

Δ Long-Term Outcomes of Total Elbow Arthroplasty for Distal Humeral Fracture: Results from a Prior Randomized Clinical Trial

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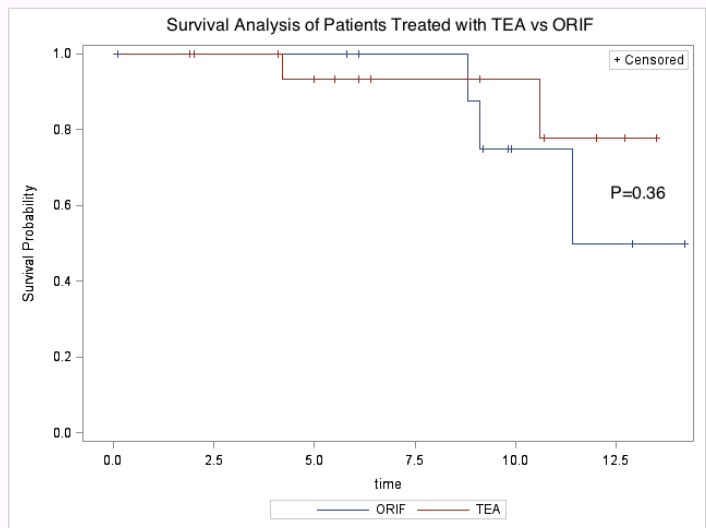
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Purpose: The use of total elbow arthroplasty (TEA) has become an increasingly popular treatment option in the setting of acute trauma for elderly patients with comminuted intra-articular distal humeral fractures. Multiple retrospective studies have documented good to excellent clinical outcome following TEA for trauma at short- to moderate-term follow-up. However, the longevity and long-term complications associated with this procedure are unknown. The objective of the present study was to examine long-term outcomes and implant survival in patients from a randomized clinical trial (RCT) comparing TEA to open reduction and internal fixation (ORIF).

Methods: We followed patients from a previously reported RCT comparing TEA and ORIF in patients over 65 years of age with comminuted, intra-articular distal humeral fractures conducted between 2000 and 2006. 42 patients were originally randomized. Patients and/or family members were contacted to obtain the required information. Outcomes included patient-reported grading of function and pain, revision surgical procedures, and implant survival.

Results: 11 patients were lost to follow-up, and we were able to obtain follow-up on 31 patients (7 men and 24 women, mean age 78 years). There were 2 early postoperative deaths, and 17 late deaths (19/42, 45%) and the mean follow-up was 8.3 years (range, 1.9-14.2 years). Three patients in the ORIF group underwent a second surgical procedure, at a mean of 1.7 years postoperatively, all for hardware removal. Two patients underwent a secondary procedure in the TEA group at a mean of 1.1 years postoperatively, one for irrigation and debridement for a deep infection, and a second for elbow release. There were no differences between the two groups with regard to rates of revision surgery (P = 0.36) (Fig. 1). Of the 18 patients with a TEA who were followed, none required revision of



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the TEA, and this group included 8 who were living with their original arthroplasty, and 10 who died with a well-functioning implant in situ.

Conclusion: Total elbow arthroplasty is an effective and reliable procedure for comminuted fractures of the distal humerus in elderly patients. Our study revealed that long-term survival of the implant is excellent, with no patient requiring a late revision. This finding, combined with the better functional results and rapid rehabilitation compared to ORIF we have previously reported, confirms the utility of TEA in this elderly, low-demand, and frail population. For the overwhelming majority of these patients, a well-performed TEA will give them a well-functioning elbow for life and be the last elbow procedure they require.