

Reoperation Rates Following Open Tibia Fracture Treatment in Argentina

German Garabano, MD; Sebastian Pereira, MD; Madeline Mackechnie, MA; Kelsey Elizabeth Brown, BA; Michael Jesse Flores, BS; César Pesciallo, MD; Theodore Miclau, MD, FAAOS; Fernando M. Bidolegui, MD
Hospital Sirio Libanes, Buenos Aires, ARGENTINA

Purpose: There is little known about the true burden of open tibia fractures in Argentina and the associated complication rates. Moreover, identifying patterns of incidence, management, and outcomes of these injuries is often complicated by regional disparities in national health-care infrastructure, limiting the generalizability of study results. Argentina has a pluralistic and fragmented health-care system with disparate allocation of resources throughout its 24 provinces. As a result, Argentina has diverse clinical settings across the interior trauma centers (those located in provinces outside of Buenos Aires with less access to resources) and the exterior hospitals (those in the Buenos Aires province, an urban region in which the capital city is located). The purpose of this study was to characterize the management of open tibia fractures, associated complications, and reoperation rates in interior and exterior trauma centers in Argentina.

Methods: This retrospective observational multicenter study evaluated operative open tibial shaft fractures that were treated between January 2015 and June 2020 across 13 centers in Argentina. 701 skeletally mature patients were included in this study, all of which had a minimum 12-month follow-up. Information on patient demographics, fracture classification and injury pattern, injury mechanism, treatment modality, reoperation rates, and indications for reoperation were collected.

Results: 76% of presenting injuries were the result of a high-energy mechanism. Intramedullary (IM) nailing represented the most common type of fixation (88%). 21% of patients required reoperations. Delayed union/nonunion was the most common indication for reoperation in patients previously treated with IM nail fixation (31%), and infection was the most common indication for reoperation in patients treated with plate fixation (42%). No significant difference in timing (days) of injury to initial treatment between interior and exterior trauma centers (16.7 vs 15.3, $P = 0.85$) was determined; however, the difference in timing (days) of initial treatment to reoperation between the trauma centers (69.4 vs 25.2 $P = 0.01$) was statistically significant. Similar reoperation rates between the interior and exterior trauma centers (20% vs 24%, $P = 0.2$) were reported. Infection, delayed union/nonunion, and hardware removals were cited as the most common indications for reoperation across interior and exterior groups.

Conclusion: There were differences in timing of initial treatment to reoperation and similarities in rates and indications for reoperation between interior and exterior trauma centers. Better understanding of the factors that influence management could help guide future areas for improvement, establish educational goals, and create nationwide guidelines for open tibia fracture treatment.