

Association between radiographic and clinical outcome in distal radius fractures: A prospective cohort study with a 1-year follow-up in 368 patients

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Background: The relationship between radiological parameters and clinical outcome in distal radius fractures is unclear. This prospective multicenter study aimed to analyze whether patient-reported outcome, range of motion (ROM) and grip strength were affected by radiographic outcome assessment in distal radius fractures (DRFs).

Methods: We included 438 fractures treated for a DRF with either reduction and cast immobilization or surgery. Radiographic outcomes were determined by radiographs 3 months after the injury. Subjective outcome was determined by QuickDASH (qDASH) and objective outcome by ROM and grip strength at 1-year after the injury.

Results: 368 patients (84%) had a radiological follow-up 3 months after the injury and a clinical follow-up after 1 year. 70 patients were lost to follow-up, 42 to incomplete clinical follow-up and 28 to lack of a radiological follow-up. The median age was 57 (range 18-75) years and 79% were female. Dorsal tilt was the radiological parameter with the most impact on qDASH, grip strength and ROM. We found nonlinear correlations with no significant change in outcome until about 5° of dorsal tilt. Thereafter qDASH, grip strength, and ROM deteriorated with increasing dorsal tilt.

Conclusions: Radiographic outcome is associated with clinical outcome as to deteriorating qDASH, grip strength and ROM in distal radius fractures starting from about 5° of dorsal tilt. This deterioration progresses with increasing dorsal tilt and may have varying implications depending on the functional demands of the individual patient.