

Letter to the Editor

DOI: 10.22114/ajem.v0i0.173

Invitation to the GNS-I Study; a Global Evaluation of Traumatic Brain Injury in Low-, Middle-, and High- income Countries

Ahmed Negida^{1,2*}, Ahmed M. Raslan³

1. Faculty of Medicine, Zagazig University, El-Sharkia, Egypt.

2. Neurosurgery Department, Bahçeşehir University, Istanbul, Turkey.

3. Department of Neurological Surgery, Oregon Health & Science University, Portland, Oregon, USA.

*Corresponding author: Ahmed Negida; Email: ahmed.said.negida@gmail.com

Published online: 2019-06-02

To the Editor,

The need to improve surgical care in low and middle income countries (LMICs) has been advocated recently (1, 2). The Global Neurosurg (GNS) collaborative is an international network that aims to advance neurosurgical practice worldwide, to highlight the variations in the current neurosurgical practice, and to address the gap in neurosurgical outcomes between high-income countries (HICs) vs. LMICs. GNS research activities are coordinated by the Neurological Surgery Department of Oregon Health and Science University, the USA.

Participation in the GNS projects has many benefits for collaborators: 1) all collaborators get PubMed citable ID as “non-author contributors” to the publications that arise from GNS studies; 2) collaborators can publish secondary analyses from the original datasets; and 3) collaborators can use the opportunity of the GNS to form local and national networks to facilitate further research activity.

The first international study of the GNS aims to determine the global outcomes of traumatic brain injury (TBI) worldwide (3). The literature showed that mortality rates following TBI are higher in LMICs compared to HICs. The CRASH trial was a randomized controlled trial of corticosteroid after significant head injury performed in 239 hospitals in 49 countries (4). A secondary analysis of 8927 patient data from the CRASH trial showed that TBI patients in LMICs have twice the odds of dying

following severe TBI compared to patients in HICs (OR 2.23, 95% CI 1.51-3.30) (5). Data from four urban trauma centres in India showed that a third delay (> 10 minutes) was significantly associated with early mortality in TBI patients (6). In Uganda, the odds of dying from an injury is more than four times higher than in HICs (7). Factors associated with the high TBI mortality rate in Uganda were lack of patient access to the proper neurosurgical management when needed, the presence of more than one intracranial bleed, high dependency unit admission, ventilator support outside of surgery, and hospital arrival delayed by more than 4 hours (8). The considerable gap in TBI outcomes between HICs and LMICs could be explained by the variations in management as well as the lack of patient access to proper surgery and the delays in providing the proper care in some LMICs regions.

We invite worldwide neurosurgeons, trauma surgeons, emergency medicine physicians, anaesthesiologists, and trainees to join the GNS team. Any worldwide hospital that receives and manages TBI patients is eligible for participation in the study. Collaborators can register through the official GNS website available here:

<https://www.globalneurosurg.org/>

There are several ways in which collaborators can participate in the GNS team, these roles can be found on the GNS website here:

<https://www.globalneurosurg.org/collaborator-roles/>

REFERENCES

1. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet*. 2015;386(9993):569–624.
2. Corley J, Lepard J, Barthélemy E, Ashby JL, Park KB. Essential Neurosurgical Workforce Needed to Address Neurotrauma in Low- and Middle-Income Countries. *World Neurosurg*. 2019;123:295–9.

3. Negida A, Teton Z, Al-Shami H, Hegazy A, Raslan AM. Protocole: Global NeuroSurg 1 Study: Determining the Global Outcomes of Traumatic Brain Injury in low-, middle-, and high- income countries: A prospective, international cohort study. Available in: <https://dx.doi.org/10.17504/protocols.io.3kpgkvn>
4. Roberts I, Yates D, Sandercock P, Farrell B, Wasserberg J, Lomas G, et al. Effect of intravenous corticosteroids on death within 14 days in 10008 adults with clinically significant head injury (MRC CRASH trial): randomised placebo-controlled trial. *Lancet*. 2004;364(9442):1321-8.
5. De Silva MJ, Roberts I, Perel P, Edwards P, Kenward MG, Fernandes J, et al. Patient outcome after traumatic brain injury in high-, middle- and low-income countries: analysis of data on 8927 patients in 46 countries. *Int J Epidemiol*. 2009;38(2):452-8.
6. Gupta S, Khajanchi M, Kumar V, Raykar NP, Alkire BC, Roy N, et al. Third delay in traumatic brain injury: time to management as a predictor of mortality. *J Neurosurg*. 2019;In Press.
7. Jayaraman S, Ozgediz D, Miyamoto J, Caldwell N, Lipnick MS, Mijumbi C, et al. Disparities in injury mortality between Uganda and the United States: comparative analysis of a neglected disease. *World J Surg*. 2011;35(3):505-11.
8. Kuo BJ, Vaca SD, Vissoci JRN, Staton CA, Xu L, Muhumuza M, et al. A prospective neurosurgical registry evaluating the clinical care of traumatic brain injury patients presenting to Mulago National Referral Hospital in Uganda. *PLoS One*. 2017;12(10):e0182285.