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CLINICAL PROFILE OF STROKE PATIENTS IN TERTIARY CARE CENTRE

General Medicine

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ABSTRACT

OBJECTIVE: Cerebrovascular diseases include some of the most common and devastating disorders ischemic and hemorrhagic strokes. Stroke is the second leading cause of death worldwide. Strokes cause ~200,000 deaths each year in the United States and also major cause of morbidity and mortality in India. The objective of the present study is to understand the age and gender distribution, clinical presentation, risk factors and pattern of areas of brain affected as per CT scan brain in patients in a tertiary care center in Telangana State.

METHODS : 94 patients who were admitted with clinical diagnosis of acute stroke were included in the study with detailed history of risk factors. Clinical examination done and patients were subjected to CT/MRI scan of brain. The data was analyzed.

RESULTS: Stroke is more common in males (67.03%) than females (32.97%). Around two thirds cases were in the age group of 40-69 yrs (68.08%) Most common risk factors are dyslipidemia (67 %), hypertension (61.7 %) and smoking (38.29 %). Among the patients with dyslipidemia 85.71% patients were having low HDL. Most common involved territory was MCA territory (76.59%). Incidence of ischemic stroke (93.61%) was higher than hemorrhagic stroke (6.38%).

CONCLUSION: In the present study stroke was most common in the age group of 40-69 years of age and predominantly in males. Dyslipidemia especially low HDL was the main risk factor followed by hypertension and smoking. Most common clinical presentation was hemiplegia followed by speech involvement and altered sensorium.

KEYWORDS

Diabetesmellitus Dyslipidemia Hdl(high Density Lipoproteins) Hypertension Smoking Stroke

INTRODUCTION:

Stroke is defined as an abrupt onset of a neurologic deficit that is attributable to a focal vascular cause.[1] Stroke is the commonest cause of mortality after coronary artery disease and also of chronic adult disability.

In developed countries the predominant health problems are those lifestyle-related illnesses associated with increased wealth. In contrast diseases occurring in developing countries can largely be attributed to poverty, poor healthcare infrastructure and limited access to care. However many developing countries such as India have undergone economic and demographic growth in recent years resulting in a transition from diseases caused by poverty towards chronic, non-communicable and lifestyle-related diseases.[2]

The lifetime risk of stroke after 55 years of age is 1 in 5 for women and 1 in 6 for men.[3] More than four-fifth of all strokes occur in developing countries. The estimated adjusted prevalence rate of stroke is 84-262/100,000 in rural and 334-424/100,000 in urban areas. The incidence rate is 119-145/100,000 based on the recent population based studies.[4]

The present study was done to understand the age, gender distribution, clinical profile, risk factors and vascular territory of brain that involved as per CT scan brain in a tertiary care center in Telangana State. The study of risk factors and clinical presentation of stroke will help to create awareness, necessary life style management to decrease the disability and mortality due to stroke.

MATERIALS AND METHODS:

94 patients of acute Cerebrovascular accidents admitted in tertiary care centre, Telangana State, India were enrolled in this study. Patients who were aged 18 years or more with acute stroke were included in the study. Patients with transient ischemic attack and stroke due to other causes like Trauma, Subarachnoid haemorrhage, Intra cranial tumours and Tuberculosis were excluded.

Clinical examination was done with detailed history of all the patients. Variables like age, sex, history of smoking, hypertension and Diabetes Mellitus were recorded. Patients with denovo HTN, DM were noted and CT Scan brain, Lipid profile 2D Echo were done in all the patients. Stroke type (Infarct or Hemorrhage) and vascular territory involved were noted in the CT scan to analyze the data.

OBSERVATION AND DISCUSSION:

94 patients of acute Cerebrovascular accident admitted in medical wards and acute medical care units with fulfillment of inclusion and exclusion criteria were studied for the clinical presentation, risk factors, neurological presentation and pattern of areas of brain affected.

AGE: Age is an important non modifiable risk factor for stroke. The risk increases with age, the incidence doubles with each decade after the age of 45 years. Over 70% of all strokes occur above the age of 65. The average age of patients with stroke in developing countries is usually 15 years younger to those in developed countries.[4] This is not only due to inadequate control of common modifiable risk factors but also added existence of non-traditional risk factors.

Table 1: Age wise distribution of patients:

AGE (YEARS)	MALE (%)	FEMALE (%)	TOTAL (%)
20-29	2 (2.13)	1(1.06)	3(3.19)
30-39	10(10.64)	4(4.25)	14(14.89)
40-49	17(18.08)	6(6.38)	23(24.46)
50-59	15(15.95)	6(6.38)	21(22.34)
60-69	1010.64)	10(10.64)	20(21.27)
70-79	8(8.51)	4(4.25)	12(12.76)
80 AND ABOVE	1(1.06)	NIL	1(1.06)

The study group age range was between 22- 75 years with mean age of 59.5. Two thirds of cases (68.08%) were between 40-69 years with mean age of 51.8. In Mumbai and Trivandrum the registries showed that the mean age of patients with stroke was 66 and 67 years respectively in contrast to Bangalore study where the mean age was 54.5.(4) In a study, acute ischemic stroke was found most commonly in 50-75 age group with male predominance(5) which was correlating with the present study.

Gender: As the age is an important non modifiable risk factor so also the male sex.The overall lifetime risk for stroke in men has been calculated to be 1 in 6 and 1 in 5 for women.(3) Men having higher rates in younger years and women in older ages. Because of a longer life expectancy for women each year 55,000 more women have a stroke than men.

Table 2: Gender distribution of stroke patients:

GENDER	NUMBER	PERCENTAGE (%)
MALE	63	67.02
FEMALE	31	32.97

In the present study population, out of 94 patients 63 (67.02%) were males and 31 (32.97%) were females with male to female ratio of 2.03:1. The Bangalore study also showed a greater preponderance among men (67%) with a male to female ratio of 2:1(4) which was correlating with present study. From above observation it can be concluded that incidence of stroke is more common in male sex.

Table 3: Risk factors for stroke patients:

RISK FACTORS	MALE (%) n=63	FEMALE (%) n=31	TOTAL (%) n=94
HYPERTENSION	37(58.7)	21(67.74)	58(61.7)
DIABETES MELLITUS	12(19.04)	10(32.25)	22(23.4)
SMOKING	36(57.14)	-	36(38.29)
DYSLIPEDEMIA	46(73)	17(54.83)	63(67.02)
TOBACCO CHEWER	1(1.58)	2(6.45)	3(3.19)
HTN Denovo	8(12.69)	2(6.45)	10(10.63)
DM Denovo	1(1.58)	3(9.67)	4(4.25)
HDL Low	39(61.9)	15(48.38)	54(57.44)
Abnormal 2D Echo	12(19.04)	1(3.22)	13(13.82)

Over the last three decades, a growing body of evidence has overturned the traditional perception that stroke is simply a consequence of aging which inevitably results in severe disability or death. Evidence is accumulating for more effective primary and secondary prevention strategies better recognition of people at highest risk and thus most in need of active intervention that contribute to a better outcome. Several factors are known to increase the liability to stroke. The most important of these are age, HTN, heart disease, DM, cigarette smoking and hyperlipidemia.[6]

Hypertension remains the most common medical risk factor for stroke whereas current smoking and inactivity are the most predominant among lifestyle-related risk factors.

In general, hypertension, diabetes mellitus and tobacco smoking tend to be more prevalent among men whereas hypercholesterolemia, inactivity and obesity tend to be more prevalent among women.[7]

In most countries, high or low frequencies of occurrence are observed consistently across all risk factors for that country compared to other countries. There is a range of frequencies within each region. A high prevalence of hypertension is seen in Mongolia and Pakistan (low in Korea and Singapore); diabetes mellitus in Papua New Guinea, Pakistan, and Mongolia (low in Vietnam, Timor Leste, and DPR Korea); hypercholesterolemia in Japan, Singapore and Brunei (low in Nepal, Timor Leste, and DPR Korea); tobacco smoking in Indonesia (low in India).[7]

In the present study the most common risk factor was dyslipedemia with 67.02 % followed by hypertension (61.7%), smoking (38.29 %) and diabetes (23.4 %). In patients with dyslipidemia 57.44 % were having low HDL.

Dyslipidemia with HDL was observed as the most common risk factor in the present study so also in the study by Lipska K, Sylaja PN,et al[8] from south India on young stroke which found smoking, elevated systolic blood pressure, diabetes and lower HDL cholesterol as important risk factors. Low HDL and elevated LDL, HDL ratio was observed among stroke patients by Sridharan R.[9]

Hypertension the most prevalent and modifiable risk factor for stroke increases with age and has a lifetime probability of 90% in those who survive to 80 years.[29] Longitudinal studies have demonstrated that there was a strong consistent association between blood pressure and stroke in both men and women for fatal and non-fatal stroke and at all ages. Following individuals over decades has shown that starting at mid-life blood pressure increases the relative risk of stroke by 1.7 fold in men and 1.9 fold in women per SD increment.[10]In the present study 58.7% of males and 67.74% females were having hypertension with a total 61.7% which was correlating with Abdul-Rahman Sallam, Khalid Al-Aghbari et al (67%) study.[11]

Diabetes is a risk factor for stroke[12] and is an increasingly prevalent condition found in as many 33% of patients with ischaemic stroke.[13] In data from Oxfordshire diabetes was shown to be an independent risk factor for recurrent stroke.[14] In present study 19.04% of male and 32.25% female patients were having Diabetes.

Cigarette smoking is an independent risk factor for both stroke and recurrent stroke.[15] In a meta-analysis performed nearly 20 years ago[16] smoking linked with a doubling of risk of ischaemic stroke following adjustment for other risk factors. India faces a double burden of tobacco exposure, with 15-20% prevalence of smoking and up to 40% of people having the habit of chewing tobacco. A large number of those who chew tobacco are women.[17] In the present study 57.14 % of male patients were smokers. Smoking appears as third important risk factor of ischemic stroke in this study which correlates with Omkar Prasad Baidya et al study[18] and also with Donnanetal.[19]

Table 4: Clinical features of stroke patients:

CLINICAL FEATURES	Male (%)n=63	Female(%)n =31	Total (%)n=94
Altered sensorium	29(46.03)	9(29.03)	38(40.42)
Convulsions	9(14.28)	2(6.45)	11(11.7)
Headache / Vomiting	6(9.52)	1(3.22)	7(7.44)
Hemiplegia	49(77.77)	26(83.87)	75(79.78)
Faciobrachial palsy	1(1.58)	1(3.22)	2(2.12)
UMN facial palsy	15(23.8)	13(41.93)	28(29.78)
Other Cranial Nerve palsy	4(6.34)	-	4(4.25)
Speech abnormalities	23(36.5)	17(54.83)	40(42.55)
Sensory abnormalities	1(1.58)	-	1(1.06)
Cerebellar signs	1(1.58)	2(6.45)	3(3.19)
Chorea	1(1.58)	-	1(1.06)
More than 2 clinical features	20(31.74)	10(32.25)	30(31.91)

In the present study the most common clinical presentation was hemiplegia 79.78% followed by speech involvement (42.55 %) and altered sensorium (40.42%). This observation was closely correlating with the study done by Chitrambalam Pet al in which most common clinical presentation was hemiplegia (in <45 years was 93.3%, and in >45 years was 89.2%) followed by speech involvement (in <45 years was 43.3%, and in >45 years 30.8%).(20) and Omkar Prasad Baidya et al study.(18)

Table 5 Type of Stroke:

STROKE TYPE	MALE (%)n=63	FEMALE (%)n=31	TOTAL (%)n=94
Haemorrhage	4(6.34)	2(6.45)	6(6.38)
Infarct	59(93.65)	29(93.54)	88(93.61)

In the present study infarct noted in 93.61% patients whereas 6.38% patients were having intra cerebral hemorrhage. The (ICASS) a multicentric study conducted among 2,162 admitted stroke patients across southern, northern, and western India; observed ischemic stroke in 77%, hemorrhagic stroke in 22%, and unspecified stroke in 1% cases based on cerebral computed tomography (CT).[21] In a study done by P. Chitrambalam et al [20]observed infarct in 76% and Intra Cerebral Hemorrhage in 18% which was correlating with present study.

Table 5: VASCULAR DISTRIBUTION:

VASCULAR TERRITORY INVOLVED	NUMBER	PERCENTAGE (%)n=94
ACA	7	7.44
MCA	72	76.59
PCA	8	8.5
MULTI INFARCT	7	7.44

In our study most common vascular territory involved was Middle Cerebral Artery (76.59 %) followed by Posterior (8.5%) and Anterior Cerebral arteries (7.44%). These findings were favoring MCA territory which was also confirmed in a study done by Devichandetal.[22]

CONCLUSION:

In conclusion stroke burden is on increase in our country. In the present study stroke was most common in the age group of 40-69 years with male preponderance. Dyslipedemia in the form of low HDL was the main risk factor followed by hypertension and smoking. Most common clinical presentation was hemiplegia which was followed by speech involvement and altered sensorium. Life style modification and HTN management is the mainstay to prevent the stroke.

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