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Effectiveness of swallowing function text among stroke patients in selected hospitals.

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Abstract: Background: Stroke is a significant source of dysphagia causing severe problems like aspiration, malnutrition and decreased quality of life. Early diagnosis and treatment are crucial towards patient outcomes. **Aim:** To evaluate the effectiveness of a swallowing function test among stroke patients in selected hospitals. **Methodology:** It was a quantitative pre-experimental one-group pretest-posttest study involving 30 stroke patients that were purposively sampled. The demographic variables and standardized swallowing function assessment tool were used to collect data. The posttest evaluation followed the intervention, and data were analyzed with the help of descriptive statistics and paired t-test. **Results:** The outcomes did not find any significant difference in baseline swallowing between groups. The study group reported a significant change in swallowing functioning in comparison with a control group ($p < 0.001$) after intervention. Pretest swallowing scores were not significantly related to demographic variables. **Conclusion:** The intervention of swallowing function proved to be effective in enhancing swallowing ability in stroke patients and the key factor to this is to ensure that the swallowing ability is assessed and managed early.

Keywords: Stroke, Dysphagia, Swallowing function, Malnutrition

INTRODUCTION

Stroke is one of the major causes of morbidity and long-term disability in the world and it is a common cause of dysphagia (impaired swallowing ability). Dysphagia is a condition that impacts a large number of stroke patients and is linked to serious complications that include aspiration pneumonia, malnutrition, dehydration, and death. Swallowing dysfunction identification and management in early stages are thus crucial to enhance patient outcomes and quality of life.

The neuromuscular process of swallowing is complex and may be impaired due to neurological damage due to stroke. The early evaluation of patients with standardized swallowing tests helps clinicians identify the deficits and provide the necessary treatment. Such interventions can involve therapeutic activities, nutritional adjustments, and compensatory mechanisms that would help to recover safe and effective swallowing. It is important to assess the usefulness of the swallowing function tests in stroke patients to make proper diagnosis and clinical decision making. This type of evaluation assists in minimizing complications, boosting recovery, and overall patient care in hospitals.

Thus, the research question is aimed at evaluating the effectiveness of swallowing function tests in stroke patients in selected hospitals.

AIM OF THE STUDY

The study aimed to effectiveness of swallowing function text among stroke patients in selected hospitals.

METHODOLOGY

It will be a quantitative study, where the pre-experimental one-group pretest- posttest design will be used to evaluate the efficacy of a swallowing functional test with stroke patients. The research will be carried out in the selected hospitals. The patients diagnosed with stroke and having evidence of difficulty in swallowing will be incorporated in the target population. Non-probability purposive sampling will be used to sample a sample size of 30 stroke patients based on inclusion and non-inclusion criteria. The inclusion criteria will consist of patients with a stroke, over 18 years of age, conscious, and able to respond to simple instructions. The exclusion criteria will be based on patients with severe cognitive impairment, unconscious condition or other neurological disorders.

The data collection tool will be in two parts: Section A - Demographic and clinical variables. Section B - Standardized swallowing function assessment scale/test. The pretest will follow the ethical clearance and informed consent, in an attempt to determine the baseline swallowing. This will be followed by the swallowing function test/intervention. A posttest will be done after a given time using the same tool to assess the swallowing capacity.

The data obtained will be tested with the help of descriptive and inferential statistics. The variables will be summarized using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired t-test) will be applied to evaluate the effectiveness of the swallowing function test. The level of significance will be considered as $p < 0.05$.

RESULT

Table 1 indicates that in the study group 5 (33.3) of stroke patients, most of the patients were aged between 41-50 years, whereas in the control group 6 (40) years, the majority of the patients were aged between 51-60 years. Over half of both sets of participants 8 (53.3) were male. In terms of occupation, 7 (46.6) in the study group and 8 (53.3) in the control group were mild to moderate workers. In terms of diet, 8 (53.3%) in the study group and 12 (80%) in the control group were non-vegetarian. In terms of stroke type, 8 (53.3), in the study group were having hemorrhagic stroke and 9 (60) in the control group were having ischemic stroke. In the case of co-morbid illness, 7 (46.7) in study and 6 (40) in control had diabetes. The study group had majority of its participants 8 (53.3%) living in urban locations and the control group had 8 (53.3) living in rural locations. As a concern, in connection to education, 5 (33.3) in the study group were educated with primary, secondary or college and 7 (46.7) in the control group with primary education. Most of the respondents in the two groups 11 (73.3) had no history of stroke in the family.

Table 2 shows that in the pretest, 8 (53.3%) in the study group had severe dysphagia and 7 (46.7%) had moderate dysphagia, whereas in the control group, 10 (66.7%) had severe dysphagia and 5 (33.3%) had moderate dysphagia. The chi-square value ($\chi^2 = 0.556$) was not statistically significant ($p < 0.05$), indicating no significant difference in dysphagia levels between the groups at baseline.

In the posttest, following nursing-led strategies, 9 (60%) in the study group had slight dysphagia and 6 (40%) had moderate dysphagia. In contrast, in the control group, 10 (66.7%) had severe dysphagia and 5 (33.3%) had moderate dysphagia. The chi-square value ($\chi^2 = 19.091$) was highly significant ($p < 0.001$), indicating a significant reduction in dysphagia levels in the study group compared to the control group.

Table 3 indicates that none of the selected demographic variables showed a statistically significant association with the pretest mean score of swallowing function among stroke patients in the study group at $p < 0.05$ level.

DISCUSSION

The study findings showed that the study and control groups were homogeneous at baseline, with no statistically significant differences in demographic and clinical variables ($p > 0.05$). In the pretest, both groups had comparable levels of dysphagia with no significant difference. However, in the posttest, the study group demonstrated a marked improvement in swallowing function, with the majority of patients progressing to slight dysphagia, while the control group continued to have predominantly severe dysphagia. This improvement was found to be highly statistically significant ($p < 0.001$). Furthermore, no significant association was observed between pretest swallowing function scores and selected demographic variables in the study group ($p > 0.05$). Overall, the results indicate that the swallowing function intervention was effective in improving swallowing ability among stroke patients.

CONCLUSION

The study concludes that the swallowing function intervention was highly effective in improving swallowing ability among stroke patients. A significant reduction in dysphagia levels was observed in the study group compared to the control group, confirming the effectiveness of the intervention.

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Table 1: Frequency and percentage distribution of demographic variables of the patients with stroke

Demographic Variables	Study Group (15)		Control Group (15)		Chi-Square for Homogeneity
	F	%	F	%	
Age (in years)					χ^2=2.634 P=0.452 N.S
20 to 30	2	13.3	0	0	
31 to 40	4	26.7	3	20.0	
41 to 50	5	33.3	6	40.0	
51 to 60	4	26.7	6	40.0	
Gender					χ^2=0.000 P=1.000 N.S
Male	8	53.3	8	53.3	
Female	7	26.7	7	46.7	
Work pattern					χ^2=2.333 P=0.311 N.S
Mild workers	7	46.6	5	33.3	
Moderate workers	4	26.7	8	53.3	
Severe workers	4	26.7	2	13.3	
Dietary pattern					χ^2=2.400 P=0.121 N.S
Vegetarian	7	46.7	3	20.0	
Non-vegetarian	8	53.3	12	80.0	
Type of stroke					χ^2=0.536 P=0.464 N.S
Ischemic stroke	7	46.7	9	60.0	
Hemorrhagic stroke	8	53.3	6	40.0	
Co-morbid illness					χ^2=0.721 P=0.868 N.S
Diabetes	7	46.7	6	40.0	
Hypertension	4	26.7	5	33.3	
Renal disease	2	13.3	3	20.0	
Cancer	2	13.3	1	6.7	
Residence					χ^2=0.133 P=0.715 N.S
Urban	7	46.7	8	53.3	
Rural	8	53.3	7	46.7	
Education					χ^2=1.710 P=0.425 N.S
Primary	5	33.3	7	46.7	
Senior school	5	33.3	6	40.0	
College	5	33.3	2	13.3	
Family history					χ^2=0.000 P=1.000 N.S
Yes	4	26.7	4	26.7	
No	11	73.3	11	73.3	
Weight					χ^2=0.682 P=0.409 N.S
Yes	5	33.3	3	20.0	
No	10	66.7	12	80.0	

Table 2: Assessment and comparison of pretest and post- test level of Swallowing function among patients with stroke.

Assessment	Level of Swallowing Function	Group				Chi square value	P value
		Study Group (n=15)		Control Group (n=15)			
		n	%	n	%		
Pretest	Severe dysphagia (0-9)	8	53.3	10	66.7	0.556	0.456 (N.S) d.f=1
	Moderate dysphagia (10-14)	7	46.7	5	33.3		
	Slight dysphagia (15-20)	-	-	-	-		
Post Test	Severe dysphagia (0-9)	0	0	10	66.7	**19.091**	**0.0001 (S***) d,f=2**
	Moderate dysphagia (10-14)	6	40.0	5	33.3		
	Slight dysphagia (15-20)	9	60.0	0	0		

Table 3: Association of pretest mean score of Swallowing function among patients with stroke with selected demographic variables in the study group.

Demographic Variables	F	Pretest		One Way ANOVA / Student Independent "t" test & p-value
		Mean	S.D	
Age (in years)				F=0.240 P=0.867 N.S
20 to 30	2	10.00	2.83	
31 to 40	4	9.50	2.64	
41 to 50	5	8.60	2.30	
51 to 60	4	8.75	1.89	
Gender				t=1.579 P=0.150 N.S
Male	8	9.87	1.36	
Female	7	8.14	2.61	
Work pattern				F=1.268 P=0.317 N.S
Mild workers	7	9.86	2.19	
Moderate workers	4	9.00	0.82	
Severe workers	4	7.75	2.75	

Dietary pattern				t=0.330 P=0.748 N.S
Vegetarian	7	8.86	2.73	
Non-vegetarian	8	9.25	1.67	
Type of stroke				t=0.112 P=0.913 N.S
Ischemic stroke	7	9.00	1.63	
Hemorrhagic stroke	8	9.12	2.64	
Co-morbid illness				F=0.596 P=0.631 N.S
Diabetes	7	8.86	1.95	
Hypertension	4	8.50	2.08	
Renal disease	2	11.00	1.41	
Cancer	2	9.00	4.24	
Residence				t=0.111 P=0.913 N.S
Urban	7	9.00	1.73	
Rural	8	9.12	2.59	
Education				F=1.379 P=0.289 N.S
Primary	5	9.60	2.51	
Senior school	5	7.80	2.17	
College	5	9.80	1.48	
Family history				t=0.404 P=0.705 N.S
Yes	4	9.50	2.64	
No	11	8.91	2.07	
Weight				t=0.082 P=0.937 N.S
Yes	5	9.00	2.24	
No	10	9.10	2.23	

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