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FACTORS HINDERING ADMISSION OF ACUTE STROKE PATIENTS

Medical Science

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ABSTRACT

Introduction: Success of Thrombolytic therapy depends on timely initiation of it. Acute Ischemic stroke patients have facing challenges in seeking medical care as there is a common delay in most of the patient's admission.

Methods: A prospective study was conducted in INDIANA Hospital and Heart Institute, Mangalore, Karnataka to assess the hurdles in admission of acute ischemic stroke patients, who got admitted in emergency department with acute ischemic stroke and arrived within 72 hours. A standard questionnaire was provided to the patients and their attendant to rule out the cause of delay.

Results: The median time of patients who have arrived at the emergency department was of 10 hours in which 25 percent were arrived within 6 hours and the 58 percent were arrived within 10 hours and the rest 17 percent were arrived more than 10 hours of onset of symptoms.

Conclusion: The most common cause of delay was identification of stroke symptoms, time of occurrence of stroke, transport delay and admission of patients in non-stroke centers. Required measures to be taken to educate people about identification of stroke symptoms and importance of Golden hours in admission of patients to improve stroke outcomes.

KEYWORDS

INTRODUCTION:

Mortality rate of stroke exists in Americans with the incidence rate of 150,000 of the 860,000 population [1]. Stroke may be of either types: One is of Ischemic in which blood circulation to the brain gets blocked whereas, the other type is hemorrhagic, where the blood vessel bursts in the brain. The most common type of stroke occurrence in INDIA is Ischemic.

In Stroke, death of brain tissues leading to brain damage, disability and death. Stroke is the leading cause of long-term disability and the fifth leading cause of mortality in United States [2]. About 80percent of strokes could be preventable. Anyone can get Stroke at any time which includes children. 1out of 4 strokes are recurrent ones [3]. It means if a person has an incidence of stroke can have more probability of getting recurrent stroke. Factors affecting stroke includes, age, gender, unhealthy lifestyle-smoking, drinking, no or less physical activity and morbidities like hypertension, cardiovascular diseases, Diabetes and obesity can increases the chance of getting stroke.

Stroke is a common neurological emergency which is increasing among low- and middle-income countries nowadays [4,5]. The major concern of stroke is physical disability and high recurrence rate associated with expenditure of post-stroke rehabilitation significantly affecting productivity of a country [6,7]. Time is of essence when comes to the efficacy of Intravenous tissue plasminogen activator [IV tPA]. Studies proven that patients who got treated with IV tPA within 4.5 hours after the symptom's onset will have better prognosis, still only a smaller number of stroke victims receive this on time due to various reasons [8]. Our hospital tried to identify the common delay in admission of stroke patients and thereby creating awareness of stroke signs and symptoms, and importance of timely admission to the public.

Objective

The presentation of a stroke patient to the hospital is often delayed and the patient is usually brought to a stroke center past the window period. This prospective study is to understand the reason for the delay of such patients in reaching a stroke center within the window period time.

Inclusion criteria
- Age between 18yrs and above
- All stroke patient which have come to the hospital after 4 hours. of onset of symptoms

Exclusion criteria
- Stroke patient presenting within the window period

- Todd's paralysis
- Unilateral weakness because of head injury
- Transient ischemic attack

MATERIALS AND METHODS:

Study design: A Prospective study to identify the reason for delay in thrombolysis in stroke patients

Study period: The study was performed for the duration of a year from July 2018 to July 2019.

Study setting: This study was conducted under the Department of Emergency Medicine in INDIANA HOSPITAL AND HEART INSTITUTE, Mangalore, Karnataka. It is 300 bedded multispecialty hospital, consisting of 15 bedded emergency department, along with independent neurology ICU.

Selection of participants: We attempted to enroll consecutive stroke patients coming to emergency medicine department in Indiana Hospital And Heart Institute who met inclusive criteria and got admitted in duration for the study.

Method of collection of data: 100 patients were randomly selected from the above source. Each patient was given a standardized questionnaire for gathering information regarding delay in admission along with demographic information. Demographic information includes age [<50/ 50-60/61-70/71-80/>80 years], Gender [Male/Female], Smoking status [Current/Former smoker], pre-existing morbidities [Yes/No], physical activity [Yes/No], Arrival to Casualty [6-8 hours/ 8-10 hours/>10 hours]. The patient will tick the reason for the delay or mention if any other reason for delay for the question asked to them. For patients who are brought unresponsive or cannot answer the questions, the questionnaire is asked to the relatives who brought the patient to emergency department.

RESULTS AND DISCUSSION:

Among 100 samples, 17 were rejected due to various reasons like unable to get ethical concern, incomplete information for the questions asked, etc. Demographic information includes age, Gender, Smoking status, pre-existing morbidities, physical activity, Arrival to Casualty was collected. There is no significant correlation found between the demographics collected (except age) with delay in admission.

The median time of patients who have arrived at the emergency

department was of 10 hours in which 25 percent were arrived within 6 hours and the 58 percent were arrived within 10 hours and the rest 17 percent were arrived more than 10 hours of onset of symptoms. The most common cause of delay was identification of stroke symptoms, time of occurrence of stroke especially with nocturnal onset of stroke symptoms, living alone, transport delay and admission of patients in non-stroke centers.

Figure-1:AGE
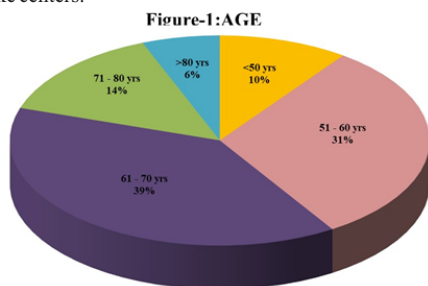
Study population comprises of younger adults, late adults and elders. Most of the patients who got admitted for Stroke cases were of 61-70 years and the least were more than 80 years [Figure-1]. There is significant relation found between delay in admission of patients between ages (p=0.004). Elder patients got admitted earlier compared to younger adults. As this may be due to the presence of younger member in the house could able to make it happen. Whereas, in case of younger patients, they might have children who can't able to make decisions as adults do.
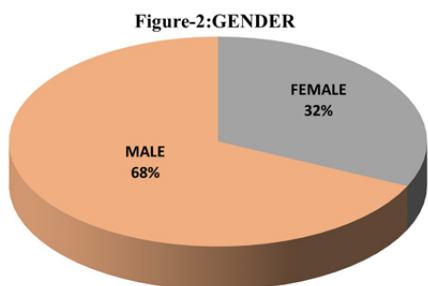
Figure-2:GENDER

Most of the patients admitted with stroke cases in the study were male in which 48% were non-smokers and sedentary workers [Figure-2]. But there is no significant correlation found with the delay in admission and gender of patients (p=0.07).

Figure-3:Factors affecting early admission of STROKE patients
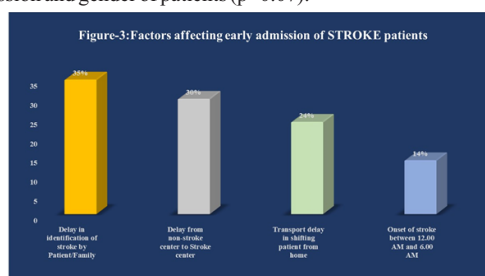
Previous studies have not considered the delay in admission of stroke as it was conducted in countries where it seldom happens and they have advanced emergency ambulance services, which took the patients to the stroke centers accordingly [9-13]. In India, this scenario which occurs more often as we have less equipped emergency transport services and our study results also been proved that it has significant relation in terms of stroke patient's admission. Few patients' relatives provided the information that they have come to the hospital with their own transportation. In addition, they have first visited their family physician before coming to the hospital. This in turn further delay of admission. Study results also has a significant relation with the delay of stroke patients due to admission of patients earlier in non-stroke centers (p=0.001). This could be due to the availability of rural health practitioners and their ignorance in identification of stroke symptoms and the essence of time in transferring patients to the stroke centers. Most of the study population were residing out of the city also a contributing factor for delay.

And, this study found a significant role of attendants/patients in identification of stroke symptoms (p=0.005) and in making decision for the need of seeking immediate medical attention [14].

Availability of transport is a major concern in India, as this is the major cause for delay in admission. Early arrival can improve the prognosis and better quality of life of patients [15]. Duration of stroke also played an essential role in delaying of admission of patients. As stroke occurs after 12.00AM, patients were faced transport delay, non-availability of Primary care services and resulting in late admission. In nocturnal onset, identification of timing in which the stroke symptoms occur is found to be difficult and few of them were aware of the stroke symptoms after awakening from the night sleep [Figure-3]. This is inversely relating to the admission delay and found significant (p=0.001).

Limitations of the study:
The study was conducted in a single center during a year course, with a sample size. Despite, we tried to identify the potential causative factors delaying admission of stroke patients. We suggest that future studies may include wider population across countries and multi-centered trials to have a clear finding.

CONCLUSION:
According to the above results, many patients and family members were not aware how to recognize a stroke and there is delay from shifting of patient from primary health care center to stroke center. The other causes include transport delay from patient home and onset of stroke occurred during nighttime especially between 12.00 AM and 6.00AM. Most of the patients chose the option of delay of identification of stroke symptoms together if they have opted their duration of stroke in nighttime. Most of the delaying factors identified from the study can be overcome by creating awareness to the general public in identification of stroke symptoms and efficient use of ambulance services by transferring patient directly to the stroke centers.

Declaration of conflicting interests
There is no conflict of interest corresponding to authorship, research, or publication of article among the authors.

Ethical approval
Ethical approval for the study is obtained from the Indiana Hospital And Heart Institute Research committee.

Funding

Informed consent
Written informed consent was obtained from the patient who are willing to participate in the study. Patient who are unable to communicate, consent was obtained from their legal representatives.

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