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A CROSS-SECTIONAL RESEARCH ON ISCHEMIC AND HEMORRHAGIC STROKE INCIDENCE IN THE PERSPECTIVE OF COMMON MODIFIABLE RISK FACTORS FREQUENCY (PSYCHOSOCIAL STRESS, LOW SOCIOECONOMIC STATUS, INTAKE OF CERTAIN MEDICATION, MENTAL ILL HEALTH AND INTAKE OF ALCOHOL ETC)

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Abstract:
Background: Severe disability can be the outcome of stroke as it attributes a lot in the death rate of the patients after the incidence of cancer and CVD. Our research was aimed at the frequency determination of the modifiable common risk factors associated with the incidence of stroke.

Material & Methods: Our cross-sectional research was carried out in the Mayo Hospital, Lahore in the timeframe of August, 2016 to January, 2018. Research sample was ninety-one patients, we reviewed all the cases with the help of a questionnaire. Questionnaire included questions about the social profile, demographic profile, intake of medicine and risk factors. All the patients above thirty and above years of age with the stroke signs were included in this research through computed tomography. All the cases having brain tumor, viral encephalitis, meningitis, metabolic encephalopathy and multiple sclerosis were not made a part of the research. Informed consent was secured before the interaction with the patients.

Results: Male to female proportion in the sample of research was respectively 33 and 58 having 1:1.7 sex ratio. Patients of stroke were observed with a mean age factor of fifty-eight years. In the total population, ischemic stroke patients were 59 and hemorrhagic stroke cases were 32. We also observed a total of 73 hypertensive stroke cases; whereas, diabetic cases were 64, current smokers were 71, hypercholesterolemia cases were 64 and obese patients were 58. Common incidence of hypertension, diabetes, hypercholesterolemia, obesity and smoking was observed in the ischemic stroke patients than the patients of hemorrhagic stroke.

Conclusion: Vital and important associated risk factors were hypertension, hypercholesterolemia, diabetes mellitus (DM), smoking, obesity and positive history of the family about the stroke. To improve the results, we need to cope and modify controllable factors of the risk for the prevention of the conditions that threat the life.

Key Words: *Hypertension; Stroke; Hypercholesterolemia; Diabetes; Ischemic and Hemorrhagic.*

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INTRODUCTION:

Severe disability can be the outcome of stroke as it attributes a lot in the death rate of the patients after the incidence of cancer and CVD in the both under developed and developed countries [1]. Both female and male face the same effects of the stroke after turning to seventy-five years of age, women are in dominance in the stroke diagnosis [2, 3]. In the previous three decades South Asian countries are under the increased threat of stroke, this incidence is likely to increase with the passing time [4]. In the population of Pakistan this incidence is likely to rise and current state if that 250 / 100,000 are already under the threat [5]. As WHO (2002) reports that stroke related mortality in Pakistan has reached 78512.6, which will be doubled till the end of 2020 as the old age people will increase and also because of the present pattern of smoking in the under developed nations [7]. Economy also bears the burden of stroke as its treatment expenditure is unbearable for the under developed countries.

Stroke refers to "a deficit of neurological nature and cerebrovascular cause that continues over twenty-four hours or within twenty-four hours interrupted by death of the patient", because of the either sub-arachnoid and intracerebral hemorrhage or cerebral infarction [8]. Risk factors of the stroke can be categorized as non-modifiable and modifiable. In the category of the modifiable we include abnormal blood lipids, high blood pressure, heart diseases, tobacco use, obesity, physical inactivity, diabetes mellitus and unhealthy diets [9 – 12]. Few other related modifiable types also include psychosocial stress, low socioeconomic status, intake of certain medication, mental ill health and intake of alcohol etc. Whereas, non-modifiable factors of risk are age, ethnicity, sex, previous stroke, family history, heat attack and TIA [13].

Over the globe suffering, death and disability is cause to fifteen, five and another five million respectively [14]. Recovery can be improved through timely interventional strategy to reduce or eliminate neurological damage [15, 16]. There is an intensive need of the health awareness and knowledge about the stroke [17]. Through the analysis of the data targeted programs can be run in the immediate threatened area specially in the vulnerable regions of stroke. Our research was aimed at the frequency determination of the modifiable common risk factors associated with the incidence of stroke.

MATERIAL & METHODS:

This cross-sectional research was carried out in the Mayo Hospital, Lahore in the timeframe of August, 2016 to January, 2018. Research sample was ninety-one patients, we reviewed all the cases with the help of a questionnaire. Semi structured questionnaire included questions about the social profile, demographic profile, intake of medicine and risk factors. All the patients above thirty and above years of age with the stroke signs were included in this research through computed tomography. All the cases having brain tumor, viral encephalitis, meningitis, metabolic encephalopathy and multiple sclerosis were not made a part of the research. Informed consent was secured before the interaction with the patients. Ethical review committee also granted their kind permission for the commencement of this research.

RESULTS:

Male to female proportion in the sample of research was respectively 33 and 58 having 1:1.7 sex ratio. Patients of stroke were observed with a mean age factor of fifty-eight years. In the total population, ischemic stroke patients were 59 and hemorrhagic stroke cases were 32. We also observed a total of 73 hypertensive stroke cases; whereas, diabetic cases were 64, current smokers were 71, hypercholesterolemia cases were 64 and obese patients were 58. Common incidence of hypertension, diabetes, hypercholesterolemia, obesity and smoking was observed in the ischemic stroke patients than the patients of hemorrhagic stroke. Table – I & II discuss respectively the demographic variables along with mean, SD and frequencies and various stroke variables with their graphical representation as well.

Table – I: Demographic variables and their frequencies

Demographic variables		Frequency
Age in years (Mean ± SD)		58.05 ± 13.729
Dyslipidemia (mg/dl) (Mean ± SD)		128.92 ± 77.74
Hypertension (in mmHg) (Mean ± SD)	Systolic BP	177 ± 16.23
	Diastolic BP	105 ± 12.99
	Diabetes Mellitus (mg/dl) (Mean ± SD)	380.1 ± 141
	Obesity (kg / m2) (Mean ± SD)	35.68 ± 5.002
Socioeconomic status	High class	27
	Middle class	35
	Lower class	29
Marital status	Married	39
	Unmarried	52
Education	Higher graduate	50
	Undergraduate	41
Family history (yes/ no)		35 / 56
Employed / unemployed		65 / 26
Previous history of stroke (yes/ no)		15 / 76

Demographic variables and their frequencies
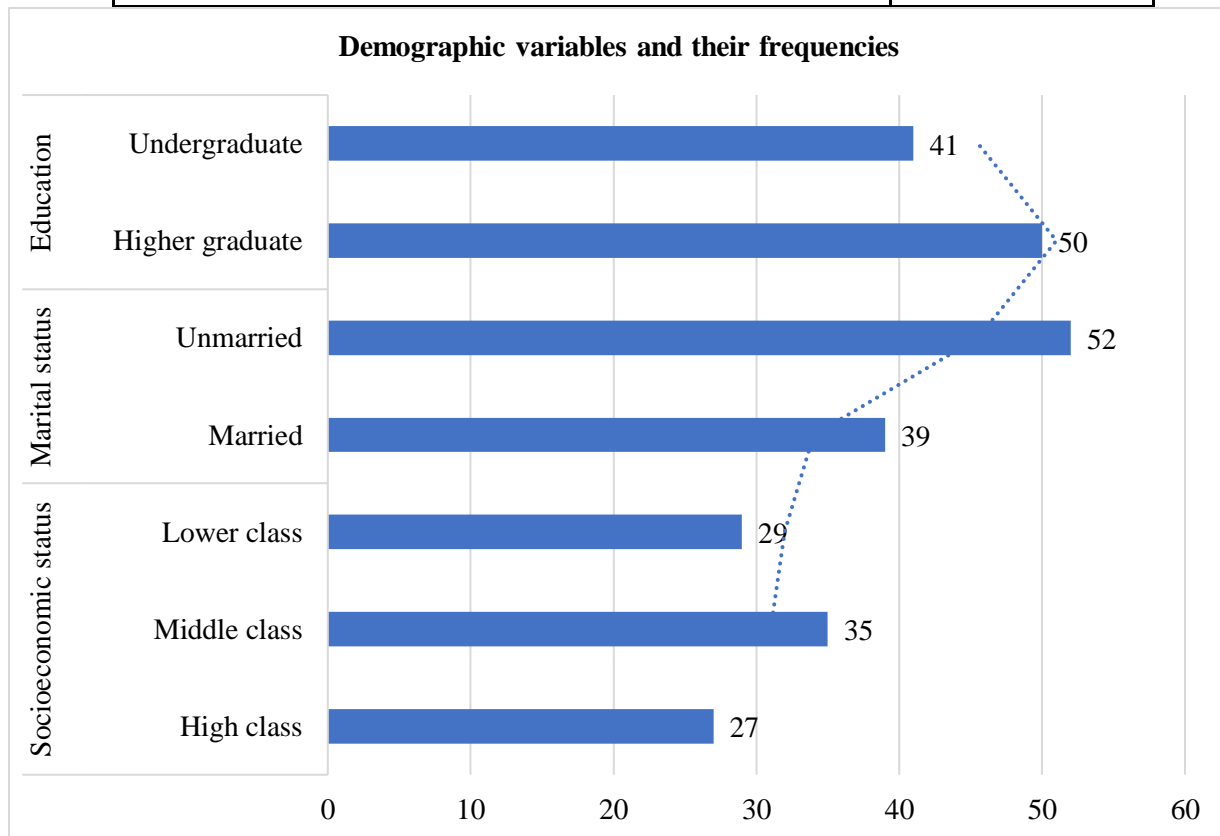
Table – II: Different variables and the types of stroke

Variables		Stroke N = 91		P value
		Ischemic N = 59	Hemorrhagic N = 32	
Family history	Hypertension	33	22	0.232
	Diabetes mellitus	48	25	0.712
Smoking	Smoking	41	23	0.812
	Current smoker	21	9	
	Ex-smoker	25	16	
	Never smoke	13	7	0.734
Physical Features	Hypercholesterolemia	42	22	0.808
	Obesity	37	21	0.783

Different variables and the types of stroke
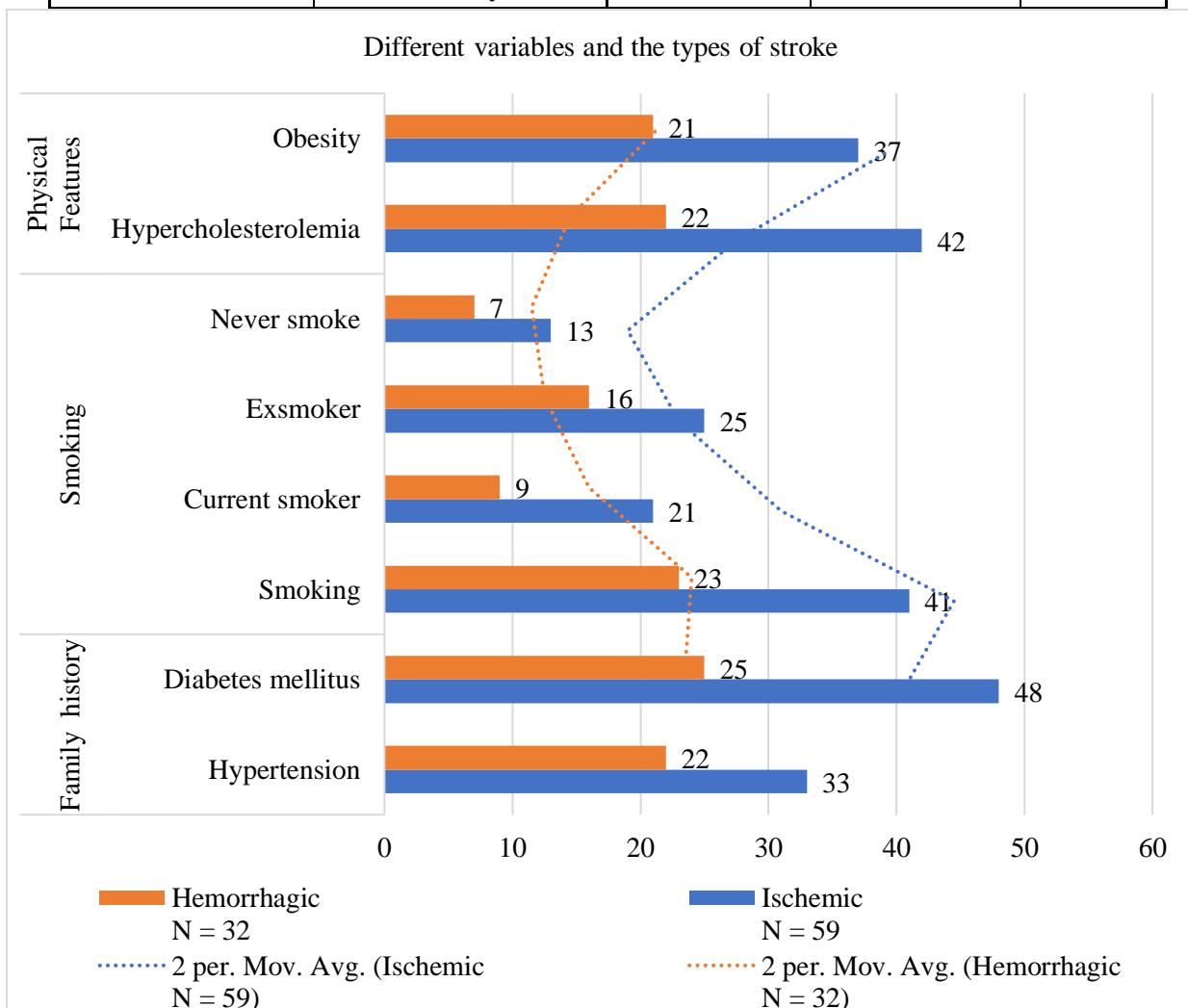
BMI was seen higher in the stroke patients. Obese patients were fifty-eight with a predominance of the females. Ischemic stroke incidence was more than the hemorrhagic stroke incidence with significant statistical outcomes.

DISCUSSION:

A leading cause of death and disability is attributed to the cerebrovascular accident in the under developed and developed nations [17]. Disability is causes in high number after cancer and CVD in the case of stroke [18]. Because of the varying conditions of the geography such as in the Eastern U.S. the incidence of stroke also varies, as per the estimate of WHO in the South Asia its incidence has reached the limit of twenty percent [18]. It is suggested in the statistics of the American Heart Association with this continued rate continues incidence may reach one million every year.

There is scarcity of research at a larger scale in the Pakistani community and incidence of stroke observed as (250 / 100,000) [19]. Highest prevalence is observed in the community of Pushtoon areas as (4.8%) and twenty percent in Karachi, reported highest in all over the world. Framingham reports that about 28% is expected mortality rate after thirty days of stroke; whereas, the death rate in USA in one year was observed as (20%). Bruno observed an increased rate of mortality with severe hyperglycemia when managed through thrombolytic [21, 22]. Diabetes frequency as observed in this research was observed in 64 cases (70%); majority of the cases sugar level in the blood was uncontrollable. However, in the previous studies about 27% – 42% diabetic patients were reported [23, 24]. Less diabetic incidence was observed in a Pakistani research study back in 2004 and stroke as (15%) [24]. Ischemic stroke incidence was more than the hemorrhagic stroke incidence.

Controlled hypertension tends to decrease the rate of stroke in the patients as reported by Thomson and Medical Research council [24]. Mean age factor of our research was contrary to the research of Khan JA as he observed the mean age in the range of 15 – 45 years [24]. Any age can face the stroke but the incidence chances are doubles with the passing age specially after every decade (American Heart Association). Syed reports younger stroke with a frequency as (28%) [24].

Most of the Pakistani patients faced comorbidities like diabetes mellitus, hypertension, dyslipidemia, obesity and smoking. Hypertension was associated risk factor of ischemic infarction more than the incidence of hemorrhagic stroke. Hypertension is also a common cause of the stroke especially in the cases of intracerebral hemorrhage; whereas, in the developed nations decline has been observed because of the smoking and blood pressure control. It is revealed through a cross-sectional survey held in the tertiary healthcare center of Pakistan that in the 39% hypertension cases, dyslipidemia and smoking history were found in the age group of (18 – 55)

years [24]. Controlled blood pressure was seen in the forty percent hypertensive cases.

Outcomes of our research are consistent as per the previous research outcomes; it is therefore suggested that more work is required for the reduction of the risk factors which can be modified to overcome and neutralize the disabling effects of stroke.

CONCLUSION

Vital and important associated risk factors were hypertension, hypercholesterolemia, diabetes mellitus (DM), smoking, obesity and positive history of the family about the stroke. To improve the results, we need to cope and modify controllable factors of the risk for the prevention of the conditions that threat the life. Strategies and programs of awareness spread are required in order to eradicate smoking, blood pressure control and diabetes incidence awareness to reduce the mortality and morbidity because of the stroke incidence.

REFERENCES:

1. Baldwin K, Orr S, Briand M, Piazza C, Veydt A, McCoy S. Acute ischemic stroke update. Pharmacotherapy 2010; 30:493-514.
2. Ghatnekar O, Persson U, Asplund K, Glader EL. Costs for stroke in Sweden 2009 and developments since 1997. Int J Technol Assess Health Care 2014; 30:203-9.
3. Perucca, Camfield, Camfield C. Does gender influence susceptibility and consequences of acquired epilepsies? Neurobiol Dis 2014; 27:961-69.
4. Ohira T, Iso H. Cardiovascular disease epidemiology in Asia: an overview. Circ J 2013; 77:1646-52.
5. Jessani S, Bux R, Jafar TH. Prevalence, determinants, and management of chronic kidney disease in Karachi, Pakistan - a community based cross-sectional study. BMC Nephrol 2014; 13:15-19.
6. Aly Z, Abbas K, Kazim S, Taj F, Aziz F, Irfan A. Awareness of stroke risk factors, signs and treatment in a Pakistani population. J Pak Med Assoc 2009; 59:495-9.
7. Mahmood A, Sharif MA, Khan MN, Ali UZ. Comparison of serum lipid profile in ischaemic and haemorrhagic stroke. J Coll Phy Surg Pak 2010; 20:317-20.
8. Deng Y, Wang Y, Yang W, Yu Y, Xu J, Wang Y, et al. Risk factors and imaging characteristics of childhood stroke in China. J Child Neurol 2014; 88:3073-79.
9. Skaaby T, Husemoen LL, Thuesen BH, Jeppesen J, Linneberg A. The association of atopy with incidence of ischemic heart disease, stroke, and diabetes. Endocrine 2014; 12:176-81.

10. Estruch R. Cardiovascular mortality: how can it be prevented? Nefrologia 2014; 30: 3265-71.

11. Malik S. Diabetes, excess risk of stroke in women- -the role of diabetes mellitus. Nat Rev Endocrinol 2014; 10:318-20.

12. Peters SA, Huxley RR, Woodward M, Lancet. Diabetes as a risk factor for stroke in women compared with men: a systematic review and meta-analysis of 64 cohorts, including 775,385 individuals and 12,539 strokes. 2014; 38:973-80.

13. Enwereji KO, Nwosu MC, Ogunniyi A, Nwani PO, Asomugha AL, Enwereji EE. Epidemiology of stroke in a rural community in southeastern Nigeria. Vasc Health Risk Manag 2014; 24:375-88.

14. Silver B, Wulf Silver R. Stroke: sub acute/inpatient management of acute ischemic stroke. FP Essent 2014; 420:23-7.

15. Millar PJ, Goodman JM. Exercise as medicine: Role in the management of primary hypertension. Appl Physiol Nutr Metab 2014; 39:856-8.

16. Jafar TH. Blood pressure, diabetes and increased dietary salt associated with stroke- results from a community-based study in Pakistan. J Hum Hypertens 2006;20:83-85

17. Baird TA, Parsons MW, Phanh T, Butcher KS, Desmond PM, Tress BM, et al. Persistent post stroke hyperglycemia is independently associated with infarct expansion and worse clinical outcome. Stroke 2003; 34:2208-14.

18. Pinto A, Tuttolomondo A, Di Raimondo D, Fernandez P, Licata G. Risk factors profile and clinical outcome of ischemic stroke patients admitted in a department of internal medicine and classified by TOAST classification. Int Angiol 2006; 25:261-7.

19. Khan JA, Shah MA. Young stroke, Clinical aspects. J Coll Physicians Surg Pak 2000; 10:461-66.

20. Medical Research Council Working Party. "MRC trial of treatment of mild hypertension principal results". British Medical Journal 1985; 291: 97–104.

21. Thomson R. "Evidence based implementation of complex interventions". BMJ 2009; 339:3124-26.

22. Almani SA, Shaikh M, Shaikh MA, Shaikh K, Rahopoto Q, Baloch GH, et al. Stroke: frequency of risk factors in patients admitted at Liaquat University Hospital Hyderabad/Jamshoro. J Liaquat Uni Med Health Sci 2008; 7:151-6.

23. Vohra EA, Ahmed WU, Ali M. Aetiology and prognostic factors of patients admitted for stroke. J Pak Med Assoc 2000; 50: 234-36.

24. Idris I, Thomson GA, Sharma JC. Diabetes mellitus and stroke. Int J Clin Pract 2006; 60:48-56.