

Marijuana Use Is Associated With More Healing Complications Following Tibial Shaft Fracture Fixation

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Purpose: The purpose of this study is to determine the association, if any, of marijuana use with the clinical and radiographic outcomes as well as complications following operative fixation of tibial shaft fractures with an intramedullary (IM) nail.

Methods: 331 consecutive patients who sustained tibial shaft fracture treated operatively with a reamed IM nail with at least 6-month follow-up were reviewed. Patients were seen at 6 weeks, 3 months, 6 months, and 12 months post IM nail fixation. Data collected included patient demographics (recreational marijuana use, tobacco use, initial injury information, surgical details, length of hospital stay) and follow-up information (readmission within 30 and 90 days, time to radiographic healing, development of fracture-related infection [FRI], and other major and minor complications including hardware complications, deep vein thrombosis [DVT], and compartment syndrome). Patients were grouped into “marijuana users (MU)” and “non marijuana users (NMU)” per patient self-reported marijuana use. Cohorts were compared for significance using Fisher exact test, independent t-tests, and multivariate linear regression.

Results: When controlling for age, BMI, CCI, mechanism of injury, sex, closed vs open fracture, and tobacco use status, patients reporting any recreational MU had a greater incidence of healing complications than NMU (43.3% vs 18.5%, $P = 0.003$). No differences were seen in the development of FRI. The MU cohort demonstrated poorer union rates at 1 year (67.9% vs 90.8%, $P < 0.001$). Likewise, the MU cohort underwent more nonunion repair surgeries than NMU (25.0% vs 10.0%, $P = 0.026$). The MU group had longer hospital stays on average than NMU (178.87 hours vs 125.33 hours, $P = 0.027$). Furthermore, marijuana users had higher readmission rates within 30 days than NMU (20.0% vs 4.8%, $P < 0.001$) and within 90 days (25.0% vs 9.2%, $P = 0.001$).

Conclusion: Self-reported recreational marijuana use was associated with healing complications and hospital quality metrics following IM nailing of a tibial shaft fracture, despite marijuana users' lower average age and CCI. The results indicate that marijuana users are at greater risk for complications, delayed healing, and nonunion when compared to non-users.