

Management of Soft-Tissue Coverage of Open Tibia Fractures in Latin America: Techniques, Timing, and Resources

Madeline Mackechnie, MA; Michael Jesse Flores, BS; Vincenzo Giordano, MD; Michael James Terry, MD; Mario Ivan Garuz, MD; Nicolas Hyun-Woo Lee, MD; Luis Padilla, MD; Michael A.K. Mackechnie, MD; Fernando M. Bidolegui, MD; Kelsey Elizabeth Brown, BA; Jose Eduardo Quintero, MD; Anthony Ding, MD; Carlos Guillermo Sanchez Valenciano, MD; Horacio Inocencio Tabares Neyra, MD; Julio Segovia, MD; Esther M.M. Van Lieshout, PhD; Michael Verhofstad, MD; Theodore Miclau, MD; Study Group
University of California, San Francisco, San Francisco, California, UNITED STATES

Purpose: This study examined soft-tissue coverage techniques of open tibia fractures, described soft-tissue treatment patterns across income groups, and determined resource accessibility and availability in Latin America.

Methods: A 36-question survey was distributed to orthopaedic surgeons in Latin America through 2 networks: national orthopaedic societies and the Asociación de Cirujanos Traumatólogos de las Américas (ACTUAR). Demographic information was collected, and responses were stratified by income groups: high-income countries (HICs) and middle-income countries (MICs).

Results: The survey was completed by 469 orthopaedic surgeons, representing 19 countries in Latin America (2 HICs and 17 MICs). Most respondents were male (89%), completed residency training (96%), and were fellowship-trained (71%). Only 44% of the respondents had received soft-tissue training. Respondents reported a strong interest (77%) in attending a soft-tissue training course. Plastic surgeons were more commonly the primary providers for Gustilo Anderson (GA) type IIIB injuries in HICs than in MICs (100% vs 47%, $P < 0.01$) and plastic surgeons were more available (<24 hours of patient presentation to the hospital) in HICs than in MICs (63% vs 26%, $P = 0.05$), demonstrating statistically significant differences. In addition, respondents in HICs performed free flaps more commonly than in MICs for proximal third (55% vs 10%, $P < 0.01$), middle third (36% vs 9%, $P = 0.02$), and distal third (55% vs 10%, $P < 0.01$) lower extremity wounds. Negative pressure wound therapy (NPWT or wound vacuum-assisted closure) was the only resource available to more than half of the respondents. Although not statistically significant, surgeons reported having more access to plastic surgeons at their institutions in HICs than MICs (91% vs 62%, $P = 0.12$) and performed microsurgical flaps more commonly at their respective institutions (73% vs 42%, $P = 0.06$).

Conclusion: The study demonstrated that most orthopaedic surgeons in Latin America have received no soft-tissue training, HICs and MICs have differences in access to plastic surgeons and expectations for flap type and timing to definitive coverage, and most respondents had limited access to necessary soft-tissue coverage surgical resources. Further investigation into differences in the clinical outcomes related to soft-tissue coverage methods and protocols can provide additional insight into the importance of timing and access to specialists.