SPECIAL ARTICLE
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Global Neurosurgery – The Problem and Solution - The Asian Perspective

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| INTRODUCTION

The world of Neurosurgery has witnessed a quantum jump in the last few decades. Although this progress has reaped benefits for patients worldwide, it is also worth noting that some regions of the world have indeed been left behind. This fact is mirrored by the data published by the Lancet Commission and the World Bank1. The gap between resources and needs is evident in this report, which says that approximately 5 million essential neurosurgical cases per year are left unaddressed in low- and middle-income countries. The preventable deaths due to surgical deficit are as high as 47 million annually (1) Given this uneven balance of facilities in the health sector, the WHO has agreed to resolve the issues through the participation of worldwide governing bodies of neurosurgery faculties in the individual country. The former president of the world bank was quoted that "surgery is an indivisible, indispensable part of health care and progress towards universal health coverage (2).

1. | INDISPENSABLE NEUROSURGERY BURDEN AND LIMITED AVAILABILITY OF RESOURCES AT HAND – THE PROBLEM

Global neurosurgery can be defined as an area of study, research, practice, and advocacy that prioritizes improving health outcomes and achieving health equity for all people worldwide who are affected by neurosurgical conditions or need neurosurgical care (3). The specialty of neurosurgery is indispensable in today's world. The global burden of trauma, which consumes a large chunk of the world economy, cannot be addressed without neurosurgery. The prevalence of Traumatic Brain Injury (TBI) was 55.5 million, and that of Spinal cord injury was 27 million in the year 2016. There was a rise of 8.6 % of TBI compared to a decade earlier; this added to the 8.1 million and 9.5 million years of lived life with a disability (4). The age-standardized incidence rates of CNS cancer increased globally by 17.3 % between 1996 to 2016. This rise was more marked in the regions of Southeast Asia (5). Neurological sequelae to congenital anomalies are one of the most particular areas that require neurosurgical attention. With Cleft lips and congenital heart diseases, the Neural tube defect amounts to 21.6 million disability-adjusted life years. In this, 57 % percent are avertable with proper access to a surgical facility (6). Among the three, NTDs have the most considerable potential to be avertable, saving 76% disability-adjusted life years (6). Unfortunately, neurosurgical diseases have remained off the priority charts of governmental and voluntary health organizations. It is very intriguing to find that the only neurosurgical procedure listed among 44 essential surgical procedures in Control Priorities, 3rd edition (Vol 1- Essential Surgery) are Burr holes for craniotomy and shunt for Hydrocephalus (7,8).

Despite huge requirement, the Low- and Middle-Income countries (LMIC) are crippled with the resources and facilities at hand. It is estimated that Brain tumors, Subarachnoid hemorrhage, Traumatic brain injuries from trauma account for approximately 5500 disability-adjusted life years. These figures are more significant than the DALY lost due to diseases like HIV, TB, and Malaria combined (9). It is estimated that approximately 22.6 million people across the Globe require neurosurgical care. All of This may point to a deficit of nearly 20000 neurosurgeons to cater to this unmet need (3). The economic burden of neurological diseases treated surgically has a significant impact on the country's productivity and health. It should naturally translate into better policymaking with a foresight towards prevention and improving surgical care. Going by these numbers, it's not an irony that surgically treatable disease was rightly coined as The Neglected Stepchild of Global Health" by Paul Farmer.

2. | WHAT CAN WE DO NOW? – THE SOLUTION

2.1. | PUBLIC-PRIVATE PARTNERSHIPS TOWARDS ACHIEVING HEALTH GOALS

The disparity and equality in the health care sector of LMICs can only be addressed by focusing on better policymaking by the individual Governments; this requires allocating grants towards the sector, which mostly influences the health indices of that country. However, this cannot be accomplished without adequate funding; the need brings into the picture the role of voluntary Governmental and Non-Governmental organizations like Bill and Melinda Gates Foundation, Rockefeller Foundation, and Ford foundations (10) which have contributed significantly towards Global health. These foundations can work closely in a cordial relationship with individual Governments to chart out plans and policies that address the requirements of the individual countries' healthcare sector.

The role of international bodies like the World Federation of Neurosurgical societies (WFNS), Foundation of International Education in Neurological Surgery (FIENS), Asian Congress of Neurological Surgeons (ACNS), Asia-Australia society of neurosurgery (AASNS), European Association of Neurosurgeons (EANS), World Health Organizations, United Nations International Children's Emergency Fund cannot be overemphasized. A successful private-public partnership in coordination with the policymakers can only ensure a goal-driven approach to improving global health indices.

It has long been realized that agencies from outside (Voluntary health organizations) cannot provide a sustainable alternative to long-lasting problems. The interests of Global organizations may wane over time with changing governments or the need to redirect resources to the more severe problem (11). Hence, the solution to these problems should arise within the home country endorsed by their system. The aims of Global organizations should be to orchestrate their machinery towards the development of indigenous self-sustainable systems. This system can only be built through education hence rightly termed "service through education" (11). The role of international societies and regional bodies involved in neurosurgical care is of paramount importance in achieving this. A prime example of such a success story is the involvement of FIENS in Sub-Saharan Africa. Their commendable effort dates to 20 years; they have successfully cut the deficit of neurosurgical care from 1 neurosurgeon for 8 million people to 1 per 2.4 million (12).

2.2. | THE GLOBAL NEUROSURGERY EDUCATION

The training of young neurosurgeons in the LMICs of paramount importance; that training will improve the quality of care provided in that regions. The technical nuances of complicated procedures can be learned or refined through the international exchange of trainees from LMICs to High-Income Countries (HICs). The World Federation of Neurosurgical societies already has at least 28 fellowship centers worldwide that offer specialized training in the field of interest. These fellowship centers provide a great window of opportunity for the young neurosurgeons from the LMICs to travel and spend their time among world-renowned neurosurgeons.

However, the world's current situation is unprecedented due to the 2nd wave of the Corona Pandemic in various countries. The pandemic has forced the individual countries to lock down their borders, pending the vaccines. Individual societies and governing bodies worldwide have risen to the occasion of providing neurosurgical education through online portals. This commendable job where individuals and organizations have been increased to the occasion has given hope and bonded us closer than ever. The Asian Congress of Neurological surgeons has been at the forefront of this online neurosurgical education through our weekly webinars. We have engaged with more than one hundred thousand viewers both live and through our YouTube archived section. The various organizations like the WFNS and individual member societies have also contributed to this online education through webinars to benefit the young Neurosurgeons.

3. | ONE WORLD ONE FAMILY

The concept of a global family has been around since medieval times. The ancient Sanskrit Vedas has described this philosophy of "VasudaivaKutumbakam," which translates into, "The whole world is one family" (13). It is not illogical to think that when diseases do not respect geographical boundaries, why should the prevention and cure do. Health is the prime concern of a society that shapes the future of a single individual and the entire nation and the whole world. Individual countries should unite and contribute to this concept of a healthy world. This philosophy has been embraced by many great visionaries across the world, including His Holiness Dalai Lama. The idea has gained momentum, especially in this global pandemic where the world is battling one of the deadliest outbreak’s humanity has witnessed. The race for a cure has been on ever since the etiology of the disease was deciphered. The international ideas and information exchange have led to science and technology improvement with the unprecedented rate of vaccines developing; this is a prime example of Global cooperation that can influence health indices worldwide. Neurosurgical collaboration among countries of the world can mitigate the deficit of unmet surgical care needs in many LMICs.

4. | THE FUTURE

We look forward to a bright future where resources and facilities are balanced, a world that caters to the healthcare needs of resourceless countries. How can this be achieved? When we think of a change of this magnitude, it cannot happen overnight. The Japanese Philosophy of the "Kaizen" is very deep and relevant in this context. The word means "good change" (14,15). Continuous incremental changes in the right direction can add to substantial change over time. Kaizen is merely a constant, gradual good change of a process that involves everyone in the hierarchical ladder. Its adaptation in the health sector begins with health care workers, hospitals, governing bodies, and governmental policymakers (15). Concerning global neurosurgery, implementation of this philosophy should be considered a priority by the highest body, the World Federation of Neurological societies, to regional organizations of Neurosurgery in the individual countries.

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