

FREQUENCY OF RISK FACTORS IN STROKE PATIENTS ADMITTED TO DHQ TEACHING HOSPITAL D.I.KHAN

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ABSTRACT

Background: There are a number of risk factors for stroke. The aim of this study was to explore modifiable risk factors in patients admitted to medical unit, DHQ Teaching D.I.Khan.

Methodology: This descriptive study was conducted on 50 patients with stroke, admitted to medical unit DHQ Teaching Hospital D.I.Khan from October 2006 to July 2007. A simplified clinical approach was adapted by evaluating each patient. All the findings were recorded in printed proforma. Patients with focal neurological deficit for more than 24 hours presenting within 7 days of onset, irrespective of age and demographic profile were included in the study. Those with tubercular meningitis, brain tumor, viral or bacterial encephalitis, trauma, or multiple sclerosis were excluded.

Results: Out of 50 patients, 38(76%) were males and 12(24%) females with male to female ratio 3:1. Mean age was 63.42 years. Cerebral infarction was found in 32(64%) patients while 18(36%) had intracerebral hemorrhage on CT scan. The important risk factors were hypertension (60%), diabetes mellitus (20%), hyperlipidemia (18%), cigarette smoking (16%) and cardiovascular disease (16%).

Conclusion: Hypertension is the most common modifiable risk factor for stroke especially in cerebral hemorrhage. Diabetes mellitus, hyperlipidemia and smoking are other important risk factor.

Most of the major risk factors for stroke are modifiable and need awareness, regular use of medication and changes in life style for prevention. The national stroke prevention program should initiate and coordinate public awareness campaigns and develop guidelines to reduce the incidence, morbidity and mortality of stroke in Pakistan.

KEY WORDS: Stroke, Risk factor, Modifiable risk factors.

INTRODUCTION

Stroke or brain attack is defined as rapidly developing symptoms and/or signs of focal and at times global loss of cerebral function lasting for 24 hours or more with no apparent cause other than that of vascular origin.¹ Traditionally the term stroke has been used to include episode of focal brain dysfunction due to focal ischemia or hemorrhage.² Ischemic stroke occurs in 85% cases and is due to blockage of blood flow in one of the vessels supplying the brain. Hemorrhagic stroke occurs in 15% cases due to rupture of an artery. Stroke is one of the leading causes of morbidity and mortality worldwide. It is the third most common cause of death in the developed world after heart disease and cancer.^{2,3} Approximately 15 million people worldwide suffer from stroke annually, of these more than 5.5 million die⁴ another 5 million are left permanently disabled making burden on family and community.⁵ The incidence of stroke

varies among different population. In United States the incidence is about 200 patients per 100,000 population while in Pakistan stroke it is close to 250 per 100,000 population which means that there are 350,000 new stroke patients every year in this country.⁶ This is because high blood pressure being a major risk factor for stroke is very common. A national health survey revealed that more than 30% population above age 45 is suffering from high blood pressure, most of whom are undiagnosed and uncontrolled.⁶ Out of all ethnic groups pukhtoons have the highest prevalence of blood pressure and stroke.⁶

There are a number of risk factors which play important role in stroke and precede it by several years. Those at high risk for developing stroke can be identified and treated accordingly for specific intervention.^{7,8} To reduce the risk factors it is essential to identify and modify these factors. The modifiable risk factors are hypertension, diabetes

mellitus, cardiac disease, smoking, hyperlipidemia, alcohol consumption, previous TIA, CNS infections, oral contraceptives, diet, hemorrhagic abnormalities and migraine. Age, sex, race and heredity are few non-modifiable risk factors. Reduction of blood pressures will alone reduce the risk of stroke by 40% or more. The risk can be further reduced by controlling the other modifiable risk factors as mentioned above.

The aim of this study was to explore the various modifiable risk factors for stroke patients admitted in medical unit of DHQ Teaching D.I.Khan.

MATERIAL AND METHODS

This descriptive study was carried out on 50 patients with stroke admitted to Medical unit of DHQ Teaching Hospital D.I.Khan from October 2006 to July 2007.

Stroke was defined as neurological deficit due to vascular lesion. All patients with focal neurological deficit of more than 24 hours duration presenting within 7 days of onset irrespective of age and sex and demographic profile were included in this study. Patients with tubercular meningitis, viral or bacterial encephalitis, trauma, and multiple sclerosis were excluded.

Each patient was thoroughly evaluated for presence of risk factors for stroke. A detailed history was taken followed by a thorough clinical examination. After that investigations were carried out. All the findings were recorded in printed proforma. History included history of smoking, past history of stroke or TIAs, family history of stroke, alcohol intake, use of antidiabetic or antihypertensive drugs and in the females use of oral contraceptives. Detailed clinical examination with special emphasis on neurological or cardiovascular system was performed. It included B.P, carotid bruit, evidence of atrial fibrillation, xanthoma, xanthelasma. Investigations included blood glucose, lipid profile, ECG, Blood complete with ESR. Each patient had a CT scan brain to evaluate type of stroke. If indicated contrast CT Scan, Echo and carotid doppler flow studies were done to confirm the diagnosis and assess cardiovascular risk factors. Hypertension was diagnosed as past medical history of hypertension, patients taking antihypertensive therapy or BP reading of more than 140/90mmHg. Diabetes was diagnosed according to WHO criteria. Dyslipidemia was diagnosed if the patient total cholesterol, LDL & HDL were abnormal according to NCEP III guidelines.

RESULTS

Fifty patients with confirmed stroke on CT scan were selected for the study. Out of these

38(76%) were males and 12(24%) females with male to female ratio of 3:1. Mean age was 63.42 for all cases while mean age in males and females was 62.97 and 64.83 respectively. (Table 1)

Table 1: Age and sex distribution of patients with stroke.

Age Group (years)	Sex		Total
	Male	Female	
30-39	1	0	1
40-49	3	0	3
50-59	9	3	12
60-69	15	5	20
70-79	8	3	11
>80	2	1	3
Total	38 (76%)	12 (24%)	50 (100%)

Cerebral infarction was found in 32 patients (64%) while 18(36%) had intracerebral hemorrhage on CT scan. (Table 2)

Table 2: Showing CT findings.

CT finding	Male	Female	Total
Infarction	25	7	32 (64%)
Hemorrhage	13	5	18 (36%)
Total	38	12	50 (100%)

In 26 patients, right side of brain was affected while in 23 patients left side was affected. One patient was having bilateral involvement of cerebral hemisphere.

Hypertension was the most important risk factor, present in 60% of patients; male to female ratio was almost equal. Hypertension was present in 17 (53%) patients out of 32 cases of cerebral infarction, while it was present in 12(66%) patients out of 18 cases of cerebral hemorrhage.

Other important risk factors were diabetes mellitus 10 (20%), hyperlipidemia 9 (18%), cigarette smoking 8 (16%), cardiovascular disease 8 (16%).

Eight patients were having both hypertension and diabetes mellitus. Atrial fibrillation was found in 2 (4%), history of alcohol intake in one patient while one female patient had history of taking oral contraceptives. Two patients had previous history of stroke. (Table 3)

Table 3: Showing risk factors in stroke patients.

S. No	Risk factor	Total
1	Hypertension	30(60%)
2	Diabetes mellitus	10(20%)
3	Hyperlipidemia	9(18%)
4	Cigarette smoking	8(16%)
5	Cardiovascular diseases	8(16%)
6	Alcohol intake	1(2%)
7	Contraceptives	1(2%)

DISCUSSION

Stroke is a leading cause of mortality and morbidity. Its incidence increases with age and is high in men than women⁹ In our study mean age was 63.4 years which is slightly higher than 60.8 years reported by Iqbal F et al¹⁰ and much lower than 70 years in united states.¹¹ This difference may be due to better awareness and control of risk factors in United States and shorter life span in Pakistan.

This study showed male to female ratio of 3:1 which is higher than that reported by Khan J et al i.e. 2.18:1¹² and Shakoor K 1.5:1.¹³ High ratio in male patients in our study may be because of additional risk factors in males like smoking.

Cerebral infarction was reported in 64% of our patients while hemorrhage was found in 36% patients which is not quite different from that reported by Ali et al¹⁴ and Raza & Imran.¹⁵

Among the risk factors hypertension was the most important risk factor, reported in 60% of patients which closely resembles other studies in Pakistan.¹⁶⁻¹⁸ Hypertension is a major risk factor both for ischemic and hemorrhagic stroke. Studies have shown that lowering blood pressure substantially reduce vascular events.¹⁹

Diabetes mellitus was a risk factor in 20% of our cases which is slightly lower than 30% reported by other local studies.^{12,20} The reason could not be explained.

Sixteen percent patients were having both hypertension and diabetes mellitus. The two risk factors often coexist and increase the chances of having cardiovascular and cerebrovascular diseases.

Hyperlipidemia was reported in 18% which closely resembles 19% reported by Khan H et al.²⁰

Other important risk factor was smoking 16% which is lower than reported by other studies 44.4%¹⁶ and 53%.¹⁷ It may be due to geographical variation as these two studies were carried out in Sindh and Lahore where cigarette smoking is higher.

Cardiovascular diseases mainly ischemic heart disease and atrial fibrillation are also known factors for stroke which were present in 16% and 4% of our patients respectively.

One patient gave history of alcohol intake.

Our study shows that hypertension and diabetes mellitus are the two major risk factors for stroke. Most of our patients were uneducated and unaware of the consequences of poor control of hypertension, diabetes mellitus and other risk factors. Our study confirms the findings of previous studies conducted in Pakistan which also shows that hypertension is the leading risk factor for stroke.

CONCLUSION

Our study confirms that hypertension is the most common modifiable risk factor for stroke especially in cerebral hemorrhage. Diabetes mellitus, hyperlipidemia and smoking are also important risk factor. Most of the major risk factors for stroke are modifiable and need awareness, regular use of medication and changes in life style for prevention. The national stroke prevention program should initiate and coordinate public awareness campaigns and develop guidelines to reduce the incidence, morbidity and mortality of stroke in Pakistan.

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