STROKE;

A HOSPITAL BASED STUDY ON STRATIFICATION OF RISK FACTORS OF STROKE, ITS CLINICAL FEATURES AND RESPONSE TO TREATMENT IN MIRPUR AZAD KASHMIR

Dr. Abid Naeem[1], Dr. Choudhary Tariq Masood[2], , Dr. Ijaz Ali[3]

1. MBBS,MCPS,FCPS
   Assistant Professor Medicine
   Mohi-ud-Din Islamic
   Medical College Mirpur AJK.
   DHQ Teaching Hospital Mirpur AJK.
2. MBBS,MRCP
   Assistant Professor Medicine
   Mohi-ud-Din Islamic
   Medical College Mirpur AJK.
   DHQ Teaching Hospital Mirpur AJK.
3. Demonstrator,
   Department of Community Medicine
   Mohi-ud-Din Islamic
   Medical College Mirpur AJK.

Correspondence Address:
Dr. Abid Naeem
House # 8,Sector C/4 Mirpur AJK.
abidnaeem56@hotmail.com

ABSTRACT… The objective of the present study was to determine the risk factors of stroke, its clinical features and response to treatment in Mirpur Azad Kashmir. **Study Design:** Prospective observational study. **Place and Duration of study:** This study was conducted at Medical Wards of DHQ Teaching Hospital Mirpur Azad Kashmir from March 2012 to January 2013. **Patients and Methods:** Two hundreds patients with established diagnosis of stroke were selected. A questionnaire was prepared in accordance with the objectives of the study. Questionnaire contained detail history, general physical examination, and neurological examination. Association of risk factors with stroke was also studied. Different clinical features were also noted and response to the given treatment was checked by morbidity and mortality ratio. The data thus obtained was subjected to statistical analysis. **Results:** One hundred and thirty two(66%) had hypertension, fifty five(27.5%) were smoker, fifty three(26.5%) had diabetes, twenty five(12.5%) had ischemic heart disease. In clinical features one hundred and two (51%) had headache, ninety nine (49.5%) had hemiplegia, ninety four patients (47%) had loss of consciousness. On CT scan finding one hundred and forty four patients (72%) had infarction while fifty six (28%) had hemorrhagic stroke. After recommended treatment patients discharged were one hundred and eighty two (91%) while eighteen(9%) died within a month. **Conclusions:** Hypertension, smoking, diabetes are major modifiable risk factors, headache, hemiplegia, loss of consciousness are major clinical features, chances of ischemic stroke are much more as compared to hemorrhagic. Response to treatment is good.

Key words: Stroke, Risk factors, Mirpur AJK.

Article Citation: Naeem A, Masood CT, Ali I. Stroke; a hospital based study on stratification of risk factors of stroke, its clinical features and response to treatment in mirpur azad kashmir. Professional Med J 2014;21(2): 264-267.

INTRODUCTION

Stroke is basically a clinical syndrome which include developing symptoms and signs of focal/global (for patients in Coma) loss of cerebral functions, with symptoms lasting more than 24 hours or leading to death with no apparent cause other than that of vascular origin[1].

The death rate of stroke is 20 25 %.Hypertension is the most treatable risk factor; In the elderly it remains the major cause of morbidity and mortality. Thromboembolic infarction, cerebral and cerebellar hemorrhage and subarachnoid hemorrhage are the main causes but there is long list of risk factors of stroke for which this research study has been done[2].

Though the incidence is falling in West but probably is rising in Asia. The burden of stroke risk factors in Pakistan is enormous. By 2020 Pakistan will be 4th most populous country in terms of diabetic patients. Similarly every 3rd person above age of 45 years has hypertension. Ironically a great majority of these patients are unaware of their diagnosis. This is further complicated by the fact that most of diagnosed patients have uncontrolled hypertension, as a result of poor compliance on patients part and poor updated knowledge on

physicians part. Data on stroke incidence and prevalence from Pakistan is scarce; however, there are several reported case series in literature highlighting significant differences in terms of stroke epidemiology, risk factors and stroke subtypes/ patterns. Considering a high population, absolute number of stroke in our country would be in millions. Its consequences are myriad ranging from physical disability to death, psychological, social and economic consequences. These consequences do not only affect the individual or his/her family but also society as a whole. We reviewed available literature on stroke and its risk factors from Pakistan[3].

PROBLEM STATEMENT
Although data is difficult to obtain, approximately two-third of the global burden of stroke is in middle and lower income countries. According to world health organization report 2002, total mortality due to stroke in Pakistan was 78512[4]. WHO estimate for year 2020 that stroke will remain the second leading cause of death after ischemic heart disease, both in developing and developed countries[5]. Annually, fifteen millions people worldwide suffer a stroke. Of these, five million die and another five million left permanently disabled, placing a burden on family and community. Stroke is uncommon in age below 40, when it does occur the main cause is high blood pressure. The major risk factors for stroke are similar to those of coronary artery disease, with high blood pressure, diabetes and tobacco use the most significant modifiable risks, while atrial fibrillation and heart attacks are also important risk factors to stroke[6]. Stroke burden is projected to rise from around 38 millions DALYs (disability adjusted life years) globally in 1990 to 61 millions DALYs in 2020.

Pakistan is sixth most populous country in the world with an estimated population of approximately 167 millions by July 2008[7]. There are no sizeable community based epidemiologic studies on stroke from Pakistan. Stroke is the third most common cause of death and the first leading cause of disability in developed and developing countries[8]. According to World Health Organization estimates, 5.5 millions people died of stroke in 2002, and roughly 20% of these deaths occurred in South Asia[9]. Contrary to decline in the incidence of the disease in the Western population, the burden of the disease in South Asian countries (India, Pakistan, Bangladesh, and Sri Lanka) has inclined and is expected to rise[1].

Aim
The aim of this study is to know the risk factors of stroke and there comparison to infraction and hemorrhagic stroke and to determine predictors of mortality so to highlight the areas of flaws to be addressed for its proper management and cure.

Objectives
1. To look the demographic characteristics of study population
2. To look risk factors of study population
3. To look the presenting complaints of stroke.
4. To compare the risk factors of infarction and hemorrhagic stroke
5. To look the CT scan findings.
6. To look the areas of brain where hemorrhage or infarction can occur.
7. To look the neurological outcome of treatment.
8. To look the number of days of post treatment.
9. To look the morbidity and mortality rates.

To draw recommendations in light of present study results for uplift of proper reduction of risk factors, improving the knowledge about presenting complaints and to look the neurological outcome of standard treatment of stroke.

Significance of study
- The overall benefits of the stroke study include:
- Improved delivery of service through capacity and competency building:
- Improved skills and capacities of community based health care providers
- Safer delivery skills amongst health authorities and other community based

service providers.
- Better access through effective geographic targeting
- Improve management effectiveness by better knowledge of the epidemiology and clinical facilities.
- To high lighten the importance of CT scan facilities in developing countries.
- Implementation of the proper physicians skills in the areas of flaws.

RESEARCH METHODOLOGY

Cross-sectional random study of all stroke patients admitted to District Head Quarter Teaching Hospital Mirpur Azad Kashmir between March 2012 to January 2013. All patients were subjected to brain CT. Predictors of mortality: systolic and diastolic hypertension, hyperglycemia, type of stroke, age >70, poor

Glasgow coma score (GCS) on admission and deterioration of score were assessed.

A questionnaire was prepared in accordance with the objectives of the study. Questionnaire contained detailed history, general physical examination, and neurological examination. Association of risk factors with stroke was also studied.

A selected sample of 200 subjects was interviewed. The purpose of study is explained clearly and they were invited to participate in a questionnaire with different types of questions. The data so obtained analyzed and interpreted. The data analysis plan was descriptive and inferential statistical analysis.

LITERATURE REVIEW

A recent community survey in Kolkata, carried out by the Indian Council of Medical Research, showed the average annual incidence of stroke as 145 per 100,000 persons per year[11]. These rates are also much higher than those reported previously from other parts of India. In China, the total average age-adjusted incidence of first-ever stroke ranged from 116 to 219 per 100,000 per year[12]. There is only one published stroke prevalence study from Pakistan, conducted on adult Pashtoon community residing in Karachi. This study reports a prevalence of 4.8% which was alike in men and women[13]. This is highest ever reported prevalence of stroke in the world. However, the results of this study should be interpreted with caution as a non validated questionnaire was used. A recently reported community survey in Kolkata revealed a stroke prevalence rate of 545 per 100,000 population, which is equal to or higher than that reported from developed countries[14]. The relatively younger age of onset in patients with stroke is in keeping with the data of coronary heart disease from the Indian subcontinent which suggest that CHD manifests almost 10 year earlier on average in this region compared with the rest of the world[15].

Vascular risk factors among Stroke patients

In the only population based study among Pashtoon community in Karachi, Systolic BP, diabetes, and increased dietary salt (extra dietary table salt on top of what has already been included while cooking) intake were identified as independent risk factors of stroke[16]. This was an epidemiologic survey based on invalidated questionnaire and no imaging study was performed to confirm the diagnosis).

The poor supervision, lack of affective facilities and technology, and poor physician skills and lack of proper updated knowledge is a major flaw in increasing the morbidity and mortality rate of stroke in Pakistan.

Present study was therefore designed as to determine the frequency of risk factors of stroke in patients hospitalized in District Headquarter Teaching Hospital Mirpur Azad Kashmir.

RESULTS

A total of 200 patients were and all the risk factors clinical features, investigation findings and treatment response was recorded.

Risk Factors

Two hundred patients with established diagnosis of stroke were selected. One hundred and thirty two(66%) had hypertension, fifty five(27.5%) were smoker, fifty three(26.5%) had diabetes, twenty eight(14%) had dyslipidemia, twenty five(12.5%) had ischemic heart disease.

| Variables	Yes	No
Smoking	27.5%	72.5%
Diabetes Mellitus	26.5%	73.5%
IDDM	3.5%	96.5%
NIDDM	21%	79%
HTN	66%	34%
Previous IHD	12.5%	87.5%
Dyslipidemia	14%	86%
Risk Factors		
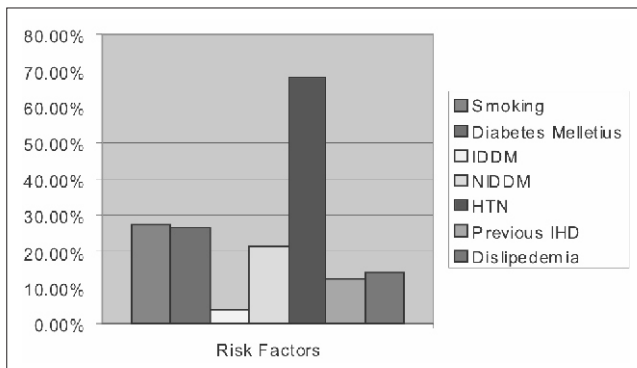
Risk Factors

Clinical features

One hundred and two (51%) had headache, ninety nine (49.5%) had hemiplegia, ninety four patients (47%) had loss of consciousness. Sixty one (30.5%) had hemiparesis, fifty two (26%) had vomiting, forty nine (24.5%) had seizures.

Headache	Yes = 51%	No = 49%
Vomiting	26%	74%
Seizures	24.5%	75.5%
Loss of consciousness	47%	53%
Hemiplegia	49.5%	51.5%
Hemiparesis	30.5%	69.5%
Clinical Features		
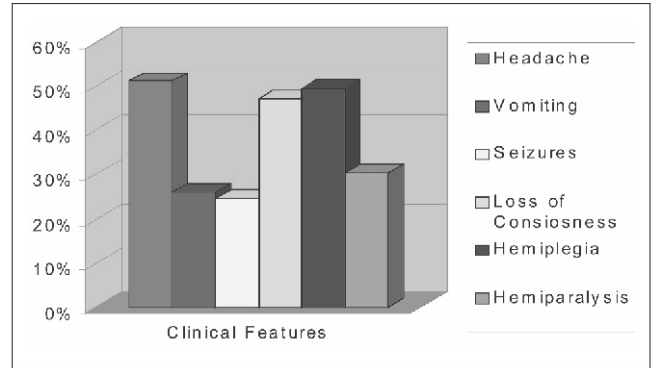
Ct scan

One hundred and forty four patients (72%) had infarction while fifty six(28%) had hemorrhagic stroke.

CT Scan	Infarction = 72%	Hemorrhage=28%

Treatment response

After recommended treatment patients discharged from hospital were one hundred and eighty two(91%) while eighteen(9%) died within a month.

Patient's Condition	Discharges=91%	Died=09%

DISCUSSION

Stroke basically involves the vessels of brain hence Hypertension plays the most leading role in it. With the increasing age, elasticity of vessels get weakens, moreover due to the increasing financial crises of our country people remain more tense, as a result incidence of HTN increases hence the incidence of stroke increases as well.

Attitude towards smoking also plays an important role. With awareness towards the side effects of smoking its ratio is declining in the developed countries but due to lack of proper awareness programmes, that is not the case in Pakistan. Hence incidence of smoking is increasing and in our research in the list of risk factors of stroke smoking is at the 2nd position as compared to 3rd position in the researches taken placed in other parts of the World.

Diabetes is a syndrome which not only involves

the glucose metabolism but also affects almost each and every other system of body. It is also a predisposing factor to atherosclerosis and HTN. Thus plays a leading role in causative agents of stroke. Dyslipidemia and IHD is also an mportant cause of stroke.

Among clinical features headache is on the top which is present in more than half of the patients followed by hemiplegia. Loss of consciousness is a serious sign and unfortunately present in 47% of patients in our research.

CT scan is an important diagnostic tool in stroke management and due increasing ratio of atherosclerosis and dyslipidemia; infarction is present in more than two-third of the cases.

After the treatment most of the patients were discharged alive and in better position. The death rate is much low but unfortunately level of disability could not be measured due to lack of proper follow up.

CONCLUSIONS

HTN is the most leading risk factor. Headache is the most common clinical feature. On CT scan infarction is much more common as compared to hemorrhage. With proper treatment and care stroke is curable.

RECOMMENDATIONS

1. Hypertension must be managed properly.
2. Smoking must be discouraged.
3. Diabetic patients should maintain their glucose level by proper treatment.
4. Obesity and sedentary life style leading to dyslipidemia and IHD should be discouraged.
5. Awareness programs must be launched not only in these respects to decrease the incidence of stroke.
6. Doctors and nursing staff should be competent enough to deal with the hypertensive and stroke emergencies.
7. CT scan machinery & proper funds should be provided to hospitals.
8. Such living habits should be adopted which enhance exercise.
9. Over use of fast food should be avoided.
10. New researches should be made in medical field.11. Good governance should be established for the betterment of our nation.
12. Proper rehabilitation centers should be established to decrease the level of disability by stroke.
13. Electronic & paper media should also encourage to create the awareness & to make the better attitude of people.

REFERENCES

1. Davenport R, Denis M. **Neurological emergencies: Acute stroke.** J Neural Neurosurg Psychiatry 2000;68:277-88.

2. Kumar and Clark page 1126

3. Journal of Pakistan Medical association by Bhojo A. Khealani (Department of Medicine, Aga Khan University Hospital, Karachi,) Bilal Hameed,Uzma U. Mapari (Department of Medicine, University of Alberta, Edmonton, Alberta, Canada.)

4. Judith M, George AM (ed). **The Atlas of Heart diseases and Stroke. World Health Organization and CDC, 1st ed.** the Han way press London, 2004.

5. Murray CJL, Lopez AD (eds). **Global burden of diseases, Harvard, MA: Harvard school of public health, 1996 (Vol-I of Global burden of diseases and injuries)**.

6. Adams RJ, Mckie VC, Brambilla D. **Stroke prevention trail in sickle cell anemia.** Control clinical trials, New Eng J Med 1998; 19:110-29.

7. Bonita R, Scragg R, Stewart A, Jackson R, BeagleholeR. **Cigarette smoking and risk of premature stroke in men and women.** BMJ 1986; 293: 6-8.

8. Murray CJ, Lopez AD. **Mortality by cause for eight regions of the world: Global Burden of Disease Study.** Lancet 1997; 349: 1269-76.

9. Feigin VL. **Stroke epidemiology in the developing world.** Lancet 2005; 365: 2160-61.

10. World Health Organization (WHO). **The Atlas of**

Heart Disease and Stroke. http://www.who.int/cardiovascular_diseases/resources/atlas/en/

11   Bulatao RA, Stephens PW. **Global estimates and projections of mortality by cause.** Washington, DC: Population, Health and Nutrition Department; World Bank, preworking paper 1992;1007.

12.   www.pakstroke.com. **An official website of Pakistan stroke society.** Last accessed on April 5, 2008.

13.   Syed NA, Khealani BA, Ali S, Hasan A, Akhtar N, Brohi H et al. **Ischemic stroke subtypes in Pakistan: the Aga Khan University Stroke Data Bank.** J Pak Med Assoc. 2003; 53: 584-88.

14.   Vohra EA, Ahmed WU, Ali M. **Etiology and prognostic factors of patients admitted for stroke.** J Pak Med Assoc. 2000; 50: 234-36.

15.   Das SK, Banerjee TK, Biswas A, Roy T, Raut DK, Mukharjee CS et al. **A prospective community based study of stroke in Kolkata, India.** Stroke 2007;38: 906-10. Epub 2007.

16.   Yusuf S, Hawken S, Ounpuu S, Dans T, Avesum A, Lanas F. **Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study.** Lancet 2004; 364 : 937-52.)