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Evaluation of Clinical Profile and Sociodemographic Characteristics of Ischemic Stroke Patients

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Abstract **Original Research Article**

Background: Stroke is the second biggest cause of morbidity worldwide, with a significant increase in the burden over the past two decades, particularly in emerging nations. The clinical manifestation of stroke varies based on vascular region involvement. Ischemic stroke etiology differs across populations due to lifestyle, environmental, and genetic variables. ***Aim of the study:*** The goal of this study was to evaluate the clinical profile and sociodemographic characteristics of ischemic stroke patients. ***Methods:*** This one-year descriptive cross-sectional study was carried out in the Department of Neurology at Sir Salimullah Medical College and Mitford Hospital (MH) in Dhaka, Bangladesh. Seventy ischemic stroke patients were selected to take part in the study based on the selection criteria. All study participants provided written informed consents. Data were examined using the statistical software SPSS 20.0. ***Results:*** Mean age of the patients was 64.10 ± 12.20 years. Majority of ischemic stroke patients were from age 61 to 70 years 28.6%. Majority of the patients were male 71.4% and female was 28.6%. Family history of ischemic stroke was 35.7%. Most common clinical feature was unilateral weakness, clumsiness (90.0%) followed by dysphasia (4.3%), unsteadiness (2.9%), dysphagia (1.4%) and unilateral sensory symptoms (1.4%). Most common associated risk factor was DM (64.3%) followed by HTN (45.7%), smoking (44.3%) and dyslipidemia (30.0%). Co-morbidities of the study subjects. Obesity was observed in 13 (18.6%) cases, MI in 11 (15.7%), CKD in 4 (5.7%) cases and electrolyte imbalance in 3 (4.3%) cases. ***Conclusion:*** In this study findings, diabetes mellitus, HTN and smoking are the most common risk factors in ischemic stroke patients, common co-morbidity is obesity.

Keywords: Clinical profile, sociodemographic characteristics, ischemic stroke.

INTRODUCTION

Stroke has become the second biggest cause of mortality globally, particularly in developing nations, with a significant increase in the past two decades [1]. The annual incidence of stroke in Bangladesh is 2.55 per 1000 people, affecting both sexes. Although hospital-based research confirm the fact that it is a major health problem, it is widely believed that the number of stroke victims is increasing on a daily basis (Bangladesh Bureau of statistics pocket book of Bangladesh 2002). Strokes are prevalent in Bangladesh. According to a study conducted in Bangladesh, the prevalence rates of stroke were 2.0, 3.0, 2.0, 10.0, and 10.0 per 1000 people in the following age groups: 40–49, 50–59, 60–69, 70–79, and 80 years and older. Prevalence rates increased with age. People aged 70 to 79 years are 4.988 (95% CI 2.309 to 10.77) times more likely to have had a stroke than people aged 40 to 49 years. Men had a higher prevalence rate than women, at 3.44 and 2.41 per 1000, respectively (odd ratio= 1.425, 95% Cl 0.779 to 608) (Dept. of Neurology, Dhaka Medical College). Strokes are the third greatest cause of death in Bangladesh. According to the World Health Organization, Bangladesh has the world's 84th highest stroke fatality rate. The stated prevalence of stroke in Bangladesh is 0.3%, however no data on stroke incidence has been collected. According to hospital-based studies completed over the last several decades, hypertension is the leading cause of ischemic and hemorrhagic stroke in Bangladesh. The substantial impact of stroke on Bangladesh's economy is evidenced by the high number of disability-adjusted life years lost as a result of stroke (485 per 10,000 persons) [2]. Stroke morbidity, death, and disability are increasing globally [3, 4]. The Global Burden of Disease (GBD), Injuries, and Risk Factors study found that stroke is the greatest cause of mortality and disability in sub-Saharan Africa (SSA) and other low- and middle-income countries (LMICs) [5]. Hemorrhagic stroke (HS) is more common in Africa than to Western countries. The variation in health outcomes is often attributed to racial or genetic causes, but it could also be attributable to disparities in

risk factor burden, which is influenced by demographics and modifiable risk factors [6, 7]. Non-modifiable risk variables include age, gender, family history, and ethnicity. Modifiable risk factors include hypertension, diabetes mellitus, alcohol, smoking, food, and physical inactivity [8, 9]. Non-modifiable risk variables include age, gender, family history, and race/ethnicity. Modifiable risk factors include renal dysfunction, hyperlipidemia, hypertension, alcohol use, smoking, diet, obesity, and physical inactivity [9, 10]. Lifestyle changes and risk factor management can help prevent strokes. Limited data exists on the risk profiles, clinical presentations, and predictors of different stroke subtypes. The purpose of this study was to assess the clinical profile and sociodemographic of ischemic stroke patients.

METHODOLOGY

The Department of Neurology at Sir Salimullah Medical College and Mitford Hospital (MH) in Dhaka, Bangladesh, conducted this one-year descriptive cross-sectional study. Seventy ischemic stroke patients were selected to take part in the study based on the selection criteria. According to the inclusion criteria of this study, ischemic stroke patients over the age of 40 from both gender groups who were willing to participate were included as study subjects. On the other hand, according to the study's exclusion criteria, very ill patients or those who refused to participate were excluded. The study populations were chosen using sequential and selective sampling techniques. Before the study began, formal ethical clearance was obtained by the SSMC's Ethical Review Committee (ERC). All participants were informed of the nature, purpose, and potential advantages of the study. They were plainly aware that they would not receive any cash rewards. All patients detailed demographic information and clinical assessments, including height and weight, were evaluated appropriately. Blood samples were collected to estimate the blood glucose and lipid profiles, as well as to perform any necessary biochemical testing. Furthermore, every patient received a list of procedures, including electrocardiography (ECG), x-ray chest (PA), computed tomography (CT) scan of the brain, and echocardiography, to rule out any cardiac source of embolization. All data were entered, documented, and analyzed using the Statistical Package for Social Science (SPSS) version 20.0. Categorical data were expressed as frequency and percentage, while numerical data were represented as mean and standard deviation. To analyze categorical data, the Chi-Square test was performed. Statistical significance was determined at the $p = 0.05$ level.

RESULT

Table-1 shows demographic profile of the patients. Mean age of the patients was 64.10 ± 12.20 years. Majority of ischemic stroke patients were from age 61 to 70 years 28.6%. Majority of the patients were male (71.4%) and female was 28.6%. Family history of ischemic stroke was 35.7%. Table-2 shows clinical features of the study subjects. Most common clinical feature was unilateral weakness, clumsiness (90.0%) followed by dysphasia (4.3%), unsteadiness (2.9%), dysphagia (1.4%) and unilateral sensory symptoms (1.4%). Table-3 shows risk factors with stroke. Most common associated risk factor was DM (64.3%) followed by HTN (45.7%), smoking (44.3%) and dyslipidemia (30.0%). Table-4 shows co-morbidities of the study subjects. Obesity was observed in 13 (18.6%) cases, MI in 11 (15.7%), CKD in 4 (5.7%) cases and electrolyte imbalance in 3 (4.3%) cases. Table-5 shows mean systolic blood pressure was 144.5±36.2 mmHg and mean diastolic pressure was 83.6±18.7 mmHg.

Table-1: Demographic profile of the patients (N=70)

Parameters	Frequency (n)	Percentage (%)
Age (years)		
41-50	12	17.1
51-60	15	21.4
61-70	20	28.6
71-80	13	18.6
>80	10	14.3
Mean ± SD	64.10 ± 12.20	
Gender		
Male	50	71.4
Female	20	28.6
Family history of stroke	25	35.7

Table -2: Clinical features of the stroke patients (N=70)

Clinical features	Frequency (n)	Percentage (%)
Unilateral weakness, clumsiness	63	90.0
Dysphasia	6	4.3
Unsteadiness	2	2.9
Dysphagia	1	1.4
Unilateral sensory symptoms	1	1.4

Table-3: Risk factors with stroke (N=70)

Risk factor	Frequency (n)	Percentage (%)
HTN	32	45.7
DM	45	64.3
Dyslipidemia	21	30.0
Smoking	31	44.3

Table-4: Co-morbidities of the study subjects (N=70)

Co-morbidities	Frequency (n)	Percentage (%)
Obesity	13	18.6
MI	11	15.7
CKD	4	5.7
Electrolyte imbalance	3	4.3

Table-5: Blood pressure in ischemic stroke patients (N=70)

Blood pressure	mean ±SD	Range (min-max)
SBP in mm Hg	144.5 ± 36.2	100 – 220
DBP in mm Hg	83.6 ± 18.7	60 – 130

DISCUSSION

The goal of this study was to evaluate the clinical profile and sociodemographic characteristics of ischemic stroke patients. This study includes 70 cases of ischemic stroke. The average age of stroke patients is 61.74 ± 12.09 years. The majority of stroke patients 28.6% are aged between 61 and 70 years. This is consistent with prior research, which found that stroke incidence increases after 60 years observed that 28.0% of their stroke cases were between the ages of 61 and 70 [11, 12]. Among stroke patients, 71.4% are men and 28.6% are women. HTN is the most common risk factor for stroke in this study (45.7%). Hypertension was the most common risk factor (64%) identified in the studies of Haq *et al.,* (2017) and Ghosh *et al.,* (2015) [12, 13]. According to McManus and Liebeskind (2016), the prevalence of HTN in acute stroke can be as high as 84.0% [14]. Hypertension (HTN) is the leading modifiable risk factor for stroke [15]. In this study, 64.3% of ischemic stroke patients had diabetes mellitus. Diabetes is a recognized substantial risk factor for stroke. Several factors contribute to the overall cerebrovascular risk in diabetic patients, including hypoglycemia, vascular risk factors such as hypertension and dyslipidemia, as well as genetic, demographic, and lifestyle factors. Several studies have shown that diabetics have approximately twice the risk of ischemic stroke as those without diabetes [16]. In this study, 35.7% of patients with ischemic stroke were smokers. Studies conducted across various ethnicities and populations show a strong link between smoking and stroke risk, with current smokers having a two- to fourfold higher risk of stroke than lifelong nonsmokers or those who quit smoking more than ten years ago [17]. Another risk factor for stroke is dyslipidemia. Clinical trials utilizing statins have demonstrated that they consistently reduce the incidence of ischemic stroke in people with and without coronary heart disease [18]. The prevalence of dyslipidemia in ischemic stroke in this study is 30.0%. In contrast, a Pakistani study on ischemic stroke found a greater frequency of dyslipidemia (32.7%) [19].

Limitation of the study: This was a single-centered study with a modest sample size. As a result, the study's conclusions may not accurately reflect the situation throughout the country.

CONCLUSION & RECOMMENDATION

In this study majority of ischemic stroke patients were from age 61 to 70 years 20 (28.6%). Majority of the patients were male (71.4%) and female was 28.6%. Most common clinical feature was unilateral weakness, clumsiness (90.0%) followed by dysphasia (4.3%), unsteadiness (2.9%), dysphagia (1.4%) and unilateral sensory symptoms (1.4%). According to this study findings, most common risk factors are diabetes mellitus, HTN and smoking, common co-morbidity is obesity.

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