CU SOM / UCH – Surgical Stabilization of Rib Fractures (SSRF) Pathway

SSRF Pathway:

1. Assessment of patient by primary team
   a. Calculate Denver Rib Score
   b. Staffing of patient with on-call faculty

2. Transfer of patient to appropriate level of acuity  *see rib fracture pathway*

3. If surgical stabilization of rib fractures indicated – plan operative fixation within 72 hours.
   a. Consider concomitant intrathoracic issues (hemothorax, pneumothorax, diaphragm injury)
   b. Have 3-D reconstructions of chest CT completed to aid operative planning

4. Thoracic pain control:
   a. Consult Acute Pain Service for epidural catheter placement. Consider intercostal nerve block or paravertebral catheter if no epidural
     i. Institute gabapentin, NSAIDs unless con contra-indicated, consider Lidoderm patch

5. Preoperative patient optimization:
   a. Management of concomitant injuries/ comorbidities
   b. Institution of aggressive pulmonary toilet:
     i. Respiratory Therapy consultation
     ii. Institute scheduled (NOT PRN) Albuterol nebulizers (NOT MDIs) & scheduled mucomyst nebulizers unless contra-indicated.
     iii. Consider awake bronchoscopy

6. Surgical management
   a. Postop admission to STICU or CTICU (preferred)

7. Postoperative patient optimization:
   a. Ongoing management of concomitant injuries/ comorbidities
   b. Continue aggressive pulmonary toilet:
     i. Respiratory Therapy
     ii. Scheduled (NOT PRN) Albuterol nebulizers (NOT MDIs) & scheduled Mucomyst nebulizers unless contra-indicated
     iii. Consider bronchoscopy
   c. Recovery complete in ICU – preferred floor admission 6th floor AIP 2 Surgical Specialties unit or 9th floor Pulmonary unit.
   d. Chest x-ray prior to discharge from hospital
Denver Rib Score
  o ≥ 6 ribs fractured
  o Flail chest
  o Bilateral fractures
  o First rib fracture
  o ≥ 3 ribs with bicortical displacement
  o Fracture in each anatomic area
    • anterior, lateral, posterior

One point for each criterion

SSRF Indications:
  • Score 6
  • Score 5 and ≥ 3 ribs with bicortical displacement
  • Mechanical Instability (paradoxical respiration)
  • ≥ 30% volume loss in hemithorax
  • Progressive thoracic volume loss on imaging (collapse of flail segment)
  • Concomitant intrathoracic pathology (Retained hemothorax associated with fractures, suspected diaphragm injury)

SSRF Relative Indications:
  • Score < 5 with:
    • Inadequate pulmonary toilet, Inadequate pain control to allow IS (persistent IS < 500 on maximal medical therapy)
    • ≥ 3 ribs with significant displacement (> 1 cm bicortical displacement or separation)

Fixation should be attempted within 72 hours of patient meeting indications.