



DEMOGRAPHIC PROFILE AND RISK FACTOR ASSESSMENT AMONG STROKE PATIENTS ADMITTED IN NEUROLOGY UNIT, REGIONAL INSTITUTE OF MEDICAL SCIENCES, IMPHAL

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ABSTRACT

Stroke, also known as cerebrovascular accident (CVA) is when poor blood supply to the brain results in cell death. Globally stroke is the second most common cause of death. The main risk factor for stroke is high Blood pressure. There was no published data on stroke incidence, risk factors associated with stroke in the north eastern (NE) part of India. The aim of the study was to determine the demographic profile and assessment of risk factors among stroke patients admitted in Medicine Department of RIMS, Imphal. This was a descriptive cross-sectional study. Patients of stroke who were more than 18 years of age, were included. Our study included 304(60.8%) males and 196(39.2%) females. Mean SBP in the study group was 150.2 mmHg and mean DBP was 91.6 mmHg. 100 (20%) patients had history of migraine, 76 (15.2%) had history of peripheral vascular disease and 15 (3%) patients had history of BPPV. Hypertension was present among 383(76.6%), smoking in 283(56.6%), stress in 93(18.6%), alcohol consumption in 148(29.6%), Diabetes in 75(15%) patients. Hypertension and smoking were directly associated with the increased risk of stroke.

KEYWORDS : Cerebrovascular accident, Hypertension, Diabetes

INTRODUCTION

Stroke, also known as cerebrovascular accident (CVA), cerebrovascular insult (CVI) or brain attack, is when poor blood flow to the brain results in cell death. There are two main types of stroke, ischaemic due to lack of blood flow and haemorrhagic due to bleeding. They result in part of the brain not functioning properly.[1] Signs and symptoms of stroke may include inability to move or feel one side of body, problems in understanding or speaking, feeling like the world is spinning and loss of vision on one side, among others.[2] The main risk factor for stroke is high blood pressure. The risk of stroke increases with increasing blood pressure in both sexes and at all ages, the risk about doubles with each 7.5 mmHg rise in diastolic blood pressure. Other risk factors for cerebral infarction include heart disease of any kind, atrial fibrillation, transient ischaemic attack, peripheral vascular disease, diabetes mellitus, smoking, high blood cholesterol, high blood fibrinogen, factor VII coagulant activity, heavy alcohol consumption, cervical arterial bruit, poor maternal and infant health and social deprivation, use of contraceptive pills.[3] Stroke is a major cause of mortality worldwide and commonly occurs amongst elderly. Stroke in India has already attained epidemic proportions, annual incidence of stroke: 13 per 100000 in 1996-97 and 145 per 100000 per year during 2003-05 and 2005-06. Besides being the 3rd most common cause of death, stroke is a major health issue also because it leaves survived patients with severe residual disabilities like physical dependence, cognitive decline, dementia, depression and seizures.[4] There was no published data on stroke incidence, risk factors associated with stroke in the north eastern (NE) part of India. So the present study was undertaken to see the stroke incidence and common risk factors associated with stroke in this part of India. The data of our study may be used to apply at the community level for adopting effective measures for prevention of stroke.

MATERIALS AND METHODS

This was a descriptive cross-sectional study, conducted in Department of Medicine, Regional Institute of Medical Sciences, Imphal, from April 2016 to March 2018. 500 patients of stroke above 18 years of age and willing to participate in this survey were included. Patients of traumatic intraparenchymal bleed, traumatic subarachnoid haemorrhage, subdural and extradural bleed were excluded. The severity of stroke based on the NIH stroke scale and Barthel scale were recorded on the day of admission on appropriate format. Data entry and analysis were done using SPSS version 21 (IBM corporation). Chi-square test was used to test significance between proportions, p value of less than 0.05 was taken as significant. Ethical approval was obtained from the Institutional Research Ethics Board of Regional Institute of Medical Sciences, Imphal.

Results

Table 1: Demographic Profile Of 500 Patients Of Stroke

Demographic profile	Mean $\pm$ SD/n(%)
Male	304 (60.8 %)

Female	196 (39.2%)
Age in years	63.6 $\pm$ 13.8
Male	62.98 $\pm$ 14.2
Female	64.73 $\pm$ 13.0
Address	
Rural	395(79.0%)
Urban	105(21.0%)
Religion	
Hindu	349 (69.8)
Christian	97 (19.4)
Muslim	54 (10.8)
Income	
1000-10000	260 (52.0)
10000-50000	154 (30.8)
50000-100000	46 (9.2)
>100000	40 (8.0)
Employment status	
Employed	329 (65.8)
Unemployed	171 (34.2)
Total	500 (100.0)

Table 2: Distribution Of Patients By Age And Sex

Age in years	Male (%)	Female (%)	Total (%)	Chi-square test
20-30	7 (77.8)	2 (22.2)	9 (100.0) (2.0)	Value=14.04 df-4 p-0.007
31-40	24 (85.7)	4 (14.3)	28 (100.0) (5.0)	
41-50	28 (47.5)	31 (52.5)	59 (100.0) (12.0)	
51-60	66 (65.3)	35 (34.7)	101 (100.0) (20.0)	
>60	179 (59.1)	124 (40.9)	303 (100.0) (61.0)	
Total	304 (60.8)	196 (39.2)	500 (100.0)	
Mean $\pm$ SD	62.98 $\pm$ 14.2	64.73 $\pm$ 13.0	63.6 $\pm$ 13.8	

Table 3: Clinical Profile Of The Patients At The Time Of Examination

Clinical profile of the patient at the time of examination	n(%)
Blood pressure	
High systolic	251 (54.2)
High diastolic	237 (47.4)
Mean blood pressure	
Mean systolic BP	150.2
Mean diastolic BP	91.6
GCS	
3-7	80 (16.0)

8-12	213 (42.6)
13-15	207 (41.4)
NIH stroke scale	
0	23 (4.6)
1-4	33 (6.6)
5-15	249 (49.8)
16-20	115 (23.0)
21-42	80 (16.0)
Barthel scale	
0-30	431 (86.2)
31-80	44 (8.8)
81-95	16 (3.2)
96-100	9 (1.8)
Fever	9 (1.8)
Pupil	
Normal	450 (90.0)
Constricted	40 (8.0)
Dilated	10 (2.0)
Conjugate deviation	32 (6.4)
Hemiplegia	
Complete right	79 (15.8)
Complete left	119 (23.8)
Incomplete right	137 (27.4)
Incomplete left	116 (23.2)
Combined both	49 (9.8)
Speech	
Normal	10 (2.0)
Global aphasia	163 (32.6)
Motor aphasia	32 (6.4)
Sensory aphasia	15 (3.0)
Dysarthria	260 (52.0)
Meningeal sign	86 (17.2)
Cerebellar sign	12 (2.4)

Table 4: Distribution Of Patients By Presence Of Risk Factors

Risk factors	n(%)
Hypertension	383 (76.6)
Stress	93 (18.6)
Smoking	283 (56.6)
Alcohol consumption	148 (29.6)
Diabetes	75 (15.0)
Physical inactivity	10 (2.0)

Table 5: Relation Between Risk Factors And Different Types Of Stroke

Risk factors	Haemorrhage	Ischemic	Chi-square test
Hypertension (yes)	149 (76.0)	234 (77.0)	Value=0.6 df-1 p-0.829
Stress (yes)	29 (14.8)	64 (21.1)	Value=3.0 df-1 p-0.099
Smoking (yes)	110 (56.1)	173 (56.9)	Value=0.03 df-1 p-0.926
Alcohol consumption (yes)	77 (39.3)	71 (23.4)	Value=14.5 df-1 p-0.000
Diabetes (yes)	25 (12.8)	50 (16.4)	Value=1.2 df-1 p-0.305
Physical inactivity (yes)	4 (2.0)	6 (2.0)	Value=0.003 df-1 p-1.00

Table 6: Lipid Profile Of The Patients Including Mean And Standard Deviation

Lipid profile	n(%)	Mean ± SD
Total cholesterol		179.2 ± 41.4
Normal	361 (72.2)	
High	139 (27.8)	
Triglyceride		117.4 ± 51.7
Normal	370 (74.0)	
High	130 (26.0)	
LDL		110.2 ± 39.0
Normal	216 (43.2)	

High	284 (56.8)	41.7 ± 18.0
HDL		
Low	382 (76.4)	
Normal	118 (23.6)	

DISCUSSION

In our study among the stroke patients, 105(21%) were from urban areas and 395(79%) were from rural areas. In discordance to this finding, Pandian JD et al found in their study that 431(80%) cases of stroke were documented from urban areas and 110(20%) were from rural areas.[5] This difference in finding implies that most of the population of Manipur stay in the rural areas. In the present study males were found to be more affected as 304(61%) patients were males and females were 196(39%) in number. Around 52% of the population in our study belonged to low socio-economic group whose monthly income ranged from Rupees 1000-10000. This result was similar with the study conducted by Thrift AG et al which was also a population based study.[6] It documented that incidence of fatal and non-fatal stroke was higher in population with poor socio-economic status. This observation was also in link with the results of the study conducted by Jun HJ et al.[7] In their study around 48.4% of the population belonged to low income group. Among the study population 76.6% were hypertensive, 15% had diabetes mellitus and 56.6% had smoking history. These findings were in concordance to the observations seen in study conducted by Engels T et al.[8] Symptomatic presentation of patient in our study were hemiparesis (92.6%), change of speech (74.2%), headache (68.8%), vertigo (25.2%), loss of consciousness (24.6%) and vomiting (20%). While in a similar study conducted by Feldmann E et al symptoms at the time of presentation were hemiparesis (93%), change of speech (75%), headache (15%), vertigo (7%), loss of consciousness (8%) and vomiting (9%).[9] This discordance in finding may be due to the smaller sample size of the later study. Cerebrovascular accident was categorized into ischemic and haemorrhagic variety. In our study 61% of the patients had ischemic stroke and 39% had haemorrhagic stroke. In a similar type of study conducted in two cities of India by Pandian JD et al it was found that in Trivandrum 83.6% had ischemic stroke and 16.4% had haemorrhagic stroke.[5] In Kolkata 68% had ischemic stroke and 32% had haemorrhagic stroke. Both of these studies indicated about the ischemic variety of cerebrovascular accident being the more common one. Hypertension was found among 76.6% of our study population, which is in concordance with the finding of the study conducted by McManus M et al.[10] Our study showed that LDL cholesterol was elevated among 284 (56.6%) of the patients, while only 139(27.8%) of the stroke patients had high total cholesterol level. In another study conducted by Rai ON et al LDL level was higher in 35% and total cholesterol was higher in 30% of the study population.[11] As a limitation of our study we were not able to measure the incidence of stroke among the population of this part of the country, as it was a hospital-based study.

CONCLUSION

Hypertension, smoking and poor socio-economic status were directly associated with the increased risk for stroke. Therefore, there is a need to impart intensive health education and public health programs to improve the lifestyle and general health among the common people. So that the number of the patients of stroke can be reduced leading to betterment of quality of life and to bring down the burden of stroke related morbidities in the society. Role of alcohol consumption as a risk factor for stroke could not be assessed in the present study.

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