Does Implant Removal Improve Function Following Ankle Open Reduction and Internal Fixation?

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Purpose: Orthopaedic Implant removal (IR) is one of the most common orthopaedic procedures performed, yet there are limited outcome studies on the subject and no guideline exists for when the procedure is beneficial in the lower extremity. The purpose of this study is to evaluate the effect of removal of symptomatic ankle implants using the Short Musculoskeletal Function Assessment (SMFA) dysfunction index as the primary outcome. We hypothesize that IR after ankle fracture will result in improved functional outcomes.

Methods: Utilizing a prospectively collected registry, all patients that underwent IR between 2013 and 2016 were retrospectively reviewed. Inclusion criteria were skeletal maturity, closed intra-articular ankle fracture, symptomatic ankle implants, and completion of the SMFA questionnaire prior to and 5 months after IR. Exclusion criteria were development of a nonunion, infection, or complex regional pain syndrome from initial surgery. The primary outcome was change in SMFA score from baseline. Paired t test was used to compare baseline and follow-up SMFA scores. A multiple linear regression model evaluated the effects of age, sex, body mass index (BMI), smoking status, number of comorbidities, and Lauge-Hansen AO/OTA fracture classification and on outcomes.

Results: The study included 43 patients (31 females, 12 males), mean age 49.9 years (range, 19 to 83). Mean time from initial surgery to IR was 37 ± 46 months (range, 2.2 to 209). Follow-up SMFA questionnaires were completed 5.7 ± 0.5 months (range, 5.1 to 7.4) after IR. The SMFA dysfunction index improved significantly from baseline to follow-up (3.71 ± 7.4, P = 0.002). Significant improvement was seen in the secondary outcomes of SMFA bother index (4.40 ± 8.9, P = 0.003) and SMFA daily activities domain (4.12 ± 9.1, P = 0.006). Regression analysis revealed a significant improvement in the bother index correlating with female gender (P = 0.01) and decreasing number of comorbidities (P = 0.03).

Conclusion: Our study demonstrates that patients with ankle fractures have a significant improvement in function following the removal of symptomatic ankle implants. There appears to be value in removing implants from the ankle in patients who report discomfort during their daily functions. Further investigation into the specific indications for IR and the impact of injury and fracture pattern on outcomes is warranted.

POSTER ABSTRACTS