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STROKE;
EVALUATION OF RISK FACTORS, CLINICAL MANIFESTATIONS, AND DIAGNOSTIC OUTCOME

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ABSTRACT… Objective: To determine the risk factors, clinical manifestations, and diagnostic outcome of stroke among patients admitted in CMH Jhelum. **Study design:** Descriptive case series. **Place and duration of study:** Medicine Department Combined Military Hospital Jhelum Cantonment from January 2013 to February 2014. **Material and methods:** A sample size of 200 was obtained with an equal number of male and female patients. After formal consent a detailed history was taken regarding hypertension, diabetes mellitus, smoking, and Performa was filled. Investigations like Fasting blood sugar, serum cholesterol, and CT scan brain were also done, other relevant data like name, age, gender, and address, were collected. Patient admitted with clinical presentation of stroke later being diagnosed on CT scan brain as ischemic or hemorrhagic were included. Stroke secondary to vascular lesions, space occupying lesions, and blood dyscrasias were excluded from study because these cases would act as effect modifier and interfere with results, thus producing bias in this study. **Results:** A total number of 200 patients were included in this study with an equal ratio of male and female. Range of age group was 40 to 80 years while mean age group involved was 70.01 ± 13.02 years old. Most common clinical manifestations were weakness of right half of the body that is 51.5%, weakness left half 25%, and coma 13.5%. Hypertension found to be leading risk factor of stroke with 58.5%, while diabetes found in 24.5%, smoking 8%, obesity 5%, and high cholesterol in 4% of patients. Diagnostic outcome was ischemic stroke in most of the patients (71%) and hemorrhagic stroke in 29%. **Conclusion:** Modifiable risk factors such as hypertension, diabetes, smoking, obesity and high cholesterol are found to the key risk factors. These can be easily controlled by life style modification and effective medication therapy resulting a significant reduction the morbidity and mortality of stroke.

Key words: Stroke, Clinical Manifestations, Etiologies

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INTRODUCTION

Stroke is the sudden onset of loss of brain functions which is mainly cause by underlying presence of vascular disturbances of brain. Ischemic stroke is the result of vascular occlusion due to formation of thrombosis which leads to embolism and ultimate result is the vascular occlusion. Stroke can also be caused by hemorrhage of arterial supply to the brain. As a result, the affected area of the brain is unable to perform its normal functions, leading to inability to move one or more limbs, inability to understand or formulate speech, inability to see one side of visual field. Stroke is the second most common cause of death and major cause of disability worldwide.[1]

Stroke is always considered to be a medical emergency that may cause lifelong disability and other complications which may later on leads to death. The common risk factors contributing in stoke are increasing age, chronic hypertension, uncontrolled diabetes mellitus, smoking, obesity, and Dyslipidemia. But on the other hand, hypertension is labeled as the most common predisposing factor for stroke whether is ischemic or hemorrhagic and second common being the diabetes mellitus.[2]

Previously conducted hospital based studies from our region has shown that more than 40% of the stroke cases were due to hemorrhage while rest were due to underlying presence

of ischemia of brain. There are not much data available which shows recent accurate incidence of stroke in Pakistan but conclusive estimation from previously published studies documented to be around or more than 350,000 per annum and the prevalence, based on a trial on the subject, was 6.4%.[3,4]

Diagnosis of stroke is purely based on patient's clinical presentation along with supportive evidence from history and physical examination and the confirmatory diagnosis will be made using Computed Tomography (CT) and/or Magnetic Resonance Imaging (MRI) of the brain.[5]
CT scan is more preferred during the acute stage of stroke than MRI due to its cost effectiveness and because MRI brain usually cannot detect intracranial hemorrhage during the first 48 hours of a bleeding episode.[6,7]

The main purpose of this study was to determine incidence of stroke in various age groups and the influence of known risk factors a contributive element for the morbidity of the disease in the said groups.

OBJECTIVE

To determine the risk factors, clinical manifestations and diagnostic outcome of stroke among patient admitted in CMH Jhelum

MATERIAL AND METHODS

This descriptive study was conducted at department of medicine, Combined Military Hospital (CMH), Jhelum during the period of January 2013 to February 2014.

Patients admitted with clinical presentation of stroke later being diagnosed on CT scan brain as ischemic or hemorrhagic of either gender and age were included in this study. Stroke secondary to vascular lesions, space occupying lesions, and blood dyscrasias were excluded from study because these cases would act as effect modifier and interfere with results, thus producing bias in this study.

DATA COLLECTION PROCEDURE

Administrative permission was taken from concerned authorities. Patients were taken from indoor department admitted at hospital. After formal consent a detailed history was taken regarding hypertension, diabetes, smoking, and Performas were filled. Investigations like Fasting blood sugar, serum cholesterol and CT scan brain were done, other relevant data like name, age, gender, address and other particulars were collected. Confidentiality of the patient was maintained. Data was entered and analyzed through Statistical Package for the Social Science (SPSS v. 16).

RESULTS

A total of 200 patients were obtained with an equal number of male and female patients, to achieve accurate statistical evaluation regarding incidence of stroke among male and female patients of various age groups. The age of patients ranged from 40-80 years. Mean age group was found to be 70.01 ± 13.02 years.

Out of 200 patients majority had clinical presentation of right sided body weakness 103 (51.5%) Table No: I. Table No: II. Shows most common underlying risk factors of stroke, among them 58.5% (N = 117) had stroke due to hypertension.

Clinical Manifestations	Frequency	Percent
Weakness right side	103	51.5
Weakness left side	50	25
Vomiting	2	1
Fits	1	0.5
Aphasia	17	8.5
Coma	27	13.5
Total	200	100

Table-I. Clinical manifestations of patients admitted with stoke

Risk Factors	Frequency	Percent
Hypertension	117	58.5
Diabetes	49	24.5
Smoking	16	8
Obesity	10	5
Dyslipidemia	8	4

Table-II. Most common underlying risk factors of stoke

Most of the patients, 142 (71%) presented with ischemic whereas 58 (29%) of the patients had hemorrhagic stroke as illustrated in Fig-01.

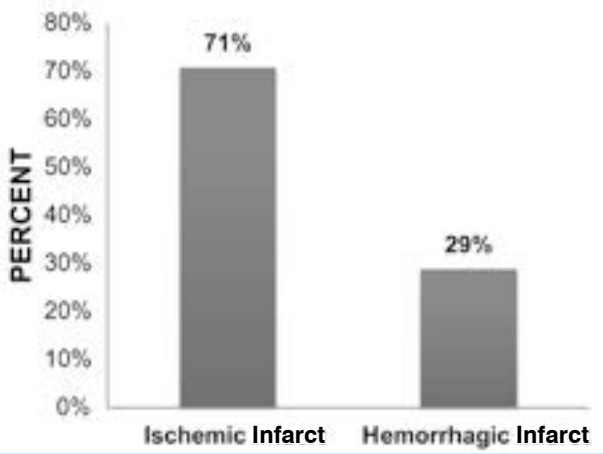

Fig-1. Categorical distribution of stroke patients

DISCUSSION

Both types of stroke such as ischemic and hemorrhagic are the major cause of hospitalization and its associated mortality in Asian countries, and now become the second most important cause of stroke associated mortality all over the world.[9] A vast majority of population from developed world (85%) the cause of stroke is ischemic while hemorrhagic stroke accounts for only remaining 15% of the population. On the contrary, hemorrhagic stroke is more common in Southeast Asian countries and the accounted incidence from Malaysia, Indonesia, Korea and Pakistan is, 34%, 26%, 33%, and 34%, respectively with an almost identical incidence of the said disease.[10] Various hospital based studies has been conducted in Pakistan which show that 30 - 40% of stroke cases are secondary to hemorrhage while the remaining are due to ischemic causes.[11,12]

In our study we have found that majority (71%) of stroke cases were due to underlying presence of ischemia and remaining 29% were due to hemorrhage and among them most common risk factor of stroke was high blood pressure. One of a most common reason behind our observation is that previously published data supports the direct relationship between high blood pressure and the risk of stroke irrespective of age and gender but the strongest association being with systolic blood pressure. There is an estimated 25% increase risk of stroke with each 10 mmHg rise in systolic blood pressure and with diastolic blood pressure of more than 110mm Hg have 15 times more risk than the patient with blood pressure less than 80 mmHg.[13]

Only by managing one modifiable risk factor (hypertension), there is a decrease chance of stroke by about 38%.[14] In this study the percentage of Hypertension among the patients was 58.5% which is similar to 60% as in other study.[15] The mean age group involved was 70 years.

According to other hospital based studies carried out in Pakistan shows that diabetes is an independent predictor of ischemic stroke in women, subsequent studies shows that diabetes increases the incidence of stroke by two folds.[16] In our study diabetes was found in (24.5%) of patients, similar finding have been reported in various local studies and are consistent.[17]

High cholesterol increases stroke risk by causing an increased risk of thrombus formation and affects related to arthrosclerosis. Treatments for patients with established stroke are relatively ineffective but controlling the risk factors is the real hope of reducing stroke morbidity and mortality in population.[18]

Among the various clinical manifestations of the Stroke perhaps the most common is the weakness on either side of the body. In this study it is found that majority of the patients suffered from weakness of the right side of the body. This finding is also consistent among other studies.

The study also shows the Diagnostic outcome of stroke as opposed to gender and age. It is important to note that with the proper clinical intervention and life style modification the occurrence of disability and death due to stroke can be effectively reduced.

CONCLUSION

Modifiable risk factors such as hypertension,

diabetes, smoking, obesity and high cholesterol level are found to the key risk factors. These can be easily controlled by life style modification and effective medication therapy resulting in a significant reduction in the morbidity and mortality of stroke.

REFFERNCES

1. Feigin VL. **Stroke epidemiology in the developing world.** Lancet 2005; 365: 2160–1.
2. Khan NZ, Iqbal Z. **Cerebrovascular disease, increasing incidence of primary intracerebral haemorrhage a preliminary report of 100 cases.** Pak J Neurol 1999;5:45–9.
3. Khealani BA, Hameed B, Mapari UU. **Stroke in Pakistan.** J Pak Med Assoc. 2008 Jul; 58(7): 400-03.
4. World Health Organisation. **Cerebrovascular Disorders (Offset Publications).** Geneva: World Health Organization (1978).
5. Rehman SU, Khan MA. **Clinical versus CT Scan diagnosis in stroke: a comparative study of 50 cases.**
6. Kidwell CS, Chalela JA, Saver JL, Starkman S, Hill MD, Demchuk AM, et al. **Comparison of MRI and CT for detection of acute intracerebral hemorrhage.** J Am Med Assoc 2004;292:1823–30.
7. Ahmed MM, Nasarullah M. **Study of clinical presentation versus CT findings regarding the type of lesion in stroke.** Pak J Neurol 2004;10:17–22.
8. Kenchaiah S, Evans JC, Levy D, Wilson PWF, Benjamin EJ, Larson MG, Kannel WB and Vasan RS (2002). **Obesity and risk of Heart failure.** N Engl J Med., 347:305-13.
9. **World Health Organization: The World Health Report.** Shaping the future. Geneva.: World Health Organization.2003.
10. Memon AR, Hussain T, Qureshi MS. **Haemorrhagic Stroke incidence, risk factors and mortality.** J Coll Physician Surg Pak 1995; 5:267-9.
11. Vohra EA, Ahmed WU, Ali M. **Aetiology and prognostic factors for outcome of patients admitted with Stroke.** J Pak Med Assoc 2000; 50: 234–6.
12. Alam I, Haider I, Wahab F, et al. **Risk factor stratification in 100 patients of acute stroke: 2004,** 18; 583-91.
13. Fang XH, Longstreth WTJ, Koronomal SC. **Longitudinal study of blood pressure and stroke in over 37000 people in China.** Cerebrovas dis 2001;11(3): 225-29.
14. Arnett DK, Davis BR, Ford CE. **Pharmacogenetics association of the angiotensin converting enzymes Insertion / Deletion polymorphism on blood pressure and cardiovascular risk in relation to antihypertensivtreatment: the genetics of hypertension associated treatment (Gen HAT) study.** Circulation 2005;11:3374- 83.
15. Khan NI, Naz L, Mushtaq S, Rukh L, Ali S Hussain Z. **Ischemic Stroke: Prevalence of Modifiable Risk Factors In Male And Female Patients in Pakistan** Pak. J. Pharm. Sci., 2009; 22: 62-7.
16. Awada A, Al- Rajeh S. **The Saudi Stroke Data Bank. Analysis of first 1000 cases.** Acta Neurol Scand 1999; 1000; 265-9.
17. Basharat RA, Yousuf M, Iqbal J and Khan MM. **Frequency of known risk factors for stroke in poor patients admitted to Lahore General Hospital in 2000.** Pak J Med Sci 2002., 184: 280-3.
18. **Gorelick PB Stroke prevention.** Arch. Neuro., 1995 52: 347-55.
19. Kaul S, Venketswamy P, Meena AK. **Frequency, clinical features and risk factors of lacunar infarction (data from a stroke T, registry in south India).** Neurology India 2000;48(2):1169-71.

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Capt. Dr. Faraz Ahmed	Initial working & analysis	
2	Dr. Muhammad Danish Ajaz	Initial working & analysis	
3	Dr. Muhammad Iqbal	Critical Scientific review & final approval