



ORIGINAL RESEARCH PAPER

Neurology

A PROSPECTIVE STUDY ON CLINICAL PROFILE OF STROKE PATIENTS ATTENDING IN A TERTIARY CARE HOSPITAL OF GUWAHATI, ASSAM.

KEY WORDS:

Cerebrovascular Accident, profile, haemorrhagic Stroke, stroke Infarct.

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ABSTRACT

Cerebrovascular disease include most common devastating disorders :ischaemic stroke and haemorrhagic stroke. The incidence of cerebrovascular disease increases with age and the number of strokes is projected to increase as the elderly population grows. A stroke is the second leading cause of death worldwide. Some of the Indian studies have shown a stroke prevalence of 471.58/100000 population.

OBJECTIVE: To study the clinical presentation, risk factors, neurological presentation, pattern of brain strokes, areas of brain affected as per CT/MRI Brain scan findings in a newly admitted patients in GNRC Institute of Medical Sciences, North Guwahati, Assam.

METHODS: This is a prospective study included all new patients with stroke admitted in ICU and Ward under Neurology Department of GNRC institute of Medical Sciences ,North Guwahati, Assam, from 1st August, 2018 to 31st July, 2019.

RESULTS: The cerebrovascular strokes are more common in males (64.4%) than females (35.6%). Most common age group was 58-67 years (28.29%). Most common clinical feature was hemiplegia (71.21%). Most common risk factor was Hypertension (89.51%) followed by diabetes mellitus (51.70%) . Most common type of stroke was haemorrhagic (60.24%) followed by ischaemic (39.75%). In stroke infarct most common involved areas were parietal (13.65%). In hemorrhagic stroke most common site was basal ganglia (21.95%) followed by thalamus (10.97%).

CONCLUSION: Males were more commonly affected with cerebrovascular accident with hypertension was the most common risk factor among the stroke patients and most common type of stroke was haemorrhagic.

INTRODUCTION:

Among all the neurologic diseases of adult life, stroke or cerebrovascular disease rank first in frequency and importance. The common mode of expression of stroke is a relatively sudden occurrence of a focal neurologic deficit.³ Cerebrovascular disease include most common devastating disorders :ischaemic stroke and haemorrhagic stroke. A stroke is the second leading cause of death worldwide .The incidence of cerebrovascular disease increases with age and the number of strokes is projected to increase as the elderly population grows.⁷ Cerebrovascular disease has been defined as a rapidly developing signs of focal (or global) disturbance of cerebral function with symptoms lasting for ≥24 hours, or leading to death with no apparent cause other than vascular origin.⁵ Some of the recent studies have elucidated the stroke pattern to considerable extent in our country with a prevalence rate 0471.58/100000 population^(10,15).

Hypertension, alcoholism, smoking & dyslipidemia are commonest cause of stroke among the elderly^(6, 10) where smoking, alcoholism, increased BMI, diabetes and hypertension are significantly associated with strokes among young people.^(7,10) Ischemic strokes account for 50%-85% of all strokes worldwide.⁸ Hemorrhagic strokes are due to

subarachnoid hemorrhage or intracerebral hemorrhage, they account for 1%-7% and 7%-27% respectively of all strokes worldwide⁸

Stroke is becoming an important cause of premature death and disability in low-income and middle-income countries like India, largely driven by demographic changes and enhanced by the increasing prevalence of the key modifiable risk factors. As a result developing countries are exposed to a double burden of both communicable and non-communicable diseases. The poor are increasingly affected by stroke, because of both the changing population exposures to risk factors and, most tragically not being able to afford the high cost for stroke care. Majority of stroke survivors continue to live with disabilities, and the costs of on-going rehabilitation and long term-care are largely undertaken by family members, which impoverish their families^(1,2) Hence this study was done in our institute to know the profile, risk factors which covers all the population with low socioeconomic to higher economic class at a affordable cost of treatment to all patient with stroke .

MATERIALS AND METHODS:

This is a prospective study of all patients having the clinical diagnosis of cerebrovascular stroke and confirmed the

diagnosis of stroke with specific investigations including CT scan brain/MRI brain admitted in the neurology ward and Intensive care unit (ICU) at GNRC Institute of Medical Sciences, North Guwahati, District: Kamrup, Guwahati, Assam, Pin; 781030 between 1st August, 2018 to 31st July, 2019

INCLUSION CRITERIA

All patients above 18 years of age having clinical diagnosis and CT/ MRI confirmed diagnosis of stroke.

EXCLUSION CRITERIA

- Patient below 18 years of age.
- Stroke due to trauma (head injury).
- Patients CT/MRI reports not showing confirmed diagnosis.
- Old stroke patients
- Coagulation disorders, AV malformations.

The data obtained were analyzed using SPSS version 21.0 software. Results were expressed in frequencies and percentages.

RESULTS:

A total of 410 cases of stroke admitted in the neurology ward and intensive care unit (ICU) of GNRC institute of medical sciences, North Guwahati, Assam, who fulfill the inclusion and exclusion criteria during the study period from 1st August, 2018 to 31st July, 2019 were studied and evaluated for clinical and neurological presentation, risk factors, pattern of areas of brain affected by stroke.

Table 1: Frequency & percentage of stroke patients according to the age groups.

Age groups(years)	Frequency	Percentage (%)
18-27	2	0.48
28-37	15	3.65
38-47	69	16.82
48-57	97	23.65
58-67	116	28.29
68-77	89	21.70
78-87	16	3.9
≥ 88	6	1.46
Total	410	

As shown in the table -1 among the all 410 stroke patient age range was from 25 years to 91 years. In this study the youngest patient was 25 years and oldest was 91 years.

The incident of cerebrovascular accident (CVA) highest among the age group 58-67 years which comprises of 28.29% of all total stroke patient followed by 23.65% in 48-57 years, 21.70% in 68-77 years and lowest in the age group 18-27 years.

Table 2: Gender wise distribution of stroke Patients.

Gender	Frequency	Percentage (%)
Male	264	64.4
Female	146	35.6
Total	410	100.0

Out of total 410 cases, 264 (64.4%) were males and 146 (35.6%) were females as shown in Table 2. The male to female ratio was 1.8:1. From the observation of Table no-2 it can be concluded that incidence of stroke is more common among male gender.

Table 3: Showing the frequency and percentage of Clinical features of stroke patients.

Predominant presenting Clinical Features	Frequency*	Percentage (%)
Hemiplegia	292	71.21
Speech involvement	210	51.21
Faciobrachial palsy	79	19.26

Altered sensorium	196	47.80
Instability of gait	178	43.41
Giddiness	113	27.56
Vomiting	64	15.60
Headache	28	6.82
Coma	35	8.5
More than 2 clinical Features	160	39.02

In Table 3 showing the most common clinical presentation was hemiplegia which (71.21%) followed by speech involvement (51.21%), altered sensorium (47.80%), instability of gait (43.41%), giddiness (27.56%), coma was seen in 8.5% patients and more than 2 associated clinical features were seen in 39.02% patients.

Table 4: Frequency and percentage of risk factors for Stroke patients.

Risk Factors	Frequency*	Percentage(%)
Hypertension	367	89.51
Diabetes Mellitus	212	51.70
Dyslipidemia	165	40.24
Smoking	78	19.02
Alcohol Intake	53	12.92
Past H/O CAD	16	3.90
Past H/O CVD	17	4.14
RHD with Valvular disease	2	0.48

As shown in Table 4 (multiple response) that most common risk factor was hypertension with (89.51%) followed by diabetes (51.70%), dyslipidemia (40.24%), smoking (19.02%), alcohol (12.92%), H/O of previous (CVD) cerebrovascular accident (4.14%), H/O coronary artery disease (3.90%), RHD with valvular heart disease (0.48%).

Table 5: Genderwise distribution of different type of stroke

Gender	Type of Stroke			
	Haemorrhagic stroke	Percentage (%)	Ischaemic Stroke	Percentage (%)
Male	196	47.80	78	19.02
Female	51	12.43	95	23.17
Total	247	60.24	163	39.75

As shown in Table 5 that 247 (60.24%) patients suffered hemorrhagic stroke and 163 (39.75%) patients suffered ischemic stroke. Out of 247 haemorrhagic stroke patients 196 were males and 51 were females, among the 163 ischemic stroke patients 78 were males and 95 were females. In this study showing male gender was important high risk factor for hemorrhagic stroke.

Table 6: Topographic distribution of Haemorrhagic Stroke Patients.

Areas of Brain affected on CT/MRI brain scan	Haemorrhagic Stroke	
	Frequency	Percentage(%)
Parietal Lobe	7	1.7
Frontal Lobe	4	0.97
Temporal Lobe	12	2.92
Occipital Lobe	1	0.24
Basal Ganglia	90	21.95
Thalamus	45	10.97
Centrum Semiovale	0	0
Ventricular	26	6.34
Paraventricular	1	0.24
Internal Capsule	2	0.48
Lentiform Nucleus	1	0.24
Caudate Nucleus	4	0.97
Midbrain	15	3.65

Cerebellar	23	5.60
Pons	14	3.41
Medulla Oblogata	2	0.48
Total	247	60.24

In table 6 showing the most common site of haemorrhagic stroke was basal ganglia 90(21.95%) followed by thalamus 45(10.97%) ,ventricular 26(6.34%) and cerebellar 23(5.60%).

Table 7: Topographic distribution of Ischaemic Stroke patients.

Areas of Brain affected on CT/MRI brain scan	Ischaemic Stroke	
	Frequency	Percentage (%)
Parietal Lobe	56	13.65
Frontal Lobe	12	2.92
Temporal Lobe	4	0.97
Occipital Lobe	9	2.19
Basal Ganglia	21	5.12
Thalamus	3	0.73
Centrum Semiovale	1	0.24
Ventricular	0	0
Paraventricular	6	1.4
Internal Capsule	2	0.48
Lentiform Nucleus	1	0.24
Caudate Nucleus	1	0.24
Midbrain	8	1.95
Cerebellar	30	7.31
Pons	8	1.95
Medulla Oblogata	1	0.24
Total	163	39.75

In table 7 showing the most common site of infarct parietal lobe 56(13.65%) followed by cerebellar 30(7.31%), basal ganglia 21(5.12%),frontal lobe 12(2.92%).

DISCUSSION :

In this study of stroke patients the most common age group involved between 58-67 years followed by 48-57 years, 68-77 years and 38-47 years. It was observed that age group 58-67 years comprised of 28.29% of total stroke patient which closely correlates with study done by Maskey et al.⁹ and Vaidya et al.¹⁰.

The male to female ratio was 1.8:1. Which correlates with study of Aiyar et al.11 (1.9:1). So it can be concluded that incidence of stroke is more common in male sex which correlates with study done by Aiyar et al,¹¹ Vaidya et al¹⁰.

In this study most common clinical presentation was hemiplegia (71.21%) which was followed by speech involvement (51.21%). This observation closely correlates with the study done by Patne SV et al.,^[13] hemiplegia (55.28%) which was followed by speech involvement (13.82 %) P. Chitrambalam et al.,^[12] in which most common clinical presentation was hemiplegia (in <45 years was 93.3%, and in >45 years was 89.2%) followed by speech involvement (in <45 years was 43.3%, and in >45 years 30.8%).

In this study Hypertension (89.51%) is the most common risk factor for stroke which correlates with the study done by Patne SV et al.(48.78%)^[13],Abdu-Alrhaman Sallam et al^[14](67%).

In this study diabetes mellitus was 51.70% which higher than the study done by Vaidya et al^[10]where it was 9.3%.

In this study most common type of stroke was haemorrhagic stroke 60.24% followed by ischaemic stroke 39.75% which

was opposite to the study done by Vaidya et al^[10] where ischaemic stroke 75.1% and haemorrhagic stroke 22.8% and another study done by Aiyar et al^[11] in which infarction was in 70% and haemorrhagic stroke was 26%.

In this study the most common site of haemorrhagic stroke was basal ganglia 90(21.95%) followed by thalamus 45(10.97%),ventricular 26(6.34%) and cerebellar 23(5.60%) which was similar to the study done by Vaidya et al^[10] and Aiyer et al^[11] from these study it has been concluded that in multiple haematoma site most common was ganglio-thalamic region of the brain.

In this study most common site of infarct (ischaemic stroke) was parietal lobe 56(13.65%) followed by cerebellar 30(7.31%), basal ganglia 21(5.12%), frontal lobe 12(2.92%) which was correlates with the study done by Vaidya et al^[10] where common site of infarct was parietal (33.7%), followed by frontal (16.7%) followed by basal ganglia (10.5%) and Eapen et al.^[6] in which most common site was parietal (56%) followed by basal ganglia & frontal.

CONCLUSION:

From the above study it was found that the occurrence of stroke high among the age group between 58—67 years.This study showed male predominance in stroke cases and Hemorrhagic stroke was more than the stroke infarction. Males were more affected than females in hemorrhagic stroke where in stroke infarct patient's incidence was higher among female. Hypertension was amongst leading risk factors for both type of stroke. Most common clinical presentation was hemiplegia followed by speech involvement. Basal ganglia and thalamus are the most common part of the brain involved in haemorrhagic stroke and parietal lobe of the brain is the common part involved among ischaemic stroke patients.

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CONFLICT OF INTEREST:

There are no conflicts of interest.

ETHICAL CLEARANCE: Not Required.

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