

Surgical Treatment Of Wrist Fractures- External Fixation Or Volar Locked Plating? A Randomized Controlled Trial

Trauma / Hand & Wrist Trauma / Surgical Treatment

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Background

Operative treatment of distal radius fractures has undergone some major changes the last 10-15 years. External fixation used to be the main option for these fractures. With the introduction of the volar locking plates the practice has changed dramatically despite a summary of evidence from the Cochrane Collaboration which exposed serious deficiency in the evidence for treatment of distal radius fractures including what type of surgery is indicated.

Objectives

In this study we wanted to compare the two treatment methods, external fixator and volar locking plate considering function, pain, range of motion (ROM) after 6 weeks, 3 months and 1 year.

Study Design & Methods

A multicentre, randomized controlled trial started in 2013 and was completed in 2018. Patients with dislocated, extra articular distal radius fractures, AO type A3, between the age of 18-70 years were included. 163 patients were randomly assigned to receive either external fixation or volar locking plate. Outcome assessments were conducted at 6 weeks, 3 months and 1 year. 141 patients (87%) completed 1 year follow-up, among whom 69 allocated to volar locking plate and 72 to external fixator. Primary outcomes were PRWHE (Patient Rated Wrist and Hand Evaluation) and QuickDASH (Disabilities of the Arm, Shoulder and Hand). Secondary outcomes were objective measurements according to ROM, grip strength and finger stiffness. Complications and reoperations were also registered.

Results

127 women (90%) and 14 men (10%) completed the study. Mean age was 56 years. After 6 weeks there was significant difference in PRWHE (mean difference 19, $p<0,001$) and QuickDASH (mean difference 16, $p<0,001$) in favour of volar plating. The difference remained after 3 months but to a lesser extent (PRWHE: mean difference 6, $p=0,025$. QuickDASH: mean difference 7, $p=0,007$). After 1 year there was no difference between the two groups in any of the outcome measures (PRWHE: mean difference 4, $p=0,121$. QuickDASH: mean difference 2, $p=0,450$). No significant differences in registered major complications were seen between the two groups. There were 2 reoperations in the external fixator group and 7 reoperations in the volar plating group, among which 5 were plate removals.

Conclusions

Use of volar locking plate resulted in an earlier recovery of function compared to the use of external fixator. After 1 year no difference in results between the treatment groups were found.