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Risk Factors Determinants for Prognosis of Stroke Patients in Tertiary Care Institute

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Abstract

Aim: Risk Factors Associated with Stroke Patients of Tertiary Care Institute. **Objective:** To analyse the few determinants of prognosis of stroke patients admitted to tertiary care Institute. **Materials and Methods:** This is a Retrolective-cross section study. Anonymised data of stroke patients admitted in 2016-2017 were analysed using appropriate statistical method (SPSS). Data were randomly collected after approval of Institutional Ethics Committee (IEC). **Result:** Among total 70 patients' (44 Males, 26 Females) data were included for analysis. The majority of patients were in the age group of 35 to 80 years. Among the subtype of strokes, 35 were of an ischemic type and 35 were of the hemorrhagic type. Overall stroke is more common in male as compared to females. Hypertension was commonest risk factor i.e., 61% followed by tobacco i.e. 32%, then alcohol consumption 24%, Diabetes Mellitus 20% ischemic heart disease 4.2% among the study population. Diabetes Mellitus as a risk factor was present in 25% of patients with stroke. Commonest presenting symptom observed in the study population was hemiplegia 77% followed by speech involvement 28.6%. The majority of patients were from poor socioeconomic strata. **Conclusion:** Our study re-identifies the pivotal importance of aetiology and prognosis of stroke where alcohol, tobacco and unawareness for treatment for Diabetes and Hypertension were common to socioeconomic status and attention to correction of modifiable risk factors.

Keywords: Hemorrhagic Stroke, Ischemic Stroke, Risk Factors, Socioeconomic Status

1. Introduction

Stroke remains an important prominent cause of mortality and morbidity with estimated prevalence 0.08 to 0.2 % in rural and 0.3 to 0.4 % in urban population of India and incidence of 0.11 to 0.14 % as observed in recent studies.[1] Health education and lifestyle change for modifiable risk factors plays important role in prevention of stroke[2]. Management of hypertension is a crucial factor for reducing risk of first stroke as observed in recent study showing 42% relative risk reduction by lowering 5 to 6 mm/Hg of diastolic blood pressure[3]. Thus understanding and modification of risk factors plays crucial role I prevention and management of stroke[4]. Approaches such as patient education reinforcement of knowledge a team based approach along with appropriate clinical care is of pivotal

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importance in stroke care[5]. Recent studies have shown that non treatment and non compliance is the main reason for developing stroke[6].

2. Aim and Objective

- To study the risk factors associated for stroke patients admitted to tertiary care institute.
- To analyze the determinants of prognosis of stroke patients admitted to tertiary care institute.

3. Materials and Methods

Retrolective-cross sectional analysis of anonymised data of all patients diagnosed as stroke during period of year 2016-17 were included in study, Exclusion criteria were nil. Data was randomly collected by Clinical Research Coordinator (CRC) after approval of Institutional Ethics Committee (IEC). Patients data was collected inclusive of history, risk factors, type of stroke and clinical symptom along with demographic data i.e. age, sex, socioeconomic status and addiction.

4. Result

Table 1. Age and sex distribution of stroke patients as per type of stroke

Age Group (yrs)	Type of Stroke			P value
	Ischemic	Haemorrhagic	Total	
20 – 35	1	3	4	0.342 (Non significant
35 – 50	8	13	21	
50 – 65	11	11	22	
65 – 80	12	7	19	
>80	3	1	4	
Total	35 (50%)	35(50%)	70 (100%)	
Sex				**< 0.0001 Highly Significant**
Male	22	22	44	
Female	13	13	26	
Total	35 (50%)	35(50%)	70 (100%)	

Table 2. Distribution of various risk factors as per type of stroke

Diabetes Mellitus	Type of Stroke			P value
	Ischemic	Haemorrhagic	Total	
Present	11	3	14 (20%)	0.017 Significant
Absent	24	32	56	
Total	35 (50%)	35(50%)	70 (100%)	
Hypertension				0.027 Significant
Present	17	26	43 (61%)	
Absent	18	9	27	
Total	35 (50%)	35(50%)	70 (100%)	
Alcoholism				
Present	8	9	17 (24%)	0.780 (Non significant)
Absent	27	26	53	
Total	35 (50%)	35(50%)	70 (100%)	
Tobacco				
Present	12	11	23 (33 %)	0.799 (Non significant)
Absent	23	24	47	
Total	35 (50%)	35(50%)	70 (100%)	
Ischemic Heart Disease				
Present	2	1	3 (4.2 %)	0.500 (Non significant)
Absent	33	34	67	
Total	35 (50%)	35(50%)	70 (100%)	
Complication				
Present	17	12	29 (41 %)	0.280 (Non significant)
Absent	18	23	41	
Total	35 (50%)	35(50%)	70 (100%)	

Table 3. Distribution of clinical symptoms as per type of stroke

Hemiplegia	Type of Stroke			P value
	Ischemic	Haemorrhagic	Total	
Present	29	25	54	0.255 (Non significant)
Absent	6	10	16	
Total	35 (50%)	35(50%)	70 (100%)	
Speech Involvement				< 0.99 (Non Significant)
Present	10	10	20	
Absent	25	25	50	
Total	35 (50%)	35(50%)	70 (100%)	
Headache and Vomiting				
Present	1	2	3	0.50 (Non significant)
Absent	34	33	67	
Total	35 (50%)	35(50%)	70 (100%)	
Altered Sensorium				
Present	1	1	2	0.754 (Non significant)
Absent	34	34	68	
Total	35 (50%)	35(50%)	70 (100%)	

Amongtotal 70 patients' (44 Males, 26 Females) data were included for analysis. Majority of patients were in the age group of 35 to 80 years. Among the subtype of strokes 35 were of ischemic type and 35 of were hemorrhagic type (Table 1 & 2).

As per the age distribution data, both subtypes of stroke are equally distributed even a wide range of 35 to 80 years age. Overall stroke is more common in male as compared to females.

Hypertension was commonest risk factor i.e., 61% followed by tobacco i.e., 32%, then alcohol consumption 24%, Diabetes Mellitus 20% ischemic heart disease 4.2% among the study population. Similarly hypertension as a risk factor was more common among hemorrhagic stroke (60%) as compared to ischemic stroke (Table 3).

Among the hypertensive population 20 (71.42%) number of patients were diagnosed to have hypertension in past but were either not on treatment or on irregular treatment. Most of patients belong to low socioeconomic status. Diabetes Mellitus as a risk factor was present in 25% of patients of stroke; it was more common in ischemic type of stroke was seen 79% of patients with history of diabetes as compared to hemorrhagic stroke with history of diabetes.

Table 4. Frequency of clinical symptoms in stroke patients

Clinical symptom/sign	Frequency (%)
Hemiplegia	54 (77.1%)
Speech Involvement	20 (28.6%)
Headache And Vomiting	3 (4.3%)
Giddiness	2 (2.9%)
Altered Sensorium	2 (2.9%)
Quadriplegia	2 (2.9%)
Convulsion	1 (1.4%)

Commonest presenting symptom observed in study population was hemiplegia (77.1%) followed by speech involvement (28.6%). There is no difference for hemiplegia and speech involvement as a symptom among two subtype of i.e., ischemic and hemorrhagic (Table 4).

5. Discussion

This study highlights importance of male gender as a non-modifiable risk factor for stroke, as reported by Wyller TB[8]. Among the modifiable risk factor hypertension followed by tobacco consumption, alcoholism, Diabetes

and IHD were respectively associated with stroke, which correlate with available literature[9–14]. Hypertension being most common in the study population, where non-compliance to antihypertensive therapy is common which was also observed in our study population where 71.42% of hypertensive population was either not on treatment or on irregular treatment[2]. Prevalence of tobacco and alcoholism are major risk factor after hypertension, are in line with the presence of this habitsagain more common in low socio-economic population. Diabetes and IHD were least common among all risk factors;itmay be due to less prevalence of high BMI in this population[15]. The usual population of patients reporting to academic tertiary care hospital which offers treatment at reasonably low cost is from low socioeconomic group and this may be the reason for above hierarchy of risk factors observed in our study population[16].

6. Conclusion

Our study re-identifies the pivotal importance of study of risk factor for stroke according to socioeconomic status and attention to correction of modifiable risk factors such as compliance to antihypertensive treatment and reduction of addiction through health education and related measures.

7. References

1. Durai PJ, Padma V, Vijaya P, Sylaja PN, Murthy JM. Stroke and thrombolysis in developing countries. Int J Stroke. 2007 Feb; 2(1):17–26. https://doi.org/10.1111/j.1747-4949.2007.00089.x PMid:18705983
2. Silvia L, Giacomo K, Marina D, Paolo S, Fabrizio S. Stroke prevention: Managing modifiable risk factors. Stroke Research and Treatment. 2012; 2012.
3. Collins R, Peto R, MacMahon S, Hebert P, Fiebach NH, Eberlein KA, Godwin J, Qizilbash N, Taylor JO, Hennekens CH. Blood pressure, stroke, and coronary heart disease. Part 2, Short-term reductions in blood pressure: Overview of randomized drug trials in their epidemiological context. Lancet. 1990 Apr 7; 335(8693):827–38. https://doi.org/10.1016/0140-6736%2890%2990944-Z
4. Romero JR, Morris J, PikulaA. Review: Stroke prevention: Modifying risk factors. Sage Journals. 2008 Aug 1; 287–303.
5. Lakshmi K, Vishwanath K, Ze CE, Macroni SD, David SN, Isaac R. Stroke care challenges in rural India: Awareness of causes, preventive measures and treatment options of stroke among the rural communities. Indian Journal of Community Health. 2014; 26(4):349–55.
6. Chobanian AV. Impact of nonadherence to antihypertensive therapy. American Heart Association. 2009 Oct; 120(16):1558–60. https://doi.org/10.1161/CIRCULATIONAHA.109.906164
7. Barucha NE, Thomas KT. Epidemiology of stroke in India. Neurol J Southeast Asia. 1998; 3:58.
8. Wyller TB. Stroke and gender. J Gend Specif Med. 1999 May-Jun; 2(3):41–5. PMid:11252851
9. Sang JN, Kim TJ, Byung-Woo Y. Epidemiology, risk factors, and clinical features of intracerebral hemorrhage: An update. J Stroke. 2017 Jan; 19(1):3–10. https://doi.org/10.5853/jos.2016.00864%20PMid:28178408 PMCid:PMC5307940
10. Shah RS, Cole JW. Smoking and stroke: The more you smoke the more you stroke. Expert Rev Cardiovasc Ther. 2010 Jul; 8(7):917–32. https://doi.org/10.1586/erc.10.56 PMid:20602553 PMCid:PMC2928253
11. Gorelick PB. Alcohol and stroke. Stroke. 1987 Jan-Feb; 18(1):268–71. https://doi.org/10.1161/01.STR.18.1.268 PMid:3810763
12. Wolf PA, D'Agostino RB, Kannel WB, Bonita R, Belanger AJ. Cigarette smoking as a risk factor for stroke. The Framingham study. JAMA. 1988 Feb 19; 259(7):1025–9. https://doi.org/10.1001/jama.1988.03720070025028 PMid:3339799
13. Hewitt J, Guerra LC, Fernández-Moreno MC, Sierra C. Diabetes and stroke prevention: A review. Stroke Res Treat. 2012; 2012:673187. https://doi.org/10.1155/2012/673187
14. Ergul A, Kelly-Cobbs A, Abdalla M, Fagan SC. Cerebrovascular complications of diabetes: focus on stroke. Endocrine, Metabolic and Immune Disorders-Drug Targets. 2012 Jun; 12(2):148–58. https://doi.org/10.2174/187153012800493477 PMid:22236022 PMCid:PMC3741336
15. Dinsa GD, Goryakin Y, Fumagalli E, Suhrcke M. Obesity and socioeconomic status in developing countries: A systematic review. Obesity Reviews. 2012; 13(11):1067–79.
16. Addo J, Ayerbe J, Mohan KM, Crichton, Sheldenkar A, Chen R, Wolfe CDA, McKevitt C. Socioeconomic status and stroke. An updated review. American Heart Association. 2012; 43(4):1186–91.

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