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Letter to the Editor

Neurotrauma Registry Implementation in the Republic of Niger: Challenges and Benefits for the National Trauma Surveillance

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Medical information systems should be viewed as part of the healthcare chain. Without a reliable medical records system, assessing the quality of care will be difficult. Therefore, it is impossible to improve the health of millions of people in our country. Having the right patient's medical record in the hands of the right healthcare professional at the right time goes a long way toward ensuring faster and more effective care. Nowadays, we are more concerned about the neurotrauma registry since, in our country, as in many other low-income countries, it is by far the most commonly treated neurosurgical pathology. Dewan et al. reported 2019 that traumatic brain injury in low-income countries represented 35% of the global burden of neurosurgical diseases,72% required neurosurgical consultation and surgery, and only 32.3% benefited from neurosurgical treatment.[1] Moreover, in these resource-limited countries, neurotrauma conditions affect mostly young adults with male predominance and a high mortality rate (10.3-21%) with a direct impact on economic productivity, adding strain on healthcare resources.[2] The National Neurotrauma Registry will allow us to have a robust, reliable medical records system accessible to all. Such medical record systems save lives and relieve the strain on the already lacking resources in the healthcare system. The purpose of this letter is to raise awareness of the National Neurotrauma Registry, its challenges, and the steps for its implementation in resource-limited regions.

Data on traumatic brain injury (TBI) and traumatic spinal cord injury (TSCI), which are the leading causes of long-term disability and global health mortality in low-income countries, is collected by the Neurotrauma Registry. The registry improves outcomes, shapes policy, and expands knowledge.[3] The Neurotrauma Registry enables targeted legislation, scientific research, treatment coordination, and improved clinical outcomes by collecting information about traumatic brain injury and related conditions. The leading causes of neurotrauma, which claim 4 million lives each year, are mainly road traffic accidents, falls, and assaults.

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Nearly 90% of these deaths from traumatic brain injury (TBI) and related diseases occur in low- and middle-income countries (LMICs).[2] This is consistent with the reality of neurotrauma in Niger. From June 24, 2022 to June 23, 2023 a total of 7415 patients were admitted to the Department of Surgery and Surgical Specialties of the HNN-Niger. The total number of neurotrauma cases was 20.0% (n=1482), representing one in five cases admitted to surgical emergency department. Therefore, traumatic brain injury (TBI 86.9%, n=1288) and Traumatic spinal cord injury (TSCI 13.1%, n=194) were represented. The main causes of neurotrauma described in the literature are also recorded in the Department of Surgery and Surgical Specialties cases at HNN-Niger. The most common causes were Traffic-road accidents (64%) and assaults (18%) for TBI, while TSCI resulted from road traffic accidents (55%) and assaults (12%). In addition, 27.0% of TSCI were work accidents, of which 90.0% occurred in the gold panning group.

There are three main challenges in implementing a neurotrauma registry in LMICs. The first is the limited resources and infrastructure (including the lack of sufficient health facilities to effectively support a neurotrauma registry, insufficient funding for the maintenance of the neurotrauma registry coupled with the lack of trained healthcare professionals familiar with neurotrauma data collection), the second is the cultural and societal barriers (including lack of public awareness, leading to a low participation and data reporting, cultural beliefs and practices with fear of confidentiality breaches), and the third is the technology and data management issues. This is the challenge of data standardization, a reality in LMICs complicated by limited access to internet connectivity, poor electrical energy supply, and poor technological infrastructure.

However, those challenges can be overcome by following three steps for the national registry implementation in Niger. (1) Raise awareness and enhance the understanding of neurotrauma incidents among health workers nationwide. (2) There are currently four neurosurgery departments (NSD) that care for neurotrauma patients in public hospitals in the Republic of Niger: Two NSD in Niamey, one NSD in Maradi, and one NSD in Zinder. In these neurosurgery departments, an Excel file will

be built using the World Health Organization (WHO) Minimum Dataset for Injury (MDI),[4] to register all the TBI and TSCI patients. (3) We will then summarize the collected data in a unique Excel file yearly to make the national registry and publish a paper after one year of prospective data collection in the electronic national registry.

Relevant and reliable data are required for the choice of policies, allocation of resources, and management of a healthcare system, enabling appropriate and prompt decision-making. Implementation of the national neurotrauma registry is the cornerstone for building an adequate, accessible, and affordable healthcare system in low-resource settings.

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