Original Article

CLINICAL AUDIT OF STROKE PATIENTS PRESENTING AT A TEACHING HOSPITAL

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ABSTRACT

Objective: To determine the mode of presentation, etiology and outcome of patients with stroke.

Methodology: This retrospective one year study was conducted on 50 diagnosed patients with stroke, in the Department of Medicine, Muhammad Medical College Hospital (MMCH) Mirpurkhas from 1st August 2007 to 31st July 2008. All the information was collected from attendants of patients admitted in the intensive care unit for the management of stroke. Collected information was summarized for mode of presentation, etiology such as cerebral hemorrhage, infarction and subarachnoid haemorrhage with the help of computed tomography (CT) scan and outcome of patients with stroke. The data was entered and analyzed in SPSS V 10.1 software

Results: Total 50 patients (30 males and 20 females) were studied. The average age at presentation was 59.5 years. The most common complains were unilateral weakness seen in 16 (32%) patients, loss of consciousness reported by 25 (50%) patients while fever with vomiting was observed in eight (16%) patients. Hypertension was the most frequent risk factor found in 28 (56%) patients whereas 18 (36%) patients were smokers as well as diabetic. Cerebral hemorrhage was seen in 18 (36%) patients, whereas ischemia was responsible for 31(62%) patients. Subarachnoid hemorrhage was found in one (2%) patient only. Eighteen (36%) patients were discharged alive while the remaining 32 (46%) patients died due to fatal nature of disease.

Conclusion: This study showed that the ischemia was the predominant cause of stroke in our patients. Mostly observed in older age group, hypertensive and smoker males. Morbidity and mortality was observed in those patients who reached hospital late. Further basic studies should be conducted for the prevention, early recognition and proper management of risk factors to reduce the incidence of disease and its fatal outcome.

KEY WORDS: Stroke, Hypertension, Ischemia.

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INTRODUCTION

Traditionally, the term stroke has been used to include episodes of focal brain dysfunction due to focal ischemia or haemorrhage as well as subarachnoid hemorrhage. Stroke is a common medical emergency with an annual incidence of between 180 and 300 Per 100,000. The incidence rises steeply with age and in many developing countries, the incidence is rising because of the adaptation of less healthy

lifestyle. About one fifth of patients with acute stroke will die within a month of an event, and at least half of these who survive will be left with physical disability. As regards pathology of patients presenting with a stroke, 85% will have sustained cerebral infarction due to inadequate blood flow to part of the brain, the remainder 25% will have had an intracerebral haemorrhage.[1] Brain imaging is required to distinguish these pathologies and to guide management with CT scan or Magnetic Resonance Imaging (MRI). MRI is more sensitive in detecting infarction than CT Scan.[2] The combination of severe headache and vomiting at the onset of the focal a neurological deficit increases the likelihood of a haemorrahgic stroke.[1]

World wide stroke is the second leading cause of death more importantly; it is the leading cause of chronic disability and its incidence will continue to rise over next 50 years. Fortunately, over the last several decades, the risk factors for stroke have been better identified and treatment of conditions such as hypertension and hyperlipidemia has resulted in a significant lowering of incidence of stroke.[3]

The objective of this study was to determine the mode of presentation, etiology and outcome of patients with stroke.

METHODOLOGY

This retrospective one year study was done on 50 diagnosed patients of stroke, at Muhammad Medical College Hospital in the Department of Medicine, from 1st August 2007 to 31 July 2008. All information was collected and entered on an especially designed Performa from relatives of patients who were evaluated for age, sex, previous history of stroke, hypertension, diabetes mellitus, smoking and hyperlipidemia. Patients were labeled hypertensive, if there were three or more readings of systolic blood pressure (BP) >140mm of Hg or diastolic BP >95 mm of Hg, either before or at arrival or during admission in the hospital. These patients were either taking anti-hypertensive therapy or not.

Patients were considered diabetic if there was history of diabetes mellitus with or without treatment including insulin. If the fasting serum glucose was >126 mg /dl and random serum glucose was >200mg /dl, the patient was considered diabetic. Hypercholesterolemia was considered if serum cholesterol was more than 200mg/dl.[4]

At the time of admission complete examination was done to assess the level of consciousness using Glasgow coma scale, and power of all limbs for involved part of body such as unilateral or bilateral limb paralysis. Only CT scan was advised for the diagnosis of cause of stroke such as infarction, haemorrhage or subarachnoid hemorrhage. After any stroke immediately air way was maintained with mouth gauge. All the patients with ischemic stroke after confirmation with CT scan were given aspirin to reduce the likelihood of having an other stroke. In our study none of patient managed with tissue plasminogen activator (tpA) due to unavailability for monitoring facilities for coagulation profile. Follow-up visits were advised initially after one week than according to condition of patient to see the long term complications of stroke.

RESULTS

A total 50 patients during one year males 30 (60%) and females 20 (40%) of acute stoke were studied during one year period. The average age at presentation was 59.5 years. Twenty one (42%) patients were brought to emergency department within two hour, remaining 29 (58%) reached within three hours. One patient had a history of stroke two years ago. Hypertension was the most frequent risk factor seen in 28 (56%) patients, where as 18 (36%) patients were smoker also having diabetes and only 4 (8%) patients were found diabetic. Hyperlipidemia in association with diabetes was found in 15 (35%) patients. Details regarding clinical presentation, risk factors, underlying cause and final outcome are given in Table-I, II, III and IV. All the patients were managed medically and only one (2%) patient was referred to Jinnah Postgraduate Medical Center Karachi for surgical intervention due to severe intracranial haemorrhage.

Table-I: Clinical presentation of the stroke patients (n=50)

Clinical Presentation	*N*	*%*
1. Unilateral weakness	16	32%
	F=06 (38%)	
	M=10 (62%)	
2. Loss of consciousness	25	50%
	F=09 (36%)	
	M=16 (64%)	
3. Fever and vomiting	08	16%
	F=4 (50%)	
	M=4 (50%)	
4. Fever	01	02%
	F=01 (100%)	
	M=00 (00%)	

All the patients were managed with aspirin, while none of the patients was managed with thrombolysis such as tissue plasminogen activator, heparin and warfarin because of unavailability of monitoring facilities for coagulation profile.

All hypertensive patients were managed with anti-hypertensive drugs. Mean hospital stay of our patients was 13± 5days.

DISCUSSION

In this study we determined the average age of patients was 59.5 years, with male to female ratio 3:2. When compared with the Rotterdam study[4] which shows, prevalence of self reported stroke was 2.5% in mean aged 55 to 64 years, 5.0% in mean aged 65 to 74 years, 8.9% in mean aged 75 to 84 years, and 11.6% in mean aged 85 years or older. This study confirms that the incidence rises with age in both sexes. The average age was lower in our study. Stroke is more prevalent in men than women and that is confirmed by many studies, males are 1.25 times more likely to suffer strokes than females.[5, 6] After advance age, hypertension was the most common risk factor seen in 28(56%) patients.[6] Hypercholesterolemia causes more ischemic strokes than haemorrhagic stroke[5] which was confirmed by our study. Diabetes mellitus is also an important risk factor seen in many studies.[1,5] we found 18(36%) patients with diabetes mellitus along with smoking.

Stroke symptoms typically develops rapidly (seconds to minutes) in most of the cases, the symptoms affect only one side of the body (unilateral).[4] When we compare it with our study unilateral weakness also common after loss of consciousnesses was found in most cases, loss of consciousness, headache and vomiting

Table III: Underlying cause of the stroke patients (n=50)

Underlying Cause	*N*	*%*
1. Cerebral hemorrhage	18	36%
	F= 08 (44%)	
	M=10 (56%)	
2. Ischemia	31	62%
	F=12 (39%)	
	M=19 (61%)	
3. Subarachnoid hemorrhage	01	02%
	F=00 (00%)	
	M=01 (100%)	

Table II: Risk Factors of the stroke patients (n=50)

Risk Factors	*N*	*%*
1. Hypertension	28	56%
	F=11 (39%)	
	M=17 (61%)	
2. Smokers and diabetic	18	36%
	F=08 (44%)	
	M=10 (56%)	
3. Diabetic	04	08%
	F=01 (25%)	
	M=03 (75%)	

Table IV: Outcome of the stroke patients (n=50)

Outcome	*N*	*%*
1. Discharged alive	18	36%
	F= 08 (44%)	
	M=10 (56%)	
1.1 Disabled	15/18	
	F= 06 (40%)	
	M= 09 (60%)	
1.2 Completely recovered from disease	03/18	
	F= 01 (33%)	
	M= 02 (66%)	
2. Mortality	32	46%
	F=12 (37%)	
	M=20 (63%)	

usually occurs more often in haemorrahgic stroke than ischemic stroke[1] that is proved by our study.

Ischemic stroke is most commonly seen in our patients in comparison with other studies[1-5], i-e 31 (62%), where as hemorrhage was found in remaining 18(36%) patients. All the patients were managed in the emergency department according to National and International management protocol.[2] In our study none of the patients was managed with tissue plasminogen activator (tPA) due to unavailability of monitoring facilities for coagulation profile. All hypertensive patients were managed with antihypertensive drugs, studies shows that antihypertensive therapy results in a greater risk reduction.[4] Eighteen (36%) patients were discharged home alive, out of them 15(83.3%) with physical disabilities such as pressure sores, urinary incontinence, speech loss.[6,7] Four out of 15 disabled that is about (26.6%) patients developed post stroke seizures. When we compare it with other studies it showed 10% of survived patients develop post stroke seizure. Most common type of seizure was generalized seen in all 4 (26.6%) patients i-e is confirmed by an observational study.[8-11] Majority of patients had ischemic stroke, but mortality was seen higher with haemorrhagic stroke.[12] That was also confirmed by our study.

CONCLUSION

In this study we observed that hypertension remains the most common risk factor for stroke especially in cerebral hemorrhage followed by diabetes mellitus. Hypercholesterolemia and smoking are also important risk factors especially in cerebral infarction. Ischemia is the predominant cause of stroke. It is concluded that increasing the number of risk factors, late arrival at hospital due to unavailability of transport and lack of basic immediate care at primary basic health units for referral to tertiary care hospital increases the morbidity and mortality of patients with stroke. So all emphasis should be given to the basic training and early diagnosis. Referral facilities can help in reducing the morbidity and mortality. Further studies must be conducted to observe the improvement with the reduction of risk factors such as hypertension and diabetes and changing life style is helpful in the prevention of disease and to reduce the morbidity and mortality due to stroke.

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