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Original Article

Socio-Demography and risk factor evaluation of ischemic stroke in Neurology department of a Tertiary Care Hospital: A Cross-Sectional Study

Nurul Amin Khan[1], Shaheen Wadud[2], Torikul Islam[3], Probalkanti Das[4], Enamul haq[5]

[1]Associate Professor, Department of Neuromedicine, Dhaka National Medical College, [2]Assistant Professor, Department of Neuromedicine, Dhaka National Medical College, [3]Registrar, Department of Neuromedicine, Dhaka National Medical College, [4]Senior Medical Officer, Department of Neuromedicine, Dhaka National Medical College and Hospital, [5]Senior Medical Officer, Department of Neuromedicine, Dhaka National Medical College and Hospital

Abstract

Stroke is the commonest neurological emergency and leading cause of death and disability. It is the third leading cause of death in Bangladesh. A total number of 60 clinically and CT confirmed acute ischemic stroke patients were selected from Neurology department Dhaka National Medical College and Hospital (DNMCH) and socio demographic and major risk factors among acute ischemic CVD patients were identified and correlated. It was a hospital based observationalcross-sectional study in DNMCH. The mean age of study population was 64.14 years, 68% were male and 32% were female. Among them 60% were illiterate and of the literate around 27% went to primary school about 7% completed SSC, 3% completed HSC and around 3 % graduated and above. Most of the patient were businessman(40%), others were house wife(10%), service (5%), Farmer (3%), among them sedentary workers 53.3% and moderate worker 46.6%. On evaluation of major risk factors 80% of patient had history of hypertension, 70% previous TIA, 50% dyslipidemia,46.6% smoking, 43.3% ischemic heart disease, 36.6% Diabetes mellitus, 36.6% advanced age, 13.3% carotid stenosis, 10% valvular heart disease and OCP took 6 % of patients.

Key words: Ischemic stroke, Risk factor, Socio-Demographic evaluation.

Introduction:

Stroke is the commonest neurological emergency and leading cause of death and disability.It is the third leading cause of death in Bangladesh after ischemic heart diseases and cancer.[1] World Health Organization defined stroke as "Rapidly developed clinical signs of focal or global disturbance of cerebral function, lasting more than 24 hours or until death, with no apparent non-vascular causes".[2]

Among all stroke patients about 80% Ischemic in origin and the others are Hemorrhagic.[3]

Ischemic stroke occurs in the area of brain where blood supply interrupted due to blockade of cerebral blood vessels by atherosclerosis or embolus and which leads to cerebral ischemia followed by infraction and treatment involves intravenous thrombolytics therapy.[4-6] Year book of Department of Medicine at DMCH (2009) published 14.7% of total admission was stroke patients and in Bangladesh about 40-50% stroke patients occupy beds in neurology ward. Stroke is a complex disease and needs multidisciplinary approach for management.[7] Stroke is a leading cause of functional impairments, with 20% of survivors requiring institutional care after 3 months and 15% to 30% being permanently disabled.[8] A multidisciplinary approach of the stroke patients results in improved outcomes, decreased lengths of stay and decreased costs. Whereas management of stroke require longer time and financial support, in a low income country like Bangladesh low educational status are major obstacles for the managementof these patients. Most of the patients in tertiary level government hospitals of Bangladesh come from low socioeconomic status. They have less awareness about the preventable risk factor of stroke.[9] There are less data available on socio-demographic status and risk factors in our community so in this study we tried to find out common socio-demographic data and risk factors evaluation in acute ischemic stroke patients in neurology department of DNMCH.

Materials & Methods:

In this descriptive cross-sectional observational study, total number of 60 randomly selected clinically and CT proven acute stroke patients were studied from July 2016 to January 2017 at neurology department of Dhaka National Medical College Hospital Patients admitted within 48 hours of the onset of stroke with CT scan of the brain showing infract was enrolled for this study. Patients diagnosed with other diseases like infective meningitis(tuberculous or bacterial), space

occupying lesions, psychosis, viral/bacterial encephalitis and multiple sclerosis were excluded. A special questionnaire was designed for the purpose of this study. Socio-demographic data and risk factors among acute ischemic stroke patients were identified and correlated. Before collecting data informed written consent was taken from patient/attendant and ethical clearance was taken from Research Review committee of DNMCH. All data were collected and compiled, and data analysis was carried out by using STATA 10 software.

Results:

This observational study was done among acute ischemic stroke patients admitted in Neurology department DNMCH, total 60 patient was enrolled with fulfilling inclusion and exclusion criteria. Results on socio-demography and risk factor are given bellow.

Table-I: Distribution of the study population according to age and sex.

Age-Sex Distribution	Number of Patient	Percentage
Age (in Years)		
31-40	2	3.0
41-50	14	23.0
51-60	10	17.0
61-70	24	40.0
71-80	4	7.0
81-90	6	10.0
Means ±SD (in Years)	64.14±13.35	
Range (min-Max) (in Years)	35-90	
Sex		
Male	40	68.0
Female	20	32.0

Table-II: Distribution of study population by literacy.

Education	Frequency	Percentage	Cumulative percentage
Illiterate	36	60.00	60.00
Primary school	16	26.67	86.67
SSC	4	6.67	93.33
HSC	2	3.33	96.67
Graduate and above	2	3.33	100
Total	**60**	**100**	**100**

Table-III: Distribution of study population by Occupation.(n=30)

Occupation	Frequency	Percentage	Cumulative percentage
Service	10	16.67	16.67
Business	24	40.00	56.67
House wife	20	33.33	90.00
Farmer	6	10.00	100.00
Total	**60**	**100**	

Table-IV: Distribution of patients by socio-economic status.(n=30)

Socio-economic status	Frequency	Percentage	Cumulative percentage
Poor	6	10.00	10.00
Low middle class	44	73.33	83.33
Middle class	10	16.67	100.00
Total	**60**	**100**	

Table-V: Distribution of patients according to Nature of work.(n=30)

Nature of work	Frequency	Percentage	Cumulative percentage
Sedentary	32	53.33	53.33
Moderate work	28	47.67	100.00
Total	**60**	**100**	

Table-VI: Association of risk factors of stroke with sex distribution. (n=30)

Risk Factor	Male	Female	Total	%
Hypertension	34	14	48	80
Previous TIA	28	14	42	70
Dyslipidemia	22	8	30	50
Smoking	26	2	28	46.6
IHD	16	10	26	43.3
DM	12	10	22	36.6
Advance age	16	6	22	36.6
Carotid Stenosis	8	0	8	13.3
Cardiac Disease (Valvular)	6	0	6	10
OCP	0	4	4	6.6
Obesity	0	0	0	0

Discussion:

Among the stroke risk factors age is one of the most important risk factor and risk of stroke is doubled beyond the age 55 years.[10] In this study most of the patients (97%) were above the age of 40 years and the maximum age distribution are in between 61-70 years (40%). Study by AM Hossain et al[11] and Bashar et al[12] found that the maximum age of incidence of stroke was between 6th and 7th decades, this result also coincides with the result of Chowdhury[13] and Arif et al.[14]

In this study 68% patient were male and 32 % were female and ratio was 2.1:1 which coincide with Chowdhury[13] and AM Hossain et al[11] study. The present study defers from study of Alamgir et al[15] in which male female ratio was 4:1 which may be due sampling technique and small sample size.

Considering literacy in this study most of the patients (60%) were illiterate primary school going 26.67% and graduate and above were only 3.3%. This study coincide with the Ross et al whose study revealed education level was inversely associated with fatal stroke.[16] Hart et al shown that men who left full time education at early age of 16 years or below had significant higher rate of stroke.[17] But this study contradicted with the study of AM Hossain et al[11] which found literate group 63% which may be due to patients comes to this hospital from rural areas of the country where most of the people are illiterate.

Regarding socio economic status the lower middle-class group includes majority (73.33%) which is similar with the study of MR Siddiqui et al.[18] Majority of the patients(40%) were businessman and others were housewife 33%, service 16.6% and farmer 10% and it shows around 67% of stroke sufferers were productive force of the community and it indicates a major impact on the family of the sufferers and also to the society.

This study shows about 80% of study population were hypertensivewhich is higher than study of AM Hossain et al[11] which is 63% and SM Arif et al[14] which is 60%. Patients suffering from diabetes mellitus were 36.6% and it is similar with the study of D Memis et al[19] which shows male patients suffering from diabetes 31% and female 39%, but the result is much higher than the study of AM Hossain[11] and R Saha et al[20] possibly due to both studies were done in Faridpur district and prevalence of diabetes there may be lower than Dhaka.

In this study we found that a significant number of patients (70%) with previous history of TIA had stroke later on. A large study involving 26,389 patients with coronary artery disease with 4460 Patients with previous history of TIA/ Stroke G Ducrocq et al found that patients with previous history of TIA/ Stroke has a significant chance of recurrent stroke.[21]

Patient with history of smoking were 46% in this study which is similar with many studies like Chowdhury et al,[13] Donnan et al.[22] Donnan et al found a strong association between smoking and stroke. Dyslipidemia found in 50% of study population which is similar with the study of D Memis et al showing 49% male and 36% female were hyperlipidemic.[19] but much lower than Islam T et al showing 82% patients had dyslipidemia among them low HDL was a significant risk factor.

Other risk factors include IHD 43%, carotid stenosis 13%, valvular heart disease 10% and OCP 6% which correlate with the study of Hyee et al[24] and AM Hossain et al.[11] A study in Britain found that men with definite evidence of previous myocardial infarction had four-fold higher risk of stroke compared to men with no preexisting IHD.[25]

Conclusion:

Stroke is one of the commonest causes of death and disability worldwide, and management of stroke patients is a economical challenge for a country like Bangladesh. Stroke affects both patients and their family physically and mentally and socio economically where in our country most of the stroke patient cannot afford adequate management and rehabilitation. This is a small study showing the socio-demographic status and risk factors of ischemic stroke patients of our country may not show the actual scenario of whole country but can give a overview of stroke patients in tertiary hospitals of our country. In developing country like our primary prevention is the best policy to fight stroke. A larger study needs to undergo in different centers of our country to find out the original status.

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