

## **Is Surgery Actually More Expensive Than Cast Treatment For Society? A Trial-Based Economic Evaluation Of Two Treatments In Elderly Patients With Displaced Intra-Articular Distal Radius Fractures, Alongside The DART Study.**

Trauma / Hand & Wrist Trauma / Surgical Treatment

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### **Background**

The number of surgical procedures for distal radius fractures in the elderly population has increased, even though most studies show little or no benefit over cast treatment. The medical costs of surgical treatment are much higher than those of cast treatment. However, surgery might enable a quicker recovery. Specifically, surgery may facilitate patients to maintain independency and this could diminish their use of other healthcare resources and informal care.

### **Objectives**

To compare costs and to assess whether cast treatment is cost-effective compared to surgical treatment for patients aged 65 or older with displaced intra-articular distal radius fractures

### **Study Design & Methods**

We performed an economic evaluation alongside a multicenter randomized controlled trial (RCT) in 19 hospitals in the Netherlands. The trial involved the randomization of 138 independently living elderly patients aged 65 years or older. Participants were assigned to either non-operative treatment, consisting of closed reduction followed by cast treatment, or surgical treatment, which involved open reduction and internal fixation (ORIF). Participants completed several (cost) questionnaires at baseline, 3 months, 6 months, 9 months and 12 months after trauma (final participant follow-up, September 5, 2022). A web-based mixed block randomization scheme was used. Health-related quality of life was measured using the EQ-5D-3L and patient-reported functional outcome using the Patient Rated Wrist Evaluation (PRWE). Costs were measured from a societal perspective, and included the costs of the intervention, other healthcare use, informal care, unpaid productivity losses, and patients' own expenses. . Incremental cost-effectiveness ratios (ICERs) were calculated by dividing the corrected differences in total costs by those in effects.

### **Results**

The unadjusted mean total costs per patient from a societal perspective were €11933 (SEM, €2113) for

cast treatment and €11561 (SEM, €1191) for surgical treatment. Adjusted for baseline PRWE and age between group difference was €81 (95%CI, -€3936 to €3773) in favor of cast treatment. At final follow-up the between group differences in patient-reported outcome were -0.039 (-0.066 to -0.012) for QALYs and 5.5 (0.7 to 10) for the PRWE, both in favor of surgical treatment. The ICER for wrist function was -15, suggesting that cast treatment was – on average – associated with a cost saving of €15 per point increase on the PRWE compared with ORIF. The ICER for QALYs was €2070, suggesting that cast treatment was – on average – associated with a cost saving of €2070 per QALY lost compared with ORIF surgery (i.e. “less costly” and “less effective”)

### **Conclusions**

From a societal standpoint, the cost of cast treatment was €81 lower than that of surgical treatment for elderly patients with displaced intra-articular distal radius fractures. The increased expenses associated with surgery were balanced by higher secondary healthcare and informal care costs in the cast treatment group. This suggests that, in the decision-making process for treating such fractures in elderly patients, cost considerations should not be a predominant factor.