Immediate Mobilization Following Volar Locked Plating for Distal Radius Fractures is Safe and Effective

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INTRODUCTION: Distal radius fractures (DRFs) are common upper extremity injuries, with volar locked plating (VLP) the standard treatment for unstable fractures. However, the necessity of post-operative immobilization and formal therapy remains debated. This study evaluates whether immediate mobilization with a home therapy program leads to improved early functional outcomes compared to immobilization with formal therapy following VLP for DRFs.

METHODS: 230 patients were enrolled in this prospective, randomized cohort study including patients aged >18 years with isolated displaced DRFs requiring surgical fixation. Patients with open fractures, ipsilateral injuries, or supplemental fixation were excluded. All fractures were classified based on the AO system. Participants were randomized to immediate mobilization (no splint) with a home therapy program or immobilization (splint) with formal therapy prior to surgery. Outcomes included VAS pain, QuickDASH, grip strength, range of motion (ROM), and complication rates at multiple follow-ups (2 and 6 weeks, 3 and 6 months). Statistical analysis included Wilcoxon rank sum and Fisher's exact tests, with multivariable regression identifying independent predictors of patient-reported outcomes.

RESULTS: 186 patients completed all follow ups and had complete data for analysis. 88 patients were randomized to the no splint group and 98 patients were randomized to the splint group. There were no significant differences between groups in terms of age, sex, hand dominance, injury laterality, or AO classifications. Mean age was 54 in the no splint group and 57 in the splint group. No splint group had better QuickDASH scores (34.7 vs. 41.9, $p = 0.023$) and grip strength (16.4 vs. 10.1 kg, $p = 0.004$) at 6 weeks. Wrist ROM was initially better in the immediate mobilization group but showed no significant differences at final follow up ($p > 0.05$). No significant differences in loss of fixation or reduction were observed at any time point between the two groups. Multivariable regression identified increased AO fracture severity ($p = 0.022$) and ulnar styloid base fracture ($p = 0.018$) as predictors of poorer functional outcomes. Splinting was associated with higher VAS pain scores at six months ($p = 0.026$).

DISCUSSION AND CONCLUSION: Early mobilization without formal therapy after VLP does not increase the risk of fixation loss or fracture misalignment and improves early and midterm functional outcomes. These findings suggest that immediate mobilization is a safe and effective option for patients seeking a quicker return to activity.