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FREQUENCY OF ISCHEMIC STROKE IN HYPERTENSIVE PATIENTS

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ABSTRACT:

AIMS & OBJECTS: *The purpose of this study was to find out the frequency of Ischemic Stroke in Hypertensive patients along with other Risk factors.*
METHODOLOGY: *This is an observational & prospective study, conducted at medical wards of Liaquat University Hospital (LUH) Jamshoro / Hyderabad for one year from 1st November 2008 to 31st October 2009.*
RESULTS: *Out of 99 patients with stroke, 70(70.7%) were male & 29(29.3%) were female. Male to Female ratio was 2:1. Ischemic Stroke (Ischemic Cerebral Infarction) was found in 72(72.7%) & Hemorrhagic Stroke (Intra cerebral Hemorrhage) was found in 27(27.3%). Among risk factors Hypertension was found in 55(55.5%), 25(25.2%) were Diabetics, H/O Smoking was found in 12(12.1%) and Dyslipidemia was found in 7(7.1%).*
Out of 55(55.5%) Hypertensive patients male were 37(67.3%) and female were 18(32.7%). Among Hypertensive patients M:F Ratio was 2:1.
CONCLUSION: *In our study we found that Hypertension is one of the most common risk factor for Ischemic Stroke. Apart from this, Diabetes Mellitus, Smoking & Dyslipidemia were also risk factors for Ischemic Stroke. By early detection and prompt control of these risk factors we can reduce the mortality and morbidity of stroke patients, which will reduce the socioeconomic burden on our society and world wide.*

KEY WORDS: Stroke, Risk factors, Hypertension.

INTRODUCTION:

According to World Health Organization (WHO) Stroke is defined as," sudden onset of a focal neurological deficit lasting more than 24 hours, in which causes other than vascular have been excluded" .

Stroke is the 3rd most common cause of death world wide, after heart diseases, body cancers and is the major cause of disability.

The annual incidence is between 180 - 300/100,000 and rises with age and in under developed countries because of adoption of less healthy life styles.

About 1/5th number of patients die within 1st month of acute stroke and half survivors will be left with physical disability which puts economical and social burdens on the family and society .

Basically the stroke is divided into two categories, i.e.; **Ischemic Stroke** (80-85%) and **Hemorrhagic Stroke** (15-20%) .

Clinically stroke is classified into following types on the basis of duration:

a. **Transient Ischemic Attacks:** "stroke in which signs & symptoms (syncope, amnesia, confusion & dizziness) resolve within 24 hours".
b. **Stroke In Evolution (Progressive Stroke):** "stroke in which focal neurological deficit worsens after the patient first presented".
c. **Complete Stroke:** "stroke in which focal neurological deficit persists and is not progressive".

According to Oxfordshire Community Stroke Project, **ischemic stroke** is classified as under :

1. **Total Anterior Circulation Infarct (TACI):** "Characterized with ipsilateral motor

and or sensory deficit with higher mental dysfunction, neglect and homonymous hemianopia with worse prognosis (death or disability)".

2. **Partial Anterior Circulation Infarct (PACI):** "Characterized by two or three neurological deficits or higher cortical dysfunction alone or motor/sensory deficits (confined to one limb or face & hand) with better prognosis".
3. **Lacunar Infarct (LACI):** "Characterized by pure motor or sensory or sensory-motor stroke or ataxic hemiparesis with relatively good prognosis".
4. **Posterior Circulation Infarct (POCI):** "Characterized by signs & symptoms of either brain stem or cerebellar dysfunction without ataxic hemiparesis with variable prognosis".

METHODOLOGY:

In this prospective & observational study, 99 Cases with stroke, admitted at different Medical wards at LUH Jamshoro / Hyderabad from 1st November 2008 to 31st October 2009 were included.

During hospitalization the detailed history & examination was done and data was recorded on proforma specially designed for this study.

All the required investigations were carried during hospitalization.

INCLUSION CRITERIA:

All the patients of age >20 years of either sex were included in the study with confirmed Ischemic Stroke on CT Scan Brain Plain / MRI Brain.

EXCLUSION CRITERIA:

All the patients with < 20 years of age & having either, Subarachnoid Hemorrhage or Space Occupying Lesion (SOL) were excluded from the study.

RESULTS:

During mentioned period of one year total 99 number of patients with stroke, confirmed on CT Scan Brain Plain / MRI Brain, were admitted. Out of these 70 (70.7%) were Male and 29 (29.3%) were Female. Male to Female Ratio was 2:1 Table (ii).

Ischemic Stroke (Cerebral Infarction) was found in 72(72.7%) and Hemorrhagic Stroke (Intra Cerebral Hemorrhage) was found in 27(27.3 %) Table (iii).

Among risk factors, Hypertension was found in 55(55.5%), Diabetes Mellitus was found in 25(25.2%), History of Smoking was present in 12(12.1%) and Dyslipidemia was found in 7(7.1%) Table (iv).

Out of 55 patients of Hypertension, Male were 37(67.3%) and Female were 18(32.7%). Among Hypertensive patients M:F Sex Ratio was 2:1 Table (v).

TABLE-II
SEX DISTRIBUTION RATIO

S.No	Total number of patients with stroke = 99	
1	Male	= 70(70.7%)
2	Female	= 29(29.3%)
3	M: F Sex Ratio	= 2:1

TABLE (III).
STROKE SUBTYPES ON CT SCAN BRAIN / MRI BRAIN

S.No	Total numbers of patients with stroke = 99	
1	Ischemic Stroke	= 72(72.7%)
2	Hemorrhagic Stroke	= 27(27.3%)

TABLE (IV).
FREQUENCY OF RISK FACTORS

S.No	Total number of patients with stroke = 99	
1	Hypertension	= 55(55.5%)
2	Diabetes Mellitus	= 25(25.2%)
3	History of smoking	= 12(12.1%)
4	Dyslipidemia	= 7(7.1%)

TABLE (V).
SEX DISTRIBUTION RATIO AMONG HYPERTENSIVE PATIENTS

S.No	Total number of patients with Hypertension = 55	
1	Male	= 37(67.3%)
2	Female	= 18(32.7%)
3	M: F Sex Ratio	= 2:1

DISCUSSION:

In our study among 99 cases of stroke, Male were 70(70.7%), Female were 29(29.3%) and Sex Ratio was 2:1. Ischemic Stroke was found in 72(72.7%) and Hemorrhagic Stroke was found in 27(27.3%). Among Risk factors Hypertension was found in 55(55.5%), Diabetes Mellitus in 25(25.2%), Smoking in 12(12.1%) and Dyslipidemia was found in 7(7.1%).

Our results match with many studies conducted either locally or abroad only with an apparent difference of selection of number of patients.

A local study conducted by Marwat MA et al , in 88 selected cases of stroke in which male were 62(70.5%) & female were 26(29.5%). Ischemic stroke was found in 44(50%) and Hemorrhagic stroke in 26(29.5%). Among risk factors; Hypertension was found in 68(75%), Diabetes Mellitus in 48(54.5%), Smoking & Dyslipidemia were found in 12(13.6%). In this study the sex ratio, frequency of Hemorrhagic Stroke, Smoking & Dyslipidemia match with our study.

Another recently published local study conducted at Mohammad Medical College Teaching Hospital Mirpurkhas by Memon FA et al , in 50 cases of stroke, among these male were 30(60%) and female were 20(40%) with M:F sex ratio 3:2. Here sex ratio is higher as compared to our study. They found Ischemic stroke in 31(62%) & Hemorrhagic stroke in 18(36%). Hypertension was found in 28(56%), Diabetes in 04(08%), & Smoking in 18(36%). Here frequency of Ischemic Stroke & Hemorrhagic Strokes, Hypertension & Smoking match to our study.

A study conducted at Nawab Shah Medical College & Teaching Hospital Nawab Shah

by Lakhair MA et al , in selected 44 patients of stroke, where male were 30(68%) and female were 14(32%). They found Ischemic stroke among 33(75%), Hemorrhagic stroke in 11(25%), Hypertension in 23(52%), Diabetes in 07(16%), Smoking in 10(23%) & Dyslipidemia in 06(14%). In this study our results match with sex ratio, frequency of Ischemic Stroke, Hemorrhagic Stroke, Hypertension, Smoking & Dyslipidemia respectively.

Memon RA et al , in their study, performed in 200 cases of stroke, here male were 118(52%) and female were 82(41%). Ischemic stroke was found in 155(77%), Hemorrhagic stroke in 45(23%), Hypertension in 90(45%), Diabetes in 32(16%), Smoking in 40(20%) & Dyslipidemia among 15(07%). Here our results match with frequencies of ischemic & hemorrhagic strokes, hypertension and diabetes. Probably much difference in results is due to selection of huge number of patients in this study.

Other study conducted at Liaquat National Hospital Karachi by Zafar A et al , who chosen 50 cases of stroke, among these male were 28(56%) & female were 22(44%).They found Ischemic stroke in 44(88%), Hemorrhagic stroke in 06(12%), Hypertension in 46(92%), Diabetes in 44(88%), Smoking in 20(40%) and Dyslipidemia in 06(12%). In this study our results nearly match with presence of ischemic stroke and Dyslipidemia. The reason for other results not matching with our study is due to entry of small numbers of patients in their study.

Another study performed by Khan J et al , at Ayub Medical College & Teaching Hospital Abbottabad in 91 cases of stroke, where male were 65(71.4%) & female were 26(28.6%) with M:F sex ratio 2.5:1. They also found Ischemic stroke in 65(71.4%), Hemorrhagic stroke in 26(28.6%), Hypertension in 51(56%), Diabetes in 30(33%), Smoking in 25(27.5%) and Dyslipidemia in 09(09.09%). In this study nearly all results match with our results with sex ratio difference probably due to induction of nearly same number of patients. A local study performed to detect risk factors in stroke patients by Vohra EA et al , they found Hypertension among 45%, whereas in our it was 55.5% respectively.

An abroad study by Lipska K et al for risk factors in ischemic stroke found 23% H/O Smoking while in our study we found 12.1%. An International study conducted exclusively among Ischemic Stroke patients for Risk factors by Ohira T et al , who found Hypertension in 35%, Diabetes in 26.3% and Smoking in 22% respectively. In this study none of our results match, may be the reason of race, education and availability of health care facilities.

CONCLUSION:

In our study we found that Hypertension is one of the most common risk factor for Ischemic Stroke. Apart from this, Diabetes Mellitus, Smoking & Dyslipidemia were also risk factors for Ischemic Stroke. By early detection and prompt control of these risk factors we can reduce the mortality and morbidity of stroke patients, which will reduce the socioeconomic burden on our society and world wide.

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