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Can We Stop the Stroke Epidemic in Pakistan?

Ismail A. Khatri¹ and Mohammad Wasay²

Stroke and transient ischemic attacks (TIA) are highly prevalent in Pakistan. A recent community-based survey suggested an estimated 21.8% prevalence of stroke and/or TIA in an urban slum of Karachi.¹ Stroke-specific fatality has been reported between 7% and 20% in various studies from Pakistan. Upto 63% of all stroke patients develop complications and upto 89% are dependent for activities of daily living.² The risk factors for stroke are similar to the Western population and mostly comprise of hypertension, smoking, dyslipidemia, cardiac disease and Diabetes.^{2,3}

Pakistan has the world's 6th largest population with a growth rate of about 2% per year. Most recent national health survey conducted by Pakistan Medical and Research Council reported that 33% of Pakistani population above the age of 45 years is suffering from hypertension.⁴ About one-third of these hypertensives were unaware of their hypertension. A large proportion of Pakistani population is diabetic, 5.2 million in the year 2000 and projected to be 13.9 million by the year 2020.⁵ About 14-21% adolescents and adults are given to smoking tobacco, majority being male.⁶ Exact prevalence of smoking may be higher because a large number of smokers especially women do not report their smoking habits. There are no well-designed, population-based published studies related to stroke prevalence in Pakistan. The estimated annual incidence of stroke in Pakistan is 250/100,000, which is projected to an estimate of 350,000 new cases every year.⁷

Some of the potential stroke risk factors that are unique to our population and remain unstudied include *buqqa* (water-pipe) smoking, orally chewed tobacco (*naswar*, *pan*, *mishri*, *gbutka*, *bajjar*, and *gbundi*), different forms of clarified butter and hydrogenated oils, rheumatic heart disease, and high prevalence of hepatitis B and C.² Younger age at first stroke particularly among women, higher prevalence of stroke among women, and higher proportion of haemorrhagic stroke are some alarming features in the available and known stroke epidemiology.^{1,2}

About 85% of all stroke deaths are registered in low- and middle-income countries, which also account for 87% of total losses due to stroke in terms of disability-adjusted life years (DALYs).⁸ Although often neglected, informal care is of paramount relevance to maintain stroke survivors in the community, and a valuable economic resource for health care systems. Indirect and informal care costs are related to both the frequency, i.e. crude numbers expressed as incidence and prevalence, and the severity of the disease, in terms of mortality, morbidity and functional impairment. An effective resource optimization starts from primary prevention and treatment of vascular risk factors, admission of stroke patients to dedicated wards with a multi-disciplinary approach, adherence to guidelines for the acute phase management, early rehabilitation and availability of acute phase treatments, such as thrombolysis, for selected patients.⁸ Assessing the direct cost in a retrospective analysis at a tertiary care teaching hospital in Pakistan, the authors concluded that the cost of acute stroke care was extremely high as compared to average national income and most important determinant of cost was the length of hospital stay.⁹ The economic burden related to cost of stroke care and loss of life years related to stroke related disability in Pakistan is not known. This information may be of extreme importance in health policy making especially in a country with limited resources. It is evident from regional data that burden of stroke and other neurological diseases is growing in Asia especially South Asian region and there is an urgent need for a national health survey looking at prevalence of neurological diseases in Pakistan.¹⁰

Reducing stroke frequency by preventive measures, as well as stroke mortality and long-term disability by evidence-based acute and post-discharge treatments, is essential to avoid the natural trend of increase in the human, economic and social burden of stroke. Stroke can be substantially reduced by an active lifestyle, cessation of smoking and a healthy diet. Both public and professional education should promote the awareness that a healthy lifestyle and nutrition have the potential to reduce the burden of stroke.¹¹ Population-based prevalence of stroke, stroke related admissions at hospitals and stroke related morbidity and mortality have decreased in many developed countries during the last two decades. This decreased prevalence, morbidity and mortality of stroke is largely attributable to effective blood pressure control, establishment of stroke units for

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acute stroke care and effective use of pharmacologic therapy as well as rehabilitation facilities.

Four major, cost-effective interventions to fight against epidemic of chronic diseases especially stroke in developing countries have already been suggested.¹² These include decreasing salt intake, smoking cessation, physical activity or exercise and cost-effective pharmacological therapy. It is estimated that scaling up of these interventions will avert more than 10 million deaths in next 8-10 years.¹³ A high-intensity public education campaign including television and radio advertisements, advertisements in community newspaper and billboards, and mailed household brochures showed an increase in the awareness of stroke warning signs and need to call for emergency services.¹⁴

Development of stroke care guidelines for internists and general practitioners by Pakistan Society of Neurology is a major step forward in improving stroke care in Pakistan.¹⁵ Proper dissemination and implementation of these guidelines may help improve stroke care in our country.

We propose a national task force for stroke prevention with involvement and participation of all stake holders including government, physicians, professional organization, Non Governmental Organizations (NGOs), patients' support groups and media. We think that a sense of urgency is needed for the establishment of such a task force at the national level in Pakistan. This task force should be commissioned to design stroke prevention strategies in Pakistan and must work with medical colleges, district hospitals and other governmental and private sector teaching institutes to improve education and training for stroke care at graduate and post-graduate levels. All district hospitals should be equipped with stroke units and stroke rehabilitation programs. Research for innovative, cost-effective strategies to control stroke epidemic in Pakistan should be an area of major focus for this task force.

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