

Rib fracture fixation in 2013: The rationale for a randomized clinical trial

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Unstable chest wall injuries are associated with:

- compromised pulmonary function
- substantial morbidity related to prolonged mechanical ventilation
- lengthy stays in the ICU and hospital
- consumption of a significant amount of health care resources

Current evidence:

- non-operative care of chest wall injuries is almost universal
- a barrier to operative treatment is lack of surgeon familiarity with surgical techniques
- there have been a limited number of retrospective and long-term studies that have demonstrated the benefit of surgical fixation of severe chest wall injuries
- level 1 evidence is limited but suggests that operative repair may be helpful in reducing time on a ventilator
- Decreasing the number of days on mechanical ventilation decreases the rates of pneumonia, sepsis, barotrauma, and number of days spent in the ICU
- a recent survey of general, orthopaedic and thoracic surgeons revealed that the majority felt that operative repair of rib fractures was indicated in selected patients

In summary, the rationale for a clinical trial is as follows:

- 1) There is increasing evidence that operative treatment can result in substantial benefits
- 2) The available evidence is at odds with current practice
- 3) There remains significant controversy with regard to the best treatment for patients with unstable chest wall injuries
- 4) The available evidence suffers from several limitations and there is a need for a definitive and large-scale randomized trial
- 5) The economic impact of unstable chest wall injuries is profound and high level evidence is required to optimize the use of scarce resources