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IMPROVING STROKE UNIT NUMBERS AND CARE IN PAKISTAN

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It is self-evident that stroke remains one of the leading causes of death and disability not only in the world but also in Pakistan. The prevalence of stroke risk factors and epidemiological studies shows that the burden of stroke will not decrease in the next decades and beyond. It poses a huge challenge for the affected and their families, for medical services, governments and the society as a whole.

The promising thing about stroke is that it is preventable, treatable and manageable and there is potential to drastically reduce the burden of stroke and the long term consequences.[1] However, this requires the joint actions of health ministries, government agencies, stroke organizations, healthcare professionals, researchers, pharmaceuticals and the device industries. As acute stroke is a medical emergency , so the benefit of recanalization therapies in patients with acute ischemic stroke is strongly time dependent, with earlier intervention achieving better outcome.[2] Stroke care system should therefore minimize the time to assessment and initiation of treatment, before brain injury becomes irreversible.[3] The patients need immediate hospitalization and treatment in specialized units in order to reduce the morbidity and mortality with relatively longer stay in the hospital. In case of acute ischemic stroke, every minute that passes without treatment results in a poorer outcome and irreversible damage.

Unfortunately, in Pakistan there is still no Stroke System of Care. A stroke system of care is one that coordinates patient access to a full range of coordinated series necessary for all aspects of stroke management including prevention, notification and response of emergency medical services, acute treatment in the hospital emergency department and rehabilitation.[4]

In an ideal situation and current practice in the world, all patients would be treated at a center offering a full spectrum of neuro-endovascular care. To improve the delivery of evidence based stroke care the Brain Attack Coalition suggested that two levels of stroke centers should be established i.e., Primary Stroke Center (PSC) or Stroke Unit and Comprehensive Stroke Center(CSC).

PSC and CSC achieve similar overall care quality for acute ischemic stroke patients with some exceptions. CSC exceeds PSC for timely acute reperfusion therapy including intravenous and/or intra-arterial thrombolytic therapy with thrombolytic agents and endovascular thrombectomy (EVT) in case of large vessel occlusion (LVO).CSC also takes care of hemorrhagic strokes, such as those caused by brain aneurysms, AVM and carotid stenosis etc.

The degree of benefit of mechanical thrombectomy is profound, with a number needed to treat as low as 2.5 to have one patient be less disabled. Few if any therapies in medicine can approach that level of benefit.[5]

A Stroke Unit or PSC is a dedicated geographically clearly defined area or ward in a hospital where stroke patients are admitted and cared for by a multi professional team (medical, nursing and rehabilitation staff) who have specialists knowledge and skills in stroke care with well-defined individual tasks, regular interactions with other disciplines and stroke leadership. This team should coordinate stroke care through weekly (regular) multi-professional meetings.[6] A comprehensive stroke unit is a dedicated area where stroke management is combined with early mobilization and rehabilitation and secondary prevention, according to the needs of the patient.

A Comprehensive Stroke Center is a hospital infrastructure and related processes of care that provide the full pathway of stroke unit care. A stroke center is a coordinated body of the entire chain of care. This provides pre hospital care, emergency room assessment and diagnosis, emergency medical treatments, stroke unit care, ongoing rehabilitation and secondary prevention and access to related neurological and vascular interventions. A stroke unit is the most

important component of stroke center. A stroke center provides stroke unit services for the population of its own catchment area and serves as a referral center for peripheral hospitals with stroke units in case their patients need services that are not locally available.[6]

Despite the lack of exact epidemiological data about stroke , there is no doubt that the burden of cerebrovascular disorders, especially ischemic stroke is enormous in Pakistan .The estimated annual incidence of stroke in Pakistan is approximately 250/ 100000, with every year 350000new stroke cases.[7]

As far as stroke care and the number of stroke units is concerned, currently we have no more than ten stroke units, and four to five thrombectomy capable centers. We do not have even a single Comprehensive Stroke Center in Pakistan. No doubt there are a lot of neurologists who are doing their best as far as conservative management including primary and secondary prevention of stroke is concerned. But we need to improve and organize the stroke management according to the international standards.

Considering the extremely fast growth of such activities around the world, it is timely and rational to set up and follow recommendations and framework for the better stroke care with the development of stoke units and comprehensive stroke centers in all parts of the country, with the goal that all stroke victims should have access to Stroke Unit Care. There is no doubt that we can also improve stroke care and stroke units, not only in quantity but also in quality if we follow the certain points like;

Target oriented stroke action plans like European Stroke Organization (ESO) has planned. There are seven domains of stroke action plan by ESO, with the target for 2030, to reduce the absolute number of stroke by 10% and to treat 90% or more of all patients with stroke in a dedicated stroke unit as the first level of care:

1. Primary prevention.
2. Organization of stroke services.
3. Management of acute stroke.
4. Secondary prevention.
5. Rehabilitation.
6. Evaluation of Stroke outcome.
7. Quality assessment and life after stroke.

For improving the stroke care, there is an urgent need to develop a Stroke System of Care in Pakistan with the help of tele-stroke services throughout the country. We can bridge a significant gap in stroke care by providing the improved access to patients, mainly from the rural areas, with the help of tele-stroke services. With the use of smartphone in Pakistan efforts should be made to use this technology for stroke education, treatment and rehabilitation.

A comprehensive stroke policy and national plan for stroke encompassing the entire chain of care made by the government should be emphasized.

Pakistan Stroke Society, Pakistan Society of Neurology and Neuro-radiology Society of Pakistan should join hands to arrange advocacy programs with the public representatives for the development of stroke units.

Funding should be provided for research activities, covering both experimental and clinical studies.

We should speak with a wide range of stake holders on a broad range of topic relating to acute stroke care. Stake holders include academic, public health advocates, PSS and PSN representatives, emergency department physicians and nurses, EMS (Emergency Medical Services) staff administrators, hospital administrators, insurance payers, philanthropists, Pakistan Baitulmal and Health Care Card providers, medical specialists, hospital stroke coordinators, state health department and managers and regulatory representatives and stroke survivors.

Develop the procedures for stroke unit and stroke center certification and designation regulatory authority and responsibility, available resources, quality improvement and assurance initiatives.

All stroke units and other stroke care providers should undergo regular certification and auditory processes for quality improvement in services.

From tehsil headquarter to tertiary care hospitals; each must be equipped with a Stroke Unit. Each tertiary care hospital should have Thrombectomy Capable Stroke Center facility. Establishment of divisional level Comprehensive Stroke Centers must be a planning of the near future.

Well organized certified stroke training programs must be initiated by the CPSP and the Heath Universities, not only for the doctors but also for the paramedical staff.

We should start National Stroke Registry to monitor the quality of stroke management and to improve stroke care by providing comparative feedback data on process and outcome which should cover all the hospitals (public as well as private) in Pakistan admitting the patients with acute stroke.

Primary prevention of stroke is one of the best cost-effective strategies. So efforts should be made for primary and secondary prevention, which appears to be very cost-effective tools in reducing the stroke burden.

The utilization of primary health care workers for stroke education among the public can be made an important cost-effective tool.

Should develop stroke referral transfer protocol according to the local circumstances using 1122 or equivalent transport mechanisms.

Public awareness is the key to success in achieving all the above mentioned goals. Main stream media and social media can play a revolutionary role in this regard.

Keeping in view the efforts made to prevent and treat covid-19 pandemic has given rise to a belief that in spite of the large population, including rural and urban and lack of an adequate healthcare infrastructure, it is possible to decrease the mortality and morbidity of stroke patients and to improve stroke care in Pakistan if efforts are made in a right direction.

No doubt that we are resource deficient nation but actually we are also deficient in organization, planning, sincerity, coherence, priorities, task orientation, good intra-professional relationships and continuation of the policies. If we overcome these deficiencies, nothing is impossible in our country and can have a better future of stroke care and stroke units.

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