Cast-OFF 2: 1 Week Versus 3 to 5 Weeks of Plaster Cast Immobilization for Nonreduced Distal Radius Fractures. A Randomized Stepped Wedge Cluster Study

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Purpose: Distal radius fractures (DRFs) are among the most common fractures with an overall prevalence of 17.5%. One-third of these fractures are nondislocated. Several studies have investigated the operative treatment of dislocated DRFs. However, only a few have investigated cast immobilization of stable nonreduced DRFs.
Previous research has shown that 1-week cast immobilization resulted in similar pain scores, function, and secondary dislocation compared to longer immobilization (3 to 4 weeks). In this study, we implement 1 week of cast immobilization for non- or minimally dislocated DRFs and compare the functional outcomes and pain scores with the usual care (3 to 5 weeks).

Methods: A randomized stepped wedge cluster design was used with 11 hospitals in 10 clusters, including patients with an isolated nonreduced DRF. Starting January 1, 2022, every month 1 cluster changed treatment protocols from usual care to 1 week of cast immobilization. Questionnaires were completed at weeks 1, 3 to 5, 6, and months 3, six 6, and 12. The primary outcome was the Patient Rated Wrist Evaluation (PRWE) score at 6 weeks. A PRWE score difference of around 11 points was defined as clinically significant.

Results: In total 402 patients were included (control n = 197 vs intervention n = 205, 267/135 female/male). After 6 weeks, the PRWE score showed no clinically significant differences (–4.5 [confidence interval –2.9, 4.02]). No significant differences were observed for function, pain scores, and patient satisfaction between both groups. Furthermore, there were no significant differences in secondary dislocation (control 1.5% vs intervention 1.0%, P = 0.32) and operations (control 1.5% vs 1.5% intervention, P = 0.92).

Conclusion: This study compared 1 week of plaster immobilization to the usual care of 3 to 5 weeks for nonreduced DRFs. No clinically significant differences in function, pain scores, patient satisfaction, secondary dislocation, and operations were observed. One week of plaster immobilization can be safely recommended for nonreduced DRF treatment.

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