

Surgical Treatment of Dorsally Displaced Distal Radius Fractures with a Volar Locking Plate Versus Conventional Percutaneous Methods: Minimum 10-Year Follow-up of a Randomized Controlled Trial

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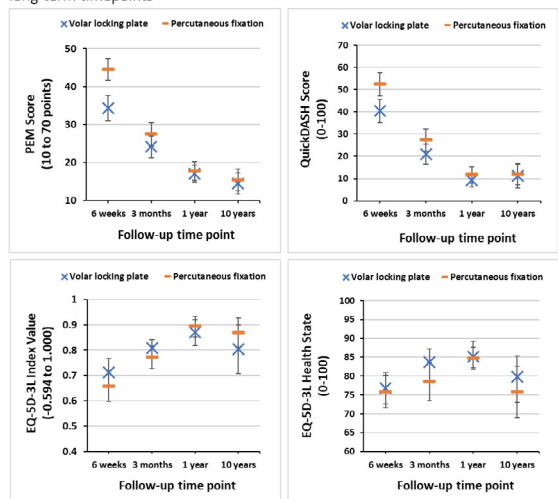
Purpose: We conducted minimum 10-year follow-up of a single-center, pragmatic, randomized controlled trial (RCT) conducted in a tertiary care UK institution that compared the functional outcomes of dorsally displaced distal radius fractures treated with volar locking plate or percutaneous wire fixation.

Methods: Of the original 130 trial cohort, 11 had not consented to further contact and 14 were deceased. Therefore 105 patients were sent the Patient Evaluation Measure (PEM), QuickDASH (an abbreviated version of the Disabilities of the Arm, Shoulder and Hand questionnaire), and EuroQol-5D-3L (EQ-5D-3L) questionnaires at a minimum follow-up of 10 years. They were also asked if they had received further treatment for their injured wrist and whether additional problems had developed in the hand/wrist after the original 1-year follow-up period. A complete case analysis, and sensitivity analysis via a mixed-effects model, were performed.

Results: 75% of the 105 participants responded. There were no significant differences between the scores of the two treatment groups in the PEM $P = 0.651$ (95% confidence interval [CI], -4.8 to 3.0), QuickDASH $P = 0.862$ (95% CI, -7.8 to 6.5), or the EQ-5D-3L index value $P = 0.256$ (95% CI, -0.18 to 0.05) and health state $P = 0.377$ (95% CI, -4.8 to 12.8). Results of mixed-effects model analysis were similar, suggesting that our findings were robust. One patient required plate removal 6 years after fixation. No major difference was found in the requirement for further treatments. No patients reported development of carpal tunnel syndrome.

Conclusion: This study has a high follow-up rate considering the protracted follow-up period with responses from 61% of the original trial participants. It demonstrates that, as with the original 1-year functional outcomes, the 10-year outcomes of these two treatments are not significantly different. The original trial reported better anatomical reduction of fractures treated with volar plate fixation; our findings in this study suggest that this does not make a difference to use of the hand or wrist in the long-term.

Trend in PEM, QuickDASH and EQ-5D-3L Index & Health State ratings at trial and long-term timepoints



Data are shown as means \pm 95% confidence interval

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.