

Effect of Swallowing Exercise on Dysphagia

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Abstract: *A Quasi Experimental time series with multiple institutions of treatment design was used to assess the effect of swallowing exercise on dysphagia among postoperative Coronary Artery Bypass Graft patients in experimental group GKNM Hospital, Coimbatore. The Study was conducted in postoperative cardiothoracic wards Total of 50 samples were selected who met the inclusion and exclusion criteria. 25 patients were assigned in each group using non probability purposive sampling technique. Modified Wiedenbach's clinical nursing practice theory was adopted for conceptual framework. For both experimental and control group the pre-test level of dysphagia was assessed by using GUSS tool before intervention and swallowing exercise was performed in experimental group and routine care was given in control group. Post-test level of dysphagia was assessed by using GUSS tool in both the groups. Significant outcome were evaluated by descriptive and inferential statistics. The study findings shows that There is no significant difference in the mean dysphagia score between experimental and control group in pre-test t value = 0.83368, $p < 0.05$. In experimental group after the intervention of swallowing exercise statistically there was a significant reduction in mean dysphagia score which shows swallowing exercise is effective in reducing the level of dysphagia among postoperative CABG patients. In control group after routine care there was a slow improvement in the level of dysphagia.*

Keywords: Effect, Swallowing Exercise, Dysphagia, Postoperative Coronary Artery Bypass Graft.

I. INTRODUCTION

Coronary Artery Disease (CAD) is an obstructive or non-obstructive disease process characterized by fatty plaque deposition in the coronary arteries. This condition can be treated by modification in lifestyle habits, medications and revascularization interventions to achieve stabilization. The nature of CAD process results in various clinical manifestations, which can be conveniently categorized as either acute or chronic coronary syndromes. Endotracheal intubation is an essential procedure during general anesthesia for cardiac surgery by using laryngoscope. The intubation of endotracheal tube through the larynx alleviate the painful stimulus, which can increase response in the heart, lungs and other physiological systems like increased heart rate and blood pressure. The magnitude of cardiovascular response is directly related to the force and duration of laryngoscopy.

The adverse effects and potential complications of endotracheal intubation are vocal cord damage, infection, bleeding, tissue damage in thoracic cavity that can lead to collapse of lung, throat or tracheal injury, tooth damage, fluid accumulation, ventilator assisted pneumonia and aspiration. Mild side effects that may occur after the procedure include: sore throat, pain, sinusitis, speech difficulties, difficulty in breathing and swallowing.

The coordination of nerves and muscles require for swallowing. Patients experience swallowing impairment after CABG and it can range from excessive saliva production to choking while eating, and advanced complications occur like aspiration pneumonia, weak or uncoordinated muscles. Swallowing exercises may help to strengthen and build coordination of the muscles and nerves associated with swallowing.

In swallowing therapy, the suprahyoid muscles must be highly active. The effortful swallowing exercises along with biomechanical changes and their effortful food intake, leads to maximum production of oral pressure, reducing residues in the oral cavity, and improving the passage of large amount of food, thus decrease the risk of food aspiration. Swallowing exercises carried out by post-operative CABG patients after extubation which helps to improve the involvement of suprahyoid muscles and reduce the level of dysphagia among CABG patients.

Statement of the problem:

Effect of Swallowing Exercise on Dysphagia among Postoperative Coronary Artery Bypass Graft Patients in GKNM Hospital, Coimbatore.

Objectives:

1. Assess the level of dysphagia among postoperative CABG patients after extubation in experimental and control group.
2. Evaluate the effect of swallowing exercise on dysphagia in experimental group.
3. Associate the pretest level of dysphagia with selected demographic variables in experimental and control group.

II. RESEARCH METHODOLOGY

The research design adopted for this study was quasi experimental time series with multiple institutions treatment design. In this study a total of 50 samples were selected using non probability purposive sampling technique, they were grouped into two as 25 samples experimental group and 25 samples control group. In this study the , Influencing variables are Age, gender, education and co-morbid conditions Dependent variable is Dysphagia ,Independent variable is Swallowing exercise ,Extraneous variables are drugs like Morphine, Paracetamol .

The reliability of GUSS tool was determined by Spearman Brown’s split half technique. The reliability was $r = 0.89$.The researcher collected the demographic variables by using structured interview schedule and pretest level of dysphagia was assessed by using GUSS tool in experimental and control group. Then the researcher taught the patients in experimental group about swallowing exercise and made them perform twice daily from second postoperative to fourth postoperative day. In control group the samples received only routine care. The level of dysphagia was assessed in posttest with GUSS tool in both the groups.

Data were analysed on the basis of objectives and testing of hypothesis by using descriptive statistics (frequency, percentage, distribution and inferential statistics.(ANNOVA ,unpaired 't' test and chi - square test).

III. RESULTS AND DISCUSSION

The mean score of dysphagia and standard deviation of pretest was 9.24, 1.392. After intervention mean score of dysphagia increased from 10.56 to 19.24 and standard deviation was reduced from 1.260 to 0.080 which shows a marked reduction in the level of dysphagia.

Statistically, there is a significant reduction in the level of dysphagia in experimental group after intervention. The mean score of dysphagia and standard deviation of pretest was 8.92, 1.320. After routine care the mean score of dysphagia had slowly reduced from 9.36 to 13.08 and standard deviation increased from 0.757 to 1.998. Statistically, there is a slow reduction in the level of dysphagia in control group.

After the intervention, in the successive posttest (O2-O7), the mean score of dysphagia significantly increased from 10.56 - 19.24 in experimental group. In control group the mean score of dysphagia slowly increased from 9.36 - 13.08. Statistically, in posttest there is a significant difference in the mean score of dysphagia between experimental and control group.

TABLES AND FIGURES

Table: 1 Comparison of pre and posttest level of dysphagia among postoperative CABGpatients in experimental group and control group N=50

Observation	Experimental group (n ₁ = 25)		Control group (n ₂ = 25)		Unpaired test	Significantvalue	DF
	Mean value	Standard deviation	Mean value	Standard deviation			
Pretest (O ₁)	9.24	1.392	8.92	1.320	0.83368	0.204295 NS	49
Posttest (O ₂)	10.56	1.260	9.36	0.757	4.079	0.000085 S	49
Posttest (O ₃)	11.88	1.71	10.2	1.414	3.784	0.00012 S	49

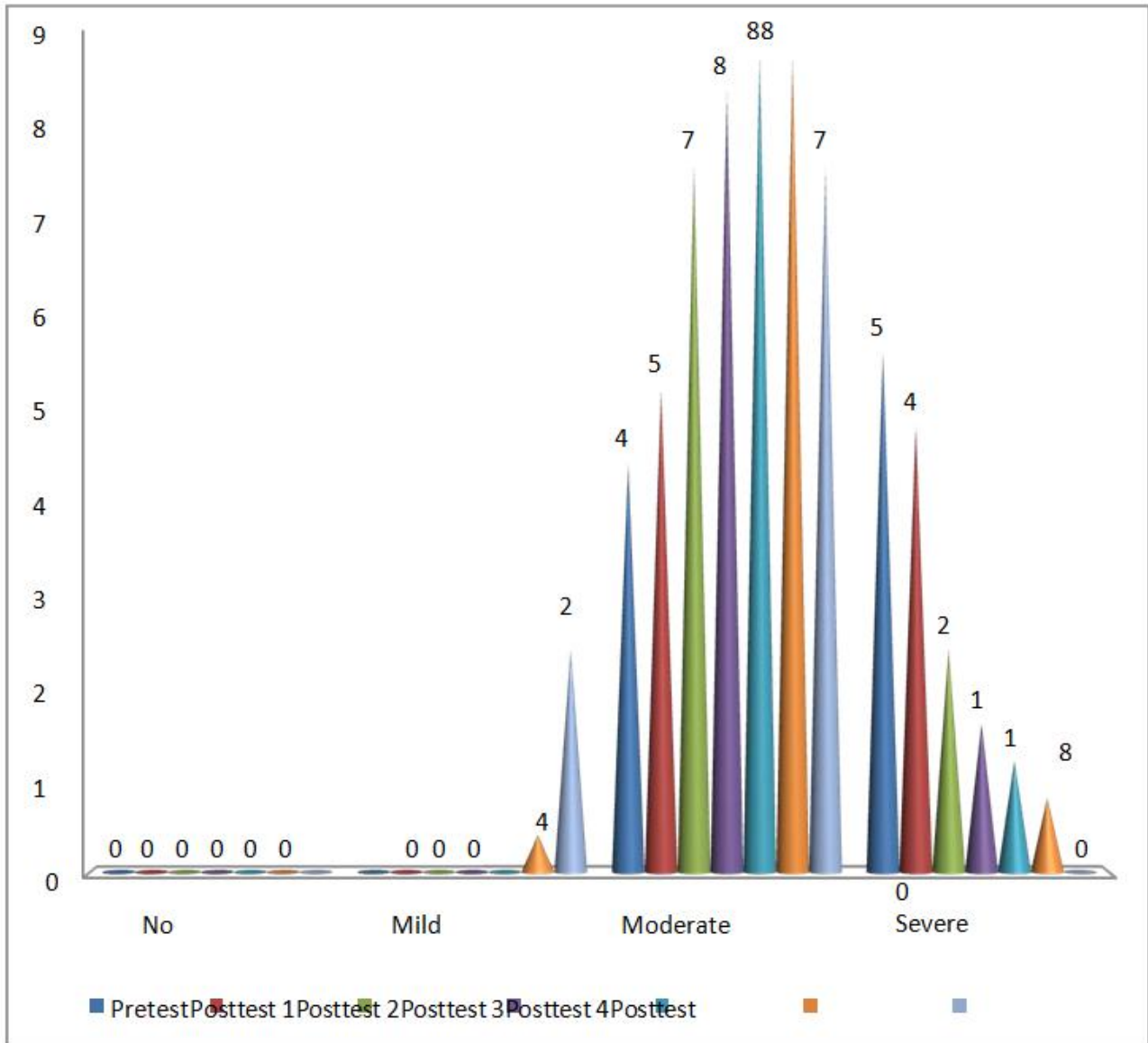


Figure 2 Frequency and percentage distribution on level of dysphagia among postoperative CABG patients in control group

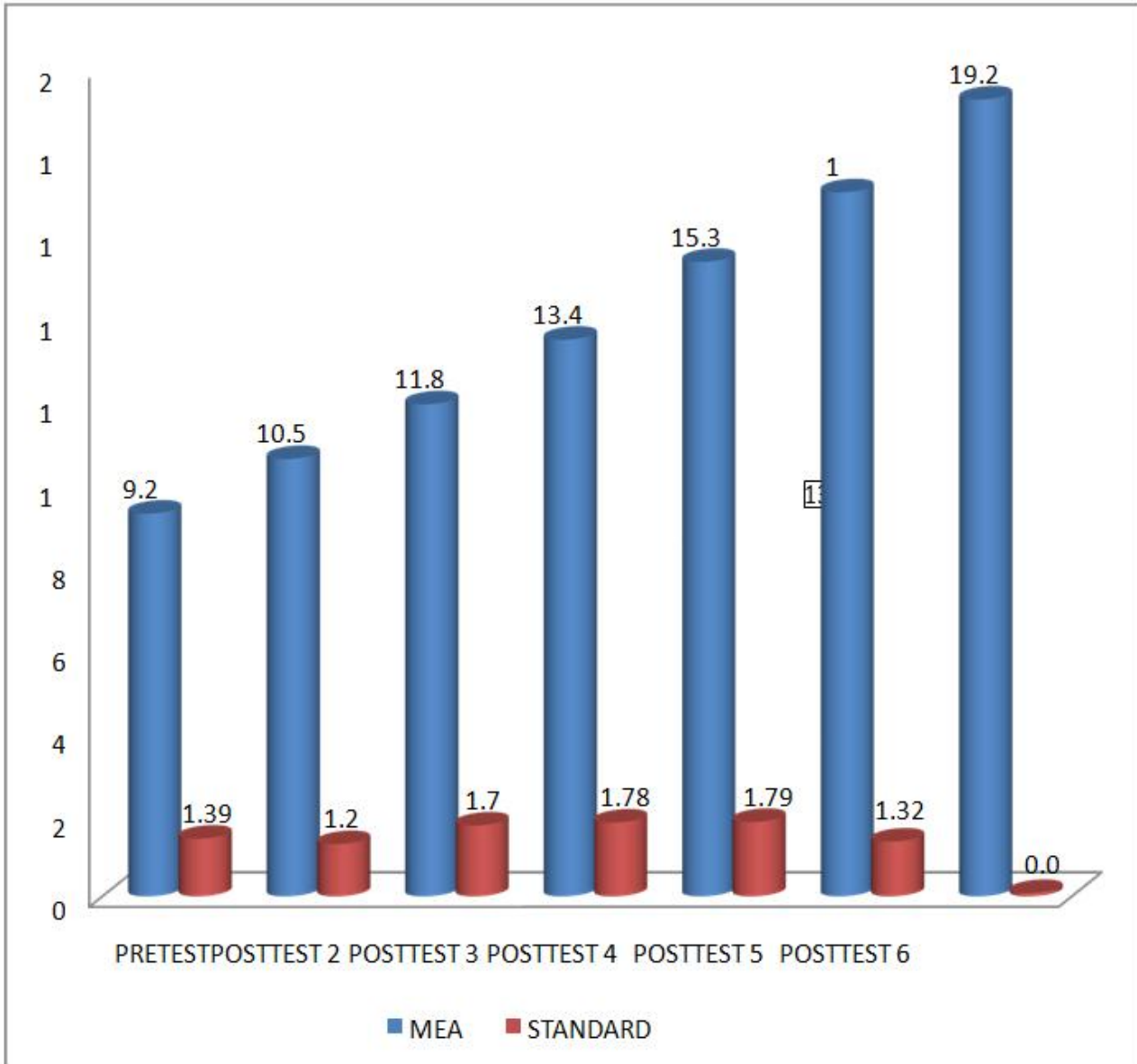


Figure 3 Comparison of mean score and standard deviation of dysphagia among postoperative CABG patients in experimental group

IV. CONCLUSION

Dysphagia is one of the common symptoms occurred among the postoperative CABG patients after extubation. Swallowing exercises were performed to improve the level of dysphagia from second postoperative day to fourth postoperative day. It is a cost-effective method and there was a significant improvement in the level of dysphagia during posttest in comparison to pretest which showed that swallowing exercise was effective in reducing post extubation dysphagia among postoperative CABG patients.

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REFERENCES

- [1]. Aretuzazaupa et al. (2019). Prospective interventional study to assess the effectiveness of therapy on post extubation dysphagia: clinical and electromyographic findings. *Journal of clinical medicine*, 12(1-6). doi: 10.1177/1179550619873364.
- [2]. Martin christensen et al. (2017). Development of a modified swallowing screening tool to manage post-extubation dysphagia. *Journal of critical care nursing*, 23(2), 102-107. doi: 10.1111/nicc12333.
- [3]. Kay choong see et al. (2019). Retrospective cohort study to assess the nurse performed screening for postextubation dysphagia in critically ill medical patient. *Journal of National Library of Medicine*, 98(17). doi: 10.1186/s13054-016-1507-y.
- [4]. Cheryl et al. (2018). Pre and post interventional study to assess the effect of swallowing and oral care intervention for patients following endotracheal extubation. *Journal of critical care nursing*, 9;23(1),350. doi: 10.1186/s13054-019-2623-2 .
- [5]. Joerg, C. Schefold et al. (2017). A prospective observational trial study to assess the dysphagia in mechanically ventilated ICU patients. *Journal of critical care medicine*, 45(12), 2061-2069. doi:10.1097/CCM.0000000000002765. Xiao-Dong Zhou et al. (2019). Prospective cohort study to analyse the risk scores for predicting dysphagia in critically ill patients after cardiac surgery. *Journal of BMC anesthesiology*, 19:7. <http://doi.org/10.1186/s12871-019-0680-3>.
- [6]. Jenifer Barker et al. (2018). Retrospective study to assess the incidence and impact of dysphagia in patients receiving prolonged endotracheal intubation after Cardiac surgery. *Journal of Canadian surgery*, 52(2), 119-124. Retrieved from PMC2663495.
- [7]. Emma Daly. (2015). Retrospective audit to finding the red flags: swallowing difficulties after cardiac surgery in patients with prolonged intubation. *Journal of critical care*, 31(1), 119 - 124. doi: <https://doi.org/10.1016/j.jcrc.2015.10.008>.
- [8]. Joshua, C. Grimm et al. (2016). A novel risk score to predict dysphagia after Cardiac surgery procedures. *Journals of thoracic surgery*, 100 (2), 568-574. doi: <https://doi.org/10.1016/j.athoracsur.2015.03.077>.
- [9]. Charles, W. Hogue et al. (2016). Swallowing dysfunction after cardiac operations. *Journals of cardiovascular and thoracic surgery*, 110(2), 517-22. doi:10.1016/S0022- 5223 (95)70249-0.
- [10]. Victor, A. Ferraris et al. (2019). Oropharyngeal dysphagia after cardiac operations. *Journals of thoracic surgery*, 71(6), 1792-1796 Retrieved from [https://doi.org/10.1016/S0003-4975\(01\)02640-6](https://doi.org/10.1016/S0003-4975(01)02640-6).