Research Article

Awareness of stroke among stroke patients in a tertiary-care level hospital in northwest India

Sulena Sulena, Banshi Lal Kumawat, Anjani Kumar Sharma

Department of Neurology, SMS Medical College and Hospital, Jaipur, Rajasthan, India.
Correspondence to: Banshi Lal Kumawat, E-mail: kumawatbl04@gmail.com

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Abstract

Background: Stroke is a major health problem in India; however, only few studies are available to assess the knowledge of stroke in the developing nations.

Objective: To assess the awareness level of stroke risk factors and response to stroke symptoms among stroke patients attending a tertiary-care center in Rajasthan.

Materials and Methods: It was a prospective tertiary-level hospital-based study. We interviewed the awareness level of stroke risk factors and response to stroke symptoms among stroke patients. Statistical analysis was done using R-package.

Result: A total 524 patients were surveyed. The mean age of subjects was 57.5 ± 15.8 years. There were 63% male and 37% female patients. The mean duration within which patients reported to hospital was 26 h, and the mean distance from the residence to hospital was 66 km. The level of education was up to 10th standard in 61.5% subjects. Hypertension (38%), diabetes mellitus (34.4%), and smoking (29%) were identified as major risk factors for stroke among subjects. Primary care was taken by 12.8% before coming to the hospital. Only 2% patients were aware of thrombolysis.

Conclusion: Because the knowledge about stroke was poor, the subjects in this study were largely unaware of risk factors for stroke and availability of thrombolysis. Thus, intensive health education and health infrastructure are needed to improve awareness of stroke and promote earlier access to hospital and knowledge about availability of thrombolysis.

Introduction

Stroke is a major public health issue as it is third most common cause of death and leaves a lot of residual disability. Globally, 6.15 million deaths (10.8% of all deaths)[1] are caused by cerebrovascular diseases, thereby becoming the second most common reason of mortality; 87% of stroke deaths occur in low- or middle-income countries.[2]

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In India, it is attaining an epidemic proportion, and at the current time, the population in India is projected to have over 1 million strokes per year.[3]

Stroke is a clinical syndrome characterized by rapidly developing symptoms and/or signs of focal and at times global (for patients in coma) loss of cerebral functions, with symptoms persisting for more than 24 hours or resulting in death with no actual reason other than that of vascular origin.[4] It is very well known that brain ischemia persisting for more than 4 to 6 h will produce permanent neurological damage. Novel therapies that are capable can be favorable only in the initial hours of brain ischemia.[5] Nonetheless, there is a considerable delay in patients with stroke symptoms reaching the hospital. Recently, a study showed that only less than half the people reached the hospital within 24 hours of the symptoms onset.[6] In today's era, the time taken by the patient to reach the hospital must be speeded up in order to decrease the morbidity and mortality caused by the stroke.

To explore the factors associated with early presentation of stroke, we prospectively analyzed 524 acute stroke victims at a tertiary-level hospital.

Materials and Methods

This was a cross-sectional prospective study conducted in a tertiary-level hospital and medical college in Rajasthan, India, which is an academic hospital where training for DM students in neurology and facility for thrombolysis and ICU care is available. The study period extended form August 2012 to March 2013. We monitored daily all the admissions related to stroke in the emergency departments and neurology ward services until 524 stroke admissions were studied randomly. A stroke was defined as an acute focal neurological shortfall caused by a vascular incident, which can be eventually found to be ischemic, hemorrhagic, or an episode of transient ischemia. The estimation of the type of stroke can be assessed by the characteristic feature of the symptoms and signs and data obtained from computed tomography scan and additional neurodiagnostic examinations, as documented in the medical record. The initial moment the patient or a spectator first identifies a confirmed neurological dysfunction is considered as the stroke onset time. The stroke onset time is recorder to unknown when both the patient and the spectator were not sure of the onset time or when the patient woke up with the symptoms.

A structured questionnaire was prepared in accordance with relevant literature and pretested in 20 subjects and modified in terms of clarity of questions and feasibility. One-to-one interview in the local dialect was conducted with open-ended questions, and the medical records were reviewed. The interviewer assisted the interviewee only by clarifying any lack of understanding, if required.

The questionnaire consisted of three sections: first section contained epidemiological information about the patient's age, sex, education, residence, the distance from the site of stroke onset to the site of hospital and the time taken to report to hospital, and whether visited primary health care or private hospital before reporting to hospital and the treatment given. The second contained information about present symptoms and past history [general medical, transient ischemic attack (TIA), and stroke), symptoms and signs at stroke onset, diagnosis of presumptive stroke mechanism, recognition of stroke (patient, bystanders, physician, other, and unknown), and awareness of stroke onset (no, yes but unconcerned or attributed to another disease, yes and thought symptoms represented stroke, and unknown). The third section included information about presence of risk factors: hypertension, coronary artery disease, diabetes, atrial fibrillation, prior stroke or TIA, smoking, and hyperlipidemia, as documented in the medical record and assessment of knowledge about these risk factors and knowledge about thrombolysis. Statistical Analysis was done using R-package. Descriptive analysis was conducted by calculating means and proportions for continuous and discrete data, respectively.

Results

A total of 524 patients who were admitted to the Neurology department from August 2012 to March 2013 were surveyed. The mean age of the patients was 57.5 years with standard deviation of 15.8 years .There were 333 (63.5%) male and 191 (36.5 %) female. The education status of the cohort was illiterate 21%, tenth 61.5% and graduate was 17%. About 52.4%

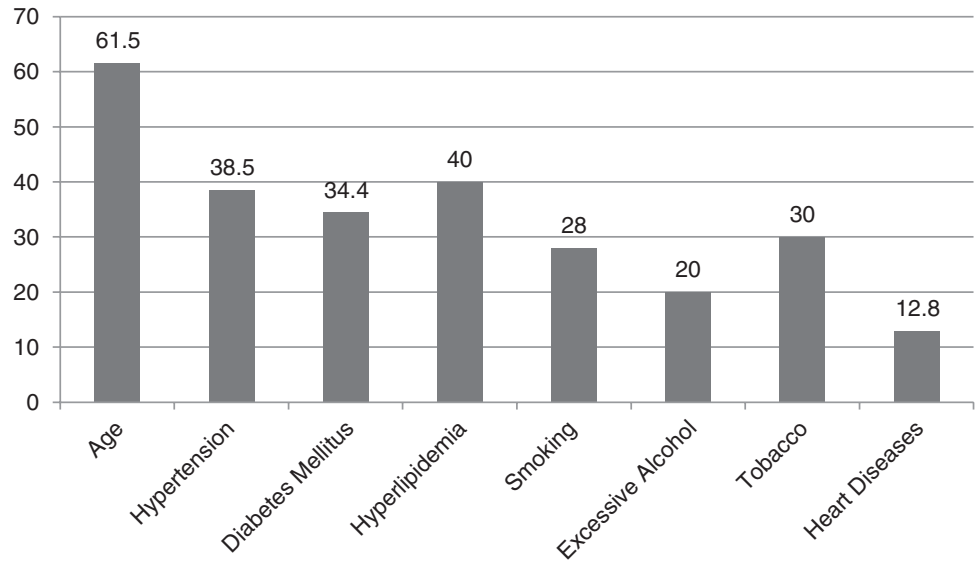

Figure 1: Awareness of risk factors.

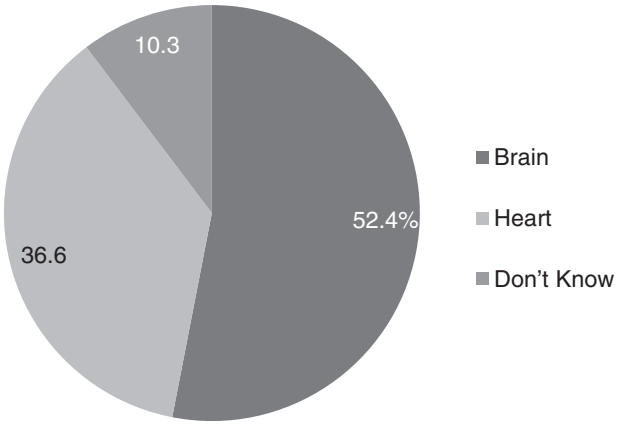

Figure 2: Recognition of organ affected in stroke.

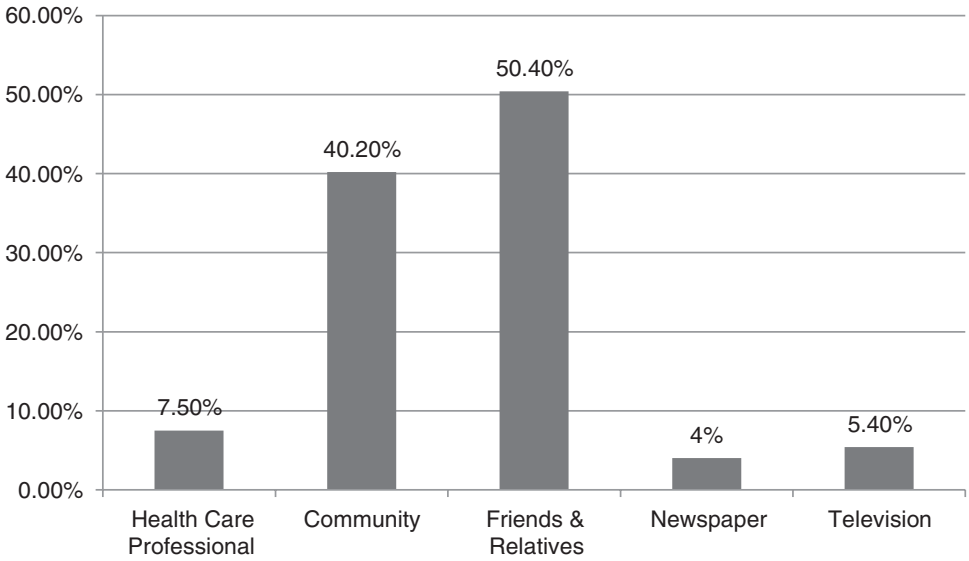

Figure 3: Source of information for stroke.

patients were aware that brain was the affected organ and around 36.6% considered heart as the affected organ.10.3% patients were not aware of the organ affected (Figure 1). The education status of the cohort was illiterate with 21%, tenth level with 61.5%, and graduate with 17% [Figure 2].

The main clinical features recognised as stroke were motor weakness in 68.4% patients which included hemiparesis and monoparesis, sensory involvement in61.2 %, aphasia in 21.9%, headache in 8% and seizures in 4.6% patients.

12.8 % of patients resorted to primary care before reporting to this hospital which included private nursing home or a near-by primary health care center.

Of these 524 patients, 87% had ischemic strokes, and 13% had intracerebral hemorrhages. When asked about sources of information about stroke, 7.5 % of subjects had received information about stroke from health professionals. The majority of subjects (92.5%) who have some information about stroke acquired such information through general life experiences and personal acquaintances which included community 40.2%, relatives and friends 50.4%, newspapers 4%, and television and internet 5.4%. Figure 2 shows the percentages of sources of information of study respondents.

The recognition of clinical features as stroke was done by attendants and patient himself in 92% of cases. The most

common risk factors for stroke identified by the subjects were age 61.5%, hypertension (38.5%), diabetes 34.4%), cardiovascular diseases (12.8%), obesity (40%), smoking (28%), tobacco (30%), no physical exercise (10%) and excessive alcohol (20%) (Figure 3).

The mean time to stroke onset and reporting to hospital was 26 hours with standard deviation of 2.6 hours and the mean distance from the residence to hospital was 66 kms. Only 10.3% of patient presented within window period that is 4 hours.

When asked about the choice of management in case of stroke, the most frequently encountered response was to take individual to emergency department/hospital (98.2%). When asked for the knowledge about the availability of thrombolysis at this hospital, only two percent patient were aware of it.

Discussion

Our study stresses the need to educate community about stroke and its risk factors. This study showed that awareness of patients about risk factors was not optimum regarding most of the risk factors. The most commonly recognized risk factor by patients were older age (61.5%) as opposed to another study conducted in Pakistan, which bear similar socioeconomic status as our center.[7] But, the other risk factors were comparable with this study, which included hypertension (38%), diabetes (34.4%), cardiovascular diseases (12.8%), hyperlipidemia (40%), smoking (28%), tobacco (30%), no physical exercise (10%), and excessive alcohol (20%).[7]

In this study, about 52.4% patients were aware that brain as the affected organ, whereas a previous study showed awareness about brain being affected organ in 33%.[8] The difference could be attributed to the fact that patient knew that they were already admitted in neurology ward. This bias could be settled by interviewing the population in community and assessing the real knowledge about stroke.

The main clinical features recognized as stroke were motor weakness in 68.4% patients, which included hemiparesis and monoparesis, and sensory involvement in 61.2%, which was similar to other studies.[9] Awareness about stroke signs at the population level is thought to be critical in the early recognition and referral of patients who experienced acute strokes.[10] This factor is critical since the time window for effective therapeutic intervention may be only 4 h.[11] In our study, it was shown that only 10.3% patient reported within 4 h of stroke although the mean distance from there place to hospital was only 66 km, thereby showing that main reason for delay was unawareness about stroke and availability of treatment. Our cohort showed that only 1.9% (10 patients) was aware of the availability of thrombolysis. This was similar to another study where thrombolysis was performed in 2–3% of the patients.[13] But, few centers had shown reporting rate as high as 20%.[14] So, general awareness of patients is very important to enhance their participation. The mean time to present to hospital (neurology department) was 26 h, which was similar to another study.[12]

The primary sources of information of participants in the study were relatives and friends. This reflects the importance of educating the population at community level. It should be ensured that the knowledge they possess is accurate and free from misbeliefs. Electronic media in the form of television, radio, and Internet is generally known to have a considerable role in disseminating information in the context of developing countries.[15]

Only 12.8% of our study population acquired their knowledge of stroke from doctors. This indicates that priority should be given to effective conveyance of knowledge from doctor to patient.

Because risk factors for stroke and cardiac disease are shared, few things can be correlated. Communitywide educational efforts have been attempted in patients with coronary artery disease. It was seen that in an effort to educate patients about the symptoms and urgency of acute myocardial infarction (MI), an 8-week media campaign was found to increase the proportion of patients with acute MI, who presented to the emergency room within 2 h of onset, from 16% before the campaign to 32% after,[16] thereby stressing again the need for increasing awareness.

Our study has encountered several limitations. Although interview was done to avoid leading questions, nonetheless, interviewer bias might have influenced the participants' response. The hospital-based study sample might not be representative of the population at large. General awareness should be provided to community about risk factors and recognition of clinical features and importance of early presentation and availability of treatment such as thrombolysis.

We did not study the importance of the time of day the stroke occurred, whether the stroke occurred at home or elsewhere, or whether the patient lived alone. Other studies have identified these as important variables associated with presentation time.[17]

Thus, improving the recognition of stroke symptoms and awareness of their urgency in easily identified high-risk patients and their families may have a significant impact on the delay between stroke onset and presentation time and, thereby, improving overall outcome.

Conclusion

Because their knowledge about stroke was poor, the subjects in this study were largely unaware of risk factors for stroke and availability of thrombolysis. Thus, intensive health education and health infrastructure are needed to improve awareness of stroke and promote earlier access to hospital and knowledge about the availability of thrombolysis.

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