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MORBIDITY PATTERN OF PATIENTS WITH ISCHEMIC STROKE AT TERTIARY CARE UNIT

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ABSTRACT

Background: Stroke is an important morbidity for low and middle income countries like Pakistan. This study was conducted to note the frequency of complications in ischemic stroke patients to determine magnitude of the problem in our local population. **Objective:** To determine the morbidity pattern in patients with ischemic stroke at a tertiary care hospital. **Material and Methods:** All the cases of ischemic stroke (170), fulfilling inclusion criteria were recruited in this cross – sectional study. Once registered these study cases was assessed for different complications (UTI, shoulder pain, arrhythmia, pneumonia and hyponatremia) after undergoing baseline investigations like urine test, blood tests and ECG. Data was entered and analyzed by computer program SPSS-18. **Results:** Of these 170 study cases, 95 (55.8%) were male patients while 75 (44.2%) were female patients. Mean age of our studied cases was 48.6± 8.18 years. Out of these 170 cases, 70 (41.2%) were from rural area while 100 (58.8%) from urban areas, 112 (65.8%) were hypertensive and 40 (23.8%) were diabetic. Mean body mass index (BMI) of our study cases was 23.58 ± 3.29 kg/m^2 and obesity was present in 35 (20.5%). Previous history of stroke was present in 18 (10.5%) while family history of stroke was noted in 41 (24.1%) of our study cases and 118 (69.4%) were illiterate and 52 (30.6%) were literate. History of smoking was present in 54 (31.7%) of our study cases. Mean serum sodium level was noted to 135.9 ± 2.03 mEq/L, shoulder pain in 65 (38.2%), pneumonia in 45 (26.4%), arrhythmia in 58 (34.1%) urinary tract infection (UTI) was noted in 86 (50.5%), and hyponatremia in 48 (28.2%) of our cases. **Conclusion**: The results of our study showed that there is very high ratio of medical complications in ischemic stroke patient. We found that urinary tract infection was the most common complication followed by shoulder pain, arrhythmia, pneumonia and hyponatremia. All clinicians treating such patients should carefully monitor such patients to take preventive measure against these complications, this will decrease disease morbidity and hospitalizations in these patients.

KEYWORDS: Ischemic stroke, medical complications, Frequency.

INTRODUCTION

Stroke, an important morbidity in the context of sustainability development goals (SDGs), is the leading cause of disability in the Asian population.[1,2] Low and middle income countries have a higher burden and mortality because of stroke and it is increasing over time.[3,6] During the rehabilitation process, patients are vulnerable to various complications as a result of both the stroke and the disability caused by it.[3] Ischemic Stroke occurs as a result of an obstruction within a blood vessel supplying blood to the brain. It accounts for 6090% percent of all stroke cases in Pakistan. The risk factors for stroke are classified as non-modifiable (age, family history, prior stroke, gender and ethnicity) and modifiable risk factors (hypertension, diabetes mellitus, coronary artery disease, arterial fibrillation, dyslipidemia, smoking, obesity, alcohol abuse and physical inactivity.[4-6] World Health Organization (WHO) recommends 3-step approach to establish stroke surveillance system. First step should capture data about stroke in the hospital giving information about treatment and mortality of the stroke patients. In the subsequent steps WHO recommend capturing stroke related fatal and nonfatal events in the community.[16] Experiences from the region have recommended establishing a hospital based surveillance system$_{17}$. Establishing such a system for low and middle income countries in the community might be challenging because of the cost implications.[17,18] In order to improve the quality of evidence generated it is recommended that surveillance system using standardized approaches be establish.[16]

Diagnosis and treatment of stroke have advanced over the past 2 decades, but morbidity and mortality after

stroke are still high. Patients who have had stroke are at significant risk for medical complications, neurological damage, and various psychiatric illnesses.[7] Even if not always life-threatening, these medical complications can hinder functional recovery, can extend the hospital length of stay, worsen stroke outcomes and increase cost of care. In addition, some patients need to be transferred back to the acute care setting, which interrupts the inpatient rehabilitation therapy and further increases the overall cost of stroke management.[8] Civelek et al[9] reported UTI in 48.1% patients, shoulder pain in 37%, arrhythmia in 21% and pneumonia in 13.6% of ischemic stroke patients. Rodrigues et al[10] reported 16% hyponatremia in patients having ischemic stroke.

MATERIAL AND METHODS

A total of 181 patients with ischemic stroke were included in this study having their ages ranging from 25 – 65 years were included. Patients with hemorrhagic stroke, metabolic encephalopathy meningitis, arrhythmia before onset of ischemic stroke and history of brain tumors before onset of symptoms of stroke were excluded from our study. All the cases of ischemic stroke fulfilling inclusion criteria were recruited from Department of Medicine, Nishtar Hospital Multan. Once registered these study cases was assessed for different morbidity pattern (UTI, shoulder pain, arrhythmia, pneumonia and hyponatremia as defined in operational definitions) after undergoing baseline investigations like urine test, blood tests and ECG. Data was entered and analyzed by computer program SPSS-18.

RESULTS

Of these 170 study cases, 95 (55.8%) were male patients while 75 (44.2%) were female patients. Mean age of our studied cases was 48.6± 8.18 years. Out of these 170 cases, 70 (41.2%) were from rural area while 100 (58.8%) from urban areas, 112 (65.8%) were hypertensive and 40 (23.8%) were diabetic. Mean body mass index (BMI) of our study cases was 23.58 ± 3.29 kg/m^2 and obesity was present in 35 (20.5%). Previous history of stroke was present in 18 (10.5%) while family history of stroke was noted in 41 (24.1%) of our study cases and 118 (69.4%) were illiterate and 52 (30.6%) were literate. History of smoking was present in 54 (31.7%) of our study cases. Mean serum sodium level was noted to 135.9 ± 2.03 mEq/L, shoulder pain in 65 (38.2%), pneumonia in 45 (26.4%), arrhythmia in 58 (34.1 %) urinary tract infection (UTI) was noted in 86 (50.5%), and hyponatremia in 48 (28.2%) of our cases.

Table No. 1: Stratification of medical complications with regards to gender. (n= 181).

Medical Complications		Gender		P value
		Female	Male	
UTI (n= 170)	Yes (n= 86)	28	58	0.549
	No (n= 84)	42	42	
Shoulder pain (n= 170)	Yes (n= 65)	40	25	0.000
	No (n= 105)	37	68	
Pneumonia (n= 170)	Yes (n= 45)	20	25	0.082
	No (n= 125)	66	59	
Arrhythmia (n= 170)	Yes (n= 58)	18	40	0.001
	No (n= 112)	62	50	
Hyponatremia (n= 170)	Yes (n= 48)	8	40	0.001
	No (n= 122)	72	50	

DISCUSSION

Stroke syndromes present clinically as neurologic deficits of sudden onset. Symptoms depend upon the affected region of brain, which in turn is defined by the arterial anatomy involved.[11] Our study comprised of 170 patients with ischemic stroke who met inclusion criteria of our study. Of these 181 study cases, 95 (55.8%) were male patients while 75 (44.2%) were female patients. Different studies have documented male gender preponderance in patients with ischemic stroke. A study conducted by Saeed et al[12] also reported high male gender predominance with 61.1% in patients with ischemic stroke which is similar to our findings. Javed et al[13] from Dera Gazi Khan also reported 61% male patients showing male gender predominance which is same as that of our study results. Similarly Farooq et al[14] from Faisalabad has documented 54% male patients with ischemic stroke which is in compliance with our study results. Sico et al[15] also reported 58% male gender preponderance which is similar to our study results.

Mean age of our study cases was 48.68± 8.18 years (with minimum age of our study cases was 30 years while maximum age was 60 years). Mean age of the male patients was 53.51 ± 5.10 years while that of female patients was 48.44 ± 7.79 years (p=0.000). Our study results have revealed that majority of our patients i.e. 100 (58.4%) were aged more than 45 years. A study conducted by Saeed et al[12] also reported 64.4 ± 11.5 years mean age which is slightly higher than that of the findings of our study. Khan et al[16] reported 58.11 ± 15.29 years mean age which is close to our study results. Of these 170 cases, 70 (41.2%) were from rural area while 100 (58.8%) from urban areas, 40 (23.5%) were diabetic and 112 (65.8%) were hypertensive. Mean body mass index (BMI) of our study cases was 23.58 ± 3.29 kg/m^2 and obesity was present in 29 (16%). History of

smoking was present in 43 (23.8%) of our study cases. Sadreddini et al[19] also reported from Iran that patients with ischemic stroke presented with diabetes in 24% patients, hypertension in 78% patients and smoking in 20%. Our results are in compliance with that of Sadreddini et al[19] from Iran. Khan et al[16] also reported diabetes in 36.6% and smoking in 32% patients with ischemic stroke. These results are similar to that of our study results. Previous history of stroke was present in 18 (10.5%) while family history of stroke was noted in 41 (24.1%) of our study cases and 118 (69.4%) were illiterate and 52 (30.5%) were literate. Sadreddini et al[19] from Iran reported 18% previous history of stroke which is close to our study results. Mean serum sodium level was noted to 135.9 ± 2.03 mEq/L, urinary tract infection (UTI) was noted in 87 (48.1%), shoulder pain in 72 (39.8%), pneumonia in 43 (23.8%), arrhythmia in 58 (32%) and hyponatremia in 51 (28.2%) of our study cases. Civelek et al[9] reported UTI in 50% patients, shoulder pain in 38%, arrhythmia in 34% and pneumonia in 26% of ischemic stroke patients, these findings are close to our study findings.

CONCLUSION

The results of our study showed that there is very high ratio of medical complications in ischemic stroke patient. We found that urinary tract infection was the most common complication followed by shoulder pain, arrhythmia, pneumonia and hyponatremia. All clinicians treating such patients should carefully monitor such patients to take preventive measure against these complications, this will decrease disease morbidity and hospitalizations in these patients.

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