**Case Study - Acute Pain - Rib fractures.**

ILOS – Assessment of acute pain. Physiology of acute pain. Rib fracture management. Interventional techniques and management including PCAs, paravertebrals, epidurals and wound infusion management for serratus anterior blocks and erector spinae blocks. Involvement of surgical techniques including rib fracture fixation and role of allied health professionals in care pathway.

**Mr Smith is a 74 year old man with a past medical history of a CABG, obesity, COPD on home nebulisers and chronic kidney disease. He lives in sheltered accommodation with carers. He is a smoker. He has recently been admitted following a fall whilst trying to access his loft at home. He has sustained rib fractures on the left 5-9 and right 3-6. There is no flail segment. He has been given paracetamol and intravenous Morphine in accident and emergency . He has a right sided chest drain in situ. There are no spinal fractures. He awaits your assessment.**

**How would you manage his pain using the RAT approach?**

**Recognise:**

* Patient may have pain associated to rib fractures and potential other injuries.
* He may have a poor understanding of his symptoms and be worried about the effects of his broken ribs on his lungs when he breathes.

**Assess:**

* Severity
  + May be severe
  + How is it affecting him?
  + How does pain affect his cardiorespiratory system. What might be the consequences of this?
  + What are the effects of pain on his other organ systems?
  + What may be the effects of systemic analgesia and why?
* Type
  + Acute
  + nociceptive
* Other factors
  + Physical
    - Effects of immobility
    - Ceilings of care
    - Roles of interventional therapies and surgery.
  + Psychological
    - Worries about consequences of rib fractures, returning home, kinesiophobia about breathing.

**Treat:**

* Non-pharmacological
  + Likely to be very important, with extensive injuries and associated pain and limited cardiorespiratory and renal reserve. These may include physiotherapy, incentive spirometry, diligent nursing care to avoid effects of pharmacological therapies on brain function and avoiding delirium.
  + Pharmacological
  + Nociceptive
    - PCA fentanyl vs morphine
    - Paracetamol, anti-inflammatories

Neuropathic

* + - Possible neuropathic agents and why they may be used. amitriptyline duloxetine, gabapentin, pregabalin. Pros and cons.
      * how to choose, benefits and disadvantages of each
    - Opioid sparing techniques
      * Why?
      * Serratus anterior blocks vs erector spinae vs paravertebral vs epidural (noting bilateral rib fractures with chest drains in situ and absence of spinal fractures) Basic mechanisms of action and pros and cons.
      * What else might you need to know before choosing your treatment strategy apart from assessing the patients pain (anticoagulants, patients wishes which of the sides is most painful.)
    - Rib fracture fixation
      * Mechanism of action
      * Pros and cons in this patient.