

“Effectiveness of Oropharyngeal Dysphagia Exercises on Swallowing Ability among patients with Cerebrovascular Accident in selected tertiary care hospital Bhubaneswar Odisha -A Pilot Study”

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Abstract: Oropharyngeal Dysphagia is one of the most frequent symptoms in patients with cerebrovascular Accident which is paralysis of throat muscles. This condition can disrupt the swallowing process and make eating, drinking, taking medicine, breathing difficulty, aspiration of ingested foods, liquids, oral secretions and other health condition also affected such as Pneumonia and malnutrition.

Objectives: To find out the effectiveness of Oropharyngeal Dysphagia exercise on swallowing ability among patients with Cerebrovascular Accident.

Methodology: This research design selected for this study was Pre-test Post-test control group design. The study was conducted in Neuro HDU, Neuro Surgery and Neuro medicine Ward of KIMS PBMH, BBSR. The investigator selected 50 Cerebrovascular Accident patients (Interventional-25 and control-25) with mild and moderate swallowing difficulty. Computer generated Random number list (Opaque sealed envelope) sampling technique was used. The tools used for data collection are demographic, clinical data and Mann Assessment of Swallowing Ability (MASA) scale. Pre-test was conducted to assess the severity of swallowing difficulty by using MASA scale. Then Oropharyngeal Dysphagia exercises was administered after Pre-test for 10-15 minutes of 10-20 repetitions for 2 times a day for 1 week to the Interventional group with mild and moderate swallowing difficulty. Routine care was given to control group for 7 days. Post test was conducted after 7 days with the same tool and data were analysed.

Results: Statistical findings revealed that Post-test mean score of Swallowing difficulty in Interventional and control group were 169 & 158.8 respectively with difference of Pre- test and post test score in Interventional and control group were 9.7 & 1.6 respectively which found to be statistically significant at $p < 0.05$ level.

Conclusion: Oropharyngeal Dysphagia Exercises were effective among the Cerebrovascular Accident patients regarding their Swallowing Ability.

Keywords: Effectiveness, Cerebrovascular accident, swallowing ability, Oropharyngeal Dysphagia Exercise

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INTRODUCTION

Cerebrovascular accident is a major public health issue that affects people all over the world. Stroke was the second largest cause of death worldwide in 1990, according to the Global Burden of Diseases research. Over 5.87 million stroke deaths were reported worldwide in 2010, up from 4.66 million in 1990, as a result of attempts to update the Global Burden of Diseases research. There has been a 26% increase in global stroke mortality during the last two decades. With the rising proportion of mortality, stroke still remains the second leading cause of death worldwide.¹

Swallowing is also known as deglutition, involves the movement of substances from the mouth (oral cavity) to the stomach via the pharynx and esophagus. Swallowing is an important and complex behaviour that is taught

early in life. Because the swallowing mechanism shares anatomy with the airway, it not only directs food into the digestive tract but also protects the airway. The reflexive and voluntary actions of over 30 nerves and muscles produce this coordinated movement.² In India, the incidence of stroke is valued as, 18,012,222 and the population appraised used is 1,06,570,607. According to recent research, the age-adjusted annual occurrence rate of stroke was 105 per 100,000 in Kolkata's urban community and 262 per 100,000 in Bengal's rural population. Stroke occurs 180 times per 100,000 people in Kerala each year.³ Stroke can be a severe and devastating illness in poor countries like India. India's stroke burden has been rising in recent decades, in contrast to wealthier countries where it has plateaued or decreased.

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Presently, the annual frequency of stroke in India is 145/100,000 populations, which is above the western nations. Approximately, 12% of all strokes occur within the population.⁴ Dysphagia is related to nutritional deficits and increased risk of pneumonia. Dysphagia, dietary inadequacies, and increased pneumonia risk are all risks that ageing community residents face, according to a recent study. Swallowing rehabilitation is an efficient approach to extend safe oral intake in these populations and up to date research has demonstrated extended benefits associated with improved nutritional status and reduced pneumonia rates.⁵

Swallowing abnormalities can develop when these damages result in malfunction, belittle matched function, or lack of function of the Neuromuscular apparatus.⁶ The conditions may show as cerebral pain, Changes in sharpness, Dysphagia, shoulder torment, neck torment, vertigo, Loss of co-appointment, deadness or shivering on the influenced side, Decreased vision, inconvenience talking and issue strolling.⁷ The clinical parts of Dysphagia after stroke, it merits thinking about what precisely is implied by the term Dysphagia. When it comes to stroke, oropharyngeal Dysphagia is most commonly defined as a disruption in bolus flow through the mouth and pharynx.⁸ Patient is getting early treatment, the higher the prognosis than the patient who are not getting treatment for too long may result in permanent brain damage.⁹ The old age people are at high risk for increase of swallowing difficulty due to diseases that affect the swallowing mechanism. To better serve this vulnerable group of patients, healthcare workers must query about the existence of swallowing difficulty and have a working awareness of its pathophysiology. The journal reports usually encountered queries about caring for old age patients with swallowing difficulty, including a discussion on the mechanisms crucial to normal swallowing and how they may be affected by the aging process.¹⁰

OBJECTIVES

1. To assess the swallowing ability before and after Oropharyngeal dysphagia exercises among patients with CVA.
2. To find out the effectiveness of Oropharyngeal dysphagia exercises on swallowing ability among patients with CVA.
3. To find out the association between post-test level of swallowing ability with selected demographic variables among patients with CVA.

MATERIALS AND METHODS

Patients' characteristics

Ethical and Research committee approval (240/2020) of this study was obtained from our university. CTRI registration has done. CTRI reference No. is REF/2020/08/035937 and Registration number for this trail is CTRI/2020/09/027520. For the present study the sample were included CVA patients with mild and

moderate swallowing difficulty patients based on the inclusion criteria: Age of 20 years and above, Understand Hindi or English or Odia, Willing to participate in the study, having mild and moderate swallowing difficulty, Available at the time of study, GCS score of 13-15. And exclusion criteria: Taken any initial treatment related swallowing difficulty, Patients with cancer in the esophagus, surgery in the head and neck, Patients with CHF, Patients with end stage renal disease, Pregnant women, Medico-legal cases, Congenital Maxillofacial Disorder.

Study Protocol

A Quantitative research approach was reflected to be the maximum suitable for the study. The research design for this study was Randomized controlled clinical trial research design. This study was accompanied in Neuro surgery ward, Neuro ICU, Neuro HDU in selected hospital, Bhubaneswar. For the present study the sample is selected using Computer generated Random number list (Opaque sealed envelope) with the help of Socio-demographic Proforma and MASA scoring sheet. The sample size consisted of 50 CVA patients with mild and moderate swallowing difficulty (Interventional group-25 and control group-25). Oropharyngeal Dysphagia exercises was administered after Pre-test for 10-15 minutes of 10-20 repetitions for 2 times a day for 2 week to the Interventional group with mild and moderate swallowing difficulty. Routine care was given to control group for 7 days. Post test was conducted after 7 days with the same tool and data were analysed.

Follow up

During the treatment, all patients were assess the severity of swallowing difficulty by using MASA scale at least once in a week. The patients were followed up every months for the six months after the completion of therapy.

Statistical analysis

Frequency and percentage distribution was used to analyse the socio-demographic variables among CVA patients with mild and moderate swallowing difficulty in both control and Interventional group. Mean and standard deviation was used to analyse the post-test level of swallowing difficulty among CVA patients with mild and moderate swallowing difficulty in both control and Interventional group. Mann-Whitney U test was used to compare the post-test mean level of swallowing difficulty among CVA patients between Interventional and control group. Chi-square test was used to associate the level of swallowing difficulty with socio-demographic variables in both Interventional and control group.

RESULTS

Table: 1 shows that age wise distribution, maximum patients were in the age group of above 51 years i.e. 48% and minimum age group were 31-40 years i.e. 12% in experimental and in control group. Gender wise distribution of male among Control and Interventional

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group were 60% and 44% respectively and female among control and experimental group were 40% and 56%. Education wise distribution of patients in control and interventional group the maximum of patients are having graduation education i.e. 48% and 36% respectively and minimum of patients of having no formal education i.e. 12% and 16%. Occupation wise distribution of patients, maximum of patients are Govt. employee and daily labour i.e. 32% in control group and self-employed i.e. 40% in interventional group and minimum of patients are self-employed i.e. 20% in control and daily labour i.e. 12% in interventional group. Family income wise distribution of patients in control and interventional group. Maximum of patients earning more than 20,001 i.e. 40% and 40% respectively and minimum patients earning 10,000-20,000 i.e. 20% and 24% respectively. Marital status wise distribution of patients in control and interventional group the maximum of patients are Married i.e. 40% and 32% respectively and minimum of patients was unmarried i.e. 12% and 12% respectively. In clinical parameters in control and interventional groups. Distribution of duration of illness i.e. 14% with less than 6 months of illness, 38% with 6 months - 1 year illness, 38% 1 – 2 years, 10% with more than 2 years. Duration of symptoms of dysphagia wise distribution was in control and interventional group i.e. 24% cases which had

symptoms for 1 week to 1 month, 30 60% cases 1 months – 6 month and 16% cases had symptoms for more than 6 months. Level of dysphagia wise distribution in control group all cases were moderate dysphagia, in Interventional group 92% were moderate dysphagia and only 8% were mild dysphagia. Type of CVA wise distribution in control group majority of cases were haemorrhagic CVA i.e. 52% followed by ischemic CVA 36% and transient ischemic CVA 12%. In Interventional group majority of cases 44% were both in haemorrhagic CVA and ischemic CVA followed by 12% were transient ischemic CVA 12%. Time of initiation of treatment after CVA wise distribution in control and interventional group. Majority Of samples 32% had found above 12 hour's time of initiation of treatment after CVA in Control group and 32% had found between 5-12 hour's time of initiation of treatment after CVA in Interventional group. Minimum samples are found in control group i.e. 16% had between 5-12 hour's time of initiation of treatment after CVA in control group and 20% had more than 24 hour's time of initiation of treatment after CVA in interventional group. In associated causes shows that there were 76% samples of high blood pressure, 62% of diabetics, 58% samples of Heart disease and 60% samples with tobacco chewing and smoking habits.

Table No: 1 Frequency and percentage distribution of demographic profile of cases between Control and Interventional group

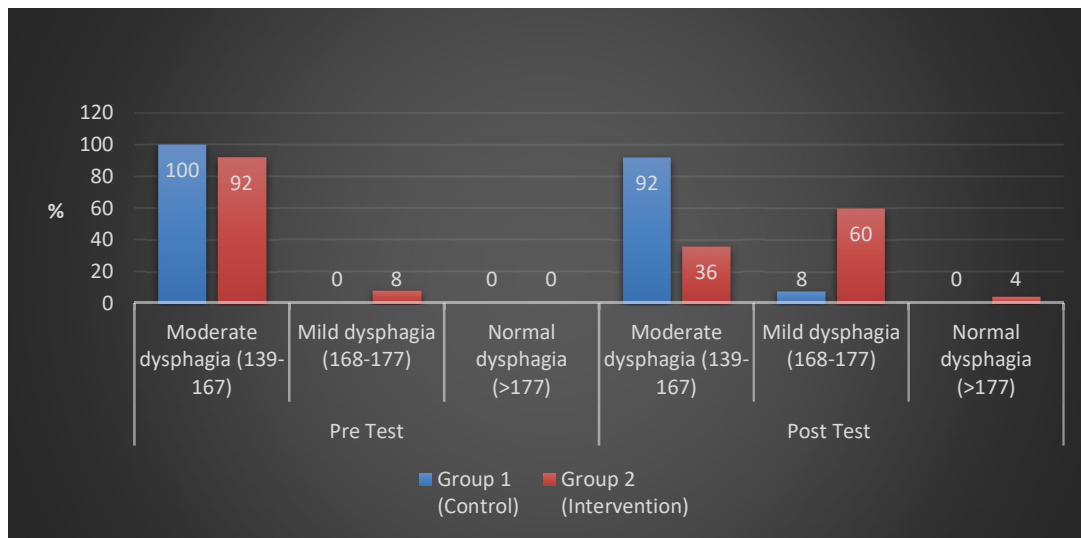
Demographic variables	Control (n=25)		Interventional (n=25)		Total (N= 50)	
	n	%	n	%	n	%
Age in year						
20 -30	0	0	0	0	0	0
31-40	5	20	3	12	8	16
41-50	8	32	10	40	18	36
Above 51	12	48	12	48	24	48
Gender						
Male	15	60	11	44	26	52
Female	10	40	14	56	24	48
Trans gender	0	0	0	0	0	0
Education						
No formal education	3	12	4	16	7	14
Primary education or Secondary education	3	12	9	36	12	24
Graduation education	12	48	9	36	21	42
Post-graduation & Above	7	28	3	12	10	20
Occupation						
Govt. Employee	8	32	5	20	13	26
Self employed	5	20	10	40	15	30
Daily labour	8	32	3	12	11	22
Unemployed	4	16	7	28	11	22
Family Income per Month						
5,000 10,000	10	40	9	36	19	38
10,001 – 20,000	5	20	6	24	11	22
More than 20,001	10	40	10	40	20	40
Marital Status						

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Married	10	40	8	32	18	36	
Unmarried	3	12	3	12	6	12	
Widow/Widower	4	16	9	36	13	26	
Separated / Divorced	8	32	5	20	13	26	
Duration of illness							
Less than 6 months	4	16	3	12	7	14	
6 months to 1 year	10	40	9	36	19	38	
1 year to 2 years	8	32	11	44	19	38	
2 years and above	3	12	2	8	5	10	
Duration of symptoms of Dysphagia							
Less than 1 weak	0	0	0	0	0	0	
1 weak to 1 month	6	24	6	24	12	24	
1 month to 6 month	15	60	15	60	30	60	
6 month and above	4	16	4	16	8	16	
Patient suffered with							
Mild dysphagia	0	0	2	8	2	4	
Moderate dysphagia	25	100	23	92	48	96	
Type of CVA							
Hemorrhagic CVA	13	52	11	44	24	48	
Ischemic CVA	9	36	11	44	20	40	
Transient ischemic CVA	3	12	3	12	6	12	
Time of initiation of treatment							
Within 5 hour	5	20	5	20	10	20	
5 hour-12 hour	4	16	8	32	12	24	
12 hour -24 hour	8	32	7	28	15	30	
After more than 24 hour	8	32	5	20	13	26	
Associated causes of CVA							
High blood pressure	No	6	24	6	24	12	24
	Yes	19	76	19	76	38	76
Diabetes	No	10	40	9	36	19	38
	Yes	15	60	16	64	31	62
Heart disease	No	12	48	9	36	21	42
	Yes	13	52	16	64	29	58
Tobacco chewing or smoking	No	8	32	12	48	20	40
	Yes	17	68	13	52	30	60

Graph: 1 Shows that Pre and Post exercise between Control and Intervention groups. Before the exercise, all 25(100) samples in the control group and 23(92%) cases in interventional group presented moderate dysphagia. During the post exercise period, it was found that 23(92) in the control group had moderate and 2(8%) had mild dysphagia, whereas in the intervention group there were 9 cases of moderate, 15 mild and 2 cases of normal dysphagia. This implied post exercise the intervention group had a significant edge over the control group ($p= 0.000$).

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Graph 1: Bar diagram showing pre and post-test level of swallowing ability among Control & Interventional Group

Table: 2 shows that the Effectiveness before and after oropharyngeal dysphagia exercises on swallowing ability, total score between two groups has been compared in. The mean Pre-test score in control group was 157.0 ± 7.3 and median 158. Resultant value in the intervention group was 159.3 ± 5.5 and 158 and there was no significant difference between the two groups ($p=0.586$). But at the post test there has been a significantly high score in terms of mean and median value of the intervention group than the control ($p=0.000$).

Table: 2 Comparison of Pre and Post-test total score among Interventional and Control group:

Total Score	Group 1 (Control) (n=25)			Group 2 (Interventional) (n=25)			p' value*
	Mean	SD	Median(IQR)	Mean	SD	Median(IQR)	
Pre Test	157.0	7.3	158 (154.5,162.5)	159.3	5.5	158 (157,163)	0.586
Post test	158.6	8.3	161 (154,165)	169.0	4.9	169 (165.5,173)	0.000

* Mann-Whitney U 'p' value

Table: 3 & 4 Shows that the Association was found in Duration of symptoms of dysphagia, Patient suffered with level of dysphagia and associated causes of CVA like Blood Pressure.

Table: 3 Association of Post-test level of swallowing ability by demographic variables among Cerebrovascular accident patients:

Demographic variables	Control Group (n=25)			Interventional Group (n=25)		
	n	Mean (SD)	Median (IQR)	n	Mean (SD)	Median (IQR)
Age in Year						
20 -30	0	0	0	0	0	0
31-40	5	163.4 (4.0)	163 (159.5,167.5)	3	165.3 (2.9)	167(*)
41-50	8	156.3 (8.3)	159 (147.8,161.8)	10	169.0 (4.0)	169 (165.8,172.5)
Above 51	1 2	158.1 (9.2)	162 (148.3,165)	12	169.9 (5.8)	171 (166,173)
Kruskal Wallis Test 'p' value	0.311			0.242		
Gender						
Male	1 5	161.8 (6.9)	164 (159,167)	11	167.8 (6.5)	167 (162,174)

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Female	10	153.7 (8.1)	156.5 (145.8,161)	14	169.9 (3.1)	169.5 (169,173)
Trans gender	0	0	0	0	0	0
Mann-Whitney U 'p' value	0.011			0.202		
Education						
No formal education	3	156.7 (9.3)	161.0(*)	4	172(1.4)	172.5 (170.5,173)
Primary education or Secondary education	3	162.7 (2.5)	163(*)	9	166.9 (5.3)	167 (162,171)
Graduation education	12	159.3 (9.8)	163 (149.5,166.8)	9	168.4 (3.5)	169 (166,170.5)
Post-graduation & Above	7	156.4 (7.2)	156 (153,159)	3	173 (8.0)	173(*)
Kruskal Wallis Test 'p' value	0.471			0.188		
Occupation						
Govt. Employee	8	158 (8.1)	160.5 (149.5,162.5)	5	168.2 (4.7)	169 (163.5,172.5)
Self employed	5	155.6 (12.5)	159.0 (142.5,167.0)	10	167.8 (4.7)	169 (165,170)
Daily labour	8	159 (7.7)	159 (153.5,166.8)	3	173.7 (7.0)	173(*)
Unemployed	4	162.5 (3.1)	163.5 (159.3,164.8)	7	169.3 (4.4)	170 (165,173)
Kruskal Wallis Test 'p' value	0.834			0.539		
Family income per month						
5,000 10,000	10	160.2 (6.5)	162.5 (155.8,165.3)	9	170.6 (5.5)	170 (167.0,173.5)
10,001 – 20,000	5	154 (11.8)	153 (142.5,166)	6	168.3 (5.2)	169 (165,173)
More than 20,001	10	159.2 (8.0)	160.5 (155.8,164.3)	10	168(4.4)	168 (164.3,172.3)
Kruskal Wallis Test 'p' value	0.617			0.544		
Marital Status						
Married	10	158.6 (8.1)	160.5 (155,163.8)	8	168.5 (7.5)	168 (162,174.5)
Unmarried	3	165.3 (1.5)	165(*)	3	170(3.6)	169(*)
Widow/Widower	4	154.0 (11.9)	153.5 (143,165.5)	9	170.1 (3.3)	172 (167,173)
Separated / Divorced	8	158.3 (7.6)	158 (153.5,164.5)	5	167.2 (3.3)	169 (164,169.5)
Kruskal Wallis Test 'p' value	0.337			0.683		
Duration of illness						
Less than 6 months	4	156.3 (9.3)	155.5 (147.8,165.5)	3	171.0 (3.5)	173(*)
6 months to 1 year	10	160.7 (9.9)	165 (155,167)	9	169.3 (6.3)	169 (165.5,172.5)
1 year to 2 years	8	158.6 (6.1)	160.5 (156.3,162.8)	11	169.2 (4.0)	169 (166,173)
2 years and above	3	154.3 (7.6)	156(*)	2	163.5 (2.1)	163.5(*)
Kruskal Wallis Test 'p' value	0.339			0.305		
Duration of symptoms of dysphagia						
Less than 1 weak	0	0	0	0	0	0

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1 weak to 1 month	6	159.8 (9.0)	161.5 (152.5,167.5)	6	171.7 (5.6)	171 (166.8,175.8)
1 month to 6 month	15	159.7 (7.4)	162 (156,165)	15	167.4 (4.8)	169 (162,172)
6 month and above	4	152.3 (9.7)	153 (143,160.8)	4	171.0 (1.8)	171 (169.3,172.8)
Kruskal Wallis Test 'p' value	0.278			0.18		
Patient suffered with(level of dysphagia)						
Mild dysphagia	0	0	0	2	177.5 (5.0)	177.5(*)
Moderate dysphagia	25	158.6 (8.3)	161 (154,165)	23	168.3(4.3)	169 (165,172)
Mann-Whitney U 'p' value	#			0.026		
Type of CVA						
Haemorrhagic CVA	13	158.2 (7.2)	159 (154,164.5)	11	169.9 (5.0)	169 (166,173)
Ischemic CVA	9	156.7 (10.1)	161 (144.5,163.5)	11	167.9 (5.1)	169 (162,173)
Transient ischemic CVA	3	166.0 (1.7)	165(*)	3	169.7 (5.0)	169(*)
Kruskal Wallis Test 'p' value	0.133			0.787		
Time of initiation of treatment (Rx) after CVA						
Within 5 hour	5	159.6 (9.9)	162 (151.5,166.5)	5	169.6 (4.7)	170 (165.5,173.5)
5 hour-12 hour	4	159.3 (4.3)	160.5 (154.8,162.5)	8	167.9 (2.9)	169 (166.3,169)
12 hour -24 hour	8	158.9 (9.3)	161.5 (148.5,166.8)	7	167.3 (6.1)	165 (162,173)
After more than 24 hour	8	157.3 (9.0)	160 (148.3,164.5)	5	172.6 (5.4)	173 (168,177)
Kruskal Wallis Test 'p' value	0.899			0.322		
# 'p' value not computed because no cases present in mild dysphagia						
* IQR not computed because less number of cases						

Table: 4 Association of Post-test level of swallowing ability by Comparison of Associated causes among Cerebrovascular accident patients:

Associated cause of CVA	Control Group (n=25)			Interventional Group (n=25)		
	N	Mean (SD)	Median (IQR)	N	Mean (SD)	Median (IQR)
High blood pressure						
No	6	156.7 (8.7)	158 (150.3,163.3)	6	170.0 (4.6)	170.5 (167.3,173.5)
Yes	19	159.2 (8.3)	161 (155,165)	19	168.7 (5.1)	169 (165,173)
Mann-Whitney U 'p' value	0.372			0.441		
Diabetes						
No	10	161.7 (6.3)	163.5 (158.8,165.5)	9	168.4 (6.6)	169 (163.5,172.5)
Yes	15	156.5 (9.0)	160 (146,162)	16	169.3 (3.9)	169 (167,173)
Mann-Whitney U 'p' value	0.113			0.548		
Heart disease						

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No	12	158.5 (7.8)	160.5 (154.3,163)	9	168.1 (3.9)	169 (165,171)
Yes	13	158.6 (9.0)	161 (150.5,165.5)	16	169.5 (5.5)	169.5 (166.3,173)
Mann-Whitney U 'p' value	0.723			0.44		
Tobacco chewing or smoking						
No	8	157.3 (8.3)	159 (148.3,164)	12	168.2 (3.5)	169 (166.3,169.8)
Yes	17	159.2 (8.5)	162 (154.5,165.5)	13	169.8 (6.0)	172 (165,173)
Mann-Whitney U 'p' value	0.484			0.394		

DISCUSSION:

(1).Characteristics of demographic variables:

Majority of the cases i.e. 42 out of 50 were in age group above 40 years in both the group. In gender majority of cases i.e. 26 out of 50 cases were male in both the group. In Education majority of cases i.e. 31 out of 50 cases were graduate and above in both the group. As regards occupation, majority of the cases i.e. 13 were govt. employees and 15 were self-employed in both the groups in both the group. According to family income, majority of the cases i.e. 38% had income between Rs. 5000 –10000 and 40% had income more than Rs.2000.00 in both the group. Among the cases, majority of the cases i.e. 36% were married, 12% unmarried and remaining were either widow / widower, separated / divorced in both the group. Majority of the cases in duration of illness i.e. 38 out 50 were 6 month - 2 year in both the group. Majority of cases in duration of symptoms of dysphagia i.e. 30 out of 50 cases were in between 1 week to 1 month, 60% in both the group. In level of Dysphagia majority of the cases were moderate level of dysphagia i.e. 48 out of 50 in both the group. In types of CVA majority of cases were haemorrhagic CVA i.e. 24 out of 50 and ischemic CVA i.e. 20 out of 50 in both the group. As regards Time of initiation of treatment after CVA were i.e. 28 out of 50 cases were between 12 hours-24 hours in both the group. In aspects of associated causes of CVA were 76% cases of high blood pressure, 62% of diabetics, 58% cases of heart disease and 60% cases with tobacco chewing and smoking habits.

(2). First objective was to assess the swallowing ability before and after oropharyngeal dysphagia exercise among patients with CVA:

This section describes that the mean Pre-test score in control group was 157.0 ± 7.3 and median 158. Resultant value in the intervention group was 159.3 ± 5.5 and 158 and there was no significant difference between the two groups ($p=0.586$).

Ho₁: There will be no significant difference between swallowing ability before and after oropharyngeal dysphagia exercise among patients with CVA.

The difference was high and significant. Hence the hypothesis is rejected.

(3). Second objective was to find out the effectiveness of oropharyngeal dysphagia exercise on swallowing ability among patients with CVA:

The mean Pre-test score in control group was 157.0 ± 7.3 and median 158. In the intervention group was 159.3 ± 5.5 and 158 and there was no significant difference between the two groups ($p=0.586$). But at the post test there has been a significantly high score in terms of mean and median value of the intervention group than the control ($p=0.000$). These findings showed that the Oropharyngeal dysphagia Exercises was effective among patients with CVA regarding their swallowing ability.

(4). Third objective was to find out the association between Post-test swallowing ability with selected demographic variables among patients with CVA:

The association was found in Duration of symptoms of dysphagia, Patient suffered with level of dysphagia.

Ho₂: There will be no significant association between swallowing ability and selected demographic variables among patients with CVA.

Based on the outcome of this study the hypothesis is rejected.

CONCLUSION

➤ Oropharyngeal dysphagia exercises was effective in improvement of swallowing ability among patients with CVA.

➤ There was a significant association between Post-test swallowing ability with selected demographic variables among patients with CVA.

RECOMMENDATIONS

1) The study can be replicated on large samples in different setting to have a wider generalization of findings.

2) A study can be conducted using other strategies, information booklet and other manuals etc.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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