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Research article

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### Assessment of level of cognitive impairment among stroke patients

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#### ABSTRACT

##### Background

It was estimated that yearly 20 million people are affected with stroke, among them five million die. Cognitive impairment occurs in about two third of stroke survivors. Several studies reported that the impaired cognition hampers the level of patient role in his self-care and also a major determinant of caregivers role.

##### Method

A descriptive survey was carried out for the present study. The data were collected from 30 patients after explaining the nature of the study and obtaining informed consent from them. Dr. Patrick Brook's cognitive impairment test, which consists of six items, was used to assess the cognitive impairment among the patients.

##### Results

The results showed that 21 (70%) patients had mild cognitive impairment at the time of discharge and nine (30%) patients had normal cognitive level.

##### Conclusion

Assessment of the level of cognitive impairment of stroke patients help the nurses to plan specific nursing intervention, teach home care management to the care givers focusing on individual patient needs.

**Keywords:** Cognitive impairment, cerebrovascular accident, stroke

#### INTRODUCTION

Cerebrovascular accident ranks second in causing mortality and fourth in causing morbidity throughout the world. Every year approximately 20 million suffer from stroke, among that five million people die [1]. Men are affected with stroke than women [2]. The prevalence of stroke increases with age [4]. Approximately two third of the patients with cerebrovascular accident experience cognitive

impairment following stroke and about one third develop dementia. Recovery from cognitive impairment occurs mostly within the first three months of post stroke period whereas it may extend. It was estimated that nearly half of the stroke survivors had some degree of physical and cognitive impairment [3]. Patients with previous history of cerebrovascular accident are at major risk for the development of cognitive impairment and it was also

associated with the habit of smoking. The study conducted in India shows that the risk of cognitive impairment is associated with older age [6].

The main objectives of the study are to

1. Assess the cognitive level of stroke patients.
2. Associate the selected background variables with the cognitive level of the stroke patients.

## MATERIALS AND METHODS

The study was carried out after obtaining approval from the Institutional Ethics Committee. A descriptive survey was conducted among 30 patients who were recovered from stroke.

The sampling criteria include

### 1. Inclusion criteria

#### Patients

- a. diagnosed with cerebrovascular accident, transferred from ICU to Neurology ward.
- b. diagnosed to have CVA for the first time.
- c. between the age group of 36 and 75 years.
- d. who could understand Tamil and/or English.
- e. both male and female.

### 2. Exclusion criteria

#### Patients

- a. who had dysarthria.
- b. who were not willing to participate in the study.

The data were collected from the Neurology ward of a University Teaching Hospital, Chennai. The purpose of the study was explained and informed

consent was obtained from the patients. The tool used to assess the cognitive level is Dr. Patrick Brook's cognitive impairment test. It consists of six questions and they are inversely scored and questions are weighted to make a total score of 28. The reliability of the tool was 0.8, assessed by using inter rater method. The interpretation of the score was as follows: 0-7: probably normal, 8-9: mild cognitive impairment, 10-28: probably significant cognitive impairment.

## RESULTS

The result showed that 18 (60%) patients were between the age group of 56-65 years, 20 (66.66%) patients were male, 08 (26.67%) patients had secondary education, 7 (23.33%) patients were doing business, 11 (36.67%) patients had family income of Rs.10001-15000, 14 (46.67%) patients resides in semi urban area, 16 (53.33%) had support from their son/daughter, 24 (80%) patients had no family history of cerebrovascular accident, 22 (73.33%) had no previous history of hospitalization and 20 (66.67%) patients had co-morbid illness.

The study revealed that 09 (30%) patients had normal cognition level and 21 (70%) patients had mild cognitive impairment at the time of discharge. It also shows that the association between cognitive level of the patients at the time of discharge and selected background variables such as age, gender and co-morbid illness were statistically significant at the level of  $p < 0.05$ .

**Table1. Frequency and percentage distribution of demographic variables among patients recovered from cerebrovascular accident (N=30).**

Demographic Variables	No.	%
<b>1. Age in years</b>		
a. 36-45	00	00
b. 46-55	03	10
c. 56-65	18	60
d. 66-75	09	30
<b>2. Gender</b>		
a. Male	20	66.66
b. Female	10	33.34
<b>3. Educational status</b>		
a. No formal education	04	13.33
b. Primary school	06	20.00

c. Secondary school	08	26.67
d. Higher secondary	06	20.00
e. Graduate	04	13.33
f. Postgraduate	02	06.67
<b>4. Occupation</b>		
a. Homemaker	08	26.67
b. Retired	07	23.33
c. Business	07	23.33
d. Government sector	03	10.00
e. Private sector	05	16.67
<b>5. Family income (Rs per month)</b>		
a. ≤5000	02	06.67
b. 5001-10,000	07	23.33
c. 10,001-15,000	11	36.67
d. >15,000	10	33.33
<b>6. Residence</b>		
a. Rural	09	30.00
b. Semi urban	14	46.67
c. Urban	07	23.33
<b>7. Family support</b>		
a. Spouse	09	30.00
b. Son/Daughter	16	53.33
c. Others	05	16.67

**Table 2. Frequency and percentage distribution of clinical variables among patients recovered from cerebrovascular accident (N=30).**

Clinical Variables	No.	%
<b>1. Family history of cerebrovascular accident</b>		
a. Yes	06	20.00
b. No	24	80.00
<b>2. Previous history of hospitalization</b>		
a. Yes	08	26.67
b. No	22	73.33
<b>3. Co-morbid illness</b>		
a. Yes	20	66.67
b. No	10	33.33
c. If yes specify:		
i. Hypertension	10	33.33
ii. Diabetes mellitus	02	06.67
iii. Hypertension and Diabetes mellitus	08	26.67

**Table 3. Frequency and percentage distribution of level of cognitive ability among patients recovered from cerebrovascular accident.**

Level of cognitive ability	No.	%
Normal	09	30
Mild cognitive impairment	21	70
Significant cognitive impairment	00	00

**Table4. Association of selected background variables with the cognitive level among patients recovered from cerebrovascular accident (N=30).**

S. No.	Background variables	Normal		Mild cognitive impairment		Significant cognitive impairment		$\chi^2$ and p value
		No.	%	No.	%	No.	%	
<b>1.</b>	<b>1. Age in years</b>							
	a. 36-45							
	b. 46-55	01	03.33	02	06.67	00	00	5.1
	c. 56-65	06	20.00	12	40.00	00	00	0.05*
	d. 66-75	02	06.67	07	23.33	00	00	
<b>2.</b>	<b>2. Gender</b>							
	a. Male	08	26.67	12	40.00	00	00	2.84
	b. Female	01	03.33	09	30.00	00	00	0.032*
<b>3</b>	<b>Family history of cerebrovascular accident</b>							
	a. Yes	05	16.67	01	03.33	00	00	6.30
	b. No	04	13.33	20	66.67	00	00	0.632
<b>4</b>	<b>Previous history of hospitalization</b>							
	a. Yes	04	13.33	04	13.33	00	00	4.36
	b. No	03	10.00	19	63.34	00	00	0.613
<b>5</b>	<b>Co-morbid illness</b>							
	a. Yes	04	13.33	16	53.33	00	00	2.84
	b. No	05	16.67	05	16.67	00	00	0.024*
	c. If yes specify:							
	i. Hypertension	03	10.00	07	23.33	00	00	
	ii. Diabetes mellitus	00	00	02	06.67	00	00	
	iii. Hypertension and Diabetes mellitus	01	03.33	07	23.33	00	00	

## DISCUSSION

The present study showed that 70% of patients had mild cognitive impairment at the time of discharge, 30% of patients had normal cognitive ability at the time of discharge and none of them had significant cognitive impairment.

There is a statistically significant association between patients' cognitive level at the time of discharge and selected background such as age, gender and co-morbid illness. There is no significant association between other background variables such as family history of cerebrovascular accident and previous history of hospitalization, and patient's cognitive level at the time of discharge.

The findings of this study is supported by the study conducted by Sanjiv K Saxena (2006), the study revealed that increasing age is one of significant determinant of cognitive impairment among stroke patients [5].

It is recommended to conduct the study by comparing the cognitive impairment at frequent interval from admission till discharge; the cognitive level of the patients can be associated previous history of stroke.

## CONCLUSION

The study concludes that the level of cognitive impairment is increased with advanced age, male gender and with the presence of co-morbid illness.

Nurses should consider these factors and tailor-made the interventions and home care teaching to ensure quality patient care.

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