

Effectiveness of Postoperative Analgesic Immobilization in Patients with Distal Radius Fracture Treated with Volar Locking Plating: A Prospective, Randomized Clinical Trial

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Purpose: Volar locked plating has been the gold standard treatment for intra-articular distal radius fractures. The need for postoperative immobilization after this type of fixation is controversial, with some authors advocating its use for analgesia. The objective of this study was to compare the level of pain and function of patients undergoing surgical fixation of distal radius fractures using or not using postoperative immobilization. We hypothesized that there would be no difference between the treatment groups.

Methods: 39 patients with intra-articular distal radius fracture scheduled to receive volar plate fixation were randomly assigned to receive a volar forearm splint immediately after the surgery until 2 weeks postoperatively or conventional bandage. The primary outcome was the level of pain by the visual analog scale (VAS) at multiple assessments from 12 hours to 2 weeks postoperatively. Secondary outcomes included pain scores at 6 weeks, 3 and 6 months, the need for tramadol use, the Disabilities of the Arm, Shoulder and Hand (DASH) score, wrist range of motion, and complications.

Results: 36 patients completed the follow-up. During hospital stay, the mean VAS reached its maximum level at 18 hours postoperatively, with a mean of 4.5 in the No-splint group, and 4.1 in the Splint group, with no significant difference ($P = 0.678$). After hospital discharge, the maximum pain occurred on the second postoperative day (No splint = 4.0, Splint = 4.3; $P = 0.767$), and showed a progressive decline until 2 weeks (No splint = 2.4, Splint = 2.1; $P = 0.820$), with no significant difference in assessments within and after this interval. There was no significant difference in tramadol use during hospital stay ($P = 0.296$) or at later assessments. The DASH score was similar between the groups at 6 weeks (No splint = 32.6, Splint = 36.5; $P = 0.375$), and at 3 and 6 months. Wrist flexion-extension and rotation arcs were similar between the groups. One patient in the No-splint group presented with loss of fracture reduction and underwent reoperation. There were no other relevant complications.

Conclusion: Patients with intra-articular distal radius fractures treated with volar locking plating do not benefit from postoperative immobilization in terms of pain control or lower analgesics use. Early and midterm functional scores, wrist range of motion, and complications are similar among patients using or not using immobilization for 2 weeks postoperatively.