

Commentary

WHO Steps stroke surveillance system: feasibility in India

Stroke is presently turning into a major public health problem pushing cardiovascular disease in the back as a cause of mortality in developing countries, particularly in Asian subcontinent. Increasing life expectancy, adoption of modern lifestyle, growing urbanization and rising lifestyle diseases in India are being considered important factors for rising stroke cases in India¹.

Growing stroke problem in India demands swift action. Fundamentally, stroke is a preventable disease and if it occurs, it causes fatality and produces physical, affective and cognitive disabilities as sequel. Based on current estimate approximately 1.8 million people are affected yearly by stroke; one-third die and a similar proportion remains disabled^{2,3}. One of the main hurdle in combating rising stroke incidence is lack of data on the estimates of problem about how many are affected with disease, how many are dying, what are the causes of death and what are the subtypes of stroke. This information is needed to improve management and care of the affected subjects in hospital as well as in the community and also to undertake preventive measures.

In order to overcome these problems related to stroke, WHO recommends "Steps Stroke Surveillance System" in developing countries to build capacity according to local circumstances⁴. This system consists of three steps representing the possible outcomes of stroke patients in the hospital and the community: step-1 events in hospital; step-2 related to fatal events in the community, and step-3- related to non fatal events in the community.

Stroke surveillance system starts with cases admitted to hospitals as this group can be easily identified and patients are followed up till discharge or death⁵. The second level of survey involves identifying fatal stroke cases in the community after proper validation. The third step represents non fatal and non hospitalized

events. The first step gathers data on demographic characteristics, identification of stroke whether it is first ever or recurrent stroke, documentation of vital status at discharge, medical treatment received during stay, risk factor assessment and classification of subtypes of stroke either ischaemic or haemorrhagic. The second step gathers information on fatal strokes cases in the community who have not been either brought to the hospital or could not get admission to the hospital. Information on cause of death may be available ideally from death certificates, verbal autopsy or from direct autopsies. Step-3 represents the most complex level of stroke data collection for calculating rates to detect trends in stroke occurrence.

The inclusion of all the three steps represents a full stroke register which includes hospital admission rates, case fatality and mortality, prevalence and incidence rates. These data are necessary for resource allocation, undertaking preventive strategy and improvement of care and management to reduce case fatality.

India, having a multilingual and multiethnic population is expected to have differing stroke rates, since occurrence of stroke may depend on ethnic, cultural and dietary factors. It is a country where medical certification of death varies from 100 to 0.2 per cent (average 10-12%) and regular autopsies are rarely done except in urban based tertiary medical centres. Another source of subtyping of stroke depends on imaging which is not universally available in India. Even timing of imaging is a crucial factor to determine the type of stroke and usually not properly carried out. Well designed epidemiological studies are very few in this country.

Against this background, Nagaraja and colleagues⁶ from three large hospitals in Bangalore, India, with their field team have done a worthy job in undertaking this project to pursue WHO Steps stroke surveillance

system. They have carried out initial two steps. The third step has been skipped due to need of greater financial and human resources. This report provides interesting data about hospital referral pattern, certainty of diagnosis (possible in 92% of cases) and subtyping of stroke (ischaemic-73.8%, haemorrhagic-13.7%) based on neuroimaging. Step -2 showed the annual mortality rate of 32.6 per 100,000 per year in contrast to global rates which vary from 35.8 to 196.7 per 100,000 globally⁷.

This study⁶ has shown data which indicate a higher proportion of ischaemic stroke, comparable in hospital case fatality (8.7%) and delayed arrival of stroke patients (44% reached hospital after 48 h of stroke occurrence). Thus, delayed arrival precludes the scope of modern treatment of thrombolysis if the facilities are available. Risk factor data show that there is adequate scope of intervention in the form of increasing awareness about control of hypertension and diabetes mellitus and avoidance of addiction such as smoking and alcohol consumption.

Thus in India, inspite of inherent biasness in hospital related information, adoption of WHO Step-1 system in different regions of India may unfold regional characteristics and identify the local risk factors which may be of aetiological importance. Other steps can be undertaken depending on the availability of local resources.

There are however some limitations in this study such as death cases in the community and annual mortality rate have been calculated without assessing the real denominator of the population, since there are mixtures of referred and local population. Considering the recent evidences of high mortality in the recent community based study from India², it probably indicates underestimation or may indicate regional variation.

In future, inclusion of internists in the investigator groups should be considered particularly against the backdrop of limited availability of neuro-specialists. Majority of the stroke patients in semi urban and rural India are managed by them and they should be included in the future research projects related to stroke. The internists and general practitioners may be the target groups for raising awareness about the stroke among the public in general, as a majority of the public consult them initially for redressal of their health related problems.

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