Functional Outcomes of Trimalleolar Ankle Fractures With Intercalary Fragment: A Case-Control Analysis With a Mean Follow-up of 4 Years

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Purpose: Posterior malleolus fractures are involved in around 50% of all ankle fractures. With the increased use of CT scan for preoperative planning, the finding of an intercalary fragment (ICF) in between the posterior malleolus and the tibial plafond is more frequent. There is a lack of evidence of the influence of the ICF in the outcomes of the patients. The goal of this study is to compare patients with trimalleolar ankle fractures, with and without ICFs, and analyze their impact on the functionality of the patients.

Methods: A retrospective case control study was performed. Patients with trimalleolar ankle fractures treated with open reduction and internal fixation between January 2015 and December 2021 were included, with a minimum follow-up of 1 year. The Foot and Ankle Ability Measure (FAAM) scale, with activities of daily living (ADL), and the ADL subscale score according to the patient were used. Also, the American Orthopaedic Foot & Ankle Society (AOFAS) score was analyzed in each of the patients.

Results: A total of 82 patients met the inclusion criteria for this study. 30 of these patients (36.6%) presented ICFs, while 52 (63.4%) did not. The mean follow-up was 57 months (confidence interval [CI] 46.2-71.4). Regarding the functionality of the patients, the means of each of the variables analyzed were statistically significant in favor of the patients without ICFs. The ADL value for patients with ICF was 85.4 (standard deviation [SD] ± 17.17) and 93.9 (SD ± 10.19) in patients without it (P = 0.0066). The ADL subscale value mean was 72 (SD ± 21.5) in patients with an ICF and 83.6 (SD ± 18.2) in patients without it (P = 0.0107). For the AOFAS score, the mean in patients with ICF was 84.6 (SD ± 14.03) and 91.5 (SD ± 11.77) in the patients without ICF (P = 0.033).

Conclusion: According to this study, the presence of an ICF in trimalleolar ankle fractures is related to a worse functional outcome in patients than in those that did not present one.