

A Study on Etiology and Clinical Features of Stroke in Rural Medical College

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ABSTRACT

Background: Cerebrovascular disease include some of the most common and devastating disorders; Ischemic stroke and hemorrhagic stroke. Stroke is 2nd leading cause of death worldwide causing 6.2 Million deaths in 2011 and is double the rate of heart diseases. The incidence of Cerebrovascular disease increases with age. Cerebrovascular accident or stroke defined as an abrupt onset of neurological deficits that is attributable to a focal vascular cause. The incidence of stroke is increasing in India. The annual incidence of stroke varies from 100-150/100,000 population. In rural area it is slightly higher than urban areas cerebrovascular ischemia is caused by reduction in blood that lasts longer than few seconds.

Aim: To study the various etiological factors and clinical features of stroke in rural teaching hospital.

Materials & Methods: We have conducted this study in GEMS Medical College, Srikakulam, A.P. for 1 year between August 2017 to July 2018. We have examined 40 patients in this study. The age group is between 40 years and 70 years males were 23 and females were 17. 8 patients expired because of cerebral haemorrhage and other causes. We have analyzed the data and computerized by using MS Office.

Results: We have examined 40 patients out of these 40 Males were 23 and Females were 17. The age group is between 40 years and 70 years. The common age group is between 60 to

70 years. Total no Ischemia cases are 25 and hemorrhagic cases are 15. 8 patients expired because of Intracerebral bleed and other comorbid conditions.

Conclusion: The stroke or Cerebrovascular accidents are one of the leading causes of Mortality. The incidence is gradually increasing with age. The main risk factors include smoking, HTN, Diabetes, Obesity. So, if we can control these risk factors and improve the Medical facilities in rural areas, the Mortality and Morbidity can be reduced.


Key words: Stroke, Risk Factors, Ischemia, Hemiplegia, Morbidity, Mortality, Haemorrhage.

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INTRODUCTION

Stroke is second leading cause of death worldwide, causing 6.2 Million deaths in 2011. The incidence of Cerebrovascular disease increases with age.¹ It has been observed that there is general decline in the incidence of stroke in the last 30 years. (Posterior Branch Occlusion produces receptive aphasia and homonymous visual field defects)

The precise reason for this decline are uncertain but increased awareness of risk factors, Hypertension, Diabetes, Obesity, Smoking and improved prophylactic measures may be contributory.² In India the annual incidence of stroke varies from 100 – 150/100000. It is slightly higher in rural areas. Stroke is defined as an abrupt onset of a neurological deficit that is

attributable to a vascular cause. Thus, the definition of stroke is clinical and laboratory studies including brain imaging are used to support the diagnosis.

The clinical manifestations of stroke are highly variable because of complex anatomy of brain and its vasculature neurological manifestations appear within seconds because neurons lack glycogen, so energy failure is rapid if the cessation of flow lasts for more than a few minutes infarction or death of brain tissue results.³ The risk factors include age, sex, Hypertension, Diabetes, Smoking, Hyperlipidemia, Carotid Stenosis, Common, Ecological factors include Thrombosis which includes Lacunar Stroke and large vessel thrombosis; embolic occlusion due to atrial

fibrillation, mural thrombus myocardial infarction. Dilated cardiomyopathy, Mitral stenosis and Bacterial endocarditic. And causes of cerebral haemorrhage includes, head injury, AV mal formations, rupture of Berry aneurysm, Metastatic brain tumors, coagulopathy and drugs like heparin.⁴ Patients with history of transient Ischemic attacks and history of suggestive of brain tumors were excluded from this study. Patients with intracerebral bleed due to head injury were also excluded. After careful history taking and clinical examinations. We have advised routine blood investigations like complete blood picture, Blood sugar, Blood Urea, Serum creatinine, serum electrolytes, Electro cardiograph and CT Scan Brain were advised.

Lacunar's infarcts are associated with poorly controlled HTN& Diabetes, have been found in several clinical syndromes including contralateral pure motor and sensory deficit., Ipsilateral ataxia with crural paresis. The neurological deficit may progress over 24 – 36 hours. Middle cerebral artery occlusion leads to contra lateral hemiplegia, hemi sensory loss. Homonymous hemianopia Occlusion of different branches of middle cerebral artery cause; more limited findings Involvement of anterior main division leads to dysphasia, Contra lateral paralysis, loss of sensation of arm, face and lesser extent the leg, post branch occlusion produces receptive aphasia and homonymous visual field defects.

MATERIALS AND METHODS

We have included 40 patients 23 were Male patients and 17 were Female patients. The age group involved in this study is above 40 years and 70 years. The common age group is above 60 years. We have conducted this study in GEMS Medical College, Srikakulam A.P. and obtained college ethical committee approval. The clinical features and Etiological factors analyzed systematically. After careful examinations all the necessary investigations advised immediately. The maximum no. of patients was above 70 years. Height & weight were measures to calculate BMI (Body Mass Index).

We have excluded the cases with history of transient Ischemic attacks and cerebral hemorrhage due to head injury We have included the new cases of CVA with history of Hemiplegia or Hemi paresis. During history taking we have collected the data regarding history of Hypertension, Diabetes and heart diseases (like CAD/RHD). And during examination all the patients were examined carefully for examination of pulse to rule out Atrial Fibrillation and carotid artery stenosis, after taking detailed history and clinical examinations the Blood samples were collected and send for Investigations like complete Blood picture, Random Blood Sugar, Blood urea, serum creatinine, serum cholesterol, serum electrolytes, ECG and CT scan Brain to differentiate cerebral infarction from cerebral hemorrhage.

Fig 1: Brain Ischemia - Imaging in Acute Stroke

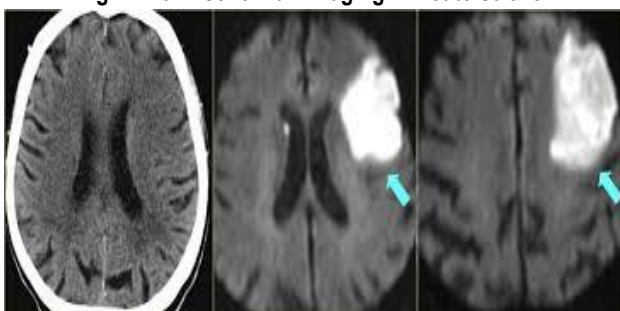
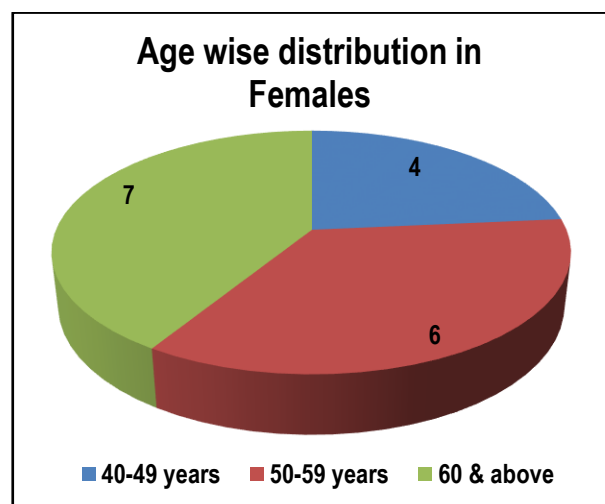
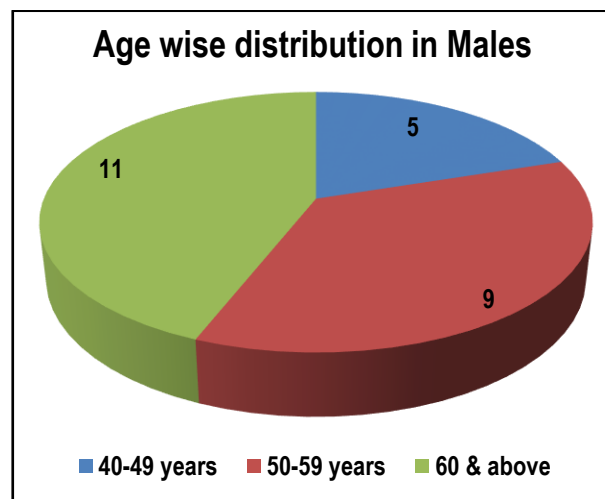
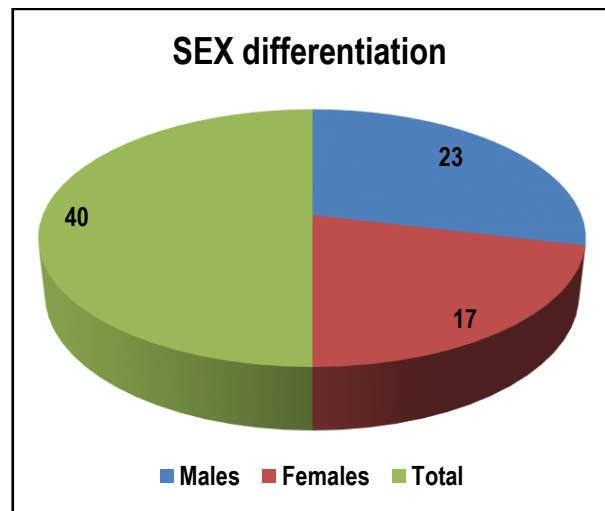
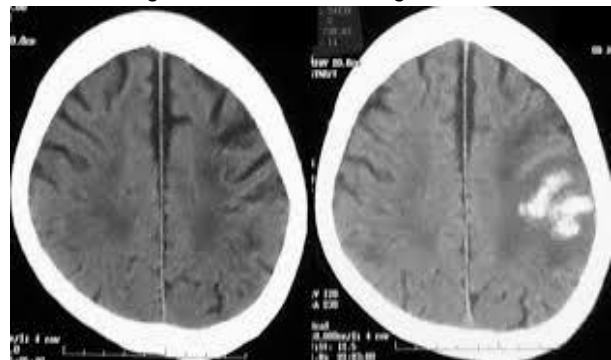


Fig 2: Left Sided Hemorrhagic Stroke



RESULTS AND DISCUSSION

We have included 40 patients in this study out of these 40 patients 23 were Males and 17 were Females. The maximum no. of patients were above 60 years – 11 (47.82%) and in Females 7 (41.17%). The study conducted by Bevan et al shows the maximum no. of patients in 7th decade 38.65% in Males and 42.15% in Females (5) The total no. of cases in due to Ischemia are 25 (65.52%) and due to hemorrhages are 15 (37.95%). The common clinical features include in descending order are paralysis (Motor Weakness) Headache, decreased consciousness, compulsions, cranial nerve convulsions palsies, sensory disturbances and cerebella symptoms. Risk factors identified are smoking, obesity, Hypertension, diabetes, coronary artery disease.

The total no. of Ischemic patients is 25. Out of these 25; Males are 14 and Females are 11 and hemorrhagic patients are 15.

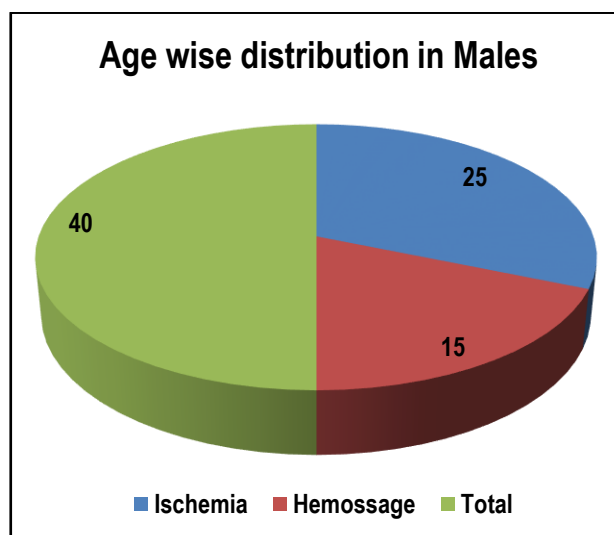


Table 1: Age and Sex wise no. of Patients.

Sl.no.	Age in years	Males (23 nos.)	Females (17 nos.)
1	40-49 years	5(21.73%)	4(23.52%)
2	50-59 years	9(39.13%)	6 (35.29%)
3	60 & above	11 (47.82%)	7 (41.17%)

Table 2: Predisposing factors in Stroke

S. No.	Risk Factor	Males in nos.	%	Females in Nos.	%
		total 23		Total 17	
1	Smoking	8	34.78%	2	11.75%
2	HTN	6	22.13%	6	35.29%
3	Diabetes	4	19.74%	3	17.64%
4	Obesity	3	10.34%	3	17.64%
5	CAD	2	8.67%	2	11.78%

Table 3: Different clinical features in Stroke

S. No.	Clinical Features	No. of Pts. in Males	%	No. of Pts. in Females	%
		total 23		total 17	
1	Weakness	23	100%	17	100%
2	Headache	7	28.52%	5	29.45%
3	Decreased Consciousness	5	20.25%	4	23.52%
4	Cranial nerve lesions	9	36.72%	4	23.12%
6	Sensory symptom	2	8.45%	2	11.76%
7	Cerebellar symptoms	2	8.45%	1	5.89%

The major risk factors in our study were smoking (34.78%) and Hypertension (39.13%) followed by Diabetes (21.73%). The study conducted by Sridharan shows, smoking (41.52%) and Hypertension are (33.62%)

In our study we observed motor weakness hemiplegia or hemiparesis is most common symptom. Followed by cranial nerve palsies, Facial nerve (7th cranial nerve) in 8 patients (34.32), Headache is 13 patients (39.25) and decreased consciousness in 9 patients (23.75) and 2 patients had Atrial Fibrillation, cerebella involvement was noticed had 2 patients (8.45)

The study conducted by Rajesh et al shows weakness in 92.56% other cases may be due to transient ischemic attacks. In their

study thalamic stroke was seen in 9.87% cases and cerebellar lesions were seen in 7.61% cases.⁶

Stroke or cerebrovascular accident is second most leading cause of death worldwide. The incidence of stroke increases gradually with age 40 patients was included in our study. Males were 23 and Females were 17. The sex ration showed in the study conducted by Mahndiratta MM et al is 1.08.:1 is nearer to 1:4:1 to our study and the study conducted by zunni at al shows the ratio as1.2:1 in Africa.⁷ Hemiparesis was observed in 92% of patients in our study that paralysis is observed in 79.23% in study Basal's Study.⁸ In present study the conscious levels whereas the study conducted by Bansal et al shows that disturbances observed in 23.32%

patients patients convulsions in 12.37%. In our study the smoking is associated with 34.78% in Males. The study conducted by Dalal et al shows 40% and Alveray et al shows 56.7% CAD was observed in 8.6% in our study. The study by Alverey et al shows 3.9%.

The Ischemic stroke was observed in 66% pts, and hemorrhagic stroke is observed in 34% patients. The study by Bevan et al shows Ischemia in 28.26% and hemorrhage in 16.7% patients Diabetes was present in 21.33% Hypertension was present in 39.13% patients. In Dala et al study the incidence of Hypertension. showed as 40% (Ischemic infarcts were seen in 17 40%) Ischemic infarcts were seen in 66% patients the infract in MCA lesions was seen 17(62%) patients; 3 (9.2%) patients have PICA infracts 6 (23.57%) patients had ACA infarcts, 4 patients had infracted is thalamocapsular region and 2 in cerebellar region.

Atrial Fibrillation observed in 2 cases. The common cause of atrial Fibrillation includes coronary artery disease, Atrial septal defects, Hypertension, Rheumatic heart disease especially Mitral stenosis and Mitral regurgitation, dilated cardiomyopathy, Thyrotoxicosis and chronic obstructive pulmonary disease. The study conducted by Sridharan at al shows 2.25% cases¹⁰ -- Lopez at al observed that multiple infarcts hemorrhage in 22.75%, hemorrhage involving MCA Tessitory in 45.54% cases in basal ganglia in 18.28 cortical vertical Venous Thrombosis was seen in 14.95% patients. Venkat Ramana at al observed that cortical venous thrombosis in 4.3% cases. Evaluation of various risk factors in young are important as they may play a major role in predisposing an individual to a disease which has major burden on the family and society, as we had excluded space occupying lesions we had not considered, Brain Tumors and other lesions in our study.

Stroke- India has been experiencing significant demographic epidemiological transition during the past 2 decades. This has resulted in increasing life expectancy and consequently increasing an ageing population.¹¹ According to the estimates from the GBD study in 2001, over 85% of global burden of stroke was borne by low and middle income countries.¹²

CONCLUSION

Stroke is one of the leading disorders worldwide. It affects even young population also. So the government agencies and NGO's concentrate on risk factors like smoking, obesity, HTN and diabetes, we can reduce the incidence of stroke. And if emergency medical facilities like CT scan and Thrombolytic agents provides in rural areas, stroke if we prevent or treat effectively, the economic burden on the family and society also can be reduced. The mortality and Morbidity can be decreased.

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