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Research Article

**A CROSS SECTIONAL STUDY ON THE RISK FACTORS OF
STROKE**¹Dr. Alam Zeb, ¹Dr. Muhammad Riaz, ²Dr. Zara Babar¹Pakistan Institute of Medical Sciences (PIMS), Islamabad²DHQ Hospital Nankana Sahib**Abstract:**

Objective: This is a hospital case control study and the aim of this research is to how stroke increase the ratio of ephemerality all over the world, Stroke consider 3rd primary cause of human death. The main objective of our research study was to control the frequency and 1st attack of stroke in our patients.

Patients and Methods: All the participant of this research study were from both sex under the age of twenty to seventy-year-old and all these patient was admitted in Pakistan Institute of Medical Sciences (PIMS), Islamabad, with first stroke verified by CT scan brain during a period of one year.

Results: our research demonstrates that 71% had psychological infection and 29.9% psychological hemorrhage. The average age at demonstration was sixty two years and the ratio between lady to gender was 1:5. The main causes of stroke was 65.8% is hypertension, 43% is smoking and 41.3% is diabetes mellitus also 29.1% is underlying cardiac diseases our observation also on the patient family twenty six point seven percent are those patient whose relatives was suffer from ischemic attack and 25% are those whose family had high cholesterol, 24.9% patient was suffer from short term ischemic attack in past and in 18.18% patients was extra cranial carotid atherosclerosis. The ratio of death was increase up to 11.7% in hospital in thirty days 22.27% of all stroke survivors were functionally independent. According to our study survey the ratio of diabetes mellitus was more and underlying cardiac diseases less as compared to the western. Cerebral hemorrhage was relatively more common and the mean age at presentation was lesser compared to those in the developed countries. **Conclusion:** Those patients whose suffer from Stroke such patient consume their body strength and body part did not work properly so accurate information about the incidence, risk factors, to prevent community from initial and secondary stroke follow medico-convivial role for patient's services,

Key Words: Stroke, Risk factors, cerebral hemorrhage, cerebral infarction.

Corresponding author:**Dr. Alam Zeb,**

Pakistan Institute of Medical Sciences (PIMS),

Islamabad

QR code



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INTRODUCTION:

Hemorrhage cerebral function; we fully concentrate on our patient to find out the symptoms of stroke after twenty-four hours examine we find cause only on vascular origin. This diverse cause was a clinical observation not a concluded result of symptoms. The common subtype of stroke is ischemic and hemorrhagic. By the help of subtype of stroke, we could give better treatment to our patient and easily identifying and understanding the nature of a disease. To know the type of stroke we used therapy like Computed tomography or magnetic resonance. For the treatment of stroke disease, it is necessary for patient to increase physical and mental function and decrease sharp complexity & simplify reclamation.

On the world basis the stroke ratio is more in developed countries as compared to developing

countries. India collected the stroke patient data on the bases of population. The ratio of stroke patient was changed in different place of India and ranges from forty to two hundred and seventy per one hundred thousand it was lower than western countries the ratio of stroke was four hundred to eight hundred per one hundred thousand in western. Ethnic, socio-economic and dietary factors may be responsible for this variance. The hospital bases analysis of stroke patient who admitted in Peshawar at same place and eight year ago the result that out of 12,454 cases only 796 patient had a stroke problem which only six point four percent of whole population

To prevent patient from stroke it was important to studies cause of stroke. There are many risk factors which was the main causes of stroke in past many theory was given the researcher about the causes of stroke, stroke occurs due to two type of risk factor non-modifiable risk factors & modifiable.

Non-Modifiable Risk Factors		Modifiable Risk Factors	
1	age	1	. Hypertension
2	gender	2	atrial fibrillation & other cardiac disorders
3	race	3	Dyslipidemia & transient ischemic attack
4	ethnicity	4	Diabetes &, cigarette smoking
5	heredity	5	physical inactivity & carotid stenosis

Now a days the stroke death is decreases from past but due to stroke the disability ratio is increased the disability factor increase the \financial challenge for community.

The aim of our current research study was: -

- * To determine the repetition of different established risk factors for stroke.
- * To compare the stroke of patients to the medical risk factor to determine the type of stroke.

MATERIAL AND METHODS:

Inclusion Criteria: All the patients of this research study from both sex under the age of twenty to seventy-year-old and all these patient was admitted in Pakistan Institute of Medical Sciences (PIMS), with first stroke verified by CT scan brain during one year from Apr 2017 to Mar 2018 were included in the study.

Exclusion Criteria: in our research study we eliminate some patient due to the following reason.

- * History of past stroke
- * bleeding into the subarachnoid
- * TIS

- * Reflex syncope
- * Presumptive tests of stroke with ambiguous neurological loss.
- * (FND) secondary to head an infective, metastatic tumor
- * Previous strict physical or mental disability.

Study Tool: in our research first we taking oral approval from patient about the stroke attack more the researcher also conducts the physical examination of a patient the researcher noted all the detailed history of patient the researcher also documented the patient name, age, (TIA) and past history of family member the clinical observation is also listed in form. **Stroke:** The WHO definition of stroke was used. Stroke was defined as the sudden death of brain cells due to insufficient supply oxygen, caused by blockage of blood flow or rupture of an artery to the

brain. Sudden loss of speech, weakness, or paralysis of one side of the body can be symptoms. A suspected stroke may be confirmed by scanning the brain with special X-ray tests, such as CT scans brain. The death rate and level of disability resulting from strokes can be dramatically reduced by immediate and appropriate medical care. Prevention involves minimizing risk factors, such as controlling high blood pressure and diabetes. There are two type of stroke 1st hemorrhagic stroke and 2nd was ischemic stroke symptom of both can determine by the help of CT brain when bleeding was found in the brain images such type of stroke called hemorrhagic stroke if there was no bleeding in brain images that stroke consider ischemic stroke. Patient who physically feel the symptom of stroke but normal CT scan that case also consider ischemic stroke.

Hypertension: in our research study we consider hypertension patient those who had the investigation of hypertension or treated for it before stroke. For normal adult systolic blood pressure were 120 mm Hg & diastolic blood pressure were 80 mm Hg. When systolic blood pressure is equal to or above 140 mm Hg and/or a diastolic blood pressure equal to or above 90 mm Hg the blood pressure is considered to be hypertension or high.

Diabetes mellitus: Diabetes mellitus is a chronic disease that occurs either when the pancreas does not produce enough insulin. Insulin is a hormone that regulates blood sugar. Hyperglycemia is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels. Hospital admitted patients were most used hypoglycemic insulin to regulate random blood sugar.

Smoking: A person is divided in three groups.

Type of smoker	Definition
current smoker	Person who smoke one cigarette in 24 hours & continue it up to 3 months or more.
Ex-smoker	Person who smoke one cigarette in 24 hours & continue it up to 3 months or less.
Never smoker	Person who never smoke or smoked 1 cigarette after few days & currently not smoke.

Dyslipidemia: defined when a patient had low-density lipoprotein (LDL) cholesterol levels, or low levels of high-density lipoprotein (HDL) cholesterol, is an important risk factor for stroke during hospital stay blood cholesterol not exceeded from two hundred mg percent.

Cardiovascular causes: Those Patients which had cardiac abnormality have Plaque buildup thickens and stiffens artery walls, which can inhibit blood flow through your arteries to your organs and tissues. Atherosclerosis is also the most common cause of cardio vascular disease. It can be caused by correctable problems, such as an unhealthy diet, lack of exercise, being overweight and smoking.

Cardiac echo was done for witness of heart attacks, blood clot, heart muscle disease; increasing volume of tissue due enlargement of component and (LVH), Damage of heart valves or any Akinetic mutisum was report as a possible origin of embolus in patients of brain infarction.

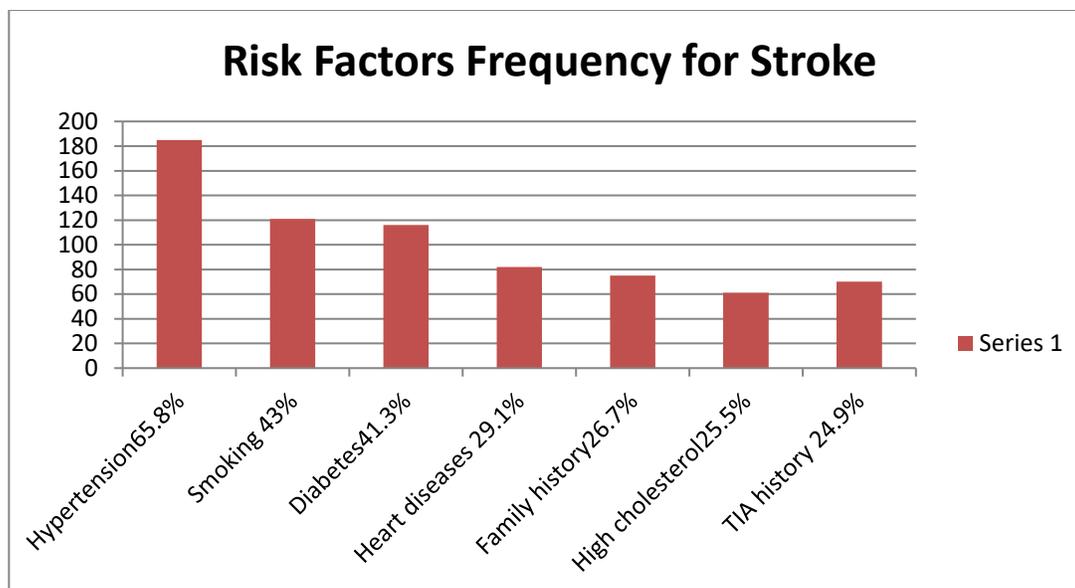
Family History: That patient whose family was already suffer from mini stroke that family was considered positive family history of stroke. SPSS software was used for data analyzing. To find out the frequency and percentages of stroke qualitative variables were used and χ^2 test was used to find out the types of stroke. For the calculation of mean standard deviation qualitative variables were used. To find out the different type of stroke the t-test was conducted to find it. If the P value is greater than 0.050 these types of stroke was considered significant.

RESULTS:

Between 4/1st/1997 and 3/31st/1998, the total admitted patient due to first stroke in Pakistan Institute of Medical Sciences (PIMS), up to 281. under this study male were 144 and female were 137. Under the age fifty one to seventy year the stroke frequency was maximum in patients the commons age of all patients was sixty two year ± 11.28 years.

Table-I: Risk Factors Frequency for Stroke

Risk factors		Total no (N)	percentage
1	TIA history	Seventy	Twenty four point nine
2	High cholesterol	Sixty one	Twenty five point five
3	Family history	Seventy five	Twenty six point seven
4	Heart diseases	Eighty two	Twenty nine point one
5	Diabetes	One hundred & sixteen	Forty one point three
6	Smoking	One hundred & twenty one	Forty three
7	Hypertension	One hundred & eighty five	Sixty five point eight



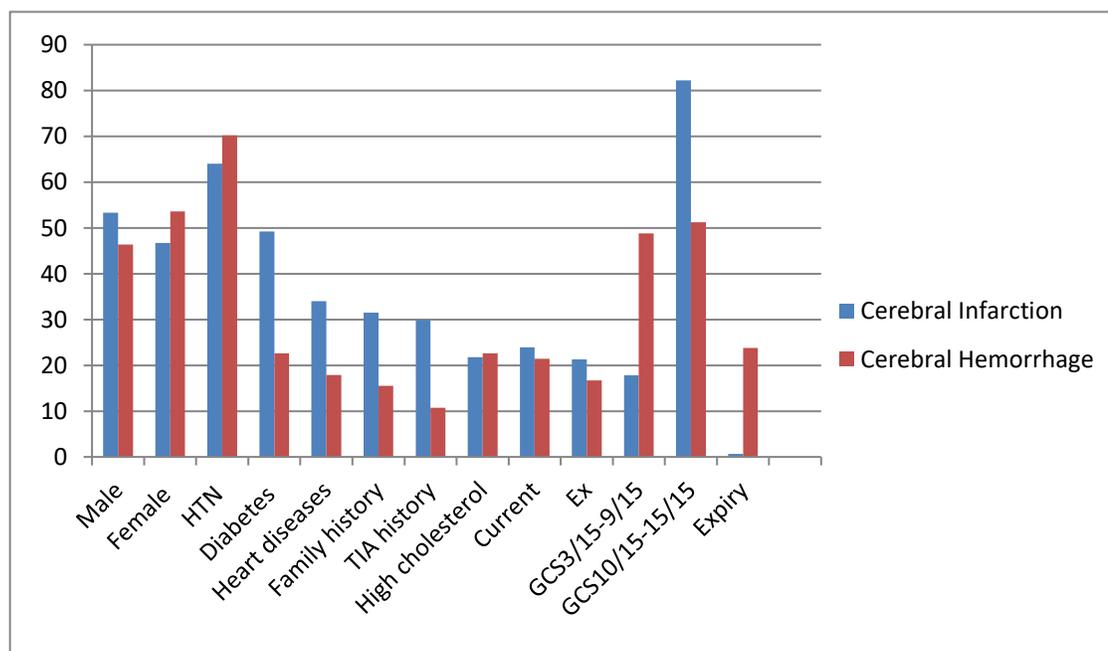
259(92%) patient is those who left or right side of body effected due to stroke (hemiplegia) one hundred eighteen (42%) patient was not speak clearly, eighty-two (29.18%) some Patient had migraine, eighty (28.4%) patients were recurrent vomiting and forty-four (15.6%) developed fits. Two hundred five (72.95%) had Glasgow Coma Scale (GCS) between ten/fifteen- fifteen / fifteen showed minor injury and seventy-six (27%) between three/ fifteen - nine/ fifteen. Showed moderate injury Carotid bruit was audible in forty-five (16%) and cardiac murmurs in eighteen (6.4%). Risk factors of stroke are discuses in the above table-1 with repeated frequency. The systolic and diastolic blood pressures of a stroke patient were $163 \pm 24.14\text{mm Hg}$ & $101 \pm 44.3\text{mm Hg}$ respectively. The fasting blood sugar & random blood sugar of a stroke patient was $120 \pm 61.89\text{mg\%}$ & $192 \pm 86.86\text{mg\%}$ respectively & the cholesterol value was $183.62 \pm 58.7\text{mg\%}$. 197 (70.1%) had brainy infarction and eighty-four (29.9%) 1st brainy hemorrhage, verified by computed tomography. In one hundred forty (53.6%) ECGs

some irregularity like LVH/ high blood pressure strain pattern, heart attacks/ischemic heart disease (IHD), abnormal heart rhythm(A-fib) was noted.in other one twenty-one (46.3%) patient it was noted normal. By the help of Echo and ultrasound we only find out cerebral infarction in our patient. Abnormal cardiac echo finding as LVH, left or right atrial enlargement, loss of muscle movement/Parkinson's disease (PD), same other heart disease was study in fifty-nine (34%) patients. In carotid Doppler studies>seventy percent abnormal narrowing in a blood vessel/ Artery-to-artery embolism was find in twenty-eight (18.18%) patients.

In two eighty-one patients two forty-eight (eighty-eight %) reborn while thirty-three (eleven.740%) patients died during their treatment; twenty patients (twenty-three.80%) had brain hemorrhage and thirteen (six.60%) brain infarction. The maximum age of male's dead patient due to high blood pressure brain hemorrhage strokes, was sixty to seventy-year-old.

Table-II: Comparison Between Cerebral Infarction and Cerebral Hemorrhage

Total number. of Patients		Cerebral Infarction (Total number=197 70.10%)		Cerebral Hemorrhage (Total number=84 29.90%)		P-Value
Variables		Total no	Percentage	Total no	percentage	
Gender	Male	105.00	53.30	39.00	46.40	00
	Female	92.00	46.70	45.00	53.60	00.355
HTN		126.00	64.00	59.00	70.20	00.38
Diabetes		97.00	49.20	19.00	22.60	00.001
Heart diseases		67.00	34.00	15.00	17.90	00.010
Family history		62.00	31.50	13.00	15.50	00.008
TIA history		59.00	29.90	11.00	10.70	00.001
High cholesterol		43.00	21.80	19.00	22.60	00.992
Smoking	Current	47.00	23.90	18.00	21.40	00.658
	Ex	42.00	21.30	14.00	16.70	00.37
GCS	3/15-9/15	35.00	17.80	41.00	48.80	00
	10/15-15/15	162.00	82.20	43.00	51.20	00.001
Expiry		13.00	00.66	20.00	23.80	00.001

**DISCUSSION:**

According to the clinical survey the stroke death is decreases in the west countries because they control their risk factor due to this reason the stroke incidence ratio was decrease in west. According to the south Asian report the psysical intracerebral

hemorrhage was slightly 11% to 25% higher than west while in cerebral infarction variation was noted in both fifty-five to seventy point one percent in local survey& sixty to eighty-four percent in the western. No any modification was occurring in the risk factor to control the stroke in older patient mostly the ratio

of stroke is increasing with age. More men were suffering from stroke as compare to women. The ratio of death in women due to stroke is less than men. In local study the maximum age for stroke was fifty-seven to seventy-one year which is less than west seventy-six to eighty years. One of the major causes of stroke was hypertension. In our research study the hypertension considers on of the major risk factor for stroke like other local south Asian & western study. That patient who have diabetes mellitus more chance of stroke as compare to normal one. In our country diabetes mellitus patients was 8% to 16.5% more as compare to western. Smoking also consider one of the major risk factor for stroke those people who smoking regularly they increase their risk factor up to 1.4 time as compare to nonsmoker. That patient who have Cardio-vascular disease they have more chance of stroke. Those patients who had suffer from both hypertension & Cardiac impairments how two times more risk of stroke. The frequency of Cardio vascular diseases were less here up to 24% to 28.5% as compare to western. Hypercholesterolemia & many lipoproteins fractions have been limpidly combined with the astringency of carotid atherosclerosis remains the serum cholesterol stroke sodality stills an enigma. It differences among local and western series was up to 6.6% to 3%.

CONCLUSIONS

Stroke frequently increase disability ratio in human body. Stroke is recurrent, repetitive and is oft disabling than destructive. To prevent them self from stroke it is necessary for both sexes to curry from risk factors. The public health opinion is that to decrease stroke death and stroke disability in a stroke patient.

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