

Cast-Off Trial: 1 Versus 4-5 Weeks of Plaster Cast Immobilization for Nonreduced Distal Radius Fractures. A Randomized Clinical Feasibility Trial

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Purpose: Distal radius fracture (DRF) is a common fracture of which the incidence appears to be increasing worldwide. In the Dutch guideline for DRF the treatment advice, without reduction, is treatment with plaster cast or brace for 1-3 weeks. Despite the advice in the guideline and despite several studies from the 90s showing that plaster cast treatment of a stable DRF for 1 week is safe, the usual length of plaster cast treatment for stable DRF is 4-6 weeks. Recent studies have also shown that a long period of immobilization can lead to more post traumatic pain by increasing disuse and kinesiophobia. This evidence suggests that the usual duration (4-6 weeks) of plaster cast treatment for DRF is unnecessary. The aim of this feasibility study is to define whether 1 week of plaster cast treatment will lead to the same functional results and patient satisfaction.

Methods: This study is a multicenter randomized clinical feasibility trial for treatment of a DRF. Patients with an isolated DRF between the age of 18 and 75 years were included. Patients were randomized into 2 groups, 1 week of plaster cast or 4-5 weeks of plaster cast. After 6 weeks, 3, 6, and 12 months, patients were asked to fill out questionnaires about their pain and function.

Results: 40 patients were included and due to cross-over, eventually 26 patients were treated in the intervention group and 14 patients in the control group. Six weeks post-injury showed a trend in a lower Patient-Rated Wrist Evaluation (PRWE) and Patient-Reported Outcomes Measurement Information System-Pain Interference (PROMIS PI) score for the intervention group with the same complication rate and no secondary displacement. Patients in the intervention group were able to return to work earlier and had better patient satisfaction.

Conclusion: One week of plaster cast treatment for nonreduced DRF is feasible and may lead to less pain and better function with earlier return to work and activities. There were no differences in complications between the groups and no secondary displacements. Because of these positive results a nationwide randomized multicenter stepped wedge design will be conducted and hopefully 1 week of plaster cast treatment can be implemented in daily practice.