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Factors associated with delayed admission to hospital of ischemic stroke patients-A cross-sectional observational study

Medicine

KEYWORDS: Ischemic stroke, Delay, Associated factors

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ABSTRACT

Objective: To evaluate the factors associated with delayed admission to hospital of ischemic stroke patients.

Methods: This was a cross sectional observational study conducted in the Emergency Department in a tertiary care hospital in north India. All eligible patients clinically diagnosed as stroke (As defined by WHO. A clinical syndrome consisting of rapidly developing clinical signs of focal (or global in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin) were included in this study. The delay was defined as >6 hour between the onset of stroke and reaching at the hospital.

Results: Majority of ischemic stroke was occurred at home (76.6%) followed by workplace (4.9%) and hospital (2.5%). More than one third of the patients reached hospital by own vehicle (40.6%) followed by rented vehicle (26.2%), private ambulance (19.3%) and government ambulance (13.9%). Out of the total 244 patients, 153 (62.7%) reached at the hospital after 6 hours (delayed). The lack of finance was found be the main reason for delay (43.8%). Delay in decision making was in 31.4% of patients and delay due to treatment at other centre was in 24.2% of the patients.

Conclusion: We have found that the main reason behind this, is the inability to identify the symptoms of stroke, contact with a local doctor/village doctor, indecision and lack of transport facilities.

INTRODUCTION

Stroke is a leading cause of mortality of disability of adults in developed and developing countries (Ahasan et al, 2013). Stroke is a world-wide health problem, which is the second commonest cause of death and fourth leading cause of disability globally. There are evidences which shows that prompt management of ischemic stroke with thrombolytic therapy and of hemorrhagic stroke with control high blood pressure can improve patient outcomes (Sharma R, Goel, 2016).

Stroke should be considered an emergency condition with a similar acute-phase status as, for example, myocardial infarction. A 6-hour time window has arbitrarily been used in many clinical stroke intervention trials, although both shorter and in some cases longer therapeutic intervals are likely to exist (Baron et al, 1995; Dorman and Sandercock, 1996).

In Asia, the current incidence rate of stroke is 116 - 483/100,000 people per year (Suwanwela and Poungvarin, 2016). In India, the age standardized prevalence rate of stroke to world standard population is 545/ 100,000 population per year with the age standardized average annual incidence rate to world standard population of first ever-in-a-lifetime stroke is 145.30/ 100,000 population per year (Das et al, 2007).

In India, most of the population residesin rural and small towns, where proper medical facilities is lacking. Furthermore, in many families alertness to the health emergency are not taken seriously and they wait for self-recovery. In emergency condition, lack of satisfactory transportation system also add to delay in arrival to the hospital (Sharma et al, 2016).

The present study was conducted to evaluate the factors associated with delayed admission to hospital of ischemic stroke patients.

MATERIAL AND METHODS

This was a cross sectional observational study conducted in the Emergency Department of RML Institute of Medical Sciences, Lucknow, UP, India. The study was approved by the Ethical Committee of the Institute. The consent was taken from each participant/attendant before enrolling in the study.

All eligible patients clinically diagnosed as stroke (As defined by WHO. A clinical syndrome consisting of rapidly developing clinical signs of focal (or global in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin) were included in this study. Likelihood of stroke was established by ROSIER SCALE and CT scan of brain (plain) which was performed in all the patients. Detail demographic and clinical history was taken. Mode of onset, progression since onset and associated symptom were noted. Proper general, physical and systemic clinical examinations was done as per clinical Performa and NIH STROKE SCALE –NIHSS was used for neurological assessment.

The delay was defined as >6 hour between the onset of stroke and reaching at the hospital.

The results are presented in frequencies and percentages.

RESULTS

Majority of ischemic stroke was occurred at home (76.6%) followed by workplace (4.9%) and hospital (2.5%) (Table-1).

More than one third of the patients reached hospital by own vehicle (40.6%) followed by rented vehicle (26.2%), private ambulance (19.3%) and government ambulance (13.9%) (Table-2).

Out of the total 244 patients, 153 (62.7%) reached at the hospital after 6 hours (delayed) (Fig.1).

Table-3 shows the reasons for delay. The lack of finance was found be the main reason for delay (43.8%). Delay due to 1st referral was observed to be second most common reason for delay in reaching the hospital (42.5%). Delay due to transpotation was in 37.3% of patients and unidentified sympatom was in 36.6%. Delay in decision making was in 31.4% of patients and delay due to treatment at other centre was in 24.2% of the patients.

DISCUSSION

In ischemic stroke, thrombolysis is the only specific therapy to prevent death and disability (Boode et al, 2007; Evenson et al, 2009). Ninety one (37.3%) of our patients arrived to a hospital within 6 hours. 62.7 of all patients presenting to us took more than 6 hours to arrival, which is similar to other reported studies (Zerwic et al, 2007; Srivastava and Prasad, 2001).

Safe and rapid transport system plays a significant role in prognosis of stroke patients. In the present study, more than one third of the patients reached hospital by own vehicle (40.6%) followed by rented vehicle (26.2%), private ambulance (19.3%) and government ambulance (13.9%). There are many studies, which have shown delayed arrival (>3hours) of the patient to hospital due to transportation problems (Srivastava and Prasad, 2001; Pandian et al, 2006; Mosley et al, 2007).

In 31.4% of our patients, the major problem was taking a decision regarding what to do next with the stroke patient. The major concern sometimes was where to take the patient and whether taking the patient would do any help? In our study, 24.2% of the stroke patients who reached hospital after six hours 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 (Srivastava and Prasad, 2001; Yip et al, 2000). 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.

It is important that stroke patient should get to a tertiary level care for better prognosis. 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.

CONCLUSION

We have found that the main reason behind this, is the inability to identify the symptoms of stroke, contact with a local doctor/village doctor, indecision and lack of transport facilities. There is also a need of a standard operating procedure and facilities available at all the recognized primary health care centre with proper training of health care personnel under National Stroke Programme.

Table-1: Place of symptom of onset

Place	No. (n=244)	%
Home	187	76.6
Workplace	12	4.9
Hospital	6	2.5
Other	39	16.0

Table-2: Type of transport used

Type of transport	No. (n=244)	%
Government ambulance	34	13.9
Private ambulance	47	19.3
Owned vehicle	99	40.6
Rented vehicle	64	26.2

Table-3: Reasons for delay

Reasons*	No. (n=153)	%
Due to Distance from the centre	27	17.6
Delay in decision making	48	31.4
Delay due to 1st referral	65	42.5
Delay due to transportation	57	37.3
Unidentified symptom	56	36.6
Lack of man power	34	22.2
Lack of finances	67	43.8
Treatment at other centre	37	24.2
Others	12	7.8

*Multiple response

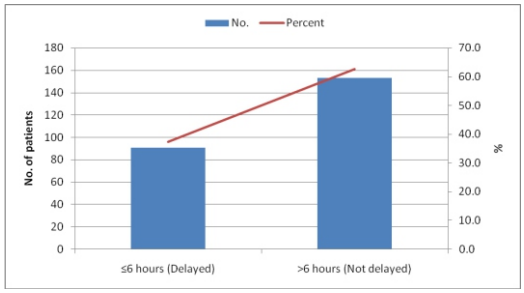

Fig.1: Time taken to arrive at hospital

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