

Treatment Patterns for the Management of Open Tibial Shaft Fractures in Latin America

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Purpose: Open tibial fractures are an important source of disability in Latin America. High-income countries (HICs) have established standardized treatment protocols for open tibia fractures worldwide, but less is known about the treatment standards for these injuries in middle- and lower-middle income countries (MICs) in Latin America. This survey of Latin American orthopaedic surgeons aims to characterize treatment patterns for the management of open tibia fractures.

Methods: Orthopaedic surgeons from each of the orthopaedic societies of all 20 Latin American countries completed an online survey assessing their typical treatment of open tibia fractures. Demographic information including gender, country, and practice environment was collected. Treatment patterns were queried according to 2 groupings of Gustilo-Anderson fracture types: treatment of type 1 and type 2 fractures and treatment of type 3 fractures. Treatment patterns were evaluated across 4 domains: antibiotic prophylaxis, irrigation and debridement, fracture stabilization, and wound management. Summary statistics were reported and analysis was performed using Fisher's exact test ($P < 0.05$).

Results: There were 616 survey participants from all 20 Latin American countries (4 HICs and 16 MICs). Most had not completed an orthopaedic trauma fellowship (62.4%), and the majority treated 11 or more open tibia fractures per year (59.2%). Initial external fixation followed by staged internal fixation is preferred for both type 1 or 2 fractures (51.0%) and type 3 fractures (86.0%). Nearly one-third (31.5%) of type 3B fractures did not receive a soft-tissue coverage procedure. When stratifying by country socioeconomic status, patients in MICs less commonly received antibiotics within 3 hours of hospital arrival than those in HICs for type 1 or 2 fractures (63.4% vs 80.4%, $P = 0.014$) and type 3 fractures (66.7% vs 80.4%, $P = 0.059$). MIC surgeons more commonly utilized delayed internal fixation for type 1 or 2 fractures (54.3% vs 22.0%, $P < 0.001$) and type 3 fractures (94.0% vs 80.4%, $P = 0.002$). MIC surgeons also more commonly used primary closure for type 1 or 2 fractures (89.8% vs 62.8%, $p < 0.001$) and type 3 fractures (32.6% vs 9.8%, $P < 0.001$).

Conclusion: This is the largest survey to date reporting Latin American orthopaedic surgeons' treatment patterns for open tibia shaft fractures. MIC surgeons in Latin America report higher use of delayed internal fixation for all open fracture types, while HIC surgeons more routinely avoid primary closure warranting further investigation. Soft-tissue coverage procedures are also not performed for a substantial number of type 3B open tibia fractures commonly due to a lack of operative personnel and training.