

Pain Management in Patients with Rib Fractures

UnityPoint Health St. Luke's-Sioux City

Purpose: To provide a multimodal approach to pain management in patients with rib fractures.

Per ACS, “Morbidity and mortality from rib fractures result from poorly controlled pain and associated splinting that leads to altered breathing mechanics, hypoventilation, and impaired gas exchange resulting from an underlying lung parenchymal injury. Poorly controlled pain from rib fractures contributes to an increased risk of pneumonia, acute respiratory distress syndrome, and respiratory failure. Patients who are older than 65 years, have three or more rib fractures, or with underlying cardiopulmonary disease are at greatest risk of morbidity and mortality.”

Procedure:

1. Begin scheduled acetaminophen and NSAIDS as soon as possible.
2. If a regional block is likely, select a COX-2 inhibitor to avoid platelet inhibition.
3. Muscle relaxants, if not contraindicated, may help relieve chest wall muscle spasm, and evidence suggests they reduce length of stay and respiratory complications in rib fracture patients.
4. Consider early use of regional analgesia to avoid the potential complications of opioids. An epidural is preferred for treatment of patients with bilateral rib fractures, but paravertebral blocks can be used when an epidural is contraindicated. Intercostal blocks with liposomal bupivacaine are another option when patients may have contraindications to paravertebral or epidural blocks, such as coagulopathy or spine fractures.
5. Consider Lidocaine patch if regional anesthesia cannot be administered.
6. The addition of opioids begins with oral administration and may include breakthrough rescue doses of intermittent IV opioids with escalation to a PCA if multiple rescue IV doses are required.
7. For continued rib pain, consider operative rib fixation. If not available here, consider transfer to higher level of care.



See table below for medications, routes, and considerations.

Table 4. Commonly Used Multimodal Pain Medications, Routes, and Considerations

Class	Examples	Dosing	Route	Side Effects/Other Considerations
Opioids	Codeine Fentanyl Hydromorphone Methadone Morphine Oxycodone Tramadol	Varies from mcg (fentanyl) to mg	PO, IV, SC, Transcutaneous	Respiratory depression Morphine contraindicated in patients with renal failure
Acetaminophen		mg	PO, PR, IV	Acetaminophen: caution using in patients with end-stage liver disease, altered hepatic function. Do not exceed 4g/24 hours
NSAIDs - nonselective	Ibuprofen Ketorolac	mg	PO, IV, IM (ketorolac)	Ibuprofen/Ketorolac: caution using in patients with impaired renal function
NSAIDs - selective	COX-1 and COX-2 inhibitors	mg	PO	Caution using in patients with impaired renal function and patients with history of marginal ulcers/risk of GI bleed
NMDA Antagonists	Ketamine	mg	PO, IV, IM, intra-nasal	At high doses it acts more as sedative than an analgesic agent
Alpha-2 adrenoreceptor agonist	Dexmedetomidine	mg	IV	May cause bradycardia in moderate-high doses
Anesthetic infusion and topicals	Lidocaine	mg	IV, SC, Transcutaneous	Lipid emulsion 20% should be readily available in case of lidocaine toxicity Potential risk of arrhythmias
Muscle relaxants	Methocarbamol Baclofen Diazepam	mg	PO, IV, IM	Methocarbamol: caution in patients with renal impairment. Share anti-cholinergic properties and should be used with caution in patients at risk for fall, geriatric patients Diazepam: caution in geriatric patients, patients at risk for delirium

Abbreviations: IM, intramuscular; IV, intravenous; PO, per os (by mouth); PR, per rectum; SC, subcutaneous.

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[2025 tr bestpracticesguidelines chest-wall.pdf](#) -Click link for more in depth guidance from ACS for chest wall injury management.

References:

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Clinical Practice Guidelines
Multidisciplinary Trauma Committee

ACS/American College of Surgeons.(2025, November). *Best Practice Guidelines. Management of Chest Wall Injuries*. ACS/American College of Surgeons.
https://www.facs.org/media/qdgliayt/2025_tr_bestpracticesguidelines_chest-wall.pdf

