ORIGINAL ARTICLE

CLINICAL PRESENTATION, RISK FACTORS AND OUTCOME OF STROKE AT A DISTRICT LEVEL TEACHING HOSPITAL

Choudhary Tariq Masood, Maqbool Hussain*, Anis-ur-Rehman**, Saleem Abbasi***

District Headquarter Hospital, Mirpur, Azad Kashmir, *Department of Paediatrics, Children Hospital, PIMS, Islamabad, **Ayub Teaching Hospital, Abbottabad, ***ARI Research Cell, Children Hospital, PIMS, Islamabad, Pakistan

Background: Stroke is a fatal clinical syndrome with mortality rate ranging up to 25%. Hypertension, smoking and diabetes mellitus are common preventable risk factors which are associated with serious outcome. Objective of this study was to determine the clinical presentation, risk factors and outcome of stroke. **Methods:** A cross-sectional study was conducted in the Medical Wards of DHQ Teaching Hospital, Mirpur Azad Kashmir from March 2010 to January 2011. A questionnaire was prepared in accordance with the objectives of the study. Frequency of risk factors in patients with stroke were studied. Different clinical features were also noted and response to the given treatment was checked in the form of mortality and recovery. Frequencies and percentages were calculated using SPSS-12. **Results:** Two hundred patients with stroke were selected. Of the total, 136 (68%) had hypertension, 55 (27.5%) were smokers, 53 (26.5%) had diabetes and 25 (12.5%) patients had ischemic heart disease. One hundred and two (51%) patients presented with headache, 99 (49.5%) developed hemiplegia and 94 (47%) had loss of consciousness. CT brain showed infarction in 144 (72%) patients while 56 (28%) had haemorrhage. Observed mortality in this study was 18 (9%) while 182 (91%) patients were discharged after treatment. **Conclusion:** Hypertension, smoking and diabetes mellitus are major modifiable risk factors for stroke. Headache, hemiplegia and loss of consciousness are major clinical features. Ischemic stroke is much common compared to hemorrhagic stroke. With proper care stroke is manageable satisfactorily.

Keywords: Stroke, risk factors, outcome

INTRODUCTION

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

The mortality due to stroke is about 20–25%. Hypertension is the most common and treatable risk factor of stroke.[2,3] To some extent stroke is decreasing in the patients of 40–60 years of age because hypertension is targeted. In the elderly it still remains one of the major causes of severe morbidity and mortality. Thromboembolic infarction, cerebral and cerebellar haemorrhage and subarachnoid haemorrhage are the main causes but there is long list of risk factors of stroke.[4]

Though the incidence is falling in West but probably, is rising in Asia. The burden of stroke risk factors in Pakistan is enormous and 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. This is further complicated by the fact that most of diagnosed patients have uncontrolled hypertension, as a result of which mortality increases and this puts a great economic burden on the society.[5]

Data on the prevalence of stroke from Pakistan is scarce; however, there are several reported case series in literature highlighting significant differences in terms of stroke epidemiology, risk factors and its subtypes and 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, to psychological, social and economic consequences. These consequences do not only affect the individual or his/her family but also society as a whole. Available literature on stroke and its risk factors from Pakistan suggest a very deprived condition.[6]

Approximately two-third of the global burden of stroke occurs in middle and lower income countries. According to World Health Organization report 2002, total mortality due to stroke in Pakistan was 78,512.[7] WHO estimate for year 2020 predict that stroke will remain the second leading cause of death after ischemic heart disease, both in developing and developed countries.[8] Annually, fifteen million people suffer a stroke worldwide. Of these, five million die and another five million get permanent disability, placing a burden on family and community.[9] 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 coronary artery diseases, high blood pressure, diabetes and tobacco use, while atrial fibrillation and heart attacks are also important risk factors to stroke.[10]

The study was planned to determine the clinical presentation of stroke, frequent risk factors

responsible, and outcome of its management in our local setting.

METHODOLOGY

A cross-sectional study of all patients admitted with stroke to District Head Quarter Teaching Hospital, Mirpur, Azad Kashmir was conducted between March 2010 and January 2011. A total of 200 cases were enrolled in the study. All patients were subjected to brain CT scan. Predictors of mortality included systolic and diastolic hypertension, hyperglycaemia, type of stroke, age >70.

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 assessed.

Informed consent was obtained from all patients and/or caretakers. Data were analysed using SPSS-12; frequency and percentages were calculated.

RESULTS

A total of 200 patients with established stroke were enrolled in the study. The mean age of the patients was 54.6±7.1 years. Age was ≤70 years in 170 (85.0%) patients while 30 (15.0%) had age above 70 years. Male gender was in dominance with (59.0%) proportion compared to females (41.0%). (Table-1)

Table-1: Presentation of stroke in the study (n=200)

	No. of patients	%
Age (years)	54.6±7.1	
Age groups		
≤70	170	85.0
>70	30	15.0
Sex		
Male	118	59.0
Female	82	41.0
Risk factors		
Hypertension	136	68.0
Smoking	55	27.5
Diabetes Mellitus	53	26.5
NIDDM	42	21.0
Dyslipidaemia	28	14.0
Previous IHD	25	12.5
IDDM	7	3.5
Clinical features		
Headache	102	51.0
Vomiting	52	26.0
Seizures	49	24.5
Loss of Consciousness	94	47.0
Hemiplegia	99	49.5
Hemiparesis	61	30.5

Of the total study cases, 136 (68%) patients had hypertension, 55 (27.5%) were smokers, 53 (26.5%) had diabetes, 28 (14%) had dyslipidaemia, 25 (12.5%) had ischemic heart disease and 7 (3.5%) had insulin dependent diabetes mellitus (IDDM).

When assessed, 102 (51%) had headache, 99 (49.5%) had hemiplegia and 94 (47%) patients had loss of consciousness. Another 61 (30.5%) had hemiparesis, 52 (26%) had vomiting while 49 (24.5%) were found to have seizures (Table-1).

According to the CT scan findings 144 (72%) patients were found to have infarction while 56 (28%) had hemorrhagic stroke. After recommended treatment 182 (91%) patients recovered well and were discharged from hospital while 18 (9 %) patients died.

DISCUSSION

Stroke presents quite frequently in our local settings. Despite the preventable causative factors it is affecting a large segment of population which could be due to negligence. The average age of our patients was 54.6 years which is consistent with a previous study.[6] This shows the health profile of Pakistani people, their average life and exposure to stroke at younger age when compared to developed world. A study from Japan reported mean age of 68.0 years having stroke.[11] Male gender was dominant in our study, a similar trend of gender presentation to previous work.[6,11]

The frequent clinical features of patients in the current study were headache, loss of consciousness, hemiplegia and hemiparesis. This was witnessed by a local study as well where weakness of one side, headache and loss of consciousness/coma were common features.[6]

Hypertension was the most frequent risk factor in this study followed by smoking and diabetes mellitus. Other prominent factors were dyslipidaemia, and previous ischemic heart disease (IHD). This has been found by other investigators as well; Almani SA[6], reported history of hypertension in (35%), smoking in (18%), diabetes mellitus (13%), hypercholesteremia (9%), and history of IHD and previous stroke (6% each). A study by Shimizu et al[11] reported hypertension as most frequent (61%), followed by diabetes mellitus (36.1%), hyperlipidaemia (34.4%) and smoking (35.7%). Some others have also reported similar findings.[2,3]

With increasing age, elasticity of major vessels of brain is reduced. Moreover, due to the increasing socio-demographic inequalities and security crises, many people in our country remain tense and face increased incidence of hypertension (HTN), hence the chances of stroke increase as well.[12,13]

Attitude towards smoking also plays an important role. With awareness towards the dangers of smoking its ratio is declining in the developed countries but due to lack of proper awareness programmes, that's not the case in Pakistan.[11] Incidence of smoking is increasing and in our study smoking is the second leading risk factor for stroke.

Diabetes is a syndrome which not only involves the glucose metabolism but also affects almost each and every system of body. It is also a predisposing factor to atherosclerosis and HTN. It plays a leading role in causation of stroke.[4] Dyslipidaemia and IHD are also important causes of stroke.[14]

According to our findings among clinical features; headache is on the top and was found in more than half of the patients, followed by hemiplegia. Loss of consciousness is a serious sign and unfortunately present in a significant proportion of patients in our research. These have been witnessed by others as well.[6,11–13]

CT scan is an important diagnostic tool in stroke management. Infarction was found in more than two-thirds of current study cases. After treatment most of the patients were discharged alive and in a satisfactory condition.

CONCLUSION

Hypertension, smoking and diabetes mellitus are major modifiable risk factors for stroke. Headache, hemiplegia and loss of consciousness are major clinical features. Ischemic stroke is much common compared to hemorrhagic stroke. With proper care stroke is manageable satisfactorily.

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Address for Correspondence:
Dr. Maqbool Hussain, Assistant Professor, Children Hospital, PIMS, Islamabad, Pakistan. **Cell:** +92-51-9260450–9.
Email: drmaqboolhussain@gmail.com