Traumatic brain injury in a rural and an urban tanzanian hospital-a comparative, retrospective analysis based on computed tomography.

Abstract:
In a resource-poor environment such as rural East Africa, expensive medical devices such as computed tomographic (CT) scanners are rare. The CT scanner at the rural Haydom Lutheran Hospital (HLH) in Tanzania therefore offers a unique chance to observe possible differences with urban medical centers in the disease pattern of trauma-related cranial pathologies. The purpose of this study was to compare traumatic brain injuries (TBIs) between a rural and an urban area of Tanzania. HLH has 350 beds and one CT scanner. The urban Aga Khan Hospital is a private hospital with 80 beds and one CT scanner. This was a retrospective study. Data of 248 patients at HLH and of 432 patients at Aga Khan Hospital with TBI could be collected. The prevalence of TBI was significantly higher in the rural area compared to the urban area (34.2% vs. 21.9%, P< 0.0001). TBI due to violence was noted to occur more frequently at HLH, whereas road traffic accidents were more frequent at the Aga Khan Hospital. The number of patients showing a normal CT result was significantly higher in the urban area (53.0% vs. 35.9%, P< 0.0001). Bone fractures (35.9% vs. 15.7%, P< 0.0001) and pneumocephalus (6.9% vs. 0.9%, P< 0.0001) were diagnosed significantly more frequently in the rural survey. Soft tissue swelling (11.6% vs. 1.2%, P< 0.0001) and frontal sinus injuries (7.4% vs. 0.4%,
P< 0.0001) were observed significantly more often in the urban setting. This study documents the burden of TBI and the differences in TBI-related CT diagnoses and their incidence between urban and rural areas in Eastern Africa. These results are important as they demonstrate that patients with severe TBI are not a primarily urban concern. Management of TBI should be included in the training curricula for health personnel alike irrespective of whether their workplace is primarily urban or rural.