

Functional Outcome After Ankle Fractures and Ankle Fracture-Dislocations: A Prospective Study

Chad Ferguson, MD¹; Michael Ruffolo, MD¹; J. Kent Ellington, MD²; Rachel Seymour, PhD¹; CAPT (ret) Michael J. Bosse, MD¹; CMC-OC Ankle Fracture Research Group^{1,2};

¹*Carolinas Medical Center, Charlotte, North Carolina, USA;*

²*OrthoCarolina, Charlotte, North Carolina, USA*

Purpose: The literature on patient and injury-specific factors that contribute to functional recovery and long-term results of ankle fracture-dislocations are limited. Further study specific to ankle fracture-dislocations may provide insight into patient and injury-specific factors contributing to poor outcomes or cause surgeons to explore alternative surgical methods to achieve improved outcomes. The long-term clinical and radiographic outcomes for patients sustaining ankle fracture-dislocations are poorer than those without dislocation.

Methods: After IRB approval, 80 patients with bimalleolar or trimalleolar ankle fractures (OTA 44A, B, and C type fractures) were prospectively enrolled in a prospective observational study. The study population included 40 patients with non-dislocated ankle fractures (AF) and 40 with ankle fracture-dislocations (AFD) treated operatively with standard fracture fixation techniques. Injury characteristics, radiographs, demographics, and medical comorbidities were collected at the time of injury. Postoperatively, patient-reported outcome scores were assessed using FAAM (Foot and Ankle Ability Measure) and SMFA (Short Musculoskeletal Function Assessment) questionnaires. Additional outcomes related to patient recovery and complications of surgical care were also tabulated.

Results: Demographic and injury characteristics for the two groups are comparable. Data at 6 months are available for 71 patients. 33 (82.5%) AF patients and 38 (95.0%) AFD patients' outcomes were collected at the 6-month follow-up. Interim results for patient-centered outcome scores collected at 6 months show a mean FAAM score of 72.8 for AF compared to 68.2 for AFD cohort ($P = 0.497$). Combined SMFA scores for the AF cohort were 36.8 compared to 37.5 in the AFD cohort ($P = 0.847$). Based on these results, we report no significant short-term differences in patient-reported outcome scores between these groups. Additionally, at the 6-month follow-up, there are no differences in complications (deep venous thrombosis, pulmonary embolism, neurovascular), time to full weight bearing, or time to full range of motion based on clinical follow-up data.

Conclusion: The comparison of the outcomes between patients sustaining ankle fractures and fracture-dislocations provides additional information for clinicians treating these injuries. Conventionally, ankle fracture-dislocations are considered a higher energy injury with increased soft-tissue stripping and propensity for concomitant soft-tissue and cartilagenous injury, putting patients at risk for increased complications and longer recovery. However, the initial results of our prospective study have shown no difference in FAAM and SMFA scores, complication rates, or time to full recovery when comparing AF and AFD groups.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.