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A Retrospective Study of Clinical Profile of Stroke Victims in Coimbatore Medical College Hospital

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Abstract
Background: *Stroke is one of the leading causes of morbidity & mortality in India. After coronary heart disease &cancer stroke is the third commonest cause of death worldwide. Indian studies have shown a stroke prevalence of 471 /100000 population. The objective was to study the clinical profile, risk factors, neurological characters, pattern of brain stroke, areas of brain affected as per CT scan findings in patients admitted in Coimbatore Medical College and Hospital,*
Methods: *This is a retrospective study of all patients managed for cerebrovascular accident in the medical ward of Coimbatore medical college and hospital, Tamilnadu from January 1, 2016 to June 30, 2016.*
Results: *The cerebrovascular accident is more common in males (59.7%) than females (40.3%). Most common age group was 61-70 years (32.8%). Most common clinical feature was hemiplegia (72.6%). Most common risk factor was Hypertension (34%) followed by past h/o cerebrovascular stroke (15%), smoking (14%), dyslipidemia (13%). Most common type of stroke was ischemic (74.6%) & hemorrhagic was 2nd (22.9%). In ischemic stroke most common involved areas were parietal (33.7%), frontal (16.7%). In hemorrhagic stroke most common site was thalamus (24.7%) followed by ventricular (17.5%).*
Conclusions: *The cerebrovascular accident cases were having male predominance with Hypertension was the most common risk factor and most common type of stroke was ischemic.*
Keywords: *Cerebrovascular stroke, Ischemic stroke, Hemorrhagic stroke*

I. Introduction

Stroke is a devastating and disabling disease with significant amount of residual deficit leading on to social and economic loss. It is defined as a rapidly developing signs of focal (or global) disturbance of cerebral function with symptoms lasting for ≥24 hours, or leading to death with no apparent cause other than vascular origin.1 It is a collection of clinical syndromes resulting from cerebral ischemia to intracranial hemorrhage. In the western world, it is the 3rd most common cause of morbidity and mortality.2

Some of the recent studies have demonstrated the stroke pattern to considerable extent in our country with a prevalence rate 471/100000 population.3 Recent studies identified that 7% of medical and 45% of neurological admissions were due to stroke with a mortality rate of 9% at time of discharge and 20% at 1 month.4 Hypertension, alcoholism, smoking & dyslipidemia are the most common causes of stroke among the elderly,5 and smoking, alcoholism, increased body mass index, DM and hypertension are significantly associated with stroke among young people.

Ischemic stroke accounts for 50%-85% of all strokes worldwide.7 Hemorrhagic stroke are due to subarachnoid hemorrhage or intracerebral hemorrhage, they account for 1%-7% and 7%-27% respectively of all cases of stroke worldwide.7

The Indian national commission on macro-economics and health has estimated that the number of stroke cases will increase from 1081480 in 2000 to 1667372 in 2015.8 The global burden of disease Studies projects that the total deaths from stroke in India will surpass established market prevalence by the year 2020. Hence this study was undertaken in our region to study various aspects of stroke which will help young doctors to deal with this deadly and disabling disease.

II. Methods

This is a retrospective study of 200 cases managed for acute stroke in the medical ward of Coimbatore medical college and hospital, Tamilnadu from January 1, 2016 to June 30, 2016. The case sheets of the patients were retrieved from the medical records department of the hospital and relevant data extracted and analyzed.

Inclusion Criteria
1) All pts above of age 18 yrs& having clinical & CT confirmed diagnosis of stoke.
Exclusion Criteria

1) Pts below 18.
2) Stroke due to trauma.
3) Patients medical records which were not showing CT confirmed diagnosis.

The data obtained were analyzed using SPSS version 21.0 software. Results were expressed in frequencies and percentages. The level of significance was set as $p < 0.05$.

III. Results

Incidence Of Age

The age range was from 26 years to 100 years with mean age of 59 years. In this study youngest pt was 26 years & oldest was 92 years old. The incidence of stroke is maximum in the age group of 51-60 years which comprises of 30.5% of total pts, as shown in Table 1. Young stroke (age ≤40 years) comprised of 11% of all pts.

Table – 1 Frequency and percentage of cases according to age group

21-30	4	2%
31-40	18	9%
41-50	35	17.5%
51-60	61	30.5%
61-70	58	29%
71-80	20	10%
81-90	4	2%
TOTAL	200	100%

Sex Distribution Of Stoke Pts

Out of 200 pts, 114 were males & 86 were females as shown in Table 2.
The male to female ratio was 1.3:1.
From above observation it can be concluded that incidence of stroke is more common in male sex.

Table – 2 **Sex Wise Distribution**

SEX	FREQUENCY	PERCENT
MALE	**114**	**57%**
FEMALE	**86**	**43%**
TOTAL	**200**	**100%**

Clinical Presentation Of Stroke Pts

In our study as shown in Table 3, most common clinical presentation was hemiplegia which was 47 % followed by speech involvement (17%), altered sensorium (14%), giddiness (12%), convulsions (5%), vomiting & headache (5%).

Table – 3 Frequency Of Clinical Features In Stroke Patients

CLINICAL FEATURES	FREQUENCY	PERCENT
HEMIPLEGIA	**94**	**47%**
SPEECH INVOLVEMENT	**34**	**17%**
GIDDINESS	**24**	**12%**
CONVULSIONS	**10**	**5%**
ALTERED SENSORIUM	**28**	**14%**
HEADACHE & VOMITTING	**10**	**5%**
TOTAL	**200**	**100%**

Prevalence Of Risk Factors In Stroke Pts

In our study most common risk factor was hypertension with 57% incidence followed by diabetes mellitus 45.5%, dyslipidemia 42%, past h/o CAD 26.5%. Smoking seen in 70%, alcohol 54%. 4 pts had past H/o of malignancy & 8 pt was having rheumatic valvular disease, as shown in Table 4.

Table – 4 Frequency Of Risk Factors In Stroke

RISK FACTORS	FREQUENCY	PERCENT
HYPERTENSION	**104**	**57%**
DIABETICS	**91**	**45.5%**
PAST H/O CAD	**53**	**26.5%**
DYSLIPIDEMIA	**84**	**42%**
ALCOHOL	**108**	**54%**
SMOKING	**140**	**70%**

PAST H/O CVD	**38**	**19%**
RHD	**8**	**4%**
H/O CANCER	**4**	**2%**

Type Of Stroke

In our study as shown in Table 5, 154 pts (77%) suffered ischemic stroke & 46 pts (43%) suffered hemorrhagic stroke. So most common type of stroke was is cerebral infarction. Out of 154 ischemic stroke pt 88 (57.1%) were males & 66 (42.9%) were females. Out of 46 hemorrhagic stroke pts 26 (56.5%) were males & 20 were females (43.4%).

Table – 5 Gender Wise Frequency Of Different Types Of Stroke

GENDER	ISCHAEMIC STROKE	HEMORRHAGIC STROKE	TOTAL
MALE	**88** **57.1%**	**26** **56.52%**	**114** **57%**
FEMALE	**66** **42.9%**	**20** **43.48%**	**86** **43%**
TOTAL	**154**	**46**	**200**

Topographic Distribution Of Hemorrhage

In our study most common site of hemorrhage was capsuloganglionic (21.7%) followed by parietal (17.4%) as shown in Table 6.

Topographic Distribution Of Infarct

In our study most common site of infarct was capsuloganglionic(37%), followed by parietal (18.2%) followed by external capsule (10.4%), as shown in Table 6.

Thus findings were favoring middle cerebral artery territory involvement.

Table – 6 Radiological Distribution Of Infectant And Hemorrhage

AREAS AFFECTED	CEREBRAL HEMORRAHAGE		CEREBRAL INFARCT	
PONS	**4**	**8.7%**	**7**	**4.5%**
MIDBRAIN	**2**	**4.3%**	**4**	**2.6%**
THALAMUS	**4**	**8.7%**	**2**	**1.3%**
BASAL GANGLIA	**4**	**8.7%**	**4**	**2.6%**
VENTRICULAR			**4**	**2.6%**
INTERNAL CAPSULE	**10**	**21.7%**	**57**	**37%**
EXTERNAL CAPSULE	**4**	**8.7%**	**16**	**10.4%**
CEREBELLAR	**4**	**8.7%**	**10**	**6.5%**
FRONTAL	**2**	**4.3%**	**8**	**5.2%**
PARIETAL	**8**	**17.4%**	**28**	**18.2%**
OCCIPITAL	**2**	**4.3%**	**10**	**6.5%**
MEDULLA OBLANGATA	**2**	**4.3%**	**4**	**2.6%**
TOTAL	**46**		**154**	

IV. Discussion

The mean age observation of 59 in our study which correlates with study done by Maskey et al.9 (mean age 63) . The common age group involved was between 51-60 years which closely correlates with study done by Ukoha Ob et al.11 &Maskey et al.9

Young stroke (age ≤40 years) comprised of 11% of all pts witch closely correlates with study done by Abdu Sallamet al.16 (13.6%), Gauri et al.12 (19%), P. Chitrambalam et al.13 (20%).

The male to female ratio was 1.3 : 1. Which correlates with study of Aiyaret al.14 (1.9:1). So it can be concluded that incidence of stroke is more common in male sex which correlates with study done by Aiyar et al,14 Pinhero et al.,15 Eapen et al.5

In our study most common clinical presentation was hemiplegia which was followed by speech involvement. This observation closely correlates with the study done by P. Chitrambalam et al.,13 in which most common was hemiplegia (in <45 years 93.3%, in >45 years 89.2%) followed by speech involvement (in <45 years 43.3%, in >45 years 30.8%).

In our study most common risk factor was hypertension was the commonest risk factor which correlates with the study done by Eapen et al.,5 (40%), Abdu-AlrhamanSallam et al.16 (67%). In our study percentage of smoking & alcohol were more as compared to other studies. The likely explanation is this being a

retrospective study in few case histories those data was not filled properly by emergency duty doctors attending those pts.

In our study dyslipidemia was 42% which was more compared with study done by Eapen et al. (17%),5 Abdu-AlrhamanSallam et al. (13.9%).16 In our study diabetes pts were 45.5% which is drastically more compared with study done by Maskey et al. (9.3%)9, Gauri et al. (9%)12 and Eapen et al. (8%).5 In our study pts with previous H/o coronary artery disease were 26.5% which is also more when compared with study done by Kaur et al. (6%)17 and Eapen et al. (9%).5

In our study most common type of stroke was ischemic that is cerebral infarction (77%) which correlated with studies done by Aiyaret al.14 in which infarction was in 70%, in Eapenet al.5 68% and in Devichand et al. (75%).18

Second most common type of stroke was hemorrhagic (23%) which correlated with study done by Eapenet al.5 (32%), Aiyar et al.14 (26%), Devichand et al. (25%).18In our study most common site of hemorrhage was capsuloganglionic (21.7%) followed by parietal (17.4%) . This findings correlates with study done by Eapenet al.5 and Aiyeret al.14 where it has been concluded that in multiple hematoma sites most common was thalamic ganglionic region.In our study most common site of infarct was capsuloganglionic (37%), followed by parietal (18.2%) followed by external capsule (10.4%). These findings were favoring middle cerebral artery territory; this was also confirmed in study done by Devichand et al. and Caroliet al.18

V. Conclusion

To conclude stroke in our county is on rise. The occurrence rises with age with peak between 51 to 60 years. Young pts (age ≤40 years) were 11% of pts which is more dangerous in view of productive year lost. This study showed male predominance in stroke cases. Cerebral infarction was more than hemorrhage. Males were more affected than females in ischemic stroke but for hemorrhage, incidence was equal. Hypertension was amongst leading risk factors for both types. Most common clinical presentation was hemiplegia followed by speech involvement. We need holistic approach & more research to combat this deadly & disabling disease.

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