Spinal trauma in Tanzania

Spinal trauma is a major cause of disability worldwide. The burden is especially severe in low-income countries, where hospital infrastructure is poor, resources are limited, and the volume of cases is high. Currently, there are no reliable data available on incidence, management, and outcomes of spinal trauma in East Africa. The main objective of this study was to describe, for the first time, the demographics, management, costs of surgery and implants, treatment decision factors, and outcomes of patients with spine trauma in Tanzania.METHODSThe authors retrospectively reviewed prospectively collected data on spinal trauma patients in the single surgical referral center in Tanzania (Muhimbili Orthopaedic Institute [MOI]) from October 2016 to December 2017. They collected general demographics and the following information: distance from site of trauma to the center, American Spinal Injury Association Impairment Scale (AIS), time to surgery, steroid use, and mechanism of trauma and AOSpine classification and costs. Surgical details and complications were recorded. Primary outcome was neurological status on discharge. The authors analyzed surgical outcome and determined predicting factors for positive outcome.RESULTSA total of 180 patients were included and analyzed in this study. The mean distance from site of trauma to MOI was 278.0 km, and the time to admission was on average 5.9 days after trauma. Young males were primarily affected (82.8% males, average age 35.7 years). On admission, 47.2% of patients presented with AIS grade A. Most common mechanisms of injury were motor vehicle accidents (28.9%) and falls from height (32.8%). Forty percent of admitted patients underwent surgery. The mean time to surgery was 33.2 days; 21.4% of patients who underwent surgery improved in AIS grade at discharge ($p = 0.030$). Overall, the only factor associated with improvement in neurological status was undergoing surgery ($p = 0.03$) and shorter time to surgery ($p = 0.02$).CONCLUSIONSThis is the first study to describe the management and outcomes of spinal trauma in East Africa. Due to the lack of referral hospitals, patients are admitted late after trauma, often with severe neurological deficit. Surgery is performed but generally late in the course of hospital stay. The decision to perform surgery and timing are heavily influenced by the availability of implants and economic factors such as insurance status. Patients with incomplete deficits who may benefit most from surgery are not prioritized. The authors' results suggest that surgery may have a positive impact on patient outcome. Further studies with a larger sample size are needed to confirm our results. These results provide strong support to implement evidence-based protocols for the management of spinal trauma [1)].

Spinal surgery under Eastern-African circumstances is technically demanding and associated with significant complications, such as blood loss, infection, and wound breakdown. We report a spinal trauma case that was performed using minimally invasive surgery (MIS) and navigation, and hypothesize that these newer techniques may enable surgeons to perform effective spinal surgery with minimal complications and good outcomes. During the 2014 First Hands-on Neurotrauma Course held in Dar es Salaam, Tanzania, we successfully performed three minimally invasive and two-dimensional (2D) navigated spinal surgeries to decompress and stabilize patients with complete and incomplete spinal injuries. In this report, we present a case of a paraplegic patient with a T12 burst fracture who tolerated MIS surgery with no intraoperative complications, and is doing well with no postoperative complications one year after surgery. Minimally invasive spinal surgery and 2D navigation may offer advantages in resource-poor countries. As part of the Weill Cornell Tanzania Neurosurgery project and in conjunction with the Foundation for International Education in Neurological Surgery (as well as other organizations), further experiences with 2D navigation and MIS surgery will be recorded in 2015. A neurotrauma registry has already been implemented to better understand the current management of neurotrauma in Eastern Africa [2)].

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2)
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