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KEY WORDS: Factors, Delayed admission, stroke, tertiary care

FACTORS AND DECISIONS ASSOCIATED WITH DELAYED ADMISSION AMONG STROKE PATIENTS IN A TERTIARY-CARE LEVEL HOSPITAL

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ABSTRACT

Background: Stroke is a major health problem in India; only few studies have been done to assess the knowledge of stroke in the developing nations.
Objective: To assess the factors and decisions regarding stroke patients associated with their delayed admission to a tertiary-care level hospital .
Methods: A cross sectional study was conducted on patients presenting with stroke to the Deptt of Neurology of Dr. RPGMC at Tanda . Delay was defined as >6 hours between the onset of stroke and reaching the hospital.
Result: A total of 120 patients were surveyed. Prior consultation was taken by 59.2% before coming to the hospital.
Conclusion: It was found that the main reason for delay was contact with a local doctor , distance from the hospital and lack of awareness regarding symptoms and signs .

Introduction

Stroke , characterized by a neurological deficit of sudden onset , typically due to brain infarction ("ischemic stroke") or, less often , intracerebral hemorrhage , represents the primary neurological cause of acquired disability in adults and a leading cause of death .[1] It is also a major contributor to cognitive decline and dementia.[2,3,4] Stroke is one of the most disabling conditions leading to loss of mobility and independency.[5] The lifetime risk of stroke after 55 years of age is 1 in 5 for women and 1 in 6 for men.[6]Stroke in Asian patients accounts for more than two thirds of the overall incidence of stroke worldwide. In higher income countries such as Japan, Korea, and urban China, a declining stroke mortality has been increasingly reported. However, in some countries with limited resources such as India, Pakistan, and Indonesia, high fatality rates are still evidenced. With the longer life expectancy in general population worldwide, an increasing number of stroke cases are expected in most countries.[7,8,9] According to a study conducted in India overall DALYs lost due to stroke were 795.57 per 100,000 person-years (730.43 in men and 552.86 in women) .[10] Poor recognition of early stroke symptoms and low perception of threat lead to delayed arrival of stroke subjects at hospitals; only one-fourth arrived within 6 h. In a major urban center, the median time to casualty arrival was 7.66 h, with 25% of cases arriving within 3 h and 49% of cases arriving within 6 h. Distance from hospital, contact with a local doctor, and low threat perceptions of symptoms were independent factors for delay in arrival.[11] A rural-based study documented that the mean arrival time of stroke patients was 34 ± 6 h.[12] The arrival time was influenced by distance from the hospital, education, socioeconomic status, family history of stroke, and advice of friends and local doctor. Transportation of stroke subjects is an important issue in management. Poor availability of transport in rural areas and congestion in urban areas are considered constraints or barriers to immediate hospitalization and initiation of treatment.[13,14] A hospital-based study from northwest India has documented that only 12% of patients came by ambulance.[15]

Material and Methods

A cross sectional study was conducted on patients presenting with stroke to the Department of Neurology of Dr. Rajendra Prasad Government Medical College at Tanda in Kangra district of Himachal Pradesh. The study was carried out for a period of one year starting from September 2015 to September 2016.

Patient selection

Inclusion criteria: Patients hospitalized for stroke diagnosed according to the diagnostic criteria as given under:

Diagnostic criteria: Stroke was defined as a rapidly developing clinical syndrome of focal or global disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than due to vascular origin. Only stroke survivors were included in the study.

Sample Size: All consecutive cases fulfilling inclusion criteria were included in the study.

Exclusion criteria:

1) Patients not consenting for study
2) Patients with dementia (MMSE less than or equal to 24) and aphasia
3) Patients not able to identify time of onset of stroke symptoms
4) Too ill to complete interview
5) Poor memory around time of stroke
6) Comatose/stuperose/intubated patients
7) Patients with other form of stroke(venous thrombosis and aneurysmal bleed)

A questionnaire based interview was conducted for the purpose of eliciting information from the study participants. The information included details on socio demographic variables, personal and family history and history of stroke. The information was corroborated by conducting an interview with the nearest relative of the patient, who had been with the patient for last two days.

Further details on prevalence of traditional risk factors was elicited using questionnaire method. The details included information on h/o cardiovascular disease /events, diabetes, any other chronic communicable or non-communicable disease.

Data collection :

Study unit was medicine ward both male and female at Dr RPGMC Tanda as admitted patients were included in the study. All the medicine wards were visited all days a week for 1 year starting from start of study period from September 2015 to September 2016.

Interview :
At medicine ward the patient and the attendant was interviewed face to face after explaining the study and its purpose and also after obtaining a written consent in Hindi using a structured pilot tested interview based questionnaire for data collection. Data for universal characteristics like age, gender, residence, phone number and anthropometry were collected. For anthropometric assessment, weight and height of the patients were recorded.

STATISTICAL ANALYSIS:
Data was entered into an electronic database for statistical analysis (SPSS, VERSION 20.0). Data is presented as number (%) or mean (SD) as appropriate.

Results

The present study was a hospital based study conducted at Dr RP Government Medical College Tanda. Out of a total of 380 patients admitted in the wards a hundred and twenty(120)patients were enrolled for the purpose of study as rest were excluded . 73 (60.8%) patients were males and the remaining 47 (39.2%) were females. Of the total 120 patients, 61 (50.8%) were between 61 – 80 years of age and 45 (37.5%) were in the age group of 41 – 60 years. Mean age of male and female patients was 62.53 ± 13.06 and 63.74 ± 14.37 years respectively. Table 1 shows distribution of patients according to time taken to reach hospital, prior consultation and reasons for delay. 99 (82.5%) of the patients in our study reported to the tertiary care hospital after 6 hours of the onset of stroke. 15(12.5%) patients reached the hospital between 3.5 and 6 hours of stroke onset. Only 5 % patients reported to the tertiary care hospital within three and a half hours.

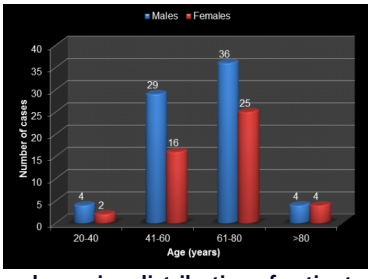

Figure 1 Age and sex wise distribution of patients

Table 1: Distribution of patients according to time taken to reach hospital, prior consultation and reasons for delay

Time taken to reach hospital	
N (%)	
< 3.5 hours	06 (05.0)
3.5 – 6 hours	15 (12.5)
> 6 hours	99 (82.5)
Consultation	**N (%)**
Yes	71(59.2)
No	49(40.8)
Reasons for delay	**N (%)**
Distance from hospital	49(40.8)
Contact with local doctor	70(58.3)
Lack of education	26(21.7)
Total	145(120.8)*

*23 Patients had multiple reasons for delay

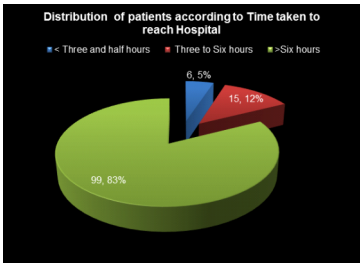

Figure 2 : Time taken to reach the hospital

59.2% of the patients consulted elsewhere before coming to Dr RP Government Medical College Tanda. Reasons for delay in reporting to tertiary care institute identified in our study were contact with a local doctor in 58.3% patients followed by distance from the hospital in 40.8% cases. The third reason identified was lack of awareness regarding symptoms and signs of stroke in 21.7%.

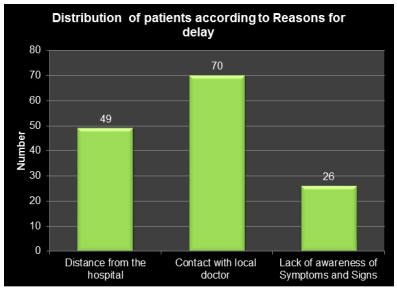

Figure 3: Reasons for delay

Table 2: Status of hypertension, diabetes and history of dyslipidemia among the patients

Hypertensive	62 (51.7%)
Regular medication	15 (24.1%)
Irregular Medication	47 (75.8%)
Controlled	7 (11.2%)
Uncontrolled	55 (88.7%)
Diabetics	21(17.5%)
Regular Medication	8 (38.1%)
Irregular Medication	13 (61.9%)
Controlled	7 (33.3%)
Uncontrolled	14 (66.7%)
History of dyslipidemia/heart disease	7 (5.8%)

Discussion

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.[16]

This factor is critical since the time window for effective therapeutic intervention may be only 6 hours .In our study, it was seen that only 17.5% patient reported within 6 hours of stroke But, few centers had shown reporting rate as high as 20%.[17][18][19] 21 (17.5%) of our patients arrived to hospital within 6 hours. 82.5% of all patients presenting to us took more than 6 hours to arrival. Safe and rapid transport system plays a significant role in prognosis of stroke patients. 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.[20]

In our study, 58.3% of the stroke patients had contacted with local practitioners or local pharmacies in first place causing significant delay. This is also seen in other studies conducted in countries like India and Taiwan.[21]Therefore, it is important to organize continuous medical education for health care professionals to increase awareness of importance of patients transfer to an organized stroke centre. Stroke management programmes should be organized for primary care physicians and health care providers which can help in early recognition of stroke symptoms with an appropriate referral to nearest tertiary care centre for optimum treatment. 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.[22] 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.

CONCLUSION

It was found that the main reason for delay in seeking timely care was distance from the hospital , contact with a local doctor and lack of awareness regarding symptoms and signs. There is need of developing standard operating procedures/ facilities for dealing with stroke patients the primary health care centre with adequate training of health care personnel under NPCDCS. 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.

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