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An Analysis of Risk Factors Associated With Stroke Patients Admitted At RIMS, Ranchi, Jharkhand

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Abstract:
Background: *Stroke is second leading cause of the deaths worldwide and leading cause of functional impairments in adults which would affects both patients and their relatives in most regions. As the populations are getting older, there is dramatic increase in prevalence and burden of disability is expected in the coming years.*
Aims and Objectives:*1) To describe the socio-demographic profile of the patients associated with stroke patients admitted at Rims, Ranchi.2)To describe the risk factors associated with types of stroke among the patients admitted at Rims,Ranchi.*
Material and Methods: *A record based Cross sectional study was conducted at Neurosurgery and Medicine Department of Rims from 15 February 2015 to 15 April 2015.Data on variables like age, sex, risk factors for stroke ,type of stroke was taken from patient treatment record of all patients admitted during this period*
Statistical Analysis: *Template generated in MS Excel Sheet and analysis was done on SPSS software.*
Result: *Out of 103 stroke patients majority were male 59(57.2%), Sarna 64(62.1%) , literate 74(71.8%) of rural areas 79(76.6%) and belong to age group more than 60 yrs of age 57(55.3%).Radiological studies showed that ischemic strokes78(75.7%) were the most frequent ones, followed by haemorrhagic strokes .*
Conclusion: *Ischemic stroke was more common in men who are addicted to both alcohol and tobacco. The findings in this study indicate the need of preventive cost-effective public health policies in Jharkhand.*
Key words: *Stroke, Stroke Risk factors, Analysis of risk factors.*

I. Introduction

Stroke is second leading cause of deaths throughout the world, predominantly which occurs in the middle-age and the older adults. As populations are getting older, there is dramatic increase in prevalence and burden of disability to be expected in the coming years. The WHO has estimated 5.7 million of deaths caused by stroke worldwide in 2005, which was equivalent to 9.9 % of the total deaths worldwide. More than 85 % of these deaths occurred in people who were living in the low and middle income countries. Approximately 33 % of these deaths were occurred in people of age less than 70 years [1] . Stroke was reported as 2 % of the hospital registrations, medical registrations of 1.5 % and 9 - 30 % of the neurological admissions in the hospitals [2] .
Stroke is a disease that occurs due to a combination of multiple risk factors, all of which do not have to be present during the time of its presentation. The major modifiable risk factors are increased blood pressure, any form of tobacco usage , physical inactivity, overweight, low consumption of fruit and vegetable in the diet, heavy alcohol consumption and diabetes. The other risk factors that are non-modifiable include age, sex and Hereditary viz. elderly males are associated with an increased risk of stroke in many populations [1]. The environmental factors are poor access to the medical treatment and passive smoking [1]. The other risk factors may be CKD, atrial fibrillation as well as other cardiac diseases [1].

India, with more than 1 billion inhabitants, is undergoing remarkable economic and demographic changes in recent years resulting in a transition from poverty-related infectious and nutritional deficiency diseases toward lifestyle-related cardiovascular and cerebrovascular diseases[3,4].

Large segment of the Indian population still lives in poverty despite rapid economic boom. Given that there is anticipated increase in burden of stroke in coming future due to limited availability of well organized stroke care services to the majority of people residing in India, it would be logical to have greater emphasis on population-based stroke prevention policies. However, there is very little reliable information currently available regarding epidemiology of the stroke in India. All reported frequency, pattern, its risk factors and outcome of stroke from India are largely derived from hospital which are record based[4,5] .

Very few epidemiological studies on stroke that are available from India[6-8].So a widespread knowledge on stroke , its associated risk factors should be created & this study was a step forward towards this goal.

II. Aims And Objectives

1) To describe the socio-demographic profile of the patients associated with stroke patients admitted at RIMS, Ranchi.
2)To describe the risk factors associated with type of stroke among the patients admitted at RIMS,Ranchi.

III. Material And Methods

This was a cross sectional study done at Medicine and Neurosurgery indoor, RIMS, Ranchi. The period of the study was three months i.e from15 February 2015 to 15 April 2015. Data on pre-determined variables like age, sex, Religion, ,the radiological findings ,Past history of Hypertension ,Diabetes, CKD ,stroke and types of stroke were collected from patient treatment records of all stroke patients admitted in between from 15 February 2015 to 15 April 2015 .Data were collected after taking an informed consent from them . Template generated in MS excel sheet and analysis was done on SPSS software. Chi square was used to determine the association of the variables with stroke.

IV. Results

During our study period from15 February 2015 to 15 April 2015 out of 103 CT/MRI confirmed stroke patients,Majority (57.2%) of the patients were male, Sarna (62.1%),residing in rural areas (76.7%),were farmer and labourers(59.2%) above the age group of 60(55.4%),2/3rd of all cases were non-literate or below the high school education belong to class IV and V as per modified Prasad's classification(75.7%)**(Table-1).** The mean age was 61.1 years and ranges from 20 -77 years that showed that the stroke was most prevalent in the age group of 60 yrs and above.

Radiological studies showed that ischemic strokes 78(75.7%) were the most frequent ones, followed by haemorrhagic strokes 25(24.3%)**(Table-2).**Ischemic stroke was found to be common in both gender but it accounts for 84.7% in male as compared to female (63.6%) and was found to be Statistically Significant (P value < .05) **(Table-3).**

Similarly out of 78 Ischemic stroke patients 85% were of Sarna religion and was found to be Statistically Significant(P value < .05) **(Table-4).** It is evident that risk of stroke increases with age, similar finding was observed in our study as majority of the patients were of age group 60 and above. About 87.7% of the patients of this age group were of Ischemic type and was found to be statistically Significant (P value < .05) **(Table-5).**

Most of the patients(96.2%) having Ischemic type of stroke were tribal and was found to be Statistically Significant (P value < .05) **(Table-6).**

In our study most of the Ischemic stroke patients were Farmer and Labourers **(Table-7).** Most (50.5%)of the patients were users of tobacco and alcohol both**(Table-8 &9).**Nearly half of stroke patients had diabetes mellitus and hypertension both**(Table-10).**

Results from this study suggest that most stroke events in this populations was attributed to modifiable risk factors of hypertension, CKD and diabetes with addition to other risk factors like Smoking and excessive alcohol intake.

Table-1:- Sociodemographic charecteristics of patients asscociated with Stroke

VARIABLE		FREQUENCY(%)
SEX	MALE	59(57.2%)
	FEMALE	44(42.8%)
AGE	21-40Yrs	11(10.6%)
	41-60Yrs	35(34%)
	>60Yrs	57(55.4%)
RELIGION	SARNA	64(62.1%)
	MUSLIM	15(14.6%)
	CHRISTIAN	10(9.61%)
	HINDU	14(13.6%)
LITERACY	ILLITERATE	29(28.1%)
	BELOW 10	42(40.71%)
	10th	25(24.2%)
	12th	66(.9%)
	GRADUATE	1(.09%)
LOCALITY	RURAL	79(76.7%)
	URBAN	24(23.3%)
	FARMER	37(35.9%)

OCCUPATION	LABOURER	24(23.3%)
	HOUSEWIFE	14(13.6%)
	JOB	28(21.3%)
ETHINICITY	TRIBAL	78(75.7%)
	NON TRIBAL	25(24.3%)

Table 2 :- Types of Stroke

Stroke Types	Frequency(%)
ISCHEMIC	78(75.7%)
HAEMORRHAGIC	25(24.3%)

Non- modifiable risk factors with types of stroke

Table 3:- Distribution of gender with types of Strok

			Stroke		Total
			Ischemic	Haemorrhagic	
Gender	Male	Count	50	9	59
		%	84.7%	15.3%	100.0%
	Female	Count	28	16	44
		%	63.6%	36.4%	100.0%
Total		Count	78	25	103
		%	75.7%	24.3%	100.0%
Chi Square=6.1 , Dof =1, P Value = .013					

Table 4:- Distribution of religion with types of Stroke

			Types of Stroke		Total
			Ischemic	Hemorrhagic	
Religion	Sarna*	Count	55	9	64
		%	85.9%	14.1%	100.0%
	Muslim	Count	9	6	15
		%	60.0%	40.0%	100.0%
	Christian	Count	5	5	10
		%	50.0%	50.0%	100.0%
	Hindu	Count	9	5	14
		%	64.3%	35.7%	100.0%
Total		Count	78	25	103
		%	75.7%	24.3%	100.0%
Chi Square = 10.247 , Dof= 3, P value= .017					

*local Religion of Jharkhand

Table 5:- Distribution of Age group with types of Stroke

			Types of Stroke		Total
			Ischemic	Hemorrhagic	
Age group	0-40 Yrs	Count	5	6	11
		%	45.5%	54.5%	100.0%
	41-60 Yrs	Count	23	12	35
		%	65.7%	34.3%	100.0%
	> 60Yrs	Count	50	7	57
		%	87.7%	12.3%	100.0%
Total		Count	78	25	103
		%	75.7%	24.3%	100.0%
Chi square = 11.853 , Dof = 2 ,P value = .003					

Table 6:- Distribution of ethnicity with types of Stroke.

			Types of stroke		Total
			Ischemic	Hemorrhagic	
	NON-TRIBAL	Count	11	14	25
		%	44.0%	56.0%	100.0 %
	TRIBAL	Count	67	11	78
		%	85.9%	14.1%	100.0 %
Total		Count	78	25	103
		%	75.7%	24.3%	100.0 %
Dof =1 , Fisher's Exact P value = .000					

Modifiable risk factors with types of stroke

Table 7 :- Distribution of Occupation with types of Stroke.

			Types of stroke		Total
			Ischemic	Hemorrhagic	
Occupation	Farmer	Count	31	6	37
		%	83.8%	16.2%	100.0%
	Labourer	Count	19	5	24
		%	79.2%	20.8%	100.0%
	Housewife	Count	9	5	14
		%	64.3%	35.7%	100.0%
	Job	Count	19	9	28
		%	67.9%	32.1%	100.0%
Total		Count	78	25	103
		%	75.7%	24.3%	100.0%
Chi Square =3.402 , Dof = 3 , P value = .334					

Table 8:-Pattern of substance Abuse among stroke patients.

	Frequency(%)
TOBACCO	26(25.2%)
ALCOHOL	19(18.5%)
BOTH	58(56.3%)

Table 9 :- Types of Stroke according to Substance abuse

			Types of Stroke		Total
			Ischemic	Hemorragic	
Substance abuse	Alcohol	Count	11	8	19
		%	57.9%	42.1%	100.0%
	Tobacco	Count	15	11	26
		%	57.7%	42.3%	100.0%
	Both	Count	52	6	58
		%	89.7%	10.3%	100.0%
Total		Count	78	25	103
		%	75.7%	24.3%	100.0%
Chi Square = 14.09 , Dof = 2 ,P value =.001					

Table 10:-Disease among Patients suffering from Stroke.

Disease	Frequency(%)
HYPERTENSION	27(26.2%)
DIABETES MELLITUS	6(5.8%)
BOTH (HYPERTENSION & DM)	44(42.7%)
CKD	26(25.3%)

V. Discussion

The present study was conducted amongst patients admitted in Medicine and Neurosurgery Department of RIMS, Ranchi.Stroke is a multifactorial disease and which may occur due to a numbers of risk factors ,some being modifiable and others non modifiable.

Results from this study suggest that mean age was 61.1 years and their age range from 20 -77 years. It showed that the stroke was most prevalent in the age group of 60 yrs and above. It is evident that stroke dramatically increased with advancing age.[(9)] Stroke was found to be more common in male, As male female ratio was found to be 1.34 :1 overall male dominance was more common, similar finding can be seen in another studies[10].

However 10.6% of the patients were below 40 years of age, similar findings were also mentioned in the study conducted by razdan et al ,Mehhndiratta et al and Srinivasan K.[10-12] In our study major risk factors for young patients were due to increased blood pressure ,excessive alcohol and smoking . This patterns developed during young age often persist in their life and in turn, significantly affect adult mortality and morbidity, so it should be taken care off and awareness should be created among general mass regarding life style modification. Observation reported in our study suggest that hypertension alone or in combination with diabetes mellitus are the major contributors of stroke.This high prevalence of the risk factors among the stroke victims indicate that control of these factors is important in prevention of the stroke.Thus Screening ,modification and better control of existing risk factors such as Hypertensin,diabetes mellitus and CKD should be the primary strategy for the prevention of stroke.

There is scarcity of information regarding association of religion with stroke as it is still a matter of debate , but observation reported in our study suggest that stroke was found to be more prevalent in sarna

religion this may be due to the cultural practices among them. This study also suggest that Physical activity was not much contributor of stroke but usage of alcohol and smoking were seen in almost all stroke victims. Hence Mass media should advertise against Tobacco and alcohol,behaviour change communication to bring about life style changes.

An important strength of our study was that, we were able to separately analyze and assess the risk factors for hemorrhagic and Ischemic stroke and we determined the risk factors of stroke in our study with acceptable low residuals and some of our limitations due to the limited number of our stroke events.

VI. Conclusions

In this study , we have demonstrated that among modifiable risk factors, CKD as well as hypertension, diabetes,alcohol and smoking are the strongest independent predictors of ischemic stroke. Targeted interventions which prevent hypertension, CKD, and diabetes and promote both smoking and alcohol cessation in could largely lessen the burden of stroke .

References

[1]. The World Health Organization. The WHO Steps Manual. The WHO stepwise approach to the stroke surveillance. Geneva, Switzerland. 2006, available at: http://www.who.int/chp/steps/Manual.pdf.
[2]. Banerjee TK, Mukherjee CS, Sarkhel A. Strokes in the urban population of Calcutta: an epidemiological study. Neuroepidemiology. 2001; 20: 201–03
[3]. Das SK, Banerjee TK, Biswas A, Roy T, Raut DK, Mukherjee CS, Chaudhuri A, Hazra A, Roy J. A prospective community-based study of stroke in Kolkata, India. Stroke. 2007; 38: 906–910.
[4]. Feigin VL, Lawes CMM, Bennett DA, Anderson CS. Stroke epidemiology: a review of population-based studies of incidence, prevalence, and case-fatality in the late 20th century. Lancet Neurol. 2003; 2: 43–53.
[5]. Census of India 2001. http://www.censusindia.gov.in/Census_Data_2001/ States_at_glance/ State_Links/32_ker.pdf, last accessed on July 2, 2008.
[6]. Government of India. Family welfare statistics in India – 2006. New Delhi: Ministry of Health and Family Welfare, 2007; A-21.
[7]. Kerala State Planning Board. Economic Review 2007. http://www.Keralaplanning board.org/Economic_Review_2007, last accessed July 2, 2008.
[8]. Lipska K, Sylaja PN, Sarma PS, Thankappan KR, Kutty VR, Vasan RS, Radhakrishnan K. Risk factors for acute ischaemic stroke in young adults in South India. J Neurol Neurosurg Psychiatry. 2007; 78: 959–963.
[9]. Dalal PM. The burden of stroke: an Indian perspective. International Journal of Stroke 2006; 1: 164-66.
[10]. Razdan S, Kaul RL, Motta A, Kaul S. Cerebrovascular diseases in rural Kashmir, India. Stroke. 1989; 20:1691-93.
[11]. Srinivasan K. Ischemic cerebrovascular disease in the young. Two common causes in India. Stroke. 1984; 15:733-35.
[12]. Mehndiratta MM, Agarwal P, Sen K, Sharma B. "Stroke in young adults: a study from a university hospital in north India", Medical Science Monitor. 2004; 10 (9): 535–41