Research Article

A STUDY OF EPIDEMIOLOGY OF STROKE IN A TERTIARY CARE CENTRE IN INDIA

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ABSTRACT

Stroke is one of the leading causes of death in India. The estimated adjusted prevalence rate of stroke ranges from 84 to 262 per 100,000 population in rural and from 334 to 424 per 100,000 population in urban areas. The incidence rate is 119-145/100,000 based on the recent population based studies. In India, stroke leads to 10 disability-adjusted life years (DALYs) loss per 1000 population, versus only 4 in USA. So we need an organized effort from both the government and the private sector to tackle the stroke epidemic in India

INTRODUCTION

A stroke, or cerebrovascular accident, is defined by the abrupt onset of a neurologic deficit that is attributable to a focal vascular cause.Stroke is the second leading cause of death worldwide, and one of the leading causes of disability [1, 2]. Even though India is a leading generic drugs producer still many people can't afford the commonly used secondary prevention drugs[3]. Stroke units are predominantly available in urban areas that too in private hospitals[3].

This study will address the major risk factors associated with stroke and its changing epidemiology.

MATERIAL AND METHODS

Ours is a cross sectional study conducted in a tertiary care center of Jharkhand. During this study all patients admitted in department of medicine during the period of 1st December'17 to 28th February'18 with radiological evidence of stroke were reviewed. For the patients following data were collected: age, sex, date of admission, date of discharge/ referral/ death, time gap between onset of symptoms and reaching to nearby hospital, time gap between onset of symptom and reaching to tertiary care center, type of stroke, smoking(any history of smoking) and alcoholism(any history of alcoholism), presence of diabetes and hypertension. We used Microsoft excel f0r tabulation and SPSS v.21 for statistical analysis.

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A total 0f 472 patients were chosen as study sample.

RESULTS

Among them 293(62%) patients were suffering from hemorrhagic stroke and 179(37.9%) patients were suffering from ischemic stroke.

In hemorrhagic stroke group 220(75%) patients were male and 73(24.9%) patients were female. In ischemic stroke group 119(66.4%) patients were male and 60(33.5%) patients were female (Table 1).

Table 1 sex distribution of the patients

Hemorrhagic stroke [293(62%)]		Ischemic stroke [179(37.9%)]	
Male(%)	Female(%)	Male(%)	Female(%)
220(75)	73(24.9)	119(66.4)	60(33.9)

In hemorrhagic stroke group out of 293 patients 156(53.2%) patients had smoking habit and 92(31.3%) patients had alcoholism.

In hemorrhagic stroke group, both among male and female most of the patients were from age group 40-60 [188(85.4%) and 37(50.6%) respectively]. In ischemic stroke group, both in male and female most of the patients were from40-60 age group [83(69.7%) and 33(55%) respectively] (Table 2).

Table 2 age of patients

	Hemorrhagic		ischemic	
	Male	female	male	female
<40	9(4)	4(5)	11(9.2)	3(5)
40-60	188(85.4)	37(50.6)	83(69.7)	33(55)
>60	23(10.4)	32(43.8)	21(17.6)	24(40)

In hemorrhagic stroke group 97(33%) patients were died, 175(59.7%) patients were discharged, 21(7%) patients went lama. In ischemic stroke group 44(24.5%) patients were died, 123(68.7%) patients were discharged, 12(6.7%) patients went LAMA (Table 3).

Table 3 outcome of patients

	Hemorrhagic stroke	Ischemic stroke
Died	97(33)	44(24.5)
Discharged	175(59.7)	123(68.7)
LAMA	21(7)	12(6.7)

In hemorrhagic stroke group 105(35.8%) patients had DM and 180(61.4%) patients had hypertension. In ischemic stroke group 55(69.6%) patients had DM and 116(64.8%) patients had hypertension (Table 4).

Table 4 patients having diabetes and hypertension

	Hemorrhagic stroke	Ischemic stroke
Diabetes mellitus	105(35.8)	55(69.6)
hypertension	180(61.4)	116(64.8)

In ischemic stroke group out of 179 patients 107(59.7%) patients had smoking habit and 76(42.4%) patients had alcoholism.

In ischemic stroke group 6(2.1%) patient presented to the nearby hospital within 4.5 hour and 36(20.1%) patient were presented to the nearby hospital within 6 hour but only 1 patient was presented to the tertiary care center within 6 hour and none of them was presented within 4.5 hour. So in none of them any thrombolytic therapy was given (Table 5).

Table 5 type of treatment given to the patients with ischemic stroke

Time gap between onset of symptoms and reaching to nearby hospital, N(%)		Time gap between onset of symptoms and reaching to tertiary care center N(%)
0-4.5	6(2.1)	0
4.5-6	36(20.1)	1(0.005)
>6	137(76.5)	178(99.4)

In hemorrhagic stroke group 43(14.6%) patients were presented within 6 hour 154(52.6%) patients were presented within 24 hour and 96(32.8%) patients were presented beyond 24 hour to the nearby hospital but only 2 patients were presented within 6 hour and 38(13%) patients were presented within 24 hour to the tertiary care center.

DISCUSSION

In our study the proportion of patients with hemorrhagic stroke is relatively higher than western population (62% as compared to 10-20% in different studies)[4]. This may be due to lack of routine heath check-up in India and due to the huge burden of undiagnosed hypertension, so complications like hemorrhagic stroke become the first presentation very often.

Most of the patients both from hemorrhagic and ischemic stroke group belongs to the 40-60 years age group. Though in ischemic stroke group, number of patients from age group more than 60 is relatively higher than hemorrhagic stroke group.

Number of death is relatively higher in patient with hemorrhagic stroke and in male population.

Studies have consistently shown that smoking is an important risk factor for hemorrhagic stroke[5,6]. There is compelling evidence that alcoholism is strongly associated with hemorrhagic stroke[7,8]. The significantly higher frequency of smoking and alcohol consumption in the males is probably related to the cultural differences, as these habits are quite common for Indian male but quiet uncommon in women.

During this study we found that a good number of patients were presented to the nearby hospital during the window period in case of ischemic stroke but in none of them thrombolysis was done. This is probably due to lack of diagnostic facility, treatment facility.

Valuable time was wasted during the transport of patients to the tertiary care center. So only one patient with ischemic stroke was presented to the tertiary care center within 6 hour but thrombolysis could not be done even in that patient due to delay in computer tomography scan. On the basis of these finding we concluded that more and more lives could be saved if computed tomography scan machine was installed even in block PHC level.

Delay in thrombolysis could further be avoided if it is done in the CT scan room in the presence of neurologist, Transport of patient is a very important aspect of patient care but unluckily it is not addressed properly always during health policy making. This problem can be solved by better understanding between different departments of government.

At the end we must say our study was not free of limitation, such as it was a cross sectional study, study population were relatively smaller, study duration was relatively short, this study was a single center study, smoking and alcoholism could be defined precisely

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