

Is Surgery Actually More Expensive Than Cast Treatment? A Trial-Based Economic Evaluation in Elderly Patients With Displaced Intra-Articular Distal Radius Fractures

Dirk P. Ter Meulen, MD; Hanneke van Dongen; Ydo Kleinlugtenbelt, MD; Gerald Kraan, MD; J.C. Goslings, MD; Niels Schep; Nienke Willigenburg, PhD; Rudolf W. Poolman, MD

Purpose: The medical costs of surgical treatment are higher than those of cast treatment. However, surgery might enable a quicker recovery. Specifically, surgery may facilitate patients to maintain independence and this could diminish their use of other health-care resources and informal care.

Methods: This economic evaluation was conducted alongside a multicenter randomized controlled trial in 19 hospitals in The Netherlands. 138 elderly patients (aged ≥ 65 years) with displaced intra-articular distal radius fractures were randomly assigned to nonoperative treatment (closed reduction followed by cast treatment) or surgical treatment (open reduction and internal fixation [ORIF]). Participants completed questionnaires at baseline and at 3, 6, 9, 12 months post-trauma. Health-related quality of life was measured using the EQ-5D-3L (EuroQol 5 Dimensions 3 Levels) and patient-reported functional outcome using the Patient Rated Wrist Evaluation (PRWE). Costs were measured from a societal perspective. Incremental cost-effectiveness ratios (ICERs) were calculated by dividing the corrected differences in costs by those in effects.

Results: Adjusted for baseline PRWE and age, the between group difference was €81 (95% confidence interval [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 quality-adjusted life years (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")

Conclusion: From a societal standpoint, the costs of cast treatment were €81 lower than that of surgical treatment. The increased expenses associated with surgery were balanced by higher secondary health-care 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.