Operative Treatment of Intra-Articular Distal Radius Fractures With Versus Without Arthroscopy: A Randomized Controlled Trial

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Purpose: An increase in open reduction and internal fixation (ORIF) for intra-articular distal radius fractures has been observed. This technique leads to a quicker recovery of function compared to nonoperative treatment. However, some patients continue to have a painful and stiff wrists postoperatively. Arthroscopically assisted removal of intra-articular fracture hematoma and debris may improve the functional outcomes following operative treatment of intra-articular distal radius fractures. The purpose of this randomized controlled trial is to determine the difference in functional outcome, assessed with the Patient-Rated Wrist Evaluation (PRWE) score, after ORIF with and without an additional wrist arthroscopy in adult patients with displaced complete articular distal radius fractures.

Methods: In this multicenter trial adult patients with a displaced complete articular distal radius fracture were randomized between ORIF with an additional wrist arthroscopy to remove fracture haematoma and debris (intervention group) and conventional fluoroscopic-assisted ORIF (control group). The primary outcome was functional outcome assessed with the PRWE score after 3 months. Secondary outcomes are the Disability of the Arm, Shoulder and Hand (DASH) score, postoperative pain, range of motion, grip strength, complications, and cost-effectiveness. Additionally, in the intervention group the quality of reduction, associated ligamentous injuries, and cartilage damage were assessed. A total of 50 patients were included in this study.

Results: A total of 50 patients were randomized, 25 to the intervention group and 25 to the control group. All patients who had arthroscopic treatment had a hematoma which was removed. Other arthroscopic findings were: TFCC (triangular fibrocartilage complex) injury in 91%, scaph-lunate injury in 50%, lunotriquetral injury in 50%, damage of the fossa lunata in 68%, and damage of the scaphoid fossa in 55%. Mean PRWE was not significantly better for the intervention group at 3 weeks (49 [range, 28-66] vs 59 [49-66], P = 0.08), and at 6 weeks (41 [range, 20-58] vs 38 [29-45], P = 0.61). Mean PRWE was significantly worse for the intervention group at 3 months (30 [range, 8.2-46] vs 14 [5-21], P = 0.01).

Conclusion: Patients treated with additional arthroscopy to remove hematoma and debris do not have better functional outcomes compared to the non-arthroscopically treated group.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.