Effectiveness and Safety of Different Treatment Modalities for Patients Older Than 60 Years with Distal Radius Fracture: A Network Meta-Analysis of Clinical Trials

Gutiérrez-Espinoza, Héctora;
Araya-Quintanilla, Felipeb;
Cuyul-Vásquez, Iváncc;
Gutiérrez-Monclus, Rodrigod;
Reina-Gutiérrez, Sarae;
Cavero-Redondo, Iváne, f;
Arenas-Arroyo, Sergio Núñez de

Abstract
The aim of this study was to compare the clinical effectiveness and complications of different treatment modalities for elderly patients with distal radius fracture (DRF). METHODS: We performed a network meta-analysis (NMA) of randomized clinical trials (RCTs). Eight databases were searched. The eligibility criteria for selecting studies were RCTs that compared different treatment modalities (surgical or nonoperative) in patients older than 60 years with displaced or unstable intra-articular and/or extra-articular DRFs. RESULTS: Twenty-three RCTs met the eligibility criteria (2020 patients). For indirect comparisons, the main findings of the NMA were in volar locking plate (VLP) versus cast immobilization, with the mean differences for the patient-rated wrist evaluation (PRWE) questionnaire at -4.45 points ($p < 0.05$) and grip strength at 6.11% ($p < 0.05$). Additionally, VLP showed a lower risk ratio (RR) of minor complications than dorsal plate fixation (RR: 0.02) and bridging external fixation (RR: 0.25). Conversely, VLP and dorsal plate fixation showed higher rates of major complications. CONCLUSIONS: Compared with other treatment modalities, VLP showed statistically significant differences for some functional outcomes; however, most differences were not clinically relevant. For complications, although most differences were not statistically significant, VLP was the treatment modality that reported the lowest rate of minor and overall complications but also showed one of the highest rates of major complications in these patients. PROSPERO Registration: CRD42022315562.

Author keywords
cast immobilization; distal radius fracture; elderly patients; network meta-analysis; randomized controlled trial; surgical intervention