

- Regular paracetamol
- Consider regular NSAID + gastric protection (if PO NSAID contraindicated consider topical)
- PRN PO morphine sulfate; 2 hourly (consider oxycodone if GFR <30 or PRN S/C opiates if PO route unavailable)

Unable to deep breathe *and/or* high pain score → **Score 10-19**

- Regular simple analgesia as per low score group
- Regular PO morphine sulfate
- PRN PO morphine sulfate
- Consider oxycodone or S/C options as per low score group

Unable to deep breathe *and/or* high pain score → **Score ≥20**
Or if chest drain in situ

- Regular simple analgesia
- PCA or regional anaesthesia
- Refer to ITU

If patient has had regional anaesthesia/ PCA please consider reducing oral or S/C opiates

Ongoing care for all patients:

- As soon as possible please notify all patients to:
  - Acute pain team #404680 (09:00-17:00)
  - ICU Reg #404653 (17:00-09:00)
- Regularly assess dynamic pain (cough/deep breathing)
- Targeted humidified oxygen +/- nebulisers
- Chest physiotherapy
- Regular laxatives (with opioids)
- PRN antiemetics

Criteria to contact ICU for review/ consideration Level 2/3

- Respiratory compromise
- Flail segment
- Chest drain
- Ongoing high pain score

PLEASE CONSIDER DISCUSS TREATMENT ESCALATION PLAN FOR ALL PATIENTS

Management of Acute Rib Fractures

Guideline Body

Content list:

- Chest injury score
- Analgesia Regime according to chest injury score
- Ongoing care of patients
- Criteria for an urgent ITU review
- Consideration of discussion of Treatment Escalation Plan

This protocol applies to patients admitted with acute, traumatic, rib fractures. The calculated chest injury score is used to risk stratify patient groups and is calculated from factors at initial presentation (e.g. use oxygen saturations from Ambulance Service if necessary). For clarity, each individual fracture is counted, not just ribs involved.

The Chest Injury Score informs the initial analgesia regime to be utilised. If pain is inadequately controlled, the patient can be moved up to the next stage. The dosing interval of 2 hours for oral morphine in the initial stage is suggested as a need for more frequent dosing may indicate that it is more appropriate to move along a stage on the pathway. Use clinical judgment e.g. if patient has a borderline score consider pain/ ability to cough or deep breath or the remaining clinical picture. Adjust accordingly in elderly/frail patients and consider other injuries or co-morbidities.

Please consider items in 'ongoing care' box for all patients. For all non-urgent reviews patients should have a referral to the Acute Pain Team (0900-1700) or contact the ITU Registrar (1700-0900) to handover the patient to the acute pain team in the morning. If any criteria in the 'Criteria for ITU review' box are present or chest injury score >20 please contact ITU for a more urgent review.

Key:

- NSAID: non-steroidal anti-inflammatory
- PO: Oral route
- PRN: as required
- S/C: subcutaneous route
- GFR: Glomerular filtration rate
- PCA: Patient controlled analgesia
- ITU: Intensive Care Unit

References/Evidence

Pressley CM, Fry WR, Philp AS, Berry SD, Smith RS. Predicting outcome of patients with chest wall injury. The American journal of surgery. 2012 Dec 1;204(6):910-4.

May L, Hillermann C, Patil S. Rib fracture management. BJA Education. 2016 Jan 1;16(1):26-32.

Battle C, Lovett S, Hutchings H, Evans PA. Predicting outcomes after blunt chest wall trauma: development and external validation of a new prognostic model. Critical Care. 2014 Feb;18(1):1-82.

Appendices

1. Governance information for Guidance document

Lead Author(s):	Tahlia Sharples
Endorsing Body:	
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CONSULTATION AND DISTRIBUTION RECORD	
Contributing Author / Authors	Ashleigh Connolly, Daniel Silcock, Joanne Breckenridge, Tahlia Sharples
Consultation Process / Stakeholders:	Acute pain/ Anaesthetics/ ICU teams involved in the design of guidelines
Distribution	Emergency Department, Surgical Department, Medical Department, Intensive Care/ Anaesthetics

CHANGE RECORD			
Date	**Lead Author**	**Change**	**Version No.**
		e.g. Review, revise and update of policy in line with contemporary professional structures and practice	1
			2
			3
		.	4

2. You can include additional appendices with complimentary information that doesn't fit into the main text of your guideline, but is crucial and supports its understanding.

e.g. supporting documents for implementation of guideline, patient information, specific monitoring requirements for secondary and primary care clinicians, dosing regimen/considerations according to weight and/or creatinine clearance.