

# Treatment of displaced proximal humeral fractures in elderly patients

av

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# ABSTRACT

The optimal treatment for patients with displaced fractures of the proximal humerus, especially elderly patients with osteoporosis, is still controversial. For the 2- and 3-part fractures according to the Neer classification, there is a trend towards more frequent surgical interventions with modern locking plates. For the more comminuted 4-part fracture with a higher risk for avascular necrosis, a primary hemiarthroplasty (HA) has been the accepted treatment. The alternative treatment for these fractures is non-operative with a short immobilization period and early physiotherapy.

The latest Cochrane review regarding this topic concludes that there is insufficient evidence from randomized controlled trials (RCTs) to determine which interventions are the most appropriate for the management of different types of fractures. It is also stated that future trials should use validated outcome measures, including patient-assessed functional outcomes such as health-related quality of life (HRQoL). However, due to their design, quality-of-life instruments may be less sensitive for detecting small but yet important changes, i.e. they may have a limited responsiveness.

In a prospective cohort study with a 2-year follow-up, 50 elderly patients with a displaced 2-part fracture of the proximal humerus were treated with open reduction and internal fixation with a locking plate. The result showed that locking plates appear to be a good treatment alternative with an acceptable complication rate and an acceptable functional outcome.

In an RCT with a 2-year follow-up, 60 elderly patients with a displaced 3-part fracture of the proximal humerus were allocated to treatment with open reduction and internal fixation with a locking plate or non-operative treatment. The results of the study indicated an advantage in functional outcome and HRQoL in favor of the locking plate as compared to non-operative treatment, but at a cost of additional surgery in 30% of the patients. The main advantage of the locking plate appeared to be an improved range of motion (ROM).

In an RCT with a 2-year follow-up, 55 patients with a displaced 4-part fracture of the proximal humerus were allocated to treatment with a primary HA or non-operative treatment. The results of the study demonstrated a significant advantage in quality of life in favor of HA as compared to non-operative treatment. The main advantage of HA appeared to be less pain, while there were no differences in ROM.

145 patients with a displaced proximal humeral fracture were included in a study with the aim to evaluate the responsiveness of the EQ-5D instrument. The EQ-5D displayed good internal and external responsiveness and can be recommended for use as a quality-of-life measure in patients with this particular injury.

An additional conclusion of the studies was that, regardless of primary treatment, a displaced fracture of the proximal humerus results in a substantial negative effect upon the patients' HRQoL.

**Key Words:** Proximal humeral fractures; elderly; functional outcome; internal fixation; arthroplasty; quality of life; EQ-5D; responsiveness