



SOCIO-DEMOGRAPHIC AND CLINICAL PROFILES AND OUTCOMES OF ISCHEMIC STROKE PATIENTS TREATED AT A SUPER SPECIALTY TERTIARY CARE HOSPITAL IN NORTHEAST INDIA

Neurology

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ABSTRACT

Aim: Stroke is a leading global health issue. The current study aimed to explore the socio-demographic variables, clinical profiles, and outcomes of ischemic stroke patients. **Methods:** This retrospective study included 164 ischemic stroke patients. Baseline characteristics that included socio-demographic and clinical profiles and outcomes were described in frequencies using descriptive statistics. **Results:** The cohort included 59.8 % males (n= 98) and 40.2 % females (n = 66). The average age of the cohort was 59 yrs $\pm$ 0.861. Hypertension (63.4 %; n = 104) and diabetes (60.6 %; n = 63) were the predominant risk factors. Weakness (73.2 %; n = 120) was the most common clinical symptom. Majority of the patients (51.2 %; n = 84) had a Glasgow Coma Score (GCS) of 13-15 during hospital admission. Only 9.1 % (n = 15) of patients reported to the hospital within 3-24 hours onset of ischemic stroke. The duration of stay at the hospital was less than a week for most of the patients (82.9 %; n = 136). Outcomes of the patients were age-dependent. **Conclusion:** There is high incidence and prevalence of stroke in Northeast India. Appropriate preventive, curative, and rehabilitative strategies are critical in addressing this issue.

KEYWORDS

Neurological, Ischemic Stroke, Outcome, Risk

INTRODUCTION

Stroke is a serious and chronic public health problem.^[1] The burden of stroke in India has significantly increased. During the past two decades, India has experienced notable transitions in socio-demographic, economic, and epidemiological profiles.^[2] As a result the life expectancies and consequently ageing populations have remarkably increased.^[3] Stroke is the fourth leading cause of mortality and the fifth leading cause of morbidity in India.^[4] Ischemic stroke is one of the subtypes of stroke that results from a decrease or blockage of blood flow to certain areas of the brain. There is a paucity of data on ischemic stroke in Northeast India.^{[5],[6],[7],[8],[9]} Therefore, this study was an effort to report the socio-demographic, clinical profiles, and outcomes of ischemic stroke patients treated at our hospital.

METHODS

This single-centre retrospective study was carried out from 1st July 2022 to 31st December 2022. A total of 164 ischemic stroke patients were selected. Medical records were reviewed to retrieve patient information. Inclusion criterias were all ischemic stroke patients $\geq$ 18 years (yrs) of age with confirmed computerized tomography (CT) or magnetic resonance imaging (MRI) scans. Exclusion criteria included ischemic stroke patients < 18 yrs of age and with incomplete medical records. Socio-demographic characteristics, clinical presentations, Glasgow Coma Scale (GCS), reporting time, and length of hospital stay of the patients were recorded. Outcomes of the patients after treatment were also investigated. Statistical analysis of the extracted data was carried out using the SPSS software version 17.^[13] Categorical variables were expressed as numbers (n) and percentages (%).

RESULTS

The cohort included 59.8 % (n = 98) males and 40.2 % (n = 66) females with an average age of 59 yrs $\pm$ 0.861. The majority of the patients (56.1 %; n = 92) belong to the age group 45-64 yrs. About 84.1 % (n = 138) of patients were from rural areas. Majority were homemakers (23.2 %; n = 38). Further, 26.2 % (n = 43) and 31.1 % (n = 51) were alcohol and tobacco consumers respectively. Most patients (95.7 %; n = 157) followed a non-vegetarian diet. Previous stroke history was seen in 7.3 % (n = 12) patients. Hypertension (63.4 %; n = 104) was the predominant risk factor.

Table 1: Socio-demographic Profile of Ischemic Stroke Patients (n = 164) Included in Our Study

Variables	n (%)
Gender	
Male	98 (59.8)
Female	66 (40.2)
Age	
< 25	1 (0.6)
25-44	23 (14)
45-64	92 (56.1)
65-84	42 (25.6)
$\geq$ 85	6 (3.7)
Residence	
Rural	138 (84.1)
Urban	26 (15.9)
Occupational status	
Homemaker	38 (23.2)
Farmer	22 (13.4)
Government employee	1 (0.6)
Own business	19 (11.6)
Skilled/unskilled manual labor	6 (3.7)
Retired	1 (0.6)
Not specified	64 (39)
Lifestyle history	
Alcohol intake	43 (26.2)
Tobacco use	51 (31.1)
Diet	
Vegetarian	7 (4.3)
Non-vegetarian	157 (95.7)
Stroke history	
Family history	0 (0)
Previous history	12 (7.3)
Risk factors	
Hypertension	104 (63.4)
Diabetes	63 (60.6)

Dyslipidaemia	6 (3.7)
Hypothyroidism	12 (7.3)
None	15 (9.1)

The most common clinical symptom observed was right-sided weakness (37.8 %; n = 62). About 4.9 % (n = 8) of patients were unresponsive upon arrival to the hospital. Bowel and urinary incontinence were seen in 13.4 % (n = 22) and 12.8 % (n = 21) patients respectively. Majority of the patients (51.2 %; n = 84) had GCS scores between the ranges of 13-15. Only 9.1 % (n = 15) patients reported to the hospital within 3-24 hrs of onset of acute ischemic stroke. Further, 82.9 % (n = 136) patients had a hospital stay of less than a week.

Table 2: Clinical Profile of Ischemic Stroke Patients (n = 164) Included in Our Study

Clinical presentations	n (%)
Altered sensorium	33 (20.1)
Bowel incontinence	22 (13.4)
Chest pain	16 (9.8)
Deviation of mouth	7 (4.3)
Dizziness	43 (26.2)
Fever	15 (9.1)
Generalized weakness	28 (17)
Headache	31 (18.9)
Involuntary jerky movements of limbs	42 (25.6)
Left sided weakness	58 (35.4)
Right sided weakness	62 (37.8)
Restlessness	21 (12.8)
Slurred speech	45 (27.4)
Tingling sensation	29 (17.7)
Unresponsiveness	8 (4.9)
Urinary incontinence	21 (12.8)
Vomiting	15 (9.1)
GCS at the time of admission	
1-8	19 (11.6)
9-12	61 (37.2)
13-15	84 (51.2)
Time of reporting to hospital	
< 3 hrs	0 (0)
3-24 hrs	15 (9.1)
>24 hrs	149 (90.9)
Length of hospital stay	
< 1 week	136 (82.9)
1 week	10 (6.1)
> 1 week	18 (11)

Status of 67.1 % (n = 110) patients were recovering at the time of discharge from the hospital. There were 23.2 % (n = 38) patients who got discharged against medical advice (DAMA). Clinical conditions of 1.2 % (n = 2) of patients remained unchanged at the time of discharge. About 8.5 % (n = 14) of patients died during treatment. Highest percentage of recovery was seen in the age category 45-64 yrs (35.4 %; n = 58). No improvements in symptoms were observed in the 45-64 yrs ischemic stroke patients (1.2 %; n = 2). DAMA was taken in almost all age categories. Death rates were high in the 45-64 yrs age category (3.7 %; n=6).

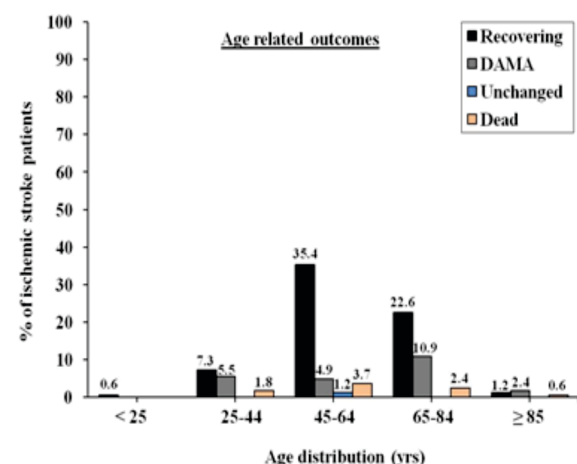


Figure 1: Age Related Outcomes Of Ischemic Stroke Patients

DISCUSSION

Stroke has become a major long-term public health issue in India.^[4] It is one of the most prevalent neurological illnesses among patients from Northeast India. The mean age of the cohort was low and was comparable to the study by Sylaja et al.^[9] This result contradicts the findings of other previous studies from Western and Chinese populations where a higher mean age was observed.^{[11], [12], [13]} There is evidence of stroke happening in a few earlier years in developing nations than in Western nations.^[14] This may be due to uncontrolled common modifiable risk factors and the existence of nontraditional risk factors. Community-based studies are thus necessary to avoid any discrepancies that may arise from hospital-based studies.^[14] Similar to the study by Sylaja et al; the percentage of females affected by ischemic stroke was significantly lower than that of the Western and Chinese populations.^{[9], [11], [12], [13]} This low percentage of females could be either due to gender bias or reluctance to seek medical care. In the present study, a high prevalence of hypertension was seen in a majority of ischemic stroke patients. This is consistent with previous studies where hypertension was noted to be the common comorbidity in stroke patients.^[15] Various studies have shown that uncontrolled hypertension, diabetes, acute alcohol consumption, and tobacco use are important risk factors not only in elderly populations but in young adults as well.^{[16], [17], [18]} In India, tobacco consumption is most commonly seen among low socio-economic stratum families and persons with lesser education.^[19] In our study, most of the ischemic stroke patients belonged to rural areas with no or minimal source of income. This may be due to in hospital-based cohorts the type of patients visiting the hospital depends on the location of the hospital. Additionally, low socioeconomic background, substandard local hospital facilities, inadequate control of risk factors, and lack of awareness are the contributing factors to the high prevalence of ischemic stroke among the rural population. The ischemic stroke patients showed sensory and motor symptoms upon arrival at the hospital. The average clinical presentation for the ischemic stroke patients upon admission was 3 which was in correlation to an earlier study from India.^[20] In our study, not a single patient was presented within the window period of 3 hrs. This data suggests that reduced awareness, poor recognition of the early warning symptoms of stroke, and low transportation availability in rural areas were some of the constraints for delayed hospitalization and treatment initiation. Most patients were discharged less than a week after hospitalization which suggested prompt and appropriate treatment initiation upon arrival by the multidisciplinary team of the hospital. Further, post-stroke treatment outcomes were mostly dependent on the age of the patients. Limitations included single-centre retrospective study design. Also, we did not consider any standard scales for accessing the patient outcomes.

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