Fracture Complexity, Not Early Weightbearing, Leads to Increased Complications in Ankle Fractures: A Retrospective Cohort Study

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Purpose: Ankle fractures are common orthopaedic injuries. While operative indications are relatively clear, postoperative protocols (including time to initiating weightbearing on the operated ankle) continue to vary. This study aims to provide evidence-based medicine to guide timing of postoperative weightbearing, focusing on postoperative complications.

Methods: A total of 233 patients with isolated ankle fractures who underwent open reduction and internal fixation (ORIF) were retrospectively reviewed. Patients were divided into cohorts based on total non-weightbearing time. Groups included early weightbearing (EWB, less than 3 weeks), intermediate weightbearing (IWB, 3-6 weeks), and delayed weightbearing (DWB, more than 6 weeks). Fractures were grouped into complex fractures (trimalleolar, trimalleolar equivalent, bimalleolar, bimalleolar equivalent, Maisonneuve), and isolated fractures (medial malleolar, lateral malleolar, posterior malleolar) due to clinical similarity.

Results: The EWB group included 74 patients (31.8%), the IWB group included 60 patients (25.8%), and the DWB group included 99 patients (42.5%). A total of 206 patients (88.4%) were complex fractures, and 27 patients (11.6%) were isolated malleolar fractures. 38 patients (16.3%) developed complications, with 18 of those (7.7% overall, 47.4% of all complications) requiring reoperation. We found no differences in overall complications (14.86% vs 11.67% vs 20.20%; P = 0.340) or complications requiring reoperation (9.46% vs 3.33% vs 9.09%; P = 0.334) among the weightbearing groups for all fractures. However, when comparing the 2 fracture groups, complex fractures had a higher rate of overall complications independent of weightbearing (18.45% vs 0%; P = 0.010). Women had increased odds of overall complications (odds ratio [OR] = 2.83, 95% confidence interval [CI] 1.186, 6.746]) and sustaining a complex fracture (OR = 5.27, 95% CI [2.192, 12.669). Complex fractures had a statistically significant higher median age (47.5 vs 29.0; P = 0.003). Diabetic patients tended to be kept non-weightbearing for longer periods of time (EWB: 1.35%, IWB: 11.86%, DWB: 23.23%, P<0.001). This relationship was also observed for ASA (American Society of Anesthesiologists) score of 3 or 4 (22.97% vs 33.33% vs 54.55%; P<0.001).

Conclusion: This study provides evidence in support of early weightbearing in ankle fractures. There is no association between timing to weightbear and complications in ankle fractures treated with ORIF. Rather, complications are more associated with increasing fracture complexity and female sex. Based on the results of this study, patients should be allowed to weightbear early, regardless of fracture type.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device they wish to use in clinical practice.