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CLINICAL PROFILE OF ISCHEMIC STROKE PATIENTS IN AN ETHNIC POPULATION OF NORTH INDIA.

KEY WORDS: Ischemic Stroke. Clinical Profile. Kashmir.

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ABSTRACT

Introduction: With such a great burden of Stroke in the whole world in general and the developing countries in particular, the effective intervention would naturally be at a primary level. And as such the study of the population characteristics is of the prime importance.

Aim: We aimed to study various clinico-biochemical parameters of the stoke patients in our region.

Methodology: We collected and evaluated the data from 150 Ischemic Stroke patients for their Age, Gender, Smoking status, Diabetic status, Blood pleasure, Lipid profile, Type of Ischemic stroke and Severity of stroke. Statistical analysis was performed by using SPSS software (V.11.5).

Results : The number of patients increased as the age increased (age > 60 years were 46.66 % of all). Males were more numerous than Females, more so in lower age group. Hypertension was the most prevalent risk factor in both males and females. Large Vessel strokes were more common (68.66%) than small vessel strokes (31.33%). In patients aged > 60 years, especially in the males, the severity of Ischemic stroke was more.

Conclusion: An effective intervention to reduce the burden of stroke in our population would be to take steps to identify prevent and cure Hypertension, besides dyslipidemia and DM.

INTRODUCTION:

Stroke is defined as a focal (or at times global) neurological impairment of sudden onset, lasting more than 24 h (or leading to death) and of presumed vascular origin.[1] According to WHO, 15 million people worldwide suffer a stroke annually and of these 5 million die while another 5 million are left disabled[1]. Stroke remains the most common cause of disability in developed countries[2,3]. It is estimated that by 2020, 19 out of 25 million annual stroke deaths will be in developing countries.[4]

About 85% of strokes are due to cerebral ischemia and 15% are due to primary intracerebral hemorrhage.[5,6] Some 8% to 12% of ischemic strokes result in death within 30 days.[7] Of the thousands of stroke survivors each year, approximately 30% require assistance with activities of daily living, 20% require assistance with ambulation, and 16% require institutional care.[7]

Risk factors for ischemic stroke (ISC) include Non-modifiable risk factors (age, sex, low birth weight, race/ethnicity, and genetic factors), Modifiable risk factors (hypertension, exposure to cigarette smoke, diabetes, atrial fibrillation and certain other cardiac conditions, dyslipidemia, carotid artery stenosis, excessive alcohol drinking, sickle-cell disease, postmenopausal hormone therapy, poor diet, physical inactivity, and obesity and central body fat distribution) and Potentially modifiable risk factors (metabolic syndrome, drug abuse, oral contraceptive use, sleep-disordered breathing, migraine headache, elevated GGT, hyperhomocysteinemia, elevated lipoprotein(a), elevated lipoprotein- associated phospholipase, hypercoagulability, inflammation, and infection).[8]

Although over 65% of all deaths due to stroke occur in developing countries, studies of stroke epidemiology in these populations hardly exist.[8]

METHODOLOGY:

We aimed to study various clinical parameters of Ischemic stroke patients presenting to the tertiary care hospital in Neurology department. 150 Ischemic stroke patients were considered. A pretested, semi-structured questionnaire was used to collect the information on clinical and laboratory parameters with prior consent of the patients. The data collected included Gender, Age, Smoking status, Hypertension, Diabetes Mellitus and Dyslipidaemia. After further investigation the Vascular Type of Ischemic Stroke[9] and NIHS Scoring for severity of Ischemic stroke [10] was assessed. Statistical analysis was performed by using SPSS software (V.11.5). Statistical significance was considered with p-value ≤ 0.05. The data was collected from a similar study approved by the ethical committee of the institute (No. SIMS 1 131/IEC-SKIMS/2017-239).

RESULTS

TABLE 1: Frequency Distribution of the Patients into various Clinical Subgroups

Age groups.	Gender		Dyslipidaemia	Hypertension	Smokers	Diabetes Mellitus(DM)	Vascular Type of stroke		NIHSS Severity Grading	
< 40	Males	20	12	11	12	10	LV	18	M	6
									MS	7
							SV	2	S	4
									VS	3
	Females	10	9	7	0	6	LV	7	M	3
									MS	4
							SV	3	S	2
									VS	1
41 – 60	Males	31	16	24	20	18	LV	21	M	7
									MS	12
							SV	10	S	8
									VS	4

	Females	19	10	15	1	13	LV	13	M	6
									MS	6
							SV	6	S	5
									VS	2
> 60	Males	38	26	30	30	20	LV	24	M	6
									MS	8
							SV	14	S	14
									VS	10
	Females	32	20	26	5	21	LV	20	M	8
									MS	10
							SV	12	S	7
									VS	7

- LV =Large Vessel.
- SV = Small Vessel.
- M =Mild
- MS = Moderately Severe.
- S = Severe.
- VS = Very Severe.

The number of patients increased as the age increased. Number of patients with age < 40 years were 30 (20% of all), in age range 41-60 years were 50 (33.3% 0f all) and with age > 60 years were 70 (46.66 % of all).

Males (nM = 89) were more numerous than females (nF = 61). The difference was more significant in lower age group and decreased with age. In patients with age < 40 years, the Male Female were the ratio was 2:1 (M:F). In the age range 41 – 60 years, M:F ratio was 1.64:1. In the age group > 60 years the ratio was 1.19:1.

Amongst all the risk factors studied, hypertension was the most prevalent (75.3%). In both males and females hypertension was the most prevalent risk factor (73% of males and 78.6% of females). Although in the subset of patients aged < 40 yrs, dyslipidemia was the most prevalent. Hypertension prevalence increases with age among each gender.

Dyslipidemia was present in 62% of the patients. The presence of dyslipidemia was highest in the patients aged > 60 years (65.7 %) and was slightly more in females (63.9%) than males (60%).

Smoking was very common among males (almost 70%) and very uncommon in females.

DM was present in 57.9% of patients. Its incidence increased with the increase in age. It was more common in males except in patients aged > 60 years.

Large vessel (LV) strokes were much more common (68.66%) than small vessel (SV) strokes (31.33%). 82% of males had LV stroke while-as 65.5% of females had LV strokes. SV strokes were much common in patients aged > 60 years (55.3% of all SV strokes) and more common in females (34.5% of all) than males (18 % of all).

On NIHSS Severity Grading most commonly patients belonged to Moderately-Severe group. The Severity was more (S and VS) with increasing age and was proportionately high in patients aged > 60 years. Severity of stroke was more in males (S and VS = 48.3%) than females (S and VS = 40%).

DISCUSSION:

Age is probably the most important determinant of stroke; the risk of stroke doubles for each successive decade after age 55 years[11,12]. Our findings of increased incidence of stroke in the higher age groups is thus consistent with the data worldwide.

Stroke is a common disease in both men and women, but it is more common in men within the age range of 45–84 years[13,14]. Overall, the annual age-adjusted (ages 35–94 years) total initial completed stroke event rates were 5.89/1000 in men and 4.91/1000 in women; a 20% excess was seen in men.[15] The findings in our study is thus similar to that elsewhere with increased occurrence of stroke in males.

Elevated BP is the best-documented treatable risk factor for stroke. Worldwide, about 54% of strokes and 13.5% of deaths are attributed to high BP (systolic BP >115 mmHg;[16]). High BP (BP>115/75mmHg) is strongly and directly related to vascular and overall mortality without evidence of any threshold[17]. The ethnic population of Kashmir is already known for high salt consumption and high prevalence of Hypertension [M.A.Mir et al. 1986 Int J. of Cardiology].

Diabetes is a well-documented risk factor for stroke. In a meta-analysis of 102 prospective studies (530 083 participants) the hazard ratio for ischemic stroke was 2.3 (95% CI 2.0–2.7) and 1.6 (95% CI 1.2–2.1) for hemorrhagic stroke in people with versus those without diabetes.[18] In addition to an increased stroke risk subjects with type 2 diabetes have an increased prevalence of other stroke risk factors such as obesity, hyperlipidemia, hypertension,and atrial fibrillation [19,20,21].

Older epidemiological studies found no relationship between total serum cholesterol level and overall stroke incidence[22]. This might be due to different relationships for ischemic and intracerebral hemorrhages. In prospective cohort studies stroke risk was found to be positively associated with serum cholesterol level in ischemic stroke but negatively for intracerebral hemorrhages[23]. Age, sex, and vascular risk factors can modify the relationship between blood cholesterol and vascular mortality.

Smoking is a well-documented preventable risk factor of stroke. Large observational studies have shown cigarette smoking to be an independent risk factor for stroke in both men and women with current smokers having a 2- to 4-fold increased risk of stroke compared with non-smokers24. A meta-analysis of 22 studies indicates an overall risk increase for stroke (RR 1.5; 95% CI 1.4–1.6)[25].

Although data vary on the subject of sex differences in stroke subtype, it has been noted that women suffer more cardioembolic strokes than men[26]. As far as other stroke subtypes, data are variable; some show no difference between men and women[27], whereas others suggest that men are more likely to have large vessel and small vessel strokes, as well as intracerebral hemorrhage[28].

The severity of stroke is more with increasing age, consistent with our study derivations. Elderly women are deemed to be more susceptible, e.g., in a study elderly women with AIS had more severe stroke status and worse outcomes at 3 and 12 months after stroke[29]. However in our study men were having higher severity grades than women in higher age range.

REFERENCES

1. World Health Organization. WHO STEPS stroke manual : the WHO STEPwise approach to stroke surveillance / Noncommunicable Diseases and Mental Health, Geneva (CH). WHO. 2005: (Section 1) Introduction p1-4
2. Murray CJ, Lopez AD. Mortality by cause for eight regions of the world: Global burden of disease study. Lancet. 1997;349(9061):1269-76
3. Wolfe CD. The impact of stroke. Br Med Bull 2000;56(2):275-86
4. Lemogoum D, Degaute JP, Bovet P. Stroke Prevention, Treatment, and Rehabilitation in Sub-Saharan Africa. Am J Prev Med. 2005 Dec;2:9(5 Suppl 1):95-101
5. Adams HP, Bendixen BH, Kappelle LJ, Biller J, Love BB, Gordon DL, et al. Classification of subtype of acute ischemic stroke. Definitions for use in a multicenter clinical trial. TOAST. Trial of Org 10172 in Acute Stroke Treatment.Stroke. 1993;24:35–41.
6. Philip M, Bath W, Lees KR. ABC of arterial and venous disease. BMJ. 2000;320:920–3.
7. Robert B. Daroff, Joseph Jankovic, John C Mazziotta, Scott L Pomeroy. Bradley's

Neurology in Clinical Practice.Seventh Edition:Elsievier.2016.p921
8. M. Brainin, W. D. Hiess. Textbook of stroke medicine. 2013. 2nd edition. Cambridge;Chapter 6: p109
9. Adams HP Jr., Bendixen BH, Kappelle LJ,Biller J, Love BB, Gordon DL et al. Classification of Subtype of Acute Ischemic Stroke. Definitions for Use in a Multicenter Clinical Trial. Stroke 1993;24:35-41
10. Adams HP Jr, Davis PH, Leira EC, Chang KC, Bendixen BH, Clarke WR et al. Baseline NIH Stroke Scale score strongly predicts outcome after stroke: A report of the Trial of Org 10172 in Acute Stroke Treatment (TOAST). Neurology. 1999 Jul 13;53(1):126-31
11. Kiyohara Y, Kato I, Iwamoto H, Nakayama K, Fujishima M. The impact of alcohol and hypertension on stroke incidence in a general Japanese population. The Hisayama Study. Stroke 1995; 26:368–72.
12. Dickinson HO, Mason JM, Nicolson DJ, et al. Lifestyle interventions to reduce raised blood pressure: a systematic review of randomized controlled trials. J Hypertens 2006; 24:215–33.
13. Djoussé L, Levy D, Benjamin EJ et al. Long-term alcohol consumption and the risk of atrial fibrillation in the Framingham Study. Am J Cardiol 2004; 93:710–13.
14. Kurth T, Gaziano J, Berger K, et al. Body mass index and the risk of stroke in men. Arch Intern Med 2002; 162:2557–62.
15. James Grotta Gregory Albers Joseph Broderick Scott Kasner Eng Lo Ralph Sacco Lawrence Wong . Stroke: Pathophysiology, Diagnosis, and Management. 2015. Elsevier 6th edition.chap 15: p 218
16. Lawes CM, Vander Hoorn S, Rodgers A; International Society of Hypertension. Global burden of blood-pressure-related disease, 2001. Lancet 2008; 371:1513–18.
17. Lewington S, Clarke R, Qizilbash N, Peto R, Collins R. Age-specific relevance of usual blood pressure to vascular mortality: a metaanalysis of individual data for one million adults in 61 prospective studies. Lancet 2002; 360:1903–13.
18. Emerging Risk Factors Collaboration, Sarwar N, Gao P,et al. Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies. Lancet 2010; 375:2215–22.
19. Huxley RR, Filion KB, Konety S, Alonso A. Meta-analysis of cohort and case-control studies of type 2 diabetes mellitus and risk of atrial fibrillation. Am J Cardiol 2011; 108:56–62.
20. Kannel WB, Wilson PW, Zhan TJ. The epidemiology of impaired glucose tolerance and hypertension. Am Heart J 1991;121:1268–73.
21. UK Prospective Diabetes Study. Plasma lipids and lipoproteins Chapter 7: Common risk factors and prevention at diagnosis of NIDDM by age and sex. Diabetes Care 1997; 20:1683–7.
22. Prospective studies collaboration. Cholesterol, diastolic blood pressure, and stroke: 13,000 strokes in 450,000 people in 45 prospective cohorts. Lancet 1995; 346:1647–53.
23. Lewington S, Whitlock G, Clarke R, et al.; Prospective Studies Collaboration. Blood cholesterol and vascular mortality by age, sex, and blood pressure: a metaanalysis of individual data from 61 prospective studies with 55,000 vascular deaths. Lancet 2007; 370:1829–39.
24. M. Brainin, W. D. Hiess. Textbook of stroke medicine. 2013. 2nd edition. Cambridge;Chapter 7: p121
25. Shinton R, Beevers G. Metaanalysis of relation between cigarette smoking and stroke. BMJ 1989; 298:789–94.
26. Stuart-Shor EM, Wellenius GA, Dellolacono DM, Murray AM. Gender differences in presenting and prodromal stroke symptoms. Stroke. 2009;40:1121–1126
27. Petrea RE, Beiser AS, Seshadri S, et al. Gender differences in stroke incidence and post-stroke disability in the Framingham Heart Study. Stroke. 2009;40:1032–1037.
28. Appelros P, Stegmayr B, Terent A. Sex differences in stroke epidemiology: a systematic review. Stroke. 2009;40:1082–1090
29. Yu C, An Z, Zhao W, et al. Sex Differences in Stroke Subtypes, Severity, Risk Factors, and Outcomes among Elderly Patients with Acute Ischemic Stroke. Front Aging Neurosci. 2015;7:174.