



CODEN [USA]: IAJ PBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.4640597>Available online at: <http://www.iajps.com>

Research Article

**RISK FACTORS FOR STROKE AND TRANSIENT ISCHEMIC  
STROKE IN PATIENTS**<sup>1</sup>Wajih Ansari, <sup>2</sup>Saboor Alam, <sup>3</sup>Muhammad Hamiz Naveed<sup>1</sup>Dr. Ruth K. M. Pfau, Civil Hospital Karachi, Ansariwajih9@gmail.com<sup>2</sup>Dr. Ruth K. M. Pfau, Civil Hospital Karachi, Sabooralam21@yahoo.com<sup>3</sup>DMLS The University of Lahore, Email: ushnamna@gmail.com

Article Received: February 2021

Accepted: February 2021

Published: March 2021

**Abstract:**

**Introduction:** Transient ischemic attack (TIA) is a transient episode of neurologic dysfunction caused due to loss of blood flow to the brain or spinal cord without acute infarction. **Objectives:** The main objective of the study is to analyse the risk factors for stroke and TIA's in Pakistani local community. **Material and methods:** This cross sectional study was conducted in Civil hospital Karachi during 2019. The data was collected from 100 patients. The data was collected through systematically designed questionnaire. Data regarding past stroke and transient ischemic attack (TIA) symptoms were recorded along with relevant neurological examinations. A 25 item self-administered questionnaire was used to get relevant information. **Results:** The data was collected from 100 patients of stroke and TIA's. Among the responders, 103 (61.90%) were males and 47 (38.10%) were females with an average age of  $50 \pm 15$  years. Paralysis of a complete body side or an arm or a leg was experienced by 125 (23.81%) patients at least once in the life time knowing stroke as the underlying cause, of which 25 (19.0%) patients reported an event of sudden paralysis experienced during the last year. **Conclusion:** It is concluded that hypertension and diabetes were the two commonest non communicable diseases (cardiovascular) risk factors in these patients, followed by hypercholesterolemia, smoking, and use of smokeless/chewable tobacco.

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Please cite this article in press Wajih Ansari et al., **Risk Factors For Stroke And Transient Ischemic Stroke In Patients.**, *Indo Am. J. P. Sci.*, 2021; 08(03).

**INTRODUCTION:**

Stroke has been defined as acute loss of focal and at times global (applied to patients in deep coma and to those with subarachnoid hemorrhage) cerebral function; the symptoms lasting for more than 24 hours or leading to death and with no apparent cause other than vascular origin. It is not a diagnosis but a clinical syndrome with numerous causes. The main types of stroke are ischemic and hemorrhagic<sup>1</sup>. Defining stroke types helps in determining the most effective therapy and is clearly related to prognosis. Computed tomography or magnetic resonance imaging should be performed to confirm the type of stroke. The main goal of treatment is to maximize physical and cognitive function by limiting acute complications and facilitating rehabilitation<sup>2</sup>.

The studies on epidemiology of stroke are comparatively more limited in developing than developed countries. India is the only one with population-based data. The prevalence of stroke varies in different regions of India and ranges from 40 to 270 per 100,000 rural populations and is much lower from reported prevalence of 400 to 800 per 100,000 in western countries. Ethnic, socio-economic and dietary factors may be responsible for this variance<sup>3</sup>.

A transient ischemic attack (TIA), also sometimes referred to as a “mini-stroke,” starts like a stroke but only lasts from several minutes up to 24 hours. Unlike a stroke, a TIA does not kill the brain cells, so there is no lasting damage to the brain. However, when a TIA begins, there is no way to tell if a person is having a stroke or a TIA<sup>4</sup>. Approximately 240,000 adults in the United States experiences a TIA each year. At least another 690,000 adults experience an ischemic stroke. Approximately 15 percent of all patients who have experienced a stroke have had a previous TIA. Patients with TIAs are at a particularly increased risk of having a stroke within the following days to weeks. TIAs should be considered warning signs of potential future strokes<sup>5</sup>.

**Objectives**

The main objective of the study is to analyse the risk factors for stroke and TIA's in Pakistani local community.

**MATERIAL AND METHODS:**

This cross-sectional study was conducted in Civil hospital Karachi during 2019. The data was collected from 100 patients. The data was collected from 100 patients. The data was collected through systematically designed questionnaire. Data regarding past stroke and transient ischemic attack (TIA) symptoms were recorded along with relevant neurological examinations. A 25-item self-administered questionnaire was used to get relevant information. The main elements of the questionnaire, designed after a thorough review of literature, were the presenting symptoms, co-morbid illnesses, history of use of anticoagulants and antiplatelet agents, laboratory tests carried out, emergency room work up and the initial treatment, management in the stroke units and further follow-up of the patients to a minimum of three months with new stroke and its workup details.

**Statistical analysis**

Descriptive statistics were run for age, delay in presentation, and duration of hospital stay, radiological data and laboratory tests. The data was analysed using SPSS 19.

**RESULTS:**

The data was collected from 100 patients of stroke and TIA's. The mean age of the patients was  $59.23 \pm 13.14$  and 103 (61.90%) were males and 47 (38.10%) were females. Paralysis of a complete body side or an arm or a leg was experienced by 125 (23.81%) patients at least once in the life time knowing stroke as the underlying cause, of which 25 (19.0%) patients reported an event of sudden paralysis experienced during the last year. The most common risk factor is hypertension 72 (77.2%) and diabetes 16 (38.6%). All other factors are represented in table 01.

**Table 01:** Risk factors in TIA patients

Characteristics	Frequency (%) TIA patients
Hypertension	72(77.2)
Diabetes	16(38.6)
Stable angina	3(6.3)
Unstable angina	2(5.7)
Previous myocardial infarction	2(4.6)
Congestive heart failure	3(3.2)
Peripheral vascular disease	1(1.3)
Hypercholesterolemia	1(1.5)
Obesity	18(11.4)
Coagulopathy	6(3.8)
Atrial fibrillation	8(5.1)
History of smoking	33(20.9)
Prior use of at least one Medication (for any disease)	11(5.3)

The most common type of TIA came out to be of undetermined and under investigated type (24.1%), followed sequentially by presumable cardioembolic (20.3%), large artery atherosclerosis (18.4%), probable lacunar warning syndrome (15.8%) and truly undetermined (1.3%). Significant associations were found between male gender and high LDL ( $p = 0.001$ ), high triglycerides ( $p = 0.001$ ) and positive history of smoking ( $p = 0.00$ ). Increasing age was found to be associated with more sensory symptoms at presentation ( $p = 0.04$ ). We found a significant association between the development of a new stroke after the initial TIA event with positive history of unstable angina ( $p = 0.00$ ), high LDL, elevated triglycerides, low HDL ( $p = 0.01$ ), time delay to presentation after onset of symptoms ( $p = 0.003$ ) and with the length of hospital stay ( $p = 0.042$ ).

### DISCUSSION:

The high risk of stroke after a transient ischemic attack supports an approach involving rapid evaluation and initiation of treatment. Consensus guidelines on the management of TIA have been promulgated by the American Heart Association AHA and the National Stroke Association<sup>6</sup>. With regard to finding the cause and diagnosis of TIA, our center has principally followed the AHA and NSA guidelines.

We found that about 91% of the patients were diagnostically evaluated via at least one radiographic imaging modality. These diagnostic tests were done to identify or exclude etiologies of TIA requiring specific therapy, to assess modifiable risk factors, and to determine prognosis. Head MRI and CT were done in 53.2% and 27.2% of the cases respectively<sup>7</sup>. The guidelines also recommend imaging the carotid arteries in all cases but in our study only 47.5% of patients underwent carotid imaging. The reason for the low number of carotid dopplers may be the perception held by the doctors that our population is different in terms of stroke causation. This perception is based on studies that suggest that Asians have more intracranial atherosclerosis<sup>8</sup>.

The figures for neuroimaging are comparable with Western figures, as a national study on emergency department visits for TIA in the United States revealed that CT scan was performed on 56% patients and MRI on less than 5% of patients, though over the period of the study there was an increase in the trend to perform neuroimaging<sup>9-10</sup>. Another study conducted in 4 regional stroke centers in Ontario revealed that diagnostic interventions were underutilized. CT scanning was performed in 58%, carotid Doppler ultrasonography in 44%, and MRI in 3% of patients<sup>11-12</sup>.

### CONCLUSION:

It is concluded that hypertension and diabetes were the two commonest non communicable diseases (cardiovascular) risk factors in these patients, followed by hypercholesterolemia, smoking, and use of smokeless/chewable tobacco.

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