Fragment-specific fixation of distal radius fractures enables almost immediate therapy

Researchers believe therapy program improved ROM, grip strength, radiograph and satisfaction.

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A long-term follow-up study on distal radius fracture patients treated with fragment-specific fixation found excellent results for range of motion, grip strength, radiographic alignment and satisfaction scores, which researchers believe is partly attributed to a posthand therapy program.

At four days postop, the 92 patients (96 fractures) treated for unstable displaced distal radius fractures were enrolled in the formal hand therapy program to shorten recovery time and improve outcomes.

"Formal hand therapy is a crucial piece of recovery and perhaps the best feature of fragment-specific fixation is that it allows this therapy to proceed within a few days of the surgery," said Leon S. Benson, MD, of Glenview, Ill., who presented the results at the Joint Annual American Society for Surgery of the Hand/American Society for Hand Therapists Meeting.

Benson and his colleagues recalled study participants into a clinic setting for a final interview and examination. All participants completed a formal Institutional Review Board-approved consent process.

"It was our impression, with weekly observations, that the hand therapists were critical in helping the patients make early progress that was the cornerstone of their accelerated recovery course," he told ORTHOPEDICS TODAY.

At an average 30-month follow-up (range, six to 55 months), researchers examined patients for bilateral wrist range of motion (ROM) and grip strength. Average measurements in the injured wrist were: volar tilt 8.9°, radial inclination 24.8°, radial height 11.8°, articular congruity 0 mm and ulnar variance 0.7 mm.

ROM data from occupational therapy records during the formal hand therapy showed that 68 patients regained a 100° arc of motion in flexion and extension by six-weeks postop. "These patients also demonstrated normal finger motion and near-full pronation and supination," Benson said.

Patients also achieved 91% wrist extension and 85% flexion of the injured wrist, compared to the uninjured side, he said.

Researchers found that fragment-specific fixation, above, is consistent and predictable, and can be tailored to most distal radius fracture patterns.

Measured with a dynamometer, grip strength averaged 91% of the contralateral side.

Patients reported an average 8.6 (range, 0 to 37.5) for Disability of the Arm, Shoulder and Hand (DASH) scores and 65 excellent and 31 good results for Garland and Werley outcome results.

The researchers also compared immediate postoperative radiographs and orthogonal radiographs of both wrists to assess maintenance of reduction, post-traumatic arthritis development and deviation from normal bony geometry, Benson said. Follow-up radiographic data showed maintenance of reduction, but no statistically significant difference in alignment.

"ANOVA (Analysis of Variance) and repeated measures ANOVA analysis demonstrated that radial length, articular inclination angle and palmar tilt were not statistically different from the immediate postoperative films to the time of fracture union," Benson said.

Researchers found that return-to-work rates were influenced by other injuries and worker’s compensation. For patients with only a distal radius fracture and no pending disability claim, 80% returned to work within four weeks after injury.

Surgeons performed hardware removal in five patients because of pain in the radial styloid or dorsal plate areas, Benson said.

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