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Research Article,

Association of Stroke and Memory in Young Adults- A Survey

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Abstract:

Stroke leading to cognitive impairment and memory problems are frequent symptoms that have a substantial impact on the quality of life for survivors. Within a year of the stroke's start, dementia is quite likely to occur in stroke patients. The consequences of stroke on the brain are now being studied, especially in the early stages. It is possible to examine and distinguish between cognitive impairment and dementia after a stroke using a variety of neuropsychological tests. Methodology was to find the association between stroke and memory in young adults diagnosed with acute and chronic stroke. Neuropsychological assessments post stroke memory assessment and mini mental state examination was used with patients from age 18- 59 years; 2 groups each with 10 patients were assessed as a survey. Result came to be strong positive association between PSMA and MMSE in both acute and chronic stroke. The study concluded with memory deficit more in chronic stroke than acute stroke.

Keywords: Stroke, memory, cognitive impairment, post stroke memory assessment, mini mental state examination.

Introduction:

A stroke, sometimes referred to as a cerebrovascular accident, is an incident that blocks the brain's blood flow by either ischemia or hemorrhage. Stroke rates have increased dramatically, particularly in emerging nations like India. In the past, stroke was often experienced by people over 60 who had undergone a variety of degenerative changes, as has been seen and reported in recent years . Yet, comorbidities including hypothyroidism, hypertension, hyperlipidemia, and diabetes have increased during the past several years. The proliferation of chronic comorbidities has not only disrupted lifestyles in developing nations, but it is also the main cause of stroke. In the past few years, however, these lifestyle disorders have increased in prevalence in young adults between the ages of 25 and 59, which has led to statistics on the frequency of stroke and heart attack in this age group. Previously, these comorbidities were only seen in the geriatric population or in a small number of hereditary patients.

When it comes to rehabilitation, a stroke or accident is considered a physical handicap. As a result of age-related brain atrophy, the literature at this time is focused on cognitive impairment as an early indicator of dementia. Hence, the stroke follows cerebral atrophy in older patients, increasing memory problems and cognitive impairment, which are mistakenly attributed to ageing in underdeveloped nations . Yet, young adult stroke patients confront particular difficulties since they are less likely to experience early brain atrophy and are more likely to experience cognitive impairment as a result of stroke. Cognitive impairment, particularly in young individuals, is rarely a cause for concern in emerging nations. The cognitive impairment may change because acute and chronic stages of stroke are distinguished. This study revealed the impact of acute and chronic stroke in young individuals.

The post-stroke memory evaluation, which is divided into short-term, working-, long-term, procedural, and episodic memory, was employed as an outcome measure in this study. This scale

offers categories for memory in each area to assess memory in stroke patients. The 30-point Short Mental State Examination is used to measure neurological abnormalities and cognitive impairment.

Methodology:

The objective behind the study was to find the co-relation of effect of stroke in young adults on memory. The study type was observational study as survey method. The survey was conducted and divided between 2 groups. Group A was with young adults suffering from acute stroke and Group B where the young adults were suffering from chronic stroke. The inclusion criteria for this study were patient with acute and chronic stroke with age between 18-59 years with male and female. The exclusion criteria were patient with any other neurological disorder or suffering from any other psychological disorders and on medications for same. Outcome measures for this study was Post stroke memory assessment (PSMA) and Mini mental state examination (MMSE).

Patients were collected from in patient ward and Outpatient ward from Jaipur golden hospital in Delhi. Patients were asked for the consent prior the examination. PSMA and MMSE were done simultaneously together and scoring for same was done.

Data analysis and Result:

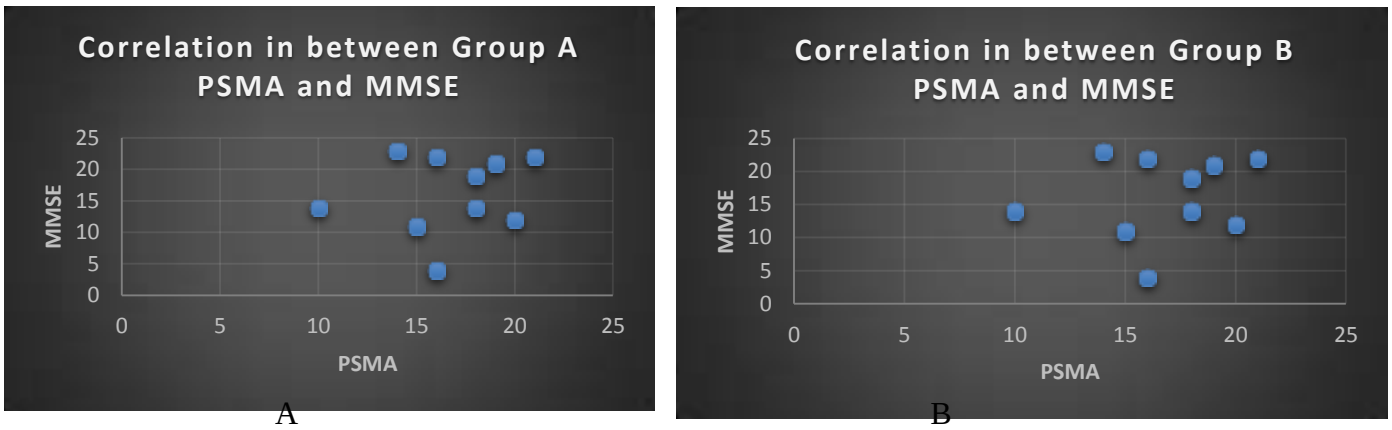
The data presented stroke patients classified into 2 groups A and B where 10 patients were presented in each group. The mean age for group A was 42.5±7.99 and group B was 45.3±9.96 years. Data analysis for PSMA was divided into further 5 types of memory inclusive of short term, working, long term, procedural and episodic memory; the second outcome measure was MMSE. The data as per table 1. Presented an average data for PSMA subtypes for both groups. Table 2 presented average data in both PSMA and MMSE. The data analysis was done with the help of SPSS software, where Pearson correlation coefficient was applied in between Group A in both PSMA and MMSE and same as in Group B as mentioned in table 3 an intra-group analysis. So as the correlation between Group A and B with bot outcome measures and it came as mentioned in the table 4 as inter group analysis as mentioned in Fig 1 and 2.

Table 1. Mean and standard deviation for Group A and Group B for PSMA subtypes

PSMA Mean and standard deviation	Group A	Group B
Short term memory	42.5±7.99	11.4±3.83
Working memory	13.9±3.97	15.2±5.36
Long term memory	12.9±3.91	10.9±5.73
Procedural memory	11.6±4.47	2.5±3.35
Episodic memory	6.1±3.75	0

Table 2. Mean and standard deviation for Group A and Group B for PSMA and MMSE

Mean and Standard deviation	Group A	Group B
1. PSMA	46.2±7.27	40±14.4
2. MMSE	16.7±3.06	16.2±5.89

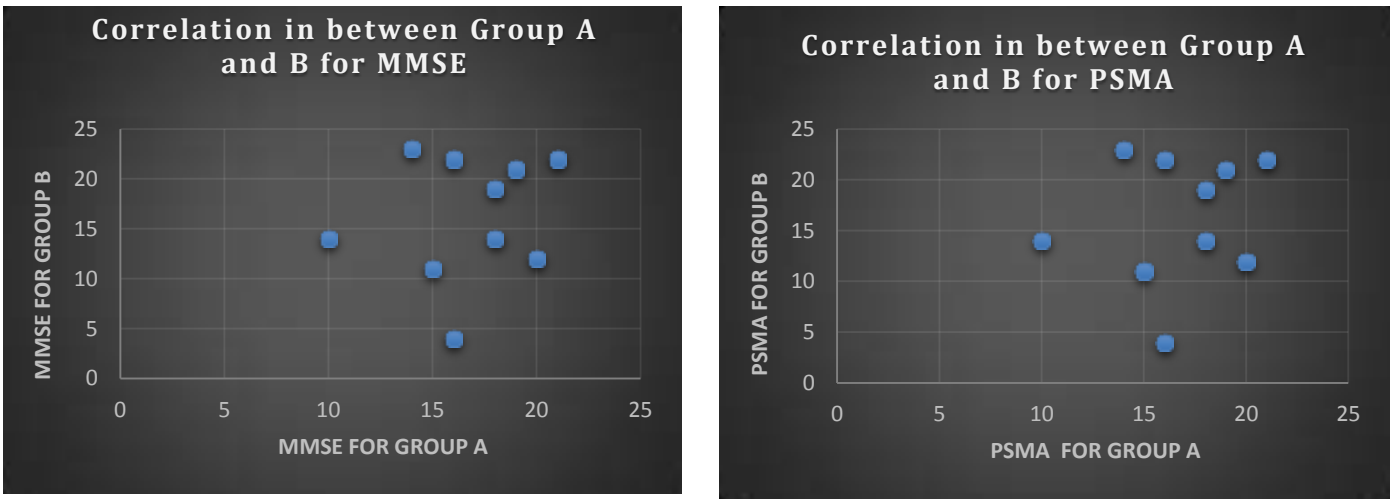


A B

Fig 1. (A)Intra Group analysis of Group A, (B) Intra Group analysis of Group B

Table 3: Intra group correlation for Group A and Group B for PSMA and MMSE

Intra group correlation between PSMA and MMSE	
Group A	0.7973 strong positive correlation
Group B	0.7951 strong positive correlation



A **B**

Fig 2. (A)Inter Group analysis for group A and B in PSMA (B) Inter Group analysis for group A and B in MMSE

Table 4: Inter group correlation for Group A and Group B for PSMA and MMSE

Inter group correlation between Group A and Group B	
PSMA – Short term memory	-0.14 weak negative correlation
PSMA- Working memory	0.10 Weak positive correlation
PSMA- Long term memory	0.11 Weak positive correlation
PSMA- Procedural memory	0.96 Strong positive correlation
PSMA – Episodic memory	NAN Strong negative correlation
PSMA	-0.15 Weak negative correlation
MMSE	0.18 Weak positive correlation

Discussion:

Researchers have been able to explain how post-stroke memory issues affect young acute and chronic stroke survivors in this study. The young stroke survivor needed modifications and adaptations in order to continue functioning in the community due to the impact on memory and cognitive impairment. Due to their infrequent occurrence on their own and their close association with the likelihood of post stroke dementia, memory problems are a significant part of the poststroke cognitive syndrome. The

outcomes of prior investigations are consistent with the post-stroke cognitive test results detecting impairment displayed here . Both localized and diffuse brain dysfunction may be indicated by the observed deficits in motor and cognitive functioning. The absence of results of clear connections may be supportive, but more study, particularly neuroimaging, is required to gain a deeper understanding . Cognitive impairment and dementia are evaluated and assessed using neuropsychological tests. The current study concentrated on applying the PSMA system, which was based on scientific information and accessible neuropsychological examinations. PSMA could provide researchers the push they need to find dementia in its earliest stages before it causes serious mental impairment. As a result, attempts are being made to measure cognitive decline and memory dysfunction using many assessments . Memory, orientation, registration, attention, language, and vision construction ability are the six cognitive domains that the MMSE assesses. The MMSE assesses construct ability, calculation, language, short-term verbal memory, orientation to time and location, and instant recall. Although the test was initially employed in a psychiatric context to identify dementia, it is now frequently utilized . The highest score is 30 and the recommended cutoff point for dementia is 24 . Despite the fact that both the MMSE and MoCA are often used in stroke settings in Asia, this is the first study to address questions regarding the psychometric features of both instruments for Asian stroke patients . Long-term post-stroke cognitive impairment is frequent in young patients with and is linked to stroke severity at admission, left anterior circulation syndrome, stroke recurrence, and functional outcome. In clinical practice, these characteristics can be used to pinpoint patients who are at a high risk of developing PSCI.

Conclusion:

The normative statistics of young individuals with acute and chronic stroke were presented in this study. This study shows that stroke does damage memory, but that chronic stroke affects memory more than acute stroke. In both acute and chronic stroke, study shows a strong association between PSMA and MMSE. Despite the absence of any cerebral atrophy, a study has looked into the association between a stroke and memory. If therapy for cognitive impairment starts when a stroke is still acute, the outcomes for chronic stroke will be better.

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