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Clinical and Etiological Profile of Ischemic Stroke in a Tertiary Care Hospital of Nepal

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ABSTRACT

Background: Stroke is one of the most common neurological diseases, often leading to disability and death. Ischemic stroke accounts for 80-85% of all stroke cases. This Study aimed to evaluate the clinical and etiological profile of patients of ischemic cerebrovascular stroke.
Materials and Methods: This was a cross sectional, observational study of 93 patients of ischemic cerebrovascular stroke, conducted at Bir Hospital, Kathmandu during January 2018 to December 2019. The patients detailed history, examinations, blood investigation, CT Scan head and Echocardiography was done. The data were recorded in Excel a sheet and analyzed by SPSS 20.
Results: The mean age of ischemic stroke patients was 63.28 +_ 15.52 with a range from 30 to 94 years. The stroke was predominant in male with 52(55.91 %). The most common risk factors for stroke were hypertension 54(58.06%), followed by smoking 48(51.61%), LVH 45(48.38%), hypercholesterolemia 26(27.95%), diabetes mellitus 11(11.82%), atrial fibrillation 3(3.22%) and coronary artery disease 1(1.07%). Hemiplegia was present in all the patients. Other common symptoms included dysarthria due to facial deviation in 73.11%, speech aphasia in 6.45 % and altered sensorium/loss of consciousness in 1.07 % patients.
Conclusion: Stroke is not limited to elderly population; younger adults are also vulnerable for stroke. Hypertension, smoking, hypercholesterolemia, diabetes mellitus are common risk factors which can be modified for prevention of stroke.

Keywords: *Ischemic stroke; hemiplegia; risk factors.*

INTRODUCTION

Strokes are considered to be one of the leading causes of death and physical disability worldwide. According to the World Health Organization, stroke is the second most common cause of deaths globally-a total of 5,781 million death.[1] The Jaya Stroke Foundation, established by Nepalese doctors and family members of stroke patients, estimates that each year approximately 50,000 people have stroke and 15,000 people die from stroke.[2]

Socio economic factors, dietary and lifestyle choices, demographic transitions and different patterns of risk factors namely modifiable and non-modifiable explain the incidences of strokes to great lengths.[3] Stroke can be prevented by early modification of risk factors like hypertension, diabetes mellitus, dyslipi-demia, heart disease, atrial fibrillation, smoking, obesity and alcoholism.[4]

A community survey from India revealed a crude prevalence rate of 200 per 1,00,000 persons for hemiplegia, nearly 1.5% of all urban hospital admissions, 4.5% of medical cases and around 20% of neurologic cases.[5] There is paucity of data

in our setup. Thus this study was conducted to evaluate the clinical presentation and risk factors of ischemic stroke in patients in the tertiary care hospital of Nepal.

MATERIALS & METHODS

It was a Cross sectional, observational, hospital based study conducted in Bir Hospital, Kathmandu from January 2018 to December 2019 AD. The Ethical clearance for the research was taken from the Institutional Review Board (IRB) of the National Academy of Medical Sciences (NAMS), Bir Hospital. The stroke Patients admitted in hospital emergency and ward with clinical symptomatology of stroke and positive radiological (Neuroimaging) evidence of ischemic stroke were included in the study. Cases of head injury, intracranial hemorrhage, subarachnoid hemorrhage, tumors, malignancy and cerebral venous thrombosis, connective tissue disorders, cerebral infections like meningitis were excluded from the study. Lipid profile, blood sugar and routine blood investigation was done. ECG and Echocardiography was done. Data were collected and tabulated using Microsoft Excel. The data analysis was performed with statistical software SPSS version 20.

RESULT

A total of 93 stroke patients were included in the study. The mean age of the patients was 63.28 with Standard deviation of 15.521. The age ranges from 30 to 94. The maximum number of stroke patients were in the age group 70-80. (Table 1).

TABLE 1: Age distribution of ischemic stroke patients.

Age group	Frequency (N=93)	Percentage (%)
20-30	1	1.07
30-40	5	5.37
40-50	16	17.20
50-60	15	16.12
60-70	19	20.43
70-80	21	22.58
80-90	14	15.05
>90	2	2.15

Males were more vulnerable to stroke as compared with females. (Figure 1).

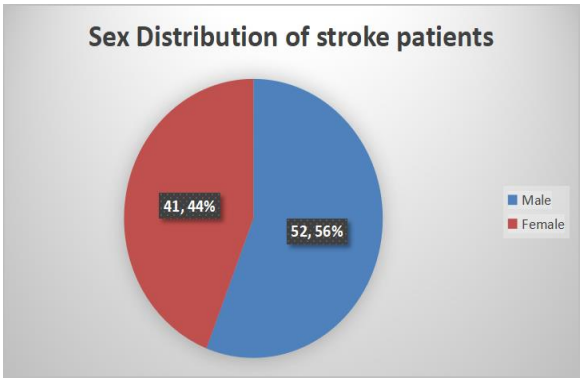

Figure 1. Sex distribution of ischemic stroke patients.

The most common risk factors of stroke patient were hypertension followed by smoking, Left ventricular Hypertrophy, hypercholesterolemia and diabetes mellitus. (Table 2).

Table 2. Risk Factors of Ischemic Stroke Patients.

Risk factor	Frequency (N= 93)	Percentage (%)
Hypertension	54	58.06
Smoking	48	51.61
Left ventricular hypertrophy (LVH)	45	48.38
Hypercholesterolemia	26	27.95
Diabetes	11	11.82
Atrial fibrillation	3	3.22
Coronary artery disease	1	1.07

Hemiplegia was present in all 93 cases. The other common symptoms included dysarthria, speech aphasia and altered sensorium. (Table 3).

TABLE 3: Clinical Presentation of Ischemic Stroke patients

Presentation		Frequency (N= 93)	Percentage (%)
Hemiplegia/Hemiparesis		93	100
Speech Abnormality	Aphasia	6	6.45
	Dysarthria	68	73.11
Headache		5	5.37
Loss of consciousness/ Altered sensorium		1	1.07

DISCUSSION

In the present study, the male predominance (56%) of stroke was noted with male to female ratio of 1.26:1. This was similar with another study done at the same center with male predominance of 65%.[4] A study from Lucknow, India also revealed that male was more vulnerable for stroke with 68%.[3] Similar study from AIMS, Delhi showed male predominance with M:F ratio of 5:1. Gender distribution of acute stroke patients differs from country to country. Prospective hospital-based stroke registries in China, Germany, India & Iran showed a very high preponderance of males for nearly all age categories in Asian countries due to fewer female cigarette smokers.[6] These observations may be attributed to the fact that males are more exposed to smoking and alcoholism. Moreover hypertension and diabetes plays vital roles due to urbanization and westernization of life styles.

The mean age of stroke patients was 63.28 in this study. This finding was similar with the findings of study from Trivandrum, India where average age was 67 years.[7] Another study at the same center, the mean age of stroke patient was 64.57 years.[4] A study from North, India found that the mean age of ischemic stroke patients was 60.[3] Stroke has been increasing in younger age groups due to unhealthy lifestyles and modernization. A study from North India revealed that the mean age of stroke patients was 39.[8] Similar multicentric study from Asian countries had mean age of 40.8.[9] This finding may be due to the study being predominantly done in the younger age group of patients. However it is evident that younger populations are also being vulnerable for ischemic stroke.

In our study the most common risk factor in stroke patient were hypertension 58.06% followed by smoking 51.61%, LVH 48.38%, hypercholesterolemia 27.95%, diabetes mellitus 11.82%, atrial fibrillation 3.22% and coronary artery disease 3.2%. A study from Vadodara, India noted that hypertension, diabetes, alcoholism and smoking were the common risk factors of stroke with 55%, 35%, 56.53%, 39.13% respectively.[10] These risk factors were comparable with the community based cross-sectional study done in Colombo, Sri Lanka in 2313 adults of age ≥18 years. Hypertension was the most common risk factor (62.5%) followed by smoking (50%), excess alcohol (45.8%), diabetes (33.3%), TIA (29.2%) and family history (20.8%).[11] Stroke study in Qatar showed hypertension in 63% of its population.[12] In NINDS study there was hypertension in 66%, 43% were smokers, 25% were having Ischemic heart disease, diabetes mellitus in 24%.[13] In ECASS III, 62% were hypertensive, 14% were diabetic, 30% were smokers and 7.7% have previous history of stroke.[14] Similar study from Chandigarh, the stroke patients had risk factors of hypertension, Diabetes Mellitus, dyslipidemia and obesity were 87.7%, 54.8%, 87.7% and 56.2% respectively.[15]

All of the 93 patients had Hemiplegia at presentation, whereas 73.11% had dysarthria due to facial weakness, 6.45 % had aphasia. Other symptoms at presentation were headache 5.37%, loss of consciousness or altered sensorium 1.07%. This finding was similar with the study done at Nepal Medical College, Kathmandu where 90.3% patients presented with weakness of limbs, slurring of speech in 33.3%, altered mental status in 29.2%, deviation of angle of mouth and headache 22.2% each and urinary incontinence 13.9%.[16] In A study from Andhra Pradesh, India , the most common clinical presentation of stroke patient was motor weakness (94%) either in the form of hemiparesis or hemiplegia [17] whereas another study from North India reported 84% patients with motor weakness.[18] Similar study from Vadodara, India, reported that the most of patients presented with limb/motor weakness (86.9%), followed by speech disturbance (41.3%) while 34.7% patients presented with altered consciousness.[10]

CONCLUSION

Stroke is not limited to elderly population; younger adults are also vulnerable for stroke. Stroke in young has significant socioeconomic impact and can have higher morbidity and mortality. Hypertension, smoking, hypercholesterolemia, diabetes mellitus are common risk factors which can be modified for prevention of stroke.

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