Texila International Journal of Public Health
ISSN: 2520-3134
DOI: 10.21522/TIJPH.2013.13.02.Art044

Swallow Therapy to Improve Swallowing Ability in Patients with Dysphagia after a Cerebrovascular Accident: A Quantitative Study

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Abstract

Swallow therapy, also known as dysphagia treatment, is a therapeutic intervention for individuals with difficulty swallowing due to conditions such as head and neck cancer, stroke, and ageing. The aim is to enhance swallowing safety and efficiency while minimising the risk of choking and aspiration. This study evaluated the efficacy of swallow therapy in 60 patients who had suffered a cerebrovascular accident (CVA) at Saveetha Medical College and Hospital. Initial assessments of swallowing function and aspiration risk were conducted, followed by a therapy regimen that included various exercises. Results showed that after therapy, 57% of patients achieved normal swallowing function, while 30% had mild aspirations, and 13% had moderate aspirations, with no severe cases reported. The swallowing ability of CVA patients significantly improved within seven days. In conclusion, swallow therapy significantly enhances recovery and quality of life for CVA patients while reducing healthcare costs and preventing complications.

Keywords: *Aspiration, Cerebrovascular Accident, Stroke, Swallow Therapy.*

Introduction

Cerebrovascular accidents are recognised as the leading cause of death and disability in the world. They are also associated with several health problems that can lead to prolonged hospitalisation and significant health care costs [1]. All bodily functions are controlled and integrated by the highly specialised central nervous system, which is made up of the brain and spinal cord. The majority of the human body's voluntary and involuntary functions are controlled by the brain [2]. The central nervous system, a highly specialised system that integrates and regulates all body functions, is composed of the brain and spinal cord. The brain controls most of the body's voluntary and involuntary processes. The paralysis of the swallowing muscles is the primary problem after a cerebrovascular accident. This results in swallowing difficulties, or dysphagia [3]. Although cerebrovascular accident is a frequent term for acute stroke, many stroke neurologists prefer to use another name. Strokes are not unintentional. Similar to "heart attack," "brain attack" would be a more fitting and descriptive phrase. An episode of focal neurological impairment is referred to as an acute stroke [4]. CVA affects more than 15 million people annually, making it the second most common cause of adult disability and mortality worldwide. In most countries, cerebrovascular accidents (CVA) are the second or third in terms of most common cause of adult complex avoidable weakness. Treatments to decrease the symptoms of CVA are essential because it is also the second greatest cause of death and the

Received: 06.12.2024 ***Accepted: 02.04.2025*** ***Published on: 30.06.2025***
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second most frequent disease in the Western world. Cerebrovascular accidents (strokes) were the fourth leading cause of death in 2008, according to the Centres for Disease Control and Prevention's most recent mortality figures. These injuries result in a variety of problems, including psychological and physical ones, that affect every facet of human life. [5]. While the most common term for acute stroke is cerebrovascular accident, many stroke neurologists would rather use a different term. Strokes are not random occurrences. Similar to a "heart attack," a more accurate and descriptive moniker would be "brain attack." A focal neurological impairment episode an acute stroke, is a period of focal neurological dysfunction. [6]. The mainstay of diabetes patients' prevention of peripheral vascular disorders is exercise. One of the exercises is the Buerger Allen exercise, which is an active postural exercise for the legs and feet that promotes collateral circulation in the lower extremities and helps prevent peripheral vascular disease [7]. Stroke is the most frequent cause of dysphagia, which is the paralysis of the throat muscles. Swallowing difficulties brought on by this illness may result in issues with breathing, eating, drinking, and taking medication. About 70% of stroke survivors experience dysphagia at some point after their stroke. Prompt treatment of stroke symptoms can reduce the possible problems that may result from the disorder. Facial or arm weakness, difficulty speaking, abrupt confusion, numbness or weakness, usually on one side of the body, bilateral or laterally bilateral vision problems, difficulty walking, dizziness, unbalanced gait and coordination, and excruciating headaches without a known cause are some of these symptoms (World Health Organization, 2018 [8]. Exercise for the swallowing muscles is the most effective method to improve swallowing capacity. The Shaker Exercise, the Hyoid Lift Manoeuvre, the Mendelsohn Manoeuvre, the Effort-full Swallow, the Supraglottic Swallow, and the Super Supraglottic Swallow Manoeuvre are some more exercises created by experts in dysphagia recovery. The quality of life of patients has traditionally been used to assess the efficacy of stroke treatments. The enhanced knowledge of stroke risk that the stroke survivor may report following this evaluation may be linked to a higher quality of life. A stroke patient's quality of life can be evaluated using both general and stroke-specific instruments [19].

Methodology

The present study was designed to assess the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident. **Study Design:** A True experimental pretest-posttest control group research design was adopted to investigate the efficacy of swallowing therapy on patients with dysphagia. **Study Setting:** The current study was conducted for 4 months August 2024 to November 2024, at the Saveetha Medical College and Hospital. **Ethical Approval:** After obtaining ethical clearance from the Institutional Human Ethics Committee (IHEC) of Saveetha Institute of Medical and Technical Sciences and formal permission from the departmental head of General Medicine, the study was conducted**. Study Participants:** A total of 60 geriatric patients who fulfilled and met the inclusion criteria were recruited as study participants. The Mann Assessment of Swallowing Ability was created for working in the area of neurogenic swallowing disorders to both diagnose and map swallowing outcomes. The examination covers 24 clinical items that evaluate promotor / sensory components of swallowing, prerequisite learning skills, such as cooperation and auditory comprehension, baseline cranial nerve function and functional assessment of swallow. It can be administered in 15-20 minutes. **Sampling Technique:** The participants were recruited through non non-probability purposive sampling technique. All 60 study participants were allotted to the

experimental group. **Informed Consent:** The purpose of the study was explained in depth to each of the study participants, and a written informed consent was obtained from them. **Pre-Assessment:** The main study was conducted for 4 weeks in a selected hospital. 60 samples with swallowing inability were selected for the study. Demographic data were collected from each sample, followed by the assessment of the severity of swallowing inability using the Mann Assessment of Swallowing Ability. Swallow therapy, which includes the swallowing exercises, was then administered to the patients. The exercises were Shaker exercise, Hyoid Lift Manoeuvre, Effortful swallow, Supraglottic swallow, Super supraglottic swallow and tongue exercises. Followed by the exercise, the samples were provided with feeding and checked for aspiration. Ongoing assessment was done using the same tool. **Post-Assessment:** On Day 31, study participants were re-assessed by using the swallowing ability was assessed by the Mann Assessment of Swallowing Ability (MASA, 2004), consisting of 24 items with a maximum score of 200.

Results and Discussion

Demographic Characteristics

The study participants' age range was 40–60, of which 49 patients (82%), 11 patients (18%), and their gender was 32 (53%), female 28 (47%), and their education level was literate 45 (75%), illiterate 15 (25%), and the duration of dysphagia symptoms in days 1-4 and 4–8 was 31 (52%) Table 1, The participants' localized lesions were brain stroke 27 (45%), MCA infarct 33 (55%), and Mini MSE was assessed ensuring that all participants had a normal mental status 60 (100%).

Clinical Characteristics

Table 1. Frequency and Percentage Distribution of Patients According to Level of Severity (Dysphagia) in Posttest.

S. No.	Level of Severity	Frequency	Percentage
1	No abnormality detected	37	62%
2	Mild	20	33%
3	Moderate	3	5%
4	Severe	0	0%

Comparison of Pre and Post-Level of Dysphagia among the Patients

Table 2. Comparison of Pre and Post-Level of Severity (Dysphagia) among the Patients

S. No.	Level of severity	Pre test		Post test	
		F	%	F	%
1	No abnormality detected	0	0%	37	62%
2	Mild	15	25%	20	33%

3	Moderate	26	43%	3	5%
4	Severe	19	32%	0	0%

Distribution of Patients with Level of Severity of (Aspiration) in Post Test

Table 3. Frequency and Percentage of Patients According to Level of Severity in Post Frequency

S. No.	Level of Severity	Frequency	Percentage
1	No abnormality detected	34	57%
2	Mild	18	30%
3	Moderate	8	13%
4	Severe	0	0%

Comparison of Pre and Post-Level of Severity among the Patients

Table 4. Comparison of Pre and Post-Level of Severity among the Patients

S. No.	Level of Severity	Pre test		Post test	
		F	%	F	%
1	No abnormality detected	0	0%	34	57%
2	Mild	12	20%	18	30%
3	Moderate	25	42%	8	13%
4	Severe	23	38%	0	0%

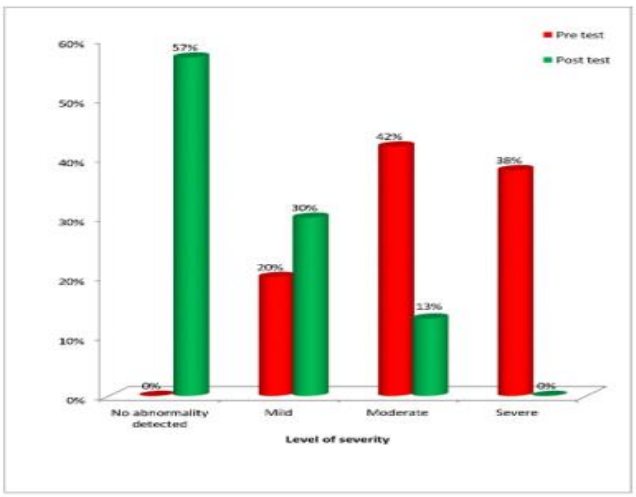

Figure 1. Comparison of Pre and Post-Level of Severity among the Patients

Comparison of Pre and Post-Level of Severity with Mean, Standard Deviation Regarding Dysphagia among the Patients

Table 5. Mean and Standard Deviation with Pre and Posttest Level of Severity of Dysphasia (N=60)

S. No.	Test	Mean	Mean %	SD	Mean Difference	„t"	Table Value
1	Pre test	158.13	79.065	13.42	29.5	16.88**	1.96
2	Post test	187.63	93.81	8.77			

Comparison of Pre and Post-Level of Severity with Mean, Standard Deviation Regarding Aspiration among the Patients

Table 6. Mean and Standard Deviation with Pre and Posttest Level of Severity of a (N=60)

S. No.	Test	Mean	Mean %	SD	Mean Difference	„t"	Table Value
1	Pre test	144.23	72.117	5.57	44.73	44.05**	1.96
2	Post test	188.96	94.487	6.63			

Discussion

Nineteen samples (32%) had severe dysphagia, twenty-six samples (43%) had moderate dysphagia, and fifteen samples (25%) had mild dysphagia. Following a diagnosis of dysphagia, the patients received swallow therapy, which comprised tongue exercises, the Shaker exercise, the Hyoid lift manoeuvre, the Effortless swallow, the Supraglottic swallow, and the Super supraglottic swallow. After placing the patients in a semi-Fowler's position, the exercises were demonstrated, and they were urged to repeat them. Exercise was followed by meals, during which the aspiration risk was evaluated.

Conclusion

Globally, cerebrovascular accidents rank among the top causes of death. One of the main issues these individuals deal with is swallowing impairment, which, if ignored, can result in potentially fatal circumstances. Enhancing the defective swallower's physiology is the main goal of swallow therapy. In addition, it saves money and protects patient confidentiality. Exercise-based swallowing therapies have generally been demonstrated to enhance poor swallowing physiology, minimise or prevent morbidities associated with dysphagia, and improve functional swallowing. Swallowing treatment is an essential part of post-stroke rehabilitation since it has many advantages over recovering swallowing function alone. Swallowing therapy makes a substantial contribution to the total recovery and quality of life for patients with dysphagia after a cerebrovascular accident (CVA) by improving long-term health, preventing complications, lowering healthcare expenditures, and boosting psychological well-being. Its effectiveness is further enhanced by the incorporation of an interdisciplinary, individualised approach, which makes it a crucial component of stroke rehabilitation programs. One major clinical issue that persists in post-cranial trauma patients is dysphagia and aspiration risk. Nurses need to teach families and patients how to swallow well and reduce their risk of aspiration. The exercise was a low-cost, useful strategy for

helping CVA patients with dysphagia swallow more easily. According to the GUSS score and functional oral intake scale, the swallowing ability of CVA patients with dysphagia significantly improved in the intervention group compared to the control group within 7 days, as reported in the study's report.

Recommendations

1. Programs for dysphagia exercise training can be incorporated into the CVA patient's nursing curriculum.
2. It should be possible for employees working in the neurology ward to receive training on exercises for dysphagia.
3. Community settings and rehabilitation facilities might host a study of a similar nature.

Acknowledgment

The authors would like to appreciate all the study participants for their cooperation in completing the study successfully.

Conflict of Interest

The authors declare no conflict of interest.

Acknowledgement

I would like to express my deepest gratitude to Dr Deepak, Director of SIMATS. For giving this great opportunity to conduct a study at his esteemed institution, I would like to thank the Management of SIMATS, Chennai, for rendering continuous support, and I extend my sincere thanks to Dr Vijayalakshmi. R, Principal, Saveetha College of Nursing, SIMATS, Chennai.

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