Journal of Enam Medical College
Vol 12 No 3 September 2022

Review Article

Rehabilitation of Stroke Survivors with Disabilities in Low- and Middle-Income Countries: Barriers and Opportunities

Md. Shahidur Rahman[1]

Received: 5 January 2022 Accepted: 27 July 2022
doi: https://doi.org/10.3329/jemc.v12i3.78558

Abstract

Globally, stroke is a leading cause of mortality and disability and there are substantial economic costs for post-stroke care. Barriers to the rehabilitation of stroke survivors with disabilities in low- and middle-income countries are many. There are enormous challenges in overcoming the barriers. The socioeconomic impacts of disabilities are high. Developing and delivering cost-effective rehabilitation services to stroke survivors with disabilities are daunting challenges to low- and middle-income countries. The barriers and unmet needs for rehabilitation treatments are high. These challenges are amplified by resource constraints like infrastructural facilities for rehabilitation management, and an inadequately trained healthcare workforce in low- and middle-income countries (LMICs). Multidisciplinary team care management led by physicians, therapists, rehabilitation nurses, and community health workers need to be strengthened. Threats to the outcomes of stroke care in resource-poor settings are the non-availability of cost-effective team care at the hospital and at the community level. Long-term medical and rehabilitation care needs organizational and financial support. The future challenge is to identify what elements of organized stroke care can be implemented to make the largest gain. Simple interventions such as swallowing assessments, bowel and bladder care, mobility assessments, and consistent secondary prevention can prove to be key elements to improving post-discharge morbidity and mortality. Recognition of the importance of stroke rehabilitation by WHO and global health leaders are new opportunities for LIMCs to fight back the stroke-related disabilities. Successful rehabilitation of stroke survivors with disabilities is a paramount challenge in LIMCs. But opportunities are coming up as there is increased awareness about stroke among general people. Task shifting of the rehabilitation health workforce to caregivers at the home or community level can help augment disability-adjusted life years. Proper Caregivers Training is coming out as a good prognostic indicator in stroke survivors in low resource settings. Structured training of caregivers is essentially needed at the low resource outset in developing countries and should be emphasized in stroke rehabilitation protocol. Universal health coverage should be extended to poor stroke survivors with disability. The burden of stroke will further increase until effective stroke prevention strategies are more widely implemented. The objective of this review article is to highlight the elements of health system behavior that affect barriers and opportunities in addressing stroke survivors with disabilities.

J Enam Med Col 2022; 12(3): 148−154

1. Former Professor, Department of Physical Medicine and Rehabilitation
Bangabandhu Sheikh Mujib Medical University, Dhaka

Correspondence *Md. Shahidur Rahman, E-mail: shahidurpmrbd@gmail.com*

Introduction

Stroke has emerged as an important global health problem and is now the third leading cause of death and disability.[1] Decreases in the cause-specific mortality rate reduced the effect of population growth for all but three causes: substance use disorders, neurological disorders, and skin and subcutaneous diseases.[2] Although age-standardized mortality rates have decreased sharply from 1990 to 2016, the decrease in age-standardized incidence has been less steep, indicating that the burden of stroke is likely to remain high.[3]

A stroke can produce long term disability and negative impacts on the patient's quality of life as well as reduced disability-adjusted life years (DALY). Most stroke survivors suffer from serious and disabling healthcare problems and medical rehabilitation is a major part of patient care. Potentially beneficial treatment options for motor recovery of the arm include constraint-induced movement therapy and robotics. Promising interventions that could be beneficial to improve aspects of gait include fitness training, high-intensity therapy, and repetitive-task training.[4]

Rehabilitation is a process of active change by which a person who has become disabled acquires the knowledge and skills needed for an optimum physical, psychological, and social function. The first Stroke Recovery and Rehabilitation Roundtable established a game-changing set of new standards for stroke recovery research.[5] The World Stroke Organization recommends that after a stroke, patients should have access to rehabilitation specialists, including physiotherapists, occupational therapists, and speech and language therapists.[6]

Stroke survivors and the global burden of disease

The huge number of stroke survivors with disability and the lack of adequate rehabilitation management in LIMCs is enhancing the global burden of disease. In a study examining only physical rehabilitation needs using Global Burden of Disease data from 2017, years lived with disability data for neurological diseases, including stroke, were inversely proportional to a country's income. The greatest increase in physical rehabilitation needs was found in low income countries with the least rehabilitation infrastructure.[7]

Weakness and barriers in resource-poor settings

Weaknesses in stroke rehabilitation are the lack of service development and infrastructural support that made stroke management difficult at all levels, especially in LIMCs. Those in the resource-poor settings are unable to afford rehabilitation care. The global challenge to integrate rehabilitation into universal health coverage as part of the WHO's Sustainable Development Goals (SDG) is spearheaded by the WHO Rehabilitation 2030 action plan.[8]

Barriers to stroke rehabilitation in LIMCs at low resource outset are many. Poor understanding among clinical leaders, health planners, and patients about the role of rehabilitation interventions on impairment, activity, and participation (e.g. return to work) are major obstacles to evaluating the need for rehabilitation delivery in service planning.[9]

Other major barriers include misleading cultural beliefs about stroke and the use of traditional medicine, which might include some traditional practices. Rehabilitation interventions are ignored in many standards of care, clinical practice guidelines, and care pathways and protocols. There are insufficiently skilled workforces to deliver rehabilitation services and difficult access to standardized stroke educational programs. Inadequate access to skilled services results in the often sporadic, non-specific, and short-lived provision of rehabilitation interventions. There is a lack of dedicated stroke units and stroke rehabilitation services in LIMCs. Often there are long delays between stroke onsets and accessing rehabilitation services.[10,11] Insufficient health insurance or financial support for rehabilitation services and the high cost of available services are common constraints.[12,13]

Strengthening rehabilitation works

To strengthen rehabilitation works we need to increase the multidisciplinary rehabilitation health workforce. Capacity building of the rehabilitation health workforce should be a priority plan. We should work to develop and implement financing and procurement policies that ensure assistive devices and products to all who need them and ensure adequate training about their use. We should acknowledge and address financial corruption in the health sector as well.[14,15]

For removing the barriers and illuminating the optimism we need to integrate rehabilitation into health system policy and practice. We should integrate rehabilitation services into all levels of health care delivery systems, and expand and decentralize service delivery strategies. Financial aid should be extended to poor and complicated patients. Hospitals should be enriched with specialized units for inpatients with complex needs. Expanding the use of affordable technologies and devices (e. g., wheel chairs, orthotics) and ensuring adequate training in their use are integral components of interventions. Developing good practice guidelines and expanding research programs are equally important.[16]

Task shifting to community health workers, families, or caregivers

The rehabilitation health workforce may not be available at the community level. So, shifting tasks to community health workers or caregivers is an important part of medical rehabilitation. Task shifting isparticularly of vital importance to LIMCs where continued expert services are not available or affordable. One study aims to develop and implement a simplified stroke rehabilitation program that utilizes nurses and family caregivers for service delivery, and evaluate its feasibility and effectiveness in rural China was found to generate initial high-quality evidence to improve stroke care in resource-scarce settings.[17-19] Awareness will be enhanced when community health workers or family members are involved in stroke care. Mild to moderate cases of stroke result in a smoother transition from hospital to home.[20,21] Delegating rehabilitation work loads to care givers may not be as effective as standard care, even with intensive training of caregivers or health workers.[22]

Task shifting requires intensive training for community health workers and family caregivers to achieve effective results. Regular and periodic supervision by therapists and trained community health workers will be more remunerative. There is very low- to moderate-quality evidence that caregiver-mediated exercises may be a valuable intervention to augment the pallet of therapeutic options for stroke rehabilitation.[23- 29] Family members and caregivers of people with stroke assist patients with mobility, wheel chair activities, balance and self-care, and speech and language. In Africa, caregivers of people with stroke report being confronted by contextual challenges including having little access to transport, inadequate income, and having to manage a complex mix of life roles including employment, home duties, and caring for the stroke survivors.[30] Structured training of caregivers provided during discharge of hospital admitted stroke patients have a positive effect on the outcome of the survivors.[31]

Rehabilitation services if not accessible to the sufferers may exacerbate the problem and can result in avoidable complications that place a further strain on the already under resourced healthcare systems.[32,33]

Family members or less skilled workers when taking responsibility for the delivery of rehabilitation services requires careful consideration. High-quality trials were done in Asia that showed a model of task shifting had no additional benefit over usual care. Energy should be invested in developing effective models for educating the stroke healthcare workforce as a whole and should include tools for families and caregivers that help them to support stroke survivors in their recovery.[34]

Building stroke research capacity

Building stroke research capacity in low- and middle-income countries will be useful in improving health

and reducing the huge burden of stroke in these countries. Efforts to implement and test new stroke rehabilitation service models, and new education and information systems to support recovery, are increasing.[35] Global and regional efforts from the World Stroke Organization, the European Stroke Organization, and their stroke support organizations and networks, and WHO are working to build effective collaborations to support leaders in LMICs to lobby for and implement stroke services and share their learning. The Stroke Recovery and Rehabilitation Roundtable (SRRR) meetings bring together an international group of preclinical and clinical researchers along with statisticians, methodologists, funders, and consumers, working to accelerate the development of effective treatments for stroke recovery. However, the progress is slow, and rehabilitation and recovery are often given lower priority than establishing primary stroke centers. Global collaborations are emerging that drive changes in how and what is researched and implemented for stroke recovery and rehabilitation, and these groups welcome clinicians and researchers from LMICs. But more efforts need to be done.[36, 37]

Stroke survivors with disability

Age-standardized death rates from stroke have decreased in all regions from 1990 to 2016 in most regions. The number of stroke survivors with disabilities is increasing. As a result, there is a higher prevalence of chronic stroke as well as disabilities. Successful rehabilitation and prevention strategies including addressing the risk factors can reduce the stroke-related burden of diseases in society. The high burden of stroke worldwide suggests that primary prevention strategies are either not widely implemented or not sufficiently effective.[38] Over the past 10 years, there has been growing collaboration between HICs and LMICs in research and education, including HIC grant-awarding bodies supporting research efforts and training in less well-resourced countries. New global alliances have formed, for stroke generally and for stroke recovery and rehabilitation, and are gaining motion.[39,40]

Identification of cost-effective ways to rehabilitate people with disability is an important challenge. There is a growing emphasis on using technology to provide patients with information to enable easier access to self-evaluation and self-management strategies. These strategies can be used in areas where large distances or poor accessibility are barriers to access.[41]

Crisis and opportunities

Bangladesh perspective: Initiatives taken to rehabilitate stroke survivors are not enough to meet the crisis. Bangladesh is no exception. We have weaknesses in the infrastructural development of rehabilitation services as well as training of the rehabilitation health workforce. There is no stroke rehabilitation unit in the existing hospitals. Well-coordinated multidisciplinary stroke units need to be set up at least in all district hospitals to achieve the optimum outcome. Most of the patients remain untreated or partially treated cumulating the burden on the family as well to society. Team management facilities should be established in all hospitals. Caregiver's training should be enriched in resource-poor settings. Increased numbers of rehabilitation health workforces need to be employed to provide rehabilitation services at the grass-root level.

Conclusion

Successful rehabilitation of stroke survivors is a paramount challenge in LIMCs. There are enormous barriers which include resource constraints, lack of trained healthcare workers, and inadequate rehabilitation set up in hospitals and at the community level. Universal health coverage should be extended to poor stroke survivors with disability. Task shifting of the rehabilitation health workforce to caregivers at the home or community level can help improve the DALYs. The burden of stroke will further increase until effective stroke prevention strategies are more widely implemented. Enrichment of quality of stroke rehabilitation and eliminating the barriers to successful rehabilitation for millions of stroke survivors globally and particularly for patients with

stroke in LMICs is a towering challenge of global healthcare burdens. But opportunities are coming up as there is increased awareness about stroke among general people. Governments of LIMCs should give more attention to removing barriers to rehabilitation services. Stroke rehabilitation units in tertiary care hospitals with ample amenities can help reduce the burden of the disease.

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