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FREQUENCY OF KNOWN RISK FACTORS FOR STROKE IN POOR PATIENTS OF A TEACHING HOSPITAL IN DISTRICT SWAT.

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ABSTRACT

Objective: To study the frequency of known risk factors for stroke in poor patients of Swat district.
Design: prospective, descriptive hospital based study.
Setting: Saidu teaching Hospital Saidu Sharif district Swat.
Subjects and Methods: All poor patients admitted to the general medical ward of Saidu teaching Hospital during June 2005 to May 2007 were included in the study.
Type of stroke was identified by C.T.scan. Risk factors for stroke and other relevant information was recorded on properly designed proforma. The data was analyzed on SPSS
Results: Data of 134 patients, 75 male and 59 females was collected. 92 patients (70%) had cerebral infarction, 30 patients (23%) had cerebral haemorrhage. 12 patients had normal C.T scan (non enhanced). Most patients had more than one risk factor. Hypertension was present in 61%, smoking 50%, sedentary habits 38%, diabetes 33%, dyslipidemia 32 %, coronary artery disease 22 %, obesity 11%, alcoholism 2% and carotid artery stenosis 5%. In hospital mortality was 20%. Eighty eight percent of patients were dependent at the time of discharge for their daily activities.
Conclusion: Hypertension, smoking and diabetes are major risk factors for the development of stroke in general poor population. All aims of primary and secondary prevention should address these major risk factors. Most of the patients become dependent and it is very important to develop stroke units, physiotherapy programs and rehabilitation centers to reduce morbidity due to stroke in a poor community.
Key Worlds: Stroke, Risk factors, Swat District.

INTRODUCTION

Cerebro vascular diseases constitute 3rd most common cause of death world wide[1].Stroke kills about 5 million people annually.[2] At least 15 million other people become the victims of non fatal stroke and about 1/3 of them become permanently disabled and dependent on others.[2,3] This adds a great burden to a poor family. One earning member is lost and others have to look after him and buy expensive medications adding to the days lost from work-place. Thus primary as well secondary prevention is of utmost importance[4,5]. There have been several studies on the risk factors of stroke in Pakistan[6-10] but there is no study from Swat district. So we studied the poor general population of this district being admitted to local hospital with Stroke, to find out the frequency of known risk factors. The major known risk factors for stroke are non-modifiable like age, sex, genetics, family history, race and ethnicity. The modifiable risk factors are Hypertension, Diabetes, Sedentary life style, obesity, structural heart diseases ,Atrial fibrillation, smoking and excess alcohol consumption[3,4,6,11,12]. It has been proven in large scale randomized properly controlled studies that risk factor modification plays a major role in prevention of morbidity and mortality due to Cerebro-vascular diseases.[12-17]

MATERIALAND METHODS

This is a hospital based descriptive study, carried out in Saidu Teaching Hospital, Saidu Sharif, Swat.

Duration of the study was from June 2005 to June 2007.

All patients admitted to the General Medical ward of this Hospital during the study period with a diagnosis of established stroke, defined as acute focal neurological deficit lasting more than 24 hours, were included in the study.

Poor was defined any patient seeking admission to a general ward and requesting for free drugs and financial help.

Exclusion criteria: Any patients with other CNS diseases like Meningitis, encephalitis, brain abscess or tumor etc were excluded. Detailed profiles of patient including known risk factors were recorded on a preplanned proforma.

Profile included age, sex, history, clinical evaluation and laboratory investigations. History included history of any systemic disease, Transient Ischemic Attacks, family history and personal history, history of smoking, smoking years, number of cigarettes smoked per day and alcohol consumption if any with full details. Drug history and history of contraceptive pills was obtained. Detailed clinical examination included regular recording of blood Pressure, proper examination of cardiovascular system and documentation of focal neurological deficit. Atrial fibrillation and Carotid bruit were specifically looked for.

A patient was labeled as Hypertensive, if he or she had a past history of Hypertension, taking anti Hypertensive medications or had persistently elevated BP more than 140/90 without treatment during hospital stay.

Patients were labeled as Diabetics if they were already having this diagnosed and taking medications and the new one were diagnosed on the basis of International diagnostic criteria[18] for Diabetes.

Dyslipidemai was diagnosed on the basis of NCEP III guidelines.[19] Obesity was diagnosed on the basis of BMI of more than 28 or waist to hip ratio of > 0.80 in females or 0.95 in males[20].

Disability was measured using a scheme derived from the World Health Organization (WHO) International Classification of Impairments, Disabilities, and Handicaps.[21] In all, 13 areas of disability were identified: (1) locomotion (2) reaching and stretching (3)Dexterity (4)personal care (5) continence (6) seeing (7) hearing (8)communication (9) behavior (10) intellectual functioning (11) consciousness (12) eating, drinking and digestion, and (13) disfigurement. The minimum score for each dimension was 0, the highest achievable score differed across the dimensions, and ranged from 9.5 to 13.0. Patients were grouped to mild, moderate or completely disabled categories based upon their aggregate score. Improvement was defined as a definite increase in total score to result a change in this category.

Investigations included full blood count, urinalysis, blood sugar, blood urea, Lipid profile and Electrocardiogram. These were done in all cases. In selected cases Echocardiogram was done. CT scan head was ordered in all cases and those who refused or could not afford were not excluded from the study. Selected patients had Echocardiography and Carotid Doppler study.

RESULTS

Data of 134 cases of strokes were recorded during the study period. There were 75 males and 59 females. The age range was from 20 years to 90 years with a mean age of 55 years. Mean age for male was 52 years and for female was 58 years.

Younger age group 20- 50 years had cardiac diseases. Out of them, 85% had valvuler heart diseases and the remainder having cardiomyopathy or ischemic heart disease.

The average stay in the hospital was 6.7 days ranging from 2 to 14 days. 27 patients (20%) died during the hospital stay. Unconsciousness, hemorrhagic stroke, old age and associated coronary artery disease were the most important determinants of out come.

Type of stroke included cerebral infarction in 92 cases (70%) and hemorrhage in 30 cases(23%), 12 other patients having normal CT scans were

considered having an ischemic stroke. In-hospital stay was complicated by chest infection in 20% of cases and urinary tract infections in 33%. The frequency of different risk factors is shown in Table 1.

Table-I: Risk factors for stroke in poor patients (n = 134)

Hypertension	81(60%)
Smoking	40(30%)
Diabetes Mellitus	55(41%)
Dyslipidaemia	22(16%)
Coronary artery disease	29(22%)
Previous stroke	15(11%)
Carotid artery stenosis	10(7.5%)
Atrial fibrillation	15 (11%)
Polycythaemia	2 (1.5%)
Alcoholism	5(3.7%)
Heroin addiction	2 (1.5%)
Obesity	18 (13%)
Sedentary life style	40 (30%)

As shown in table 2, Overall mortality was 20 % (26 patients).Among the survivors, improvement was recorded based upon the scoring system for disability described earlier, [19] forty two percent (42%) patients showed marked improvement whereas 34% showed only slight improvement . Overall 90 % of patient discharged from hospital were dependent for their activities on others to a variable degree. Only 10% of them were fully independent on discharge from hospital. 8% of these discharged patients were in comatose state with Catheter and N/G tube in place.

Table 2: Out come of Patients admitted with acute Stroke (N=134)

1	Marked Improvement	42%
2	Slight Improvement	34%
3	Dependent on others	90% of the discharged patients
4	Comatose with Cathetars & N/g tubes	8%
5	Patients died	20%

DISCUSSION

Various studies around the world have shown profiles of stroke patients and relative frequency of different risk factor in those countries. Raised blood pressure is an established risk factor for both stroke incidence[11, 12] and mortality[13, 14]. The 12-year follow-up of the Oslo study of men found blood pressure to be significantly related to stroke mortality and incidence, with mortality being predicted better than incidence.[15] Hypertension was present in 60% of patients in our study which is similar to as reported in other studies.[11,12]. Elevated blood pressure is strongly and directly related to vascular and over all mortality[13]. Studies have shown that lowering blood pressure substantially reduces the risk of vascular events.[14]

Cholesterol has not been related directly to stroke incidence or mortality, but this may mask a relationship of cholesterol with some stroke subtypes[15].

Generally, there is less evidence of obesity being related to stroke, although it could be acting through its association with other risk factors for stroke, such as elevated blood pressure, blood glucose, and obstructive sleep apnea.[16,17,22]

Height is inversely associated with stroke incidence and mortality. In the British Regional Heart Study of men, an inverse association was seen with fatal but not with nonfatal stroke.[23] Height was inversely associated with stroke events for men but not women in a study in southeastern New England.[24] In the Oslo study, there was a suggested inverse association between height and stroke incidence and mortality[15].

Thirty percent of our total patients, all from male group, were Smokers. Smoking has been seen as a risk factor for stroke incidence in other studies to a variable extent.[11,15, 25, 26] In the Oslo study of men, smoking was found to be a stronger predictor of stroke mortality than incidence.[15] A dose response was seen with cigarette smoking, and smoking cessation reduced the stroke incidence risk.

Diabetes was present in 41% of our patients. Diabetes has been recognized as a risk factor for stroke incidence[11, 25] and mortality.[27, 28] Studies have also shown that the risk of stroke in patients with diabetes mellitus is about four times as compared to normal individuals.[25, 26, 27]

Glucose levels in non-diabetic subjects is significantly related to stroke incidence and mortality in women but not men. The Oslo study failed to find significant relationships between glucose and stroke incidence or mortality in non diabetic subjects.[15] Also this large famous study found no relationship between body mass index and stroke mortality or incidence.

Dyslipidemia was seen in 16% of cases, which is similar to another study done in Pakistan.[7,8]

Preexisting CHD was significantly related to stroke, confirming other studies.[11, 25] In our study coronary artery disease was present in 22% and 13% patients were found obese. These figures are in comparison with other such papers from different parts of Pakistan[8,9,10].

There was no significant sex difference in prevalence of stroke in our study which is in agreement with other larger studies. Similarly the frequencies of other risk factors did not differ much from those reported by other groups.

High mortality of stroke in our study i.e., 20% emphasizes the importance of urgently seeking medical advice after the onset of stroke. It is time to initiate screening and follow up programs for hypertension, diabetes and other modifiable risk factors along with effective educational campaigns.

The main limitation of our study is the small number of patients as compared to very large studies reported from west. Certainly it will be only after large scale epidemiological studies in our country that will help us to formulate us National Guidelines on Stroke Prevention. However it does help to understand the relative frequency of different known risk factors for stroke in poor patients of this part of country.

CONCLUSION

Our study suggest that appropriate measures are needed to reduce the high mortality rates in our patients and to increase the awareness of putative risk factors for patients with Cerebrovasculer disease. At the country level, reducing the burden of acute stroke or Brain attack will require continuous public education and focus on controlling common risk factors, early recognition of symptoms, and the importance of urgent transport to the hospital. In district hospitals, there is a burning need for easier access to health-care facilities with better and more efficacious organization of the emergency care system.

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