# WORLD JOURNAL OF PHARMACEUTICAL
# AND MEDICAL RESEARCH

## STUDY REGARDING MORBIDITY AMONG PATIENTS WITH ISCHEMIC STROKE

**Dr. Hafsa Shahid*[1], Dr. Izza Waheed[2] and Dr. Syeda Arshia Maryam[3]**

Fatima Jinnah Medical University.

**\*Corresponding Author: Dr. Hafsa Shahid**

Fatima Jinnah Medical University.

## ABSTRACT

**Background:** Stroke is an important morbidity for low and middle income countries like Pakistan. Ischemic CVA is one of the leading causes for death and disability. **Objective:** To determine the morbidity pattern in patients with ischemic stroke at a tertiary care hospital. **Material and Methods:** 150 Patient diagnosed of ischemic stroke, completing inclusion criteria were enrolled in this cross – sectional study. Once registered these study cases was assessed for different complications like UTI, shoulder pain, arrhythmia, pneumonia and hyponatremia after undergoing baseline investigations like complete blood count, urine test, blood tests, X-ray chest, ECG, and CT scan. Data was entered and analyzed by computer program SPSS-20. **Results:** Of these 150 study cases, 85 (56.6%) were male patients while 65 (43.3%) were female. Mean age of enrolled patient was 49.6± 7.18 years. Out of these 150 cases, 60 (40%) were from rural area while 90 (60%) from urban areas, 100 (66.6%) were hypertensive and 32 (21.3%) were diabetic. Mean body mass index (BMI) of our study cases was 24.8 ± 3.49 kg/m$^2$ and obesity was present in 30 (20%). Previous history of stroke was present in 16 (10.6%) while family history of stroke was noted in 36 (24%) patients and 102 (68%) were illiterate and 48 (32%) were literate. History of smoking was present in 46 (30.6%) of patients. Mean serum sodium level was noted to 135.9 ± 2.03 mEq/L, shoulder pain in 55 (36%), pneumonia in 35 (23.3%), arrhythmia in 48 (32%) urinary tract infection (UTI) was noted in 76 (50.6%), and hyponatremia in 38 (25.3%). **Conclusion:** The results of our study showed that there's terribly high ratio of medical complications in CVA patient. We have a tendency to found that urinary tract infection was the foremost common complication followed by shoulder pain, arrhythmia, pneumonia and symptom. All clinicians treating such patients ought to fastidiously monitor such patients to require preventive measure against these complications, this may decrease disease morbidity and hospitalizations in these patients.

**KEYWORDS:** Ischemic stroke, medical complications, Frequency.

## INTRODUCTION

Stroke (cerebrovascular accident- CVA) is defined as rapidly developing clinical signs of focal (at times global) disturbance of cerebral functions, lasting more than 24 hours or leading to death, with no apparent cause other than that of vascular origin.[1] With an annual incidence of 0.2 to 2.5 per 1000 population, CVA is an important health problem worldwide.[2] In Pakistan, annual incidence of stroke is 33 per 100,000 and mortality rate 73 per 100,000.[3] Though ischemic CVA is one of the leading causes for death and disability, parameters for predicting long-term outcome in such patients have not been clearly delineated, especially in the Pakistani context. The prognostic factors studied should be simple, conclusive and assessable at all levels of the health care system. With this background, this prospective study was planned and executed. 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 60% 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 ought to capture information concerning stroke in the hospital giving info regarding treatment and mortality of the stroke patients. In the subsequent steps World Health Organization advocate capturing stroke related fatal and nonlethal events in the community.[16] Experiences from the region have counseled establishing a hospital based mostly surveillance system.[17] Establishing such a system for low and middle income countries in the community could be difficult because of the cost implications.[17,18] so as to boost the standard of evidence generated it's suggested that surveillance system using standardized approaches be establish.[16]

Diagnosis and treatment of stroke have advanced over the past two decades, however morbidity and mortality after stroke are still high. Patients who have had stroke are at important risk for medical complications, neurological harm, and numerous psychiatric diseases.[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] Civiler 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 150 patients with ischemic stroke were included in this study having their ages ranging from 30–70 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 completing inclusion criteria were recruited from Department of Medicine, Ganga Ram Hospital Lahore. 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-20.

## RESULTS

Of these 150 study cases, 85 (56.6%) were male patients while 65 (43.3%) were female. Mean age of enrolled patient was 49.6± 7.18 years. Out of these 150 cases, 60 (40%) were from rural area while 90 (60%) from urban areas, 100 (66.6%) were hypertensive and 32 (21.3%) were diabetic. Mean body mass index (BMI) of our study cases was $24.8 \pm 3.49$ kg/m$^2$ and obesity was present in 30 (20%). Previous history of stroke was present in 16 (10.6%) while family history of stroke was noted in 36 (24%) patients and 102 (68%) were illiterate and 48 (32%) were literate. History of smoking was present in 46 (30.6%) of patients. Mean serum sodium level was noted to $135.9 \pm 2.03$ mEq/L, shoulder pain in 55 (36%), pneumonia in 35 (23.3%), arrhythmia in 48 (32%) urinary tract infection (UTI) was noted in 76 (50.6%), and hyponatremia in 38 (25.3%).

**Table 1: Stratification of medical complications with regards to gender. (n= 150).**

| Medical Complications | | Gender | |
|---|---|---|---|
| | | Female | Male |
| UTI (n= 150) | Yes (n= 76) | 23 | 53 |
| | No (n= 74) | 37 | 37 |
| Shoulder pain (n= 150) | Yes (n= 55) | 35 | 20 |
| | No (n= 95) | 32 | 63 |
| Pneumonia (n= 150) | Yes (n= 35) | 15 | 20 |
| | No (n= 115) | 61 | 54 |
| Arrhythmia (n= 150) | Yes (n= 48) | 13 | 35 |
| | No (n= 102) | 57 | 45 |
| Hyponatremia (n= 150) | Yes (n= 38) | 3 | 35 |
| | No (n= 112) | 67 | 45 |

## 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 150 patients with ischemic stroke who met inclusion criteria of our study. Of these 150 study cases, 85 were male patients while 65 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. Scio 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 $53.51 \pm 5.10$ years while that of female patients was $48.44 \pm 7.79$ 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 $64.4 \pm 11.5$ years mean age which is slightly higher than that of the findings of our study. Khan et al[16] reported $58.11 \pm 15.29$ years mean age which is close to our study results. Of these 150 cases, 60 patients were from rural area

while 90 from urban areas, 32 patients were diabetic and 100 were hypertensive. Mean body mass index (BMI) of our study cases was $23.58 \pm 3.29$ 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 16 while family history of stroke was noted in 36 of our study cases and 102 were illiterate and 48 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 $135.9 \pm 2.03$ mEq/L, urinary tract infection (UTI) was noted in 76, shoulder pain in 55, pneumonia in 35, arrhythmia in 48 and hyponatremia in 38 of our study cases. Civiler 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.

## REFERENCES
1. Kim KJ, Hoe M, Chun IA, Jun HJ, Lee JS, Legal H, et al. The relationship between stroke and quality of life in Korean adults: based on the 2010 Korean community health survey. J Physicians There Sci., 2015; 27: 309–12.
2. Kim K, Kim YM, Kim EK. Correlation between the activities of daily living of stroke patients in a community setting and their quality of life. J Physicians There Sci., 2014; 26: 417–19.
3. Dashy VS, Say JH, Young SH, and Doraisamy P. Complications in stroke patients: a study carried out at the Rehabilitation Medicine Service, Change General Hospital. Singapore Med J., 2003; 44: 643–52.
4. Feign VL, Krishnamurthy RV, Parmer P, Nerving B, Mensah GA, et al. Update On The Global Burden Of Ischemic And Hemorrhagic Stroke In 1990-2013: The God 2013 Study. Neuroepidemiology, 2015; 45(3): 161-176.
5. Salami EMP, Rachides S, Hussein H the epidemiology of stroke in the Middle East. European Stroke Journal, 2016; 1(3): 180-198.
6. Begot Y, Baillie H, Drier J, Giraud M Epidemiology of stroke in Europe and trends for the 21stcentury. Presse Med, 2016; 45(12 Pt. 2): e391-e398.
7. Gusset EI, Skvortsova VI, Stakhovskaia LV Epidemiology of stroke in Russia. Hz Negril Psychiatry I'm S Korsakov Supple, 2003; 8: 4-9.
8. Stroke Association the nation Stroke statistics January 2017.Together we can conquer stroke. Hz Negril Psychiatry I'm S Korsakov, 2003; (Supple 8): 4-9.
9. Marci J, Ellis ME, Mary Ellen Ellis Cerebrovascular Accident, 2017.
10. Wong ND Epidemiological studies of CHD and the evolution of preventive cardiology. Nat Rev Cardio, 2014; 11(5): 276-289.
11. Match CA[1], Talbot JF[2], Glean A[3]. Imaging Evaluation of Acute Traumatic Brain Injury. Neurosurgeon Clan N Am., 2016 Oct; 27(4): 409-39.
12. Saeed E, Ali R, Jalal-ud-din M, Saeed A, Jadon RJ, Moniz M. Hypercholesterolemia in patients of ischemic stroke. J Aye Med Cull Abbottabad, 2015 Jul-Sep; 27(3): 637-9.
13. Javed RA, Bhatti A, Aznar MA. Frequency of hypoalbuminemia in patients with ischemic stroke. Pak J Med Health Sci., 2016; 10(2): 571-73.
14. Farooq MA, Anjou MS, Malik FA, Kason N. Frequency of micro albuminuria in patients with ischemic stroke. Racal Med J., 2013; 38(2): 97-99.
15. Scio JJ[1], Concerto J, Wells CK, Lo AC, Nadeau SE, Williams LS, et al. Anemia is associated with poor outcomes in patients with less severe ischemic stroke. J Stroke Cerebrovascular Dis., 2013 Apr; 22(3): 271-8.
16. A. Amjad, R. Chowdhury, J. F. Felix et al., "A systematic evaluation of stroke surveillance studies in low- and middle-income countries," Neurology, View at Publisher · View at Google Scholar · View at Scopus, 2013; 80(7): 677–684.
17. S. K. Das, "Who steps stroke surveillance system: feasibility in India," Indian Journal of Medical Research, View at Google Scholar View at Scopus, 2009; 130(4): 359–360.
18. D. Natarajan, G. Guru Raj, N. Garish et al., "Feasibility study of stroke surveillance: data from Bangalore, India," Indian Journal of Medical Research, View at Google Scholar ·View at Scopus, 2009; 130(4): 396–403.
19. Sadreddini SA, Abolfathi AA, Khandaghi R, Alibi M, Lucian A. C-Reactive protein, fibrinogen, LP (a), lipid profile levels and platelet count in patients with ischemic stroke. Pak J Neurological Sci., 2006; 1(1): 713.