

Ankle Fractures: No Correlation Between High Implant Cost and Better Patient-Reported Outcomes

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Purpose: The purpose of this study was to determine whether there is a relationship between increasing implant cost and patient-reported outcomes (PROs).

Methods: All ankle fractures treated with open reduction and internal fixation (ORIF) at a Level I academic trauma center from January 2017 to June 2019 were identified. Inclusion criteria included a minimum 3-month follow-up and complete PRO. Patients were excluded for polytrauma or open fracture. Variables assessed included demographics, OTA and Weber classifications, Foot and Ankle Ability Measure-Activities of Daily Living (FAAM-ADL) score, implant type, and implant cost. Implant cost was determined by cross-referencing implant model numbers across all institutions' charge-master database. Statistical analysis included a primary review of the study population, two- and multi-group comparisons consisting of t and rank sum tests, 1-way analysis of variance, Spearman rank correlation, and multivariate linear regression.

Results: A total of 125 ankle fracture surgical encounters were included in this investigation. The patient sample was predominantly female ($n = 76, 60.8\%$). The mean patient age was $53.0 + 16.8$ years. When stratified by fracture classification, the primary AO/OTA class was 44B, 91 (72.8%), and Weber class was B, 91 (72.8%). The most common fracture pattern was trimalleolar, 72 (57.6%), with a mean FAAM-ADL score of $70.6 + 19.5$. Bimalleolar fractures, 41 (32.8%), had a mean score of $69.1 + 21.3$. The remaining isolated malleolar fracture patients, 12 (9.6%), had a mean score of $86.0 + 15.3$. The average total implant cost was $\$793.0 + \574.6 (range, $\$18.20-\2564.80). Differences in total implant cost were not significant across either OTA ($P = 0.075$) or Weber ($P = 0.336$) fracture classifications. Implant cost was greatest among OTA 44C and Weber C fractures, $\$931.70 + \645.70 . No relationship was found between the total implant cost and the 3-month ($R_s = -0.04; P = 0.65$) FAAM-ADL clinical outcome scores.

Conclusion: The value of ankle ORIF is ripe for review given the growing focus on the cost of health care and the high prevalence of ankle fractures. PROs provide a reliable means of assessing the efficacy of surgical interventions in the ankle to promote patient-centric, data-driven care. This study is the first to directly examine whether the cost of ankle implant fixation influences PROs. The utilization of higher-cost ankle fixation does not correlate with better PROs. Consequently, orthopaedic surgeons may choose less expensive implants to improve the value of ankle fixation without impacting patient outcomes.