

“A Quasi Experimental Study to Assess the Effectiveness of Dysphagia Exercises on Swallowing among Patients with Cerebrovascular Accident in Selected Hospitals of Pune City.”

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ABSTRACT

Cerebrovascular accident is one of the foremost reasons leading to mortality and morbidity throughout the world. It is the third biggest killer in India after a heart attack and cancer. It is like a chronic health condition which negatively impacts on quality of life. Dysphagia is one of the most successive side effects in patients with a stroke which is a loss of motion of throat muscles. This condition can disturb the gulping procedure and make eating, drinking, taking prescription and breathing trouble. Dysphagia exercises are designed to enhancing muscles and coordinating the nerves and muscles involved in swallowing.

Aim of the study: “To assess the effectiveness of dysphagia exercises on swallowing ability among patients with cerebrovascular accidents”.

Material and method: A quasi experimental research design was used with 60 samples of Experimental and control group who matched the inclusion criteria were selected by nonprobability purposive sampling technique.

Results: Demographic variables were collected by using self- structured questionnaires and Gugging swallowing scale of Swallowing Ability. The study uncovered that the pre-test mean swallowing ability score was 10.17 with a standard deviation of 1.46 among the cerebrovascular accident patients. Post-test swallowing ability mean score of 16.77 with a standard deviation of 1.41 among the cerebrovascular accident patients.

Conclusion: The Descriptive analysis was done to assess the effectiveness of dysphagia exercises among on swallowing ability among patients with cerebrovascular accident. The study findings concluded that Dysphagia exercises which was an effective, inexpensive, simple measure for improving

Keywords:-Patients with cerebrovascular accident, Dysphagia exercise, Swallowing ability

INTRODUCTION

The brain is the controller of all the functions of the body whether they are voluntary means done by person or involuntary which are control by brain. When there is a less oxygen supply or blood supply to the brain it affects the all kind of functions of body. As a result, the brain cells are deprived of oxygen. This causes some cells to die and leaves other cells damaged. After coronary heart disease and cancers of all types, Cerebrovascular accident is the third commonest cause of death worldwide. Hypertension was the most important risk factor. Among all the developing countries India has a greater number of young populations is suffering from Cerebrovascular accidents. As the age increases chances of cerebrovascular accidents increases in Indians.¹ The major problem of Cerebrovascular accident is the paralysis of swallowing muscles leading to swallowing difficulty which is known as dysphagia. Swallowing is one of the most complex neuromuscular interactions in the human body and is controlled by many nerves and muscles. It involves the mouth; throat and esophagus. In this research study entitled normal swallowing mechanism suggest that swallowing is as necessary for the life as breathing. Under normal circumstances, the human beings depend on swallowing to obtain the nutrients that they need to survive. Swallowing, known scientifically as deglutition, is the process in the human or animal body that makes something pass from the mouth, to the pharynx, Swallow Therapy into the esophagus, with the shutting of the epiglottis. In the human body, it is controlled by swallowing reflex. The major problem of Cerebrovascular accident is the paralysis of swallowing muscles leading to swallowing difficulty which is known as dysphagia. Swallowing is one of the most complex neuromuscular interactions in the human body and is controlled by many nerves and muscles. It involves the mouth; throat and esophagus. In this research study entitled.

NEED OF THE STUDY

If patient is not able to swallow, we used to provide nutrients by using different methods like Ryle's Tube feeding, Jejunostomy Feeding and Total Parental Nutrition through intravenous infusion. So Swallowing is a very important function to get the nutrition for the body as it is the only way to pass the food from mouth to stomach. One of the studies shows that 90% of patients with neurological disorder recovered from swallowing problem with swallowing therapy. Early detection and management of swallowing problems in neurological patients with neuromuscular weakness is necessary to prevent complications and decrease the number of deaths associated with swallowing

problems. Swallowing problems if left unrecognized and untreated can be life threatening. Impaired swallowing can lead to malnourishment, dehydration, choking, or aspiration pneumonia. Proper therapy can usually treat swallowing problems so that people can once again eat comfortably. Based on the above factors the researcher decided to do a further study on the effect of dysphagia exercises among patients with Cerebrovascular accident. Oropharyngeal dysphagia refers to difficulty in the passage from the mouth to the esophagus. In esophageal dysphagia, there is a disordered passage of food through the esophagus. Following a cerebrovascular accident, weakened muscles in the mouth or throat, a loss of sensation in the tongue, poor muscle coordination, or the inability to cough all impair swallowing. Weakened muscles may delay swallowing or result in an incomplete swallowing. The signs and symptoms of swallowing problems include excessive drooling, food falling out of the mouth, clumsiness in getting food to the back of the mouth, difficulty starting or completing a swallow, food remaining in the mouth after swallowing, frequent throat clearing, coughing, or choking after eating or drinking, voice that sounds wet or gurgling, complaints of food or drink sticking in the throat. The neurological insult following a stroke may leave the survivor with a chronic illness encompassing a lifetime of recovery.

RESEARCH OBJECTIVES

- 1) To assess the swallowing reflex before dysphagia exercises among patients with Cerebrovascular accidents in experimental and control group.
- 2) To assess the swallowing reflex after dysphagia exercises among patients with Cerebrovascular accidents in experimental and control group.
- 3) To assess the effectiveness of dysphagia exercises on swallowing ability among patients with Cerebrovascular accidents.
- 4) To find out the association with selected demographic variables.

AIM

The administration of dysphagia exercises will improve the swallowing ability among patients with Cerebrovascular accident who have swallowing inability.

Materials and Methods

In present study, researcher adopted quantitative research approach. A quasi-experimental pre-test post-test research design was chosen for the study. It was carried out on 60 participants. The non-

probability purposive sampling technique was used. In the study instrument, section I consist of demographic variables and section II consist of Gugging swallowing Scale (Observational checklist). Tool validity was done by using the experts from all the departments of nursing and statistics. Reliability was done by using test-retest method. Pilot study was done on 10 participants; the study was found feasible.

RESULTS– result was divided in three sections

Section I- Description of the data according to their Demographic variables.

Section II-Frequency and percentage distribution of swallowing ability in the Pre-test and post-test among patients with CVA in the Experimental group and the control group.

Section III- Association between Dysphasia Category and demographic variables in Experimental group and in Control group.

Section I- Description of the data according to their Demographic variables.

Table 1 Frequency and Percentage Distribution of Demographic variables.

Table01: Frequency and Percentage Distribution of Demographic variables.					
		Control Group		Experimental Group	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Age	36-45 years	03	10	02	6.66
	46-65 years	22	73.33	23	76.66
	66 years and more than	05	16.66	05	16.66
Gender	Male	19	63.3	17	56.7
	Female	11	36.7	13	43.3
Education	illiterate	4	13.3	1	3.3
	Primary Education	13	43.3	16	53.3
	Secondary Education	9	30.0	11	36.7
	Graduation	4	13.3	2	6.7
Previous History of Hospitalization	Yes	16	53.3	17	56.7
	No	14	46.7	13	43.3
History of any disease condition	Yes	18	60.0	19	63.3
	No	12	40.0	11	36.7

Occupation	Business	13	43.3	12	40.0
	Government worker	1	3.3	1	3.3
	Other	10	33.3	11	36.7
	Private worker	6	20.0	6	20.0

Table 1 shows description of the patient according demographic characteristics in experimental and control group. According to the age majority 75% patient from age group of 46-65 years, according to gender majority 60% of the patients are male and 40% patient was female, according to the Education majority 48% patient are primary educated, the majority 53% patient have history of hospitalization, the majority 62% patient have history of previous disease, according to the Occupation majority 42% patient have their own business.

Section II- Frequency and percentage distribution of swallowing ability in the Pre-test and post-test among patients with CVA in the Experimental group and the control group.

Table2: Frequency and percentage distribution of swallowing ability in the Pre-test and post-test among patients with Guss score in the Experimental group and the control group.

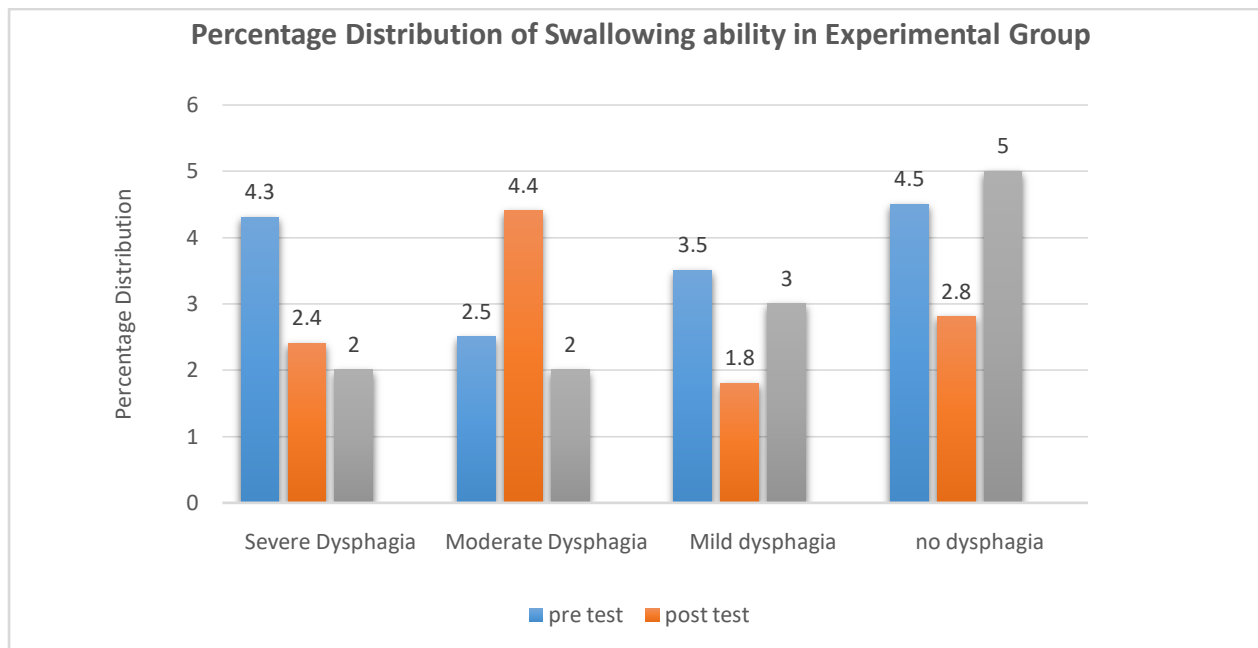


Figure 1 Percentage Distribution of Swallowing ability in Experimental Group

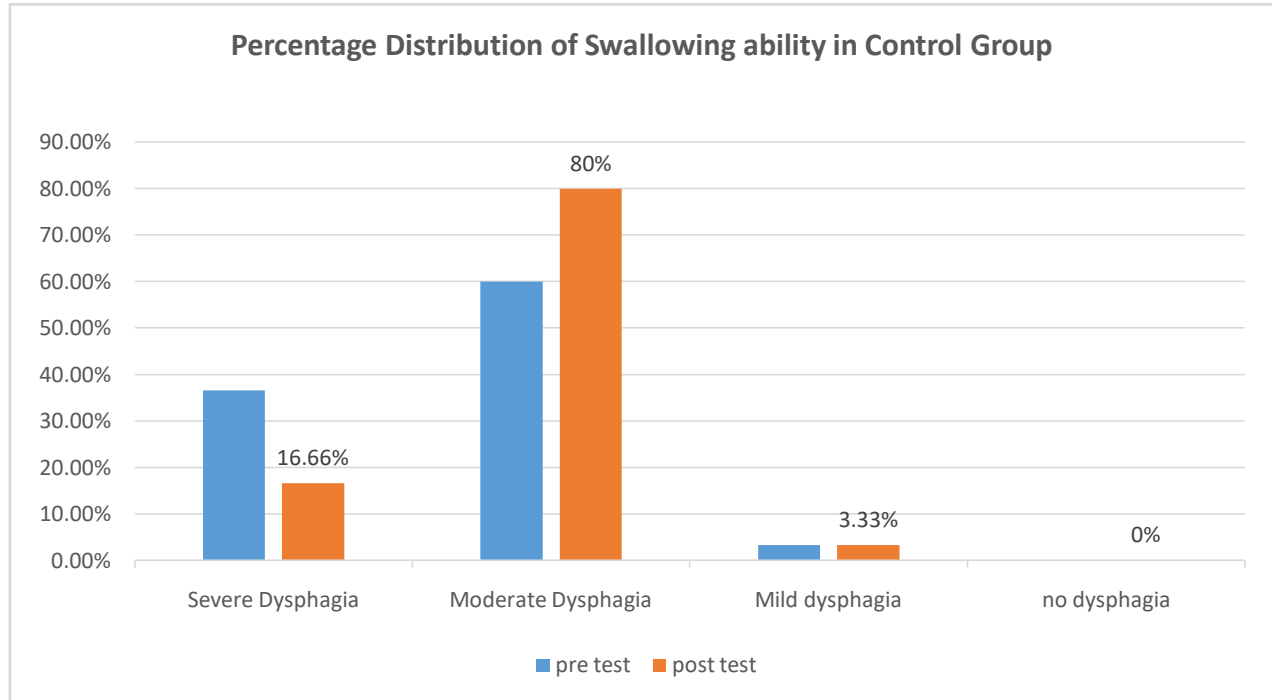


Figure 2 Percentage Distribution of Swallowing ability in Control Group

Graph 1: Which shows that in pre-test of Experimental group majority 63% patient were having moderate dysphagia, 33% of patient is having severe dysphagia and 3% patient having mild dysphagia. Post-test in Experimental group swallowing ability majority 93% patient were having mild dysphagia and 3% of patient is having moderate dysphagia.

In pre-test of control group majority 60% patient were having moderate dysphagia, 36% of patient is having severe dysphagia and 3% patient having mild dysphagia. In Post-test of -80% patient was having moderate dysphagia; 16% patient were having severe dysphagia and 3% were having mild dysphagia.

Table 2.1: Effectiveness of Dysphagia Exercise

Table 2 Effectiveness of Dysphagia Exercise

Paired t test/						
Gugging Swallowing Scale		N	Mean	SD	t-value	p-value
Control Group	Pre test	30	10.60	2.01	3.79	0.001
	Post Test	30	11.03	1.69		
Experimental	Pre test	30	10.17	1.46	25.74	<0.001

Group	Post Test	30	16.77	1.41		
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Table 2.1: Represents effectiveness of dysphagia exercises on swallowing among patients with CVA in experimental group is analyzed by paired t-test. The value of t is 25.74. The p value is < 0.0001. So, result is significant at $p < 0.05$ level.

Section III- Association between Dysphasia Category and demographic variables in Experimental group and in Control group.

Table 3.1: Association between Dysphasia Category and demographic characteristics in Experimental group

Table 3 Association between Dysphasia Category and demographic variables

Table 3.1: Association between Dysphasia Category and demographic variables							
		Dysphasia			Total	Chi-Square value	p-value
		Mild	Moderate	Severe			
Gender	Male	1	11	7	19	0.62	0.73
	Female	0	7	4	11		
Education	Graduation	0	3	1	4	2.96	0.81
	illiterate	0	2	2	4		
	Primary Education	0	8	5	13		
	Secondary Education	1	5	3	9		
Previous History of Hospitalization	Yes	1	8	7	16	1.92	0.38
	No	0	10	4	14		
History of any disease condition	Yes	1	11	6	18	0.81	0.66
	No	0	7	5	12		
Occupation	Business	0	8	5	13	5.76	0.45
	Government worker	0	1	0	1		
	Other	1	7	2	10		
	Private worker	0	2	4	6		

Table 3.1 Indicates association between demographic variables and GUSS score in experimental group and control group which is calculated by chi-square test. All the calculated values are less than

tabulated value at the level of 0.05. So, there is no significant association between demographic variables and GUSS score in experimental and control both the groups.

Table 3.2: Association between Dysphasia Category and demographic variables in control group

Table 4 Association between Dysphasia Category and demographic variables in control group

		Pre dysphasia		Total	Chi-Square value	p-value
		Moderate	Severe			
Gender	Male	13	4	17	1.7	0.19
	Female	7	6	13		
Education	Graduation	1	1	2	1.98	0.58
	illiterate	1	0	1		
	Primary Education	12	4	16		
	Secondary Education	6	5	11		
Previous History of Hospitalization	Yes	13	4	17	1.7	0.19
	No	7	6	13		
History of any disease condition	Yes	13	6	19	0.07	0.79
	No	7	4	11		
Occupation	Business	9	3	12	3.3	0.34
	Government worker	0	1	1		
	Other	8	3	11		
	Private worker	3	3	6		

Table 3.2 indicates association between demographic variables and GUSS score in experimental group and control group which is calculated by chi-square test. All the calculated values are less than tabulated value at the level of 0.05. So, there is no significant association between demographic variables and GUSS score in experimental and control both the groups.

MAJOR FINDINGS OF THE STUDY

SECTION-A

Description of the patients according to their demographic variables.

- According demographic variables in experimental and control group. According to the age majority 75% patient from age group of 46-65 years.
- Description of Gender in Experimental and control group. According to age majority 60% of the patients are male and 40% patient was female.
- Description of the patient education in experimental and control group. According to the age majority 48% patient are primary educated.
- description of the history of previous hospitalization of patient in experimental and control group. According to the majority 53% patient have history of previous hospitalization.
- Description of the history of any disease condition of patient in experimental and control group. According to the majority 62% patient have history of previous Disease condition.
- Occupation of patient in experimental and control group. According to the majority 42% patient have their own business.

SECTION-B

Gugging swallowing Scale (Observational checklist).

- Experimental group majority 63% patient were having moderate dysphagia, 33% of patient is having severe dysphagia and 3% patient having mild dysphagia. Post-test in Experimental group swallowing ability majority 93% patient were having mild dysphagia and 3% of patient is having moderate dysphagia.
- In pre-test of control group majority 60% patient were having moderate dysphagia, 36% of patient is having severe dysphagia and 3% patient having mild dysphagia. In Post-test of 80% patient were having moderate dysphagia, 16% patient were having severe dysphagia and 3% were having mild dysphagia.

DISCUSSIONS

The swallowing ability of the patients were assessed with the Gugging swallowing scale followed by the administration of dysphagia exercise. Ongoing assessment was done to assess the improvement in the swallowing ability and scoring was done based on the improvement. The swallowing ability before and after the dysphagia exercise were compared based on the Gugging

swallowing scale which showed an improvement in the swallowing ability. The first patient with mild dysphagia regained the normal swallowing ability after 05 days of intervention. The second patient with severe dysphagia improved to a moderate level after 05 days of intervention. The third patient with severe dysphagia regained the normal swallowing ability after 05 days of intervention. The fourth patient with moderate dysphagia improved after 04 days of intervention. Represents effectiveness of dysphagia exercises on swallowing among patients with CVA in experimental group is analyzed by paired t-test. The value of t is 25.74. The p value is < 0.0001 . So, result is significant at $p < 0.05$ level. Thus the present study is in line with the studies conducted by Bartolome, & Neumann (1993), Loge Mann (1993), Permissiveness. et.al (1994), Neumann, Bartolome, Buchholz, & Prodigal (2000), Kiger, Brown, & Watkins (2006), Singh, Brock band Frost, & Tyler (2006), Carnaby (2006), Robbins, Kays, Gagnon, Hind, Gentry, & Taylor (2007), that proved the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident. The present study assessed the effect of swallow therapy that includes the swallowing exercises on the swallowing ability and the result is in line with the study conducted by Shaker & Antonik (2006) that shows a positive effect of Shaker exercise on the swallowing ability. Another study conducted by Shaker et. al (2002) to assess the effect of hyoid muscle strengthening exercise on swallowing ability proved to be effective in restoration of oral feeding which strongly supports the benefits of swallow therapy in patients with swallowing inability. A study conducted by Archala Khemnar et al in 2022 to assess the physical issues faced by geriatric population visiting health care centers. 250 elderly people were assessed to see for physical issues faced by them. The results stated various physical health problems were identified, 50.40% have oral problems in which some have also complained of swallowing difficulty.

CONCLUSION

This present study attempts to determine the effectiveness of dysphagia exercises on swallowing among Patients with cerebrovascular accident. Dysphagia exercises given to patients with swallowing difficulty were effective to improve the swallowing reflex. Swallowing will help them to improve their nutrition by regaining the ability to swallow the food. It will also reduce the complications like aspiration pneumonia, Chocking and Nutritional deficiencies. This study summarizes that this will help to improve swallowing ability by providing dysphagia exercises. This study helps to share the information regarding importance of dysphagia exercises for patients who is not able to swallow the food.

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