Study of Stroke in Young Adults in Vindhya Region

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ABSTRACT

BACKGROUND

Stroke is the most common life threatening or disabling neurological condition in older population. Although it is not infrequent in young adults, stroke in young adults poses a major socioeconomic health problem especially in developing countries. Increased incidence of stroke in young adult is due to rise in the prevalence of diabetes mellitus, hypertension, and hypercholesterolemia. Obesity has been recognised as a risk factor in high income countries. In addition smoking, tobacco chewing and alcohol abuse are frequent in young people and have tended to increase over time. Emergent vascular risk factors may also have contributed, in part, to the increase in ischemic stroke.

METHODS

This is an observational study conducted in the Department of Medicine, Sanjay Gandhi Memorial Hospital, associated with Shyam Shah Medical College, Rewa, in the Vindhya region between April 2018 and June 2019.

RESULTS

Out of 100 patients, 73% patients presented with ischemic stroke, 58% were males and most common clinical presentation was hemiparesis (83%). Associated addictions were smoking, tobacco chewing and alcohol, among which smoking was statistically significant.

CONCLUSIONS

Stroke in young adults can lead to huge socioeconomic burden on society. In our study we found smoking to be a significant risk factor. So, by countering these addictions at various levels of prevention, we can decrease the incidence of stroke in young adults.

KEY WORDS

Stroke, Smoking, Young Adults

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BACKGROUND

A stroke or cerebrovascular accident, is defined as an abrupt onset of a neurologic deficit that is attributable to a focal vascular cause lasting 24 hours or longer.¹ Stroke is the most common life threatening or disabling neurological condition in older population. Although it is not infrequent in young adults. Stroke in young adults pose a major socioeconomic health problem especially in developing countries.² It has an important contribution towards morbidity, disability and mortality in both developed as well as developing countries. Stroke is the third most common cause of mortality³ and the fourth leading cause of disease burden in the world.⁴

Increase in incidence of stroke in young adults is due to rise in the prevalence of Diabetes mellitus, Hypertension, hypercholesterolemia, and obesity has been observed as common risk factor in high income countries. In addition addictions like smoking, tobacco chewing and alcohol abuse are frequent in young people and have tended to increase over time. Emergent vascular risk factors may also have contributed, in part, to the increase in ischemic stroke. Other contributing factors, such as life style modification and habits attributed to the evolution of the society, may also play a role in the rising stroke incidence in young adults and need to be explored further. Despite comprehensive evaluations, the cause of ischemic stroke remains undetermined in approximately one third of young patients called cryptogenic stroke. Further studies are required to better characterize these patients so as to identify specific features and the underlying pathophysiology of these undetermined stroke.⁵

The most common symptom of a stroke is sudden weakness or numbness of the face, arm, or leg, most often on one side of the body, Other symptoms include confusion, difficulty speaking or understanding speech, difficulty seeing with one or both eyes, difficulty walking, dizziness, and loss of balance or coordination, severe headache with no known cause; fainting or unconsciousness.² Early identification of risk factors and implication of preventive measures can help in bringing down the occurrence of stroke and reduce the financial and emotional burden in the family. A dedicated evaluation for identifying the cause is needed to treat and prevent further recurrences.

We wanted to study the clinico-demographic profile of stroke in young patients with special emphasis on addictions.

METHODS

This is an observational study conducted in the Department of Medicine, Sanjay Gandhi Memorial Hospital, associated with Shyam Shah Medical College, Rewa, in the Vindhya region between April 2018 to June 2019 (15 months) with sample size was 100 cases. The study was conducted for duration of 15 months on the patients with focal/generalized neurological deficit who reported in our institution and fulfilled the inclusion criteria. We took thorough history about the personal, family details and addiction history from the participants which included the type and duration of addiction. After the process of history taking, we did clinical examination, ordered some baseline investigation like CBC, LFT, RFT and special investigations like CT/MRI scans.

Patient's porforma was maintained which included all demographic particulars. The study was approved by Ethical Committee and informed consent was obtained. Stroke cases proven by CT scan/ MRI Brain in the age group of 18-45 years were included in the study. Patients with traumatic brain injury were excluded from the study.

Statistical Methods

Chi square test and Fisher Exact test had been used to find the significant association of risk factors with stroke. A p value <0.05 was considered significant.

RESULTS

Type of Stroke	Number of Patients (n=100)	%
Ischemic stroke	73	73.0
Haemorrhagic stroke	27	27.0

Table 1. Type of Stroke (n=100)

Age in Years	Male No.%	Female No.%	Total No.%
18-25	1220.69	1638.09	2828.0
26-35	1831.03	1228.57	3030.0
36-45	2848.28	1433.34	4242.0
Total	58100.0	42100.0	100100.0
Mean ± SD	34.34±7.562	32.55±8.986	33.59±8.195

Table 2a. Demographic Distribution

Habitat Area	Number of Patients	%
Rural	56	56.0
Urban	44	44.0
Total	100	100.0

Table 2b. Demographic Distribution

Clinical Features	Number (n=100)	%
Consciousness		
Normal	42	42.0
Decreased	58	58.0
Seizures		
Absent	73	73.0
Present	27	27.0
Speech		
Normal Dysarthria	41	41.0
Could not be Examined	32	32.0
Motor deficit		
Hemiparesis Hemiplegia	27	27.0
Monoparesis	83	83.0
Sensory deficit		
Normal	14	14.0
Hemi sensory loss	3	3.0
Cranial Nerve deficit		
Normal	87	87.0
Oculomotor Facial	13	13.0
Multiple	53	53.0
Cerebellar deficit		
Absent	7	7.0
Present	37	37.0
	3	3.0
	98	98.0
	2	2.0

Table 3. Clinical Features of Stroke

(n=100)

Risk Factors	Type of Stroke		p
	Ischemic Stroke (n=73)	Haemorrhagic Stroke (n=39)	
Smoking			
Absent	44(60.3%)	23(85.2%)	0.02
Present	29(39.7%)	4(14.8%)	
Tobacco chewing			
Absent	48(65.8%)	22(81.5%)	0.14
Present	25(34.2%)	5(18.5%)	
Alcohol			
Absent	51(69.9%)	17(63.0%)	0.62
Present	22(30.1%)	10(37.0%)	

Table 4. Correlation of Various Addictions with Type of Stroke

A total of 100 consecutive patients diagnosed with stroke satisfying inclusion and exclusion criteria were selected for the study. In this study 73% of all stroke cases were ischemic

stroke patients where as 27% of them had hemorrhagic stroke. Sex ratio in our study was 1.3:1 (male: female). The Mean age $\pm$ SD of the study group was 33.59 ± 8.195 years and that of male and female patients was 34.34 ± 7.562 years and 32.55 ± 8.986 years respectively. The majority of the strokes occurred between the ages of 36-45 years at 42% and 48.28% of male were also in the same age group, whereas in females it was in the ages between 18-25 years at 38.09%. The incidence of stroke was slightly higher in the rural population (56%) as compared to urban population (44%). 58% of the study patients presented with decrease level of consciousness, 27% patients presented with seizures, 32% of patients had speech abnormalities. Motor deficit was seen in all the patients, hemiparesis seen in 83% patients, hemiplegia seen in 14% patients and monoparesis seen in 3% patients. Hemisensory loss was seen in 13% of the study group. The most common cranial nerve affected was the facial nerve in 37% and 7% of the patients had the oculomotor nerve affected and 3% of the study group had other cranial nerve palsies. Only 2% of the patients had cerebellar deficit. 33% of all the patients were smokers. Among the ischemic and the hemorrhagic stroke 39.7% and 14.8% were smoker respectively, this was significant (p value=0.02). 30% of the patients were tobacco chewers. Among the ischemic and the hemorrhagic stroke patients 34.2% and 18.5% were tobacco chewers respectively. Alcohol consumption was seen in 32% of patients and among the ischemic stroke patients 30.1% cases were alcoholic and hemorrhagic stroke patients 37.0% were found to be alcoholics.

DISCUSSION

This study comprised of 100 stroke patients of Vindhya region admitted in the Department of Medicine, Sanjay Gandhi Memorial Hospital, associated with Shyam Shah Medical College, Rewa between April 2018 to June 2019 (15 months). In our study 73% of all the strokes were due to ischemic stroke where as 27% of them had haemorrhagic stroke. This is similar to Rajeh SA et al,⁶ in their study they had found ischemic infarction in 76.2% and haemorrhage in 23.8% of the stroke in young patients. Sex ratio in our study was 1.3:1 (male: female). Mehndiratta et al⁷ showed a ratio of 1:1.08, Zunni et al⁸ demonstrated a ratio of 1.2:1, whereas Chandana et al⁹ demonstrated a similar ratio of 1.3:1 in his study.

The mean age of all the patients in our study was 33.59 years. A study in north India by Mehndiratta et al⁷ showed a mean age of 31.97 years. The mean ages of males and females were 30.66 and 33.28 years. Our study had a markedly higher mean age group among men at 34.34 years. Whereas among women it was 32.55 years. This difference was probably because there was difference in the sample size. In our study majority of the patients (56%) were from rural areas as compared to urban areas (44%). This is primarily due the rural dominance in this part of country and does not seem to indicate a high incidence of stroke in the rural areas. In our study 58% of the study patients presented with decreased level of consciousness, 27% patients presented

with seizures, 32% of patients had speech abnormalities and hemiparesis was seen in 83% patients. In the Bansal et al study¹⁰ 57.2% patients presented with decreased level of consciousness, 28.6% patients presented with seizures, 30.4% patients presented with speech abnormalities and 79.2% patients presented with hemiparesis. In our study 33% of patients were smokers, among the ischemic and the haemorrhagic stroke patients 39.7% and 14.8% were smokers respectively, where as it was 18.11% and 4.72% in ischemic and haemorrhagic stroke patients respectively in Mehndiratta et al,⁷ Nagaraja et al¹¹ had showed an incidence of smoking associated with stroke to be 15%, Dalal et al¹² showed 40%, Bogousslavsky et al¹³ calculated 36.6%. There was a significant association between smoking and incidence of ischemic stroke p -value <0.05 . In our study 30% of the patients were tobacco chewers, among the ischemic and the haemorrhagic stroke patients it was 34.2% and 18.5% respectively. The study of Asplund et al¹⁴ showed that tobacco chewing was not associated with any apparent excess risk of stroke. The study of Hansson et al¹⁵ also showed that tobacco chewing was not associated with the risk of stroke. In our study alcohol consumption was seen in 32% of patients and among the ischemic stroke patients 30.1% cases were alcoholics and 37.0% of haemorrhagic stroke patients were found to consume alcohol. In the study of Nagaraja et al¹¹ the frequency of alcohol consumption was 15%, according to Dalal et al¹² was 40%, according to Chandana et al⁹ 28.2% of ischemic stroke and 36.4% of haemorrhagic stroke, Alvarez et al¹⁶ 37.8% of haemorrhagic stroke, where as it was 16.7% and 28.26% in ischemic and haemorrhagic stroke respectively in Bevan et al.¹⁷

CONCLUSIONS

Stroke in young adults can lead to huge socioeconomic burden on society. In our study we found smoking to be a significant risk factor. So, by countering these addictions at various levels of prevention, we can decrease the incidence of stroke in young adults.

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