Trauma

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Rib fixation in non-ventilator-dependent chest wall injuries: a prospective randomized trial

There is some limited evidence to support the management of rib fractures in ventilated patients, in order to reduce their requirement for ventilated support and allow an earlier step-down to ward-based care and discharge. However, there is a paucity of evidence to support the fixation of patients with rib fractures who are not in respiratory failure and ventilator-dependent. Authors from **Australia** investigated this population with a second randomized controlled trial (RCT), which followed on from one of the original trials evaluating rib fracture fixation in the ventilated population.[1] This small study differs from their original study in that it looks at patients with 'lesser' non-ventilator-dependent fractures. The authors recruited 61 patients to the rib fixation arm and 63 patients to their nonoperative treatment arm. All patients included in the study had three or more consecutive fractures that were assessed as displaced and/or causing pain. They did not recruit patients who were too unwell and would likely benefit from operative treatment, or patients who had few symptoms and would not likely benefit from surgery. Only the patients at the point of equipoise were recruited. Their primary outcome measures as reported for this study were pain (McGill Pain Questionnaire) and quality of life (Short-Form 12-item questionnaire) at three and six months post-injury. The bottom line in this small RCT is that the authors did not observe any difference in the primary outcomes of pain and quality of life between the two groups at three or six months. However, they did observe an increase in the number of patients from the operative group returning to work between the three- to six-month post-injury period. The authors concluded that this level I evidence study does not support the fixation of rib fractures in non-ventilated patients to improve their levels of pain or quality of life at three and six months post-injury. As many

nonoperatively treated rib fractures have united by three months, further studies are required to consider the effect of fixation of rib fractures in this population, on pain and quality of life, between the time of injury and three months post-injury. We would also point interested readers in the direction of the much larger Canadian and British studies, which have yet to be reported and which each include hundreds of patients.

Surgical fixation of rib fractures improves from a national perspective

Sticking with the theme of chest wall injury, this paper from **Nottingham (UK)** set out to establish the outcomes of surgical fixation in a large number of patients.[2] The authors argued that identifying patients who would benefit from rib fracture fixation for blunt chest trauma remains an area of critical interest. While some studies show benefit in the more severely injured, others have not shown benefit at later (post three months) clinical assessment. One way to identify patients who would benefit from rib fixation is to look at big data from registries. This paper evaluated patients in the Trauma Audit and Research Network (TARN) dataset from the UK. The authors identified 86,838 adult cases of blunt-force chest trauma in the TARN registry, and presented their outcomes based on a variety of measures. Of the overall population, just 1,022 patients (1.2%) were treated operatively with rib fixation, while the remainder were treated with supportive management. The study team then went on to compare outcomes for the rib fixation group as a whole, and also for two subgroups of more or less severity of chest injury (thoracic Abbreviated Injury Scale (AIS) < 3 or ≥ 3), while controlling for other available confounding variables using regression modelling. The outcome measures assessed were relevant to chest injury being 30-day mortality, length of stay, and the need for tracheostomy. For both the cohort as a whole and the more severe chest injuries, the findings of the study are supportive of rib fixation. The authors reported that rib fixation reduced: 1) the risk of all-cause mortality; 2) length of stay; and 3) the need for tracheostomy. However, when the authors examined the cohort with a less severe chest injury these findings were not replicated. The authors discussed the relative low rate of fixation of rib fractures for blunt chest trauma. They suggested that based on this study, more patients, particularly those with severe blunt chest trauma, would benefit from rib fixation.

Nonoperative treatment or volar locking plate fixation in patients aged over 70 years

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Dorsally displaced distal radius fracture is a common presentation seen in the older segment of the population. When displaced, treatment options include both nonoperative with cast mobilization or operative, with a common operative treatment choice being a volar locking plate to allow early movement. Studies have shown a higher complication rate with operative treatment, and that there are no apparent advantages of locking plate versus simpler Kirschner (K)-wire surgeries. Other studies have shown that despite healing with a degree of malunion, functional outcomes can be good. Most of the studies to date, however, look at the 12-month period following the injury, and relatively narrow inclusion criteria, including patients in whom the surgeon feels either treatment option, is equally acceptable. Longer-term randomized controlled trials have been few in number; as such, the importance or otherwise of reduction on secondary