# Original Research

## Evaluation of stroke cases in emergency department- A clinical study

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**ABSTRACT**

**Background:** There is considerable increase in number of stroke cases. The present study was conducted to assess the cases of stroke reported to emergency department. **Materials & Methods:** The present study was conducted in the Emergency department on 112 cases of both genders. Parameters such as education, vascular risk factors and concomitant diseases (prior stroke/ TIA, smoking, heavy drinking, hypertension, coronary heart disease, peripheral vascular disease, diabetes mellitus, hyperlipidaemia etc. was recorded in cases file. **Results:** Out of 112 cases, males were 72 and females were 50. Maximum cases were seen in age group 60-80 years (68) followed by >80 years (24), 40-60 years (16) and 20-40 years (4). The difference was significant (P< 0.05).Various risk factors were hypertension seen in 102, diabetes mellitus in 84, hyperlipidaemia in 92, drinking in 69, smoking in 58, low education status in 66 and previous stroke in 15 cases. The difference was significant (P< 0.05). **Conclusion:** The number of stroke cases is increasing day by day. We found that various risk factors were hypertension, diabetes mellitus, hyperlipidaemia, drinking, smoking, low education status and previous stroke.

**Key words:** Emergency, Hypertension, Stroke

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# INTRODUCTION

World Health Organization defined stroke as a "neurological deficit of cerebrovascular cause that persists beyond 24 hours or is interrupted by death within 24 hours", although the word "stroke" is centuries old. This definition was supposed to reflect the reversibility of tissue damage and was devised for the purpose, with the time frame of 24 hours being chosen arbitrarily.[1] The 24-hour limit divides stroke from transient ischemic attack, which is a related syndrome of stroke symptoms that resolve completely within 24 hours. With the availability of treatments which can reduce stroke severity when given early, many now prefer alternative terminology, such as brain attack and acute ischemic cerebrovascular syndrome (modeled after heart attack and acute coronary syndrome, respectively), to reflect the urgency of stroke symptoms and the need to act swiftly.[2] Strokes can be classified into two major categories: ischemic and hemorrhagic. Ischemic strokes are caused by interruption of the blood supply to the brain, while hemorrhagic strokes result from the rupture of a blood vessel or an abnormal vascular structure.

About 87% of strokes are ischemic, the rest being hemorrhagic. Bleeding can develop inside areas of ischemia, a condition known as "hemorrhagic transformation." It is unknown how many hemorrhagic strokes actually start as ischemic strokes.[3] The present study was conducted to assess the cases of stroke reported to emergency department.

## MATERIALS & METHODS

The present study was conducted in the Emergency department. It comprised of 112 cases of both genders. Attendants were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study. General information such as name, age, gender etc. was recorded. Parameters such as education, vascular risk factors and concomitant diseases (prior stroke/ TIA, smoking, heavy drinking, hypertension, coronary heart disease, peripheral vascular disease, diabetes mellitus, hyperlipidaemia etc. was recorded in cases file. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant (P< 0.05).

## RESULTS

### Table I Distribution of cases

| Total- 112 | | |
|---|---|---|
| **Gender** | Males | Females |
| **Number** | 72 | 50 |

Table I shows that out of 112 cases, males were 72 and females were 50.

### Table II Age wise distribution of cases

| Age group (Years) | Number | P value |
|---|---|---|
| **20-40** | 4 | 0.01 |
| **40-60** | 16 | |
| **60-80** | 68 | |
| **>80** | 24 | |

Table II shows that maximum cases were seen in age group 60-80 years (68) followed by >80 years (24), 40-60 years (16) and 20-40 years (4). The difference was significant (P< 0.05).

### Table III Assessment of risk factors

| Parameters | Number | P value |
|---|---|---|
| **Education Higher** | 46 | 0.01 |
| **Primary** | 66 | |
| **Smoking** | 58 | |
| **Drinking** | 69 | |
| **Hypertension** | 102 | |
| **Diabetes mellitus** | 84 | |
| **Hyperlipidemia** | 92 | |
| **Previous stroke** | 15 | |

Table III, graph I shows that various risk factors were hypertension seen in 102, diabetes mellitus in 84, hyperlipidaemia in 92, drinking in 69, smoking in 58, low education status in 66 and previous stroke in 15 cases. The difference was significant (P< 0.05).

### Graph I Risk factors
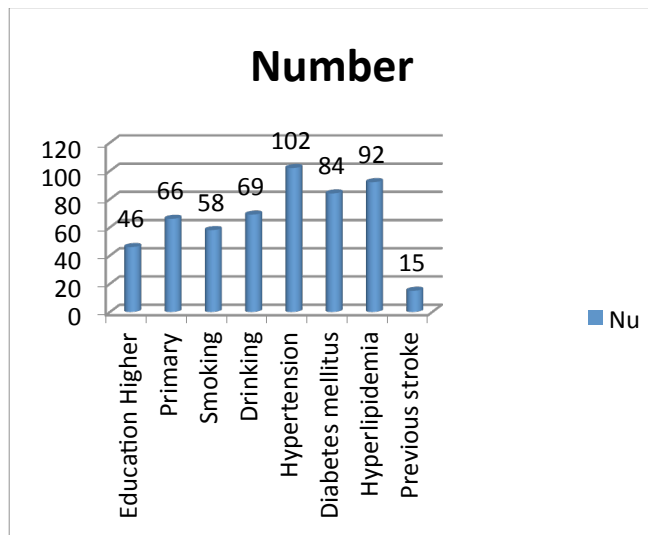


## DISCUSSION

Stroke is the second leading cause of death worldwide. In last few years, the incidence of stroke and burden of stroke increased in both developing and developed countries. Improving quality of care is critical to improve the prognosis after stroke. Several studies of patients with stroke have reported higher mortality on weekends and weekday nights. A recent systematic review and meta-analysis suggests that patients with acute ischemic stroke presenting during off-hours had higher short-term mortality and disability compared with patients presenting during regular hours.[4] The result was robust across subgroups and sensitivity analyses. A higher incidence of mortality and a decreased use of invasive cardiac procedures was noticed in patients admitted with myocardial infarction during weekends, a phenomenon termed the "weekend effect".[5] The present study was conducted to assess the cases of stroke reported to emergency department.

We observed that out of 112 cases, males were 72 and females were 50. Maximum cases were seen in age group 60-80 years (68) followed by >80 years (24), 40-60 years (16) and 20-40 years (4). Various risk factors were hypertension seen in 102, diabetes mellitus in 84, hyperlipidaemia in 92, drinking in 69, smoking in 58, low education status in 66 and previous stroke in 15 cases.

Albright et al[6] reported that epileptic seizures (41%) and psychiatric disorders (28%) are the most common diseases that can cause stroke mimics, and the frequency of hypoglycemia is low (1%).

Palmer et al[7] found that off-hour presentation was identified in 2672 (59.5%) patients with ischemic stroke. Comparison of patients admitted during off-hours with those admitted during on-hours revealed an unadjusted odds ratio of in-hospital mortality of 1.38, which declined to 1.34 after adjusting for patient characteristics. No difference in 30-day mortality, total death or dependence at three, six and 12 months between two groups was observed. No association between off-hour admission and quality of care was found.

Martinez[8] observed that of 1,557 suspected acute stroke cases examined at the emergency department, 137 (8.8%) were stroke mimics. The most common causes were symptomatic epilepsy (28 cases, 20.4%), neuropathy-like symptoms (21 cases, 15.3%), and hypoglycemia (15 cases, 10.9%). Outcomes were survival to hospital discharge for 91.2% and death for 8.8% of the cases. Clinical results were significantly different between stroke mimics and the stroke group for low systolic blood pressure, low National Institutes of Health Stroke Scale score on initial treatment, history of diabetes, and no history of arrhythmia. On multivariate analysis, distinguishing factors for stroke mimics include systolic blood pressure ≤ 140 mmHg, National Institutes of Health Stroke Scale score ≤ 5 points, history of diabetes, and no history of arrhythmia.

## CONCLUSION

The number of stroke cases is increasing day by day. We found that various risk factors were hypertension, diabetes mellitus, hyperlipidaemia, drinking, smoking, low education status and previous stroke.

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