FRAGMENT SPECIFIC FIXATION OF DISTAL RADIUS FRACTURES USING THE TRIMED FIXATION SYSTEM – HOW STEEP IS THE LEARNING CURVE?

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Introduction and Aims

The TriMed distal radius fixation system has been shown by the developer to produce excellent results from complex intra-articular distal radius fractures. The results so far published are from expert operators1. It is accepted by the inventor that there is a significant learning curve associated with the use of the system. The aim of this study was to determine whether surgeons early in their learning curve could produce the same quality of results.

Method

All patients who underwent open reduction and internal fixation of distal radius fractures using the TriMed system between March 2001 to August 2002 were identified. This represents the period when this fixation system was first introduced into our institution. All patients were clinically and radiographically examined at a minimum of 6 months from surgery. Functional outcome scores in the form of the Patient Rated Wrist Evaluation (PRWE) were assessed.

Results

Thirty distal radius fractures in 27 patients were identified. All cases were within the first 12 performed by each surgeon. All surgeons had attended a training workshop including cadaveric demonstration prior to performing their first case. There were 22 males and 5 females with an average age of 33 years. The average delay to surgery was 14 days. There were 26 type C fractures (10 C2 and 12 C3), 4 type B and 2 type A. Norian bone substitute was used in 25 cases and an alternative bone substitute in a further 2 cases. Average duration of surgery was 2 hours 40 minutes. The only significant post-operative complications were one case of RSD and one unstable DRUJ, which settled with splintage.

Radiographic evaluation post-operatively revealed that an articular step of greater than 2mm was only present in 2 cases. Average radial articular volar tilt was restored to 8 degrees and inclination to 25 degrees. No loss of reduction occurred to fracture union in any case. Twenty nine patients have been reviewed with a minimum of 6 months follow-up. Two patients have only been subjectively reviewed using the PRWE score the other 25 have also been clinically reviewed. Mean PRWE score was 20. Active range of motion means are: 63 degrees extension, 50 degrees flexion, 76 degrees supination and 77 degrees pronation.

Conclusion

With adequate training the TriMed system provides good results in complex distal radial fractures in the early stages of a surgeon’s clinical experience with the system.