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Shoulder Fracture Management: A Rapid Conversion Evidence Summary (RaCES)

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What is a shoulder fracture?

A shoulder (proximal humerus) fracture is a break to the upper arm bone. They are painful and debilitating injuries and are the third most common fracture in the elderly (over 65 years). Shoulder fracture symptoms include pain, swelling, and loss of movement which contribute to disability and loss of independence. These injuries are linked with increased utilisation of healthcare services. Due to an aging population, the incidence of shoulder fractures is increasing, resulting in a further increase in the use of health care resources.

Current treatment options are varied, with either non-surgical (conservative) management or a variety of surgical procedures. The increasing incidence of these fractures, the uncertainty of treatment options, variations in practice and emerging research, all endorse the need for updated evidence.

What is a RaCES?

- RaCES team formed (healthcare clinicians and academics)
- Clinical question and relevant systematic review(s) identified
- Evidence summarised with critical appraisal to form a short, readable, useful commentary
- Findings communicated
- Recommendations implemented into clinical practice

RaCES Rapid Conversion Evidence Summaries project

Take home message

- **Non-surgical treatment is recommended for elderly patients who have sustained a shoulder fracture.**
- **Acceptable shoulder and upper limb function should be achieved while avoiding the potential risks of surgery.**
- **There is insufficient evidence to inform non-surgical management options.**

Included Systematic Reviews

- Beks et al., (2018) Operative versus nonoperative treatment of proximal humerus fractures: a systematic review, meta-analysis and comparison of observational studies and randomised controlled trials. *Journal of Shoulder and Elbow Surgery,* 27, 1526–1534 https://doi.org/10.1016/j.jse.2018.03.009
- Handoll and Brorson, (2015) Interventions for treating proximal humerus fractures in adults. *Cochrane Database of Systematic Reviews*, 11, CD000434. https://doi.org/10.1002/14651858.CD000434.pub4
- Soler-Peiro et al., (2020) Conservative treatment of 3-part and 4-part proximal humerus fractures: a systematic review. *Journal of Orthopaedic Surgery and Research,* 15:347 https://doi.org/10.1186/s13018-020-01880-7

Methods/Results

The three systematic reviews explored non-surgical management of shoulder fractures, of varying severity. The reviews were selected for synthesis due to the quality level of evidence provided (moderate-high). Comparisons were surgical or non-surgical management and outcomes included function, quality of life and adverse events.

The three reviews were judged to be methodologically robust and provided an accurate summary of the results of the available studies using the Joanna Briggs Critical Appraisal Tool for systematic reviews. The quality of included studies for outcomes related to surgical vs non-surgical treatment was moderate to high in Beks et al. (2018) and Handoll & Brorson (2015). Studies included in Soler-Peiro (2020) had a low risk of bias.

49 individual trials were included, and three trials were included across all three systematic reviews. This highlights the breadth of available evidence and the need for evaluation and synthesis of the findings (Figure 1). The included trials across the three systeamatic reviews consisted of randomised and quasi-randomised controlled trials, prospective and retrospective studies, and observational studies, with participant numbers ranging from 16 to 250 per trial.

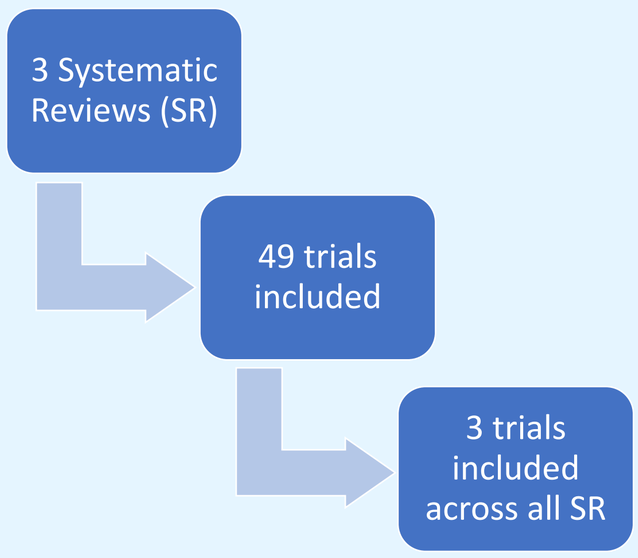

Figure 1. The number of trials included across the three systematic reviews.

Findings/Conclusions

Function: High quality evidence that there is no clinically significant difference in patient reported shoulder and upper limb function at 1 or 2 year follow-up when comparing surgical and non-surgical management of 1-3 part shoulder fractures. Lower functional outcomes were achieved in non-surgically managed 4 part shoulder fractures.

Quality of life: Moderate quality evidence of no clinically important difference in quality of life at 2 years between surgical and non-surgical treatment

Adverse Events: Fewer adverse events were reported in 3-part, compared to 4-part fractures. Moderate quality evidence that major re-interventions and adverse events were higher with surgical treatment. However, there were fewer fracture non-unions in those receiving surgery.

Mortality: moderate quality evidence of little difference in mortality between surgical and non-surgical treatment

Rehabilitation: There is insufficient evidence to inform non-surgical management options.

Further work is ongoing to synthesise the findings of these reviews, produce an evidence summary (RaCES) of recommendations for implementation into clinical practice, and publish this work as a commentary article.

References

Joanna Briggs Institute. *Checklist for Systematic Reviews and Research Syntheses*. 2017. https://jbi.global/sites/default/files/2019-05/JBI_Critical_Appraisal-Checklist_for_Systematic_Reviews2017_0.pdf (accessed 24 May 2022)

Rohun et al. (2020) Rehabilitation following proximal humerus fracture in the UK National Health Service: A survey of publicly facing information. *Musculoskeletal Care*. 19:2, pp 193-198. **https://doi.org/10.1002/msc.1523**