

Frequency and Awareness of Cognitive Impairment in Stroke Patients of Karachi

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ABSTRACT

Objective: To assess the frequency of cognitive impairment in stroke patients. To assess the awareness of cognitive impairment in different type of stroke patients.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Community Medicine, SMC, JSMU Karachi from March to August 2018.

Materials and Methods: A Cross-sectional study was conducted over the conscious diagnosed patients of stroke above 12 years of age on a sample of 100 individuals. The sample was taken through non-probability purposive sampling from the patients who visited or admitted to Jinnah Post-graduate Medical Centre, Karachi. A structured questionnaire was then developed. Pilot study was conducted to assess the authenticity of the questionnaire. Data was collected through structured questionnaire. An informed verbal consent was taken from the patients. The data was then entered and analyzed using SPSS version 20, with 95% confidence interval and 0.05 p-values were taken as statistically significant.

Results: A total of 100 patients of stroke took part in the study, out of which 70% were males and 30% were females. In Females 60.0% had unsatisfied cognition, (54%) of the patients fall in the age group of 40 to 64 Years out of which 55.6% had unsatisfied cognition, the patients who fall in the age group between 13 to 39 had satisfactory cognition indicating significant difference in the level of cognition among different age groups. In Diabetic patients 58.5% had unsatisfied cognition, patients who had multiple attacks of stroke, 55.8% had unsatisfied cognition, Patients who had stroke attack with symptom duration less than 24 Hours (TIA) 50% had unsatisfied cognition, In patients who had stroke attack with symptom duration more than 24 Hours, 50% had unsatisfied cognition. In Hypertensive and non-hypertensive patients, both had 50% unsatisfied cognition.

Conclusion: The study concluded that more than half of the patients of stroke have unsatisfied cognition (i.e., cognitively impaired). There is a need to create awareness among public about stroke and its outcomes.

Key Words: Stroke, Cognition, Impairment, Frequency, Awareness

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INTRODUCTION

Stroke, or cerebrovascular accident (CVA), which is also defined as the dysfunction of brain due to a disturbance of the cerebral blood flow, is the second most common cause of death and adult disability around the world¹. This is further classified as Ischemic Stroke, that results due to a block of blood vessel supplying any particular area², or Hemorrhagic Stroke which is due to rupture of a weakened blood vessel³. Stroke manifesting within first 24 hours is termed as Transient Ischemic Attack (TIA)⁴. These together are termed as Cerebro-Vascular Accidents (CVA).⁵

Stroke is a common, serious, and disabling global health-care problem, and rehabilitation is a major part of patient care. There are 15 million people worldwide suffering from stroke every year, about 30% of which experience residual disabilities.⁶ There is evidence to support rehabilitation in well-coordinated multidisciplinary stroke units or through provision of early supported provision of discharge teams.⁷ The risk factors for stroke can be divided into three major classes: non-modifiable (e.g. age, sex, genetic factors, etc.); modifiable (e.g. hypertension, diabetes, hyperlipidemia, atrial fibrillation, smoking, obesity, etc.); and potentially modifiable (e.g. alcohol abuse, infection)⁸ There are many complications of stroke including recurrent stroke, epileptic seizures, infections, DVT, mobility related falls, depression etc.⁹, but one of the most common and increasing known complication is cognitive impairment. The term 'Cognitive Impairment' means, 'a state of mind where a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life'¹⁰ Cognitive impairment may decrease an individual's quality of life, increase resource utilization,

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and result in suboptimal medical care because of difficulty following caregiver recommendations¹¹. The risk of the cognitive impairment after stroke is associated with the overlap of the frequent cerebrovascular disease and the dementia. According to the demography, the age and the education level are related to the post-stroke cognitive impairment risk. The age is the risk factor of not only the stroke but also the cognitive decline. There's evidence suggesting that the prevalence of the cognitive decline after stroke would increase exponentially as age increases after 65 years old Patients with cognitive impairment are subjected to lower quality of life followed by a stage of dependence and worse survival¹². Patients get attendant-dependent and are not able to conduct most of their daily routines. Different areas of brain affected, leads to different fields of impairment in cognition. Communication in all its forms is often altered after a stroke, but the location of the stroke makes a difference as to what will be affected. In addition to communication problems like aphasia, a condition affecting the ability either to understand or process language, communication deficits may include decreased attention, distractibility and the inability to inhibit inappropriate behavior. Problem-solving ability is sometimes affected, usually more in survivors of right-brain strokes¹³. Post-stroke cognitive impairment occurs frequently in the patients with stroke. The prevalence of post-stroke cognitive impairment ranges from 20% to 80%, which varies for the difference between the countries, the races, and the diagnostic criteria. The risk of post-stroke cognitive impairment is related to both the demographic factors like age, education and occupation and vascular factors. The underlying mechanisms of post-stroke cognitive impairment are not known in detail. However, the neuroanatomical lesions caused by the stroke on strategic areas such as the hippocampus and the white matter lesions (WMLs), the cerebral micro bleeds (CMBs) due to the small cerebrovascular diseases and the mixed AD with stroke, alone or in combination, contribute to the pathogenesis of post-stroke cognitive impairment¹⁴.

MATERIALS AND METHODS

It was a cross-sectional study conducted at Jinnah Post-graduate Medical Centre Karachi from March to August 2018.

Sample Selection:

- Inclusion Criteria: Stroke Patients
- Exclusion Criteria: Patients less than 12 years of age

Unconscious patients of any age.

The sample size of 100 Patients was drawn through non-probability purposive sampling method from Jinnah Sindh Medical College. A structured questionnaire was developed. Data was collected on

structured questionnaire. Pilot study was done to check the authenticity of questionnaire. Data was entered and analyzed on statistical package for social sciences (SPSS version 20) with 95% confidence interval and 5% margin of error. P-value less than 0.005 was considered statistically significant.

Ethical Consideration: An informed verbal consent was taken from the patients.

RESULTS

A total of 100 diagnosed patients of stroke took part in study, out of which, 70% were males and 30% were females, 9% were in b/w 12 to 39 year age group, 54% were b/w 40 to 64 year old age group and 37% were above 65 Years of age, 54% of the patients fell in the age group of 40 to 64 Years out of which 55.6% had unsatisfied cognition. In females 60.0% had unsatisfied cognition.

Cognition in Different Age Group Patients

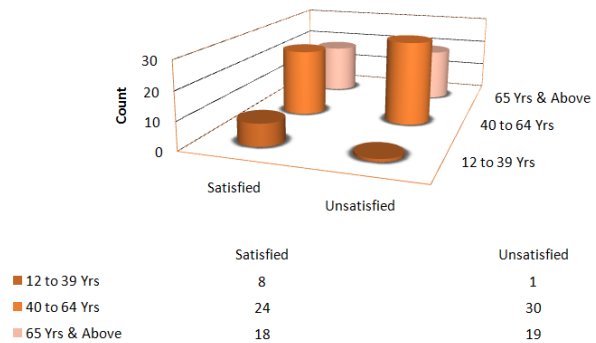


Figure No. 1: Frequency of cognition of stroke in different age groups

Cognition in Patients with Single & Multiple Attacks of Stroke

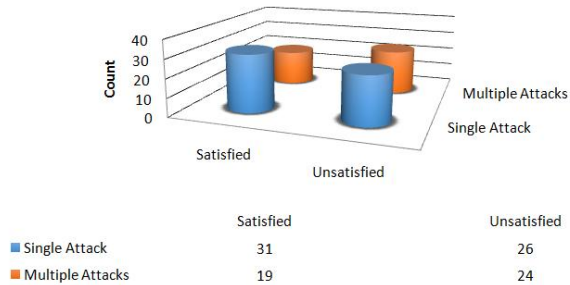


Figure No.2: Frequency of cognition with Number of Attacks

Patients who had stroke attack within 1 month, 44.8% had unsatisfied cognition while in those patients who had stroke attack before last 1 month, 57.1% had unsatisfied cognition. Patients who had single attack of stroke, 54.4% had satisfied cognition and 45.6% had unsatisfied cognition, patients who had multiple attacks of stroke, 55.8% had unsatisfied cognition. Patients who had stroke attack with symptom duration less than 24 Hours (TIA), 50% had unsatisfied cognition while in patients who had stroke attack with symptom duration

more than 24 Hours, 50% had unsatisfied cognition. In Diabetic patients, 58.5% had unsatisfied cognition, in non-diabetic patients, 44.1% had unsatisfied cognition. In Hypertensive patients, 50% had unsatisfied cognition while in non-hypertensive patients, 50% had unsatisfied cognition.

Cognition in Patients with TIA & Stroke (with symptom persistence for > 24 Hrs)

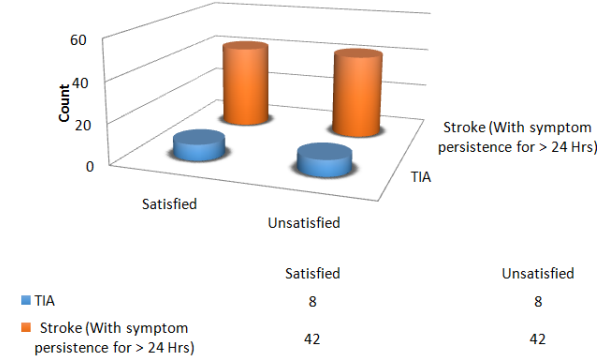


Figure No.3: Frequency of cognition with the symptoms after stroke attack?"

Cognition in Diabetic & Non-diabetic Patients

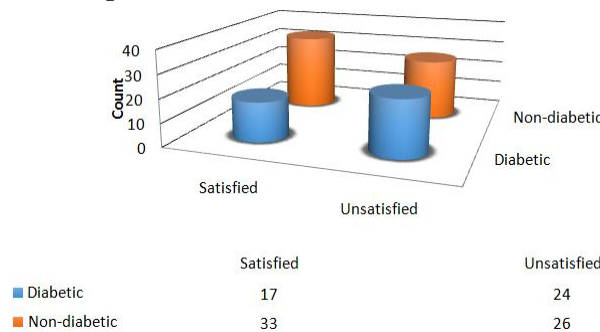


Figure No.4: Frequency of cognition of Stroke in Diabetic and Non- Diabetic patients

Cognition in Hypertensive & Non-hypertensive Patients

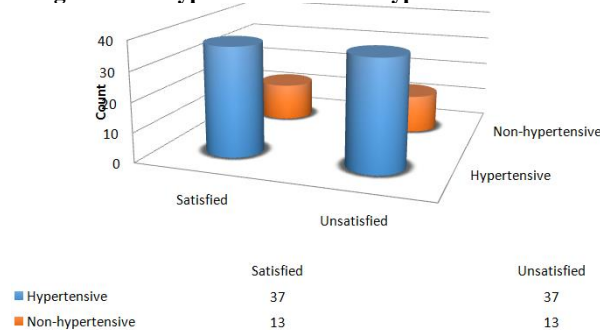


Figure No.5: Frequency of cognition of stroke with HTN Hypertension/ Non-Hypertension

DISCUSSION

Stroke is the second most common cause of cognitive impairment and dementia. The accumulation of lacunar infarcts, ischemic white matter disease and cerebral hypo-perfusion are the most common causes of cognitive impairment/dementia due to stroke that can

go unrecognized for up to 30 years, by which time there is substantial impairment.¹⁵ cardiovascular risk factors were generally more prevalent in men. Lifestyle cardiovascular risk factors were more common in the young. Prevalence of hypertension, diabetes mellitus, coronary heart disease, and, in men, also atrial fibrillation go down after the age of 70 to 80 years.¹⁶ In this study 54% of the patients fell in the age group of 40 to 64 Years out of which 44.4% had satisfied cognition while 55.6% had unsatisfied cognition and there was significant difference in the level of cognition among different age groups

Evidence reviewed here suggests that gender influences various aspects of the clinical spectrum of ischemic stroke, in terms of influencing how a patients present with ischemic stroke through to how they respond to treatment¹⁷. A total of 100 diagnosed patients of stroke were approached out of which, 70% were males and 30% were females

A stroke can produce symptoms which include altered smell, taste, hearing, or vision (total or partial),drooping of eyelid, weakness of muscles, decreased reflexes; gag, swallow, pupil reactivity to light, decreased sensation and muscle weakness of the face, balance problems and nystagmus, altered breathing and heart rate, weakness in sternocleidomastoid muscle with inability to turn head to one side, weakness in tongue (inability to stick out the tongue and/or move it from side to side), aphasia ,difficulty with verbal expression, auditory comprehension, reading and/ or writing, dysarthria, altered voluntary movements, visual field defect ,memory deficits, disorganized thinking, confusion, altered walking gait, altered movement coordination vertigo and or disequilibrium.¹⁸

Stroke is the second most common cause of cognitive impairment and dementia. The accumulation of lacunar infarcts, ischemic white matter disease and cerebral hypo perfusion are the most common causes of cognitive impairment/dementia due to stroke that can go unrecognized for up to 30 years, by which time there is substantial impairment. These types of stroke predominantly affect the connections between areas of cortex that associate complex types of information, the disruption of which leads to impaired cognition and function. Larger strokes are usually detected clinically and cognitive impairment is thus more likely to be detected early on. Detecting stroke early allows initiation of the appropriate treatment that can prevent or substantially delay the onset and progression of cognitive impairment/dementia.¹⁹

According To Our Study 50% of the patients had satisfied cognition while the rest 50% had unsatisfied cognition

The most common types of cognitive deficits arising from stroke are disturbances of attention, language syntax, delayed recall and executive dysfunction affecting the ability to analyze, interpret, plan, organize, and execute complex information.²⁰ Thus, an increased risk for incident stroke is associated with cognitive decline and dementia.²¹

Pakistani stroke survivors have poor outcomes in the community, mostly from preventable complications. Despite advanced disability, the principal caretakers were family rarely supported by health care personnel, highlighting the need to develop robust home care support for caregivers in these challenging resource poor settings.²²

The risk of vascular cognitive impairment and dementia as well as the rate of cognitive decline in cerebrovascular disease is highly dependent upon the control of the underlying risk factors for stroke. If left untreated, vascular cognitive impairment and dementia do decline.

CONCLUSION

The study concluded that more than half of the patients of stroke have unsatisfied cognition (i.e., cognitively impaired). There is a need to create awareness among public about stroke and its outcomes.

Author's Contribution:

Concept & Design of Study:	Tafazzul H Zaidi
Drafting:	Irfan Ashraf
Data Analysis:	Kiran Mehtab
Revisiting Critically:	Tafazzul H Zaidi, Irfan Ashraf
Final Approval of version:	Tafazzul H Zaidi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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