DYSPHAGIA & ASPIRATION RISK AMONG STROKE PATIENTS

Sibin.M.B
Research Scholar
Mahatma Gandhi University, Kottayam, Kerala, India.

ABSTRACT: Dysphagia is predominant after stroke and has been associated with an increased risk of pulmonary complications like aspiration pneumonia. Early screening of the dysphagia would be helpful in preventing the complication raised out of dysphagia. The present study aimed at assessing the severity of dysphagia among stroke patients in a selected hospital in Kerala, India. Thirty consecutive stroke patients admitted in medical neurology ward of selected hospital in one month was assessed using Gugging Swallowing Screen (GUSS) for dysphagia and aspiration risk. Only those patients respond to commands and free from treacheostomy and ventilator support was taken. It was found that 24(80%) patients had mild to severe level of dysphagia and severe swallowing difficulty was reported in 4 patients.

INDEX TERMS: Dysphagia, Aspiration Pneumonia, Stroke, GUSS.

I. INTRODUCTION

Stroke is one of the major causes of disability. Dysphagia after stroke is more common and is found in almost 30-60 % of stroke patients. A substantial number of stroke survivors demonstrate dysphagia characteristics well beyond the rehabilitation period. Indeed, for some patients this can be a permanent condition requiring long-term tube feeding. These persisting deficits impact physical and social functioning, quality of life for patients and caregivers, community re-entry opportunities, and health care resource utilization (Mann, Lenius, & Crary., 2007).

1.1. NEED FOR THE STUDY

Stroke is the leading cause of dysphagia, which is the paralysis of throat muscles. This condition can disrupt the swallowing process and make eating, drinking, taking medicine and breathing more difficult. More than 70 percent of stroke survivors experience dysphagia at some point after a stroke. It contributes to the subsequent morbidity and mortality (Wilson & Howe., 2012). Dysphagia leads to dehydration, nutritional deficiency and aspiration of saliva, food or fluid particles. Finally it culminates in poor clinical outcomes and longer hospital duration (Loeb, Becker, Eady& Walker-Dilks., 2003).There is evidence that early detection of dysphagia in patients with acute stroke reduces not only complication, but also reduces hospital stay and overall health care expenditure (Martino, Foley, Bhogal, Diamant, Speechley, & Teasell., 2005). In present clinical setting the screening of dysphagia among stroke patients is not common. The researcher indented to identify the severity of dysphagia and risk of aspiration among stroke survivors.

1.2. STATEMENT OF THE PROBLEM

A study to assess the severity of dysphagia and risk of aspiration among stroke patients.

1.3. OBJECTIVE

To assess the severity of dysphagia and risk of aspiration among stroke patients admitted in selected hospitals.

1.4. HYPOTHESIS

There will be a significant level of dysphagia and aspiration risk among stroke patients.

1.5. OPERATIONAL DEFINITIONS

- Severity of Dysphagia: refers to difficulty in swallowing resulted from stroke as measured by GUSS (Gugging Swallowing Screen).
- Risk of aspiration: risk of food particles to enter the respiratory path, which is assessed using GUSS (Gugging Swallowing Screen).

II. LITERATURE REVIEW

Evidence indicates that detecting and managing dysphagia in acute stroke survivors improves outcomes such as reduced risk of pneumonia, length of hospital stay and overall healthcare expenditures (Teasell, eta l., 2018). Clinical swallowing evaluations were conducted on 212 patients admitted following stroke. The majority of evaluations were conducted within the first 5 days of stroke (81%). The remainder was completed within 11 and 60 days of stroke.134 (63%) patients presented with swallowing difficulties. Of these, 26 (19%) were considered to be mild, 51 (38%), moderate and 57 (43%) severe (Baroni,Fábio,& Dantas.,2012).

A study was conducted to delineate the incidence and outcome of dysphagia among 36 hospitalized patients who were referred for rehabilitation because of brainstem stroke. Information on the patients' clinical features, feeding status, and the results of clinical and video fluoroscopic swallowing examinations were obtained through chart review. A total of 81% of the patients had dysphagia at the time of initial clinical swallowing evaluation, which was performed 10-75 days after the onset of stroke. The incidence of aspiration pneumonia was 11% (Meng, Wang & Lien., 2000). 69 stroke patients without aphasia admitted to stroke rehabilitation for an average of 34 days following acute stroke. Dysphagia was assessed using structured observations of eating difficulties. Eating difficulties were present in 30 (43%) of patients (Trapl., et al,2007).

III. RESEARCH METHODOLOGY

3.1. POPULATION AND SAMPLING

Patients diagnosed as stroke and admitted in medical neurology units of one of the tertiary care hospital in Kerala, India. Total number of 30 samples admitted during one month was taken using consecutive sampling technique.

3.2. CRITERIA FOR SAMPLE SELECTION

Inclusion criteria: Patients diagnosed as stroke and admitted in hospital, those responds to simple commands and those are willing to participate are included.

Exclusion criteria: Stroke patients with prior history of dysphagia before the incidence of stroke, patients on tracheostomy /ventilator support.

3.3. INSTRUMENTS AND TOOLS FOR DATA COLLECTION

Tool consists of two Sections; Section A: Questionnaire regarding demographic data, details of present illness and details of associated risk factors of stroke. Section B: GUSS (Gugging Swallowing Screen) test for assessing dysphagia. GUSS is a validated tool used to assess dysphagia. Permission for using the tool for research study was obtained from GUSS and other parts of tool got validated by the experts. The GUSS consist of 4 subsets and divided into 2 parts: the preliminary assessment or indirect swallowing test (subset 1) and the direct swallowing test, which consist of 3 subsets. In the indirect swallowing test, vigilance, voluntary cough or throat clearing and saliva swallowing (swallowing, drooling & voice change) are assessed. The direct swallowing test assesses the deglutition, involuntary cough, drooling and voice change within the semi-solid swallowing, liquid swallowing and solid swallowing trial. For each subtest a maximum of 5 points. If a score of 5 was obtained in a subset, then continue to next subset. Thus twenty points are the highest score that a patient can attain, and it denotes normal swallowing ability. In total four levels of severity can be determined: 0-9 Points: severe dysphagia, 10-14 Points: moderate dysphagia, 15-19 Points: mild dysphagia; 20 Points: normal swallowing ability. Regarding risk of aspiration, 15-19: low risk of aspiration, 10-14: moderate risk of aspiration and 0-9: a high risk of aspiration.

3.4. DATA COLLECTION

After obtained informed consents from the patient /patient relatives the information regarding demographic details, present illness and associated risk factors was obtained through interview schedule and from the clinical records. Patient dysphagia and aspiration risk was assessed using GUSS during the second day of hospitalization, started with saliva swallowing, followed by swallowing of semisolid, fluid and solid textures.

3.5. ETHICAL CONSIDERATION

Study was done after getting permission from Institutional Review Committee and obtained Informed consent from patient/patient care givers.

IV. MAJOR FINDINGS OF THE STUDY

- Among 30 stroke patients screened for dysphagia about 24(80%) have mild to severe level of dysphagia, among that 4 patients had severe swallowing difficulty.
- 11 patients had low risk of aspiration, 4 patient with high risk and 9 with moderate risk of aspiration. Only 6 patients without dysphagia and with very minimal risk of aspiration.
- Most of the patients (98 %) cleared the saliva swallowing test of GUSS.
- Drooling of saliva or cough during semisolid swallow was found to be common indicator of severe dyphagia.
- Delay in liquid and solid swallow clearly indicates the presence of mild to moderate dysphagia. In liquid test major challenge among stroke patients was to swallow without drooling.

Table 1: frequency and percentage distribution of stroke patients based on demographic, clinical details and associated risk factors of stroke.

Sl. No	Characteristics	N= 30	Percentage (%)
1	**Age**		
	31-40 years	1	3.33
	41-50 years	6	20
	51-60 years	10	33.33
	≥61 years	13	43.33

2	**Sex**		
	Male	19	63.3
	Female	11	36.7
3	**Type of stroke**		
	Ischemic	22	73.3
	Hemorrhagic	8	26.7
4	**Location**		
	Right	10	33.33
	Left	14	46.7
	Bilateral	1	3.33
	Posterior circulatory	5	16.7
5	**Associated risk factors**		
	Diabetes mellitus	20	66.7
	Hypertension	24	80
	Coronary arterial disease	14	46.7
	Smoking	17	56.7
	Alcohol	15	50
	Estrogen oral pills	2	18.2 (N=11)
	Family history of stroke	10	33.33
	Prior incidence of stroke	6	20

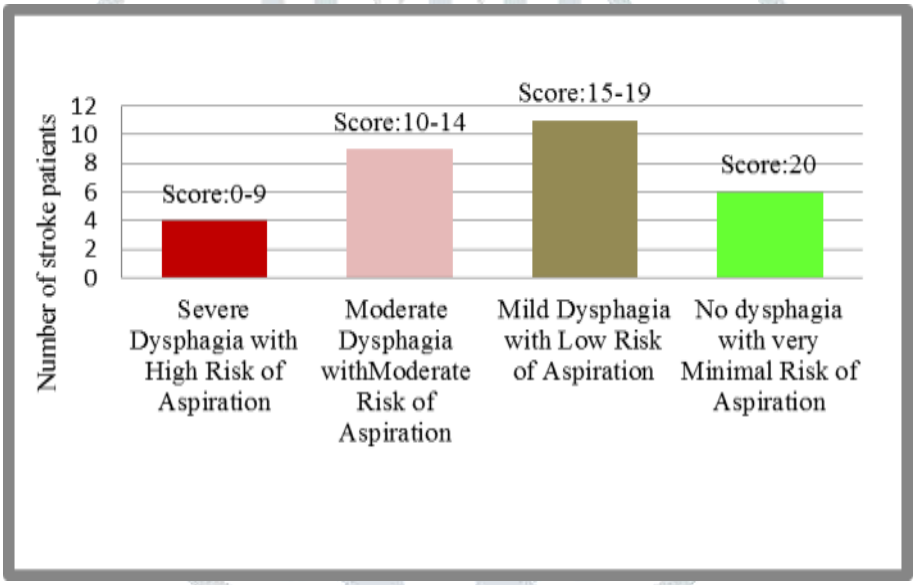

Fig.No.1: Severity of Dysphagia and risk of aspiration.

Table 2: frequency and percentage distribution of stroke patients cleared in each subset of GUSS.

Sl.No	Subset of GUSS	N=30	Percentage (%)
1	Indirect swallowing test(Saliva test)	28	93.3
2	Direct swallowing test (Semi solid test)	26	86.7
3	Direct swallowing test (Liquid test)	16	53.3
4	Direct swallowing test (Solid test)	6	20

V.CONCLUSION

Among stroke patients, dysphagia is common problem, which leads to malnutrition, dehydration and further prolongs hospital stay. Early identification of dysphagia during initial days of stroke and proper dysphagia management measures is needed to prevent the client from aspiration and further hospitalization.

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