Original paper

DOI: http://doi.org/10.4038/sljpsyc.v13i1.8357

Anxiety and depression in patients with post-surgical dysphagia in Sri Lanka

G K S Fernando, W K T R Fernando, M D K De Silva

Abstract

Background

Undiagnosed anxiety and depression are obstacles for the effective treatment of post-surgical dysphagia. The prevalence and associations between post-surgical dysphagia and anxiety and depression are poorly studied areas in Sri Lanka.

Aims

This study aimed to determine the proportion of anxiety and depression among patients with dysphagia following oral, oral maxillofacial (OMF), and neck surgeries, and to identify the associations between the severity and stage of dysphagia, and the occurrence of anxiety and depression.

Methods

A cross-sectional study was conducted among 95 participants with post-operative dysphagia following oral, OMF and neck surgeries, at four tertiary care hospitals. The Hospital Anxiety and Depression Scale, oral-motor and cranial nerve examination, the 3ml water swallow test, cervical auscultation and the Dysphagia Severity Rating Scale were used for data collection.

Results

The majority of the participants (52%) presented with dysphagia in the pharyngeal phase, and 51% presented with severe dysphagia. Among the participants, 52% screened positive for depression and 39% for anxiety, while 37% and 47% showed borderline levels of depression and anxiety respectively. There was a statistically significant association between increasing severity of dysphagia and increasing levels of anxiety.

Conclusions

This study reflects that there is a high psychological burden among patients with dysphagia following oral, OMF, and neck surgeries. This highlights the need for the incorporation of interdisciplinary treatment strategies, as undiagnosed anxiety and depression are likely to impact negatively on the rehabilitation and management of patients with dysphagia.

Key words: anxiety, depression, post-operative dysphagia.

SL J Psychiatry 2022; 13(1): 14-19

Introduction

Dysphagia is a disabling condition of swallowing which occurs due to multiple causes (1-6). It is commonly known to occur following surgical procedures on the head and neck, cardiothoracic, gastrointestinal tract and the anterior cervical spine (7-9). Post-surgical dysphagia can occur as a result of local tissue trauma, endotracheal intubation and perioperative injury to the superior or recurrent laryngeal nerves (10-12).

Symptoms of anxiety and depression are common among individuals with post-surgical dysphagia (13). In a study by Verdonschot et al, among 96 participants who had oral-pharyngeal dysphagia, anxiety or depression was found in 37% and 32.6% respectively, and while both anxiety and depression were seen in 21.3% (13). Having anxiety or depression may negatively affect the outcomes of the treatment of dysphagia (12, 13). Depression is also known to be associated with acute postoperative pain, postoperative delirium, chronic post-surgical pain, incomplete recovery and prolongation of the recovery period (14-16).

The aim of this study was to determine the proportion of anxiety and depression among patients with dysphagia

following oral, oral maxillofacial (OMF), and neck surgeries, and to identify the associations between the severity and stage of dysphagia, and the occurrence of anxiety and depression.

Methods

A descriptive cross-sectional study was conducted at general surgical, ear nose throat (ENT) and oral maxillofacial (OMF) wards at the National Hospital Sri Lanka, Colombo North Teaching Hospital, Ragama, Apeksha Hospital, Maharagama and District General Hospital, Gampaha. All individuals who presented with dysphagia following oral, OMF, or neck surgeries at these hospitals between November 2019-September 2020 were invited to participate in the study. Participants aged 18-80 years, who could understand the written and spoken language, and who scored above 24 on the Mini Mental State Examination (MMSE) were included in the study (17, 18). Individuals who had a history of any diagnosed psychiatric disorder, or who were prescribed anti-depressants or anxiolytic drugs, who had altered levels of consciousness, or a recent history of cerebrovascular accident (within the past 6 months), or who had undergone surgery within the last 7 days were excluded from the study.

The phase of dysphagia was determined based on findings of the oral-motor and cranial nerve examinations, the 3ml water swallow test, and cervical auscultation (19, 20). The adapted Dysphagia Severity Rating Scale (DSRS) by Waxman was used to determine the severity of dysphagia (21, 22). The DSRS is a six-item rating scale in which zero indicates normal swallowing and six indicates severe dysphagia (22). The 14-item, self-administrated Hospital Anxiety and Depression Scale (HADS) was used to screen for anxiety and depression among the participants. The scores of the depression and anxiety subscales of the HADS are interpreted as follows: Normal (0 - 7), borderline (8 -10), and abnormal level or score (11 - 21) (23). The HADS has been validated and previously used in Sri Lanka to assess for anxiety and depression among the Sri Lankan population (24 - 27).

Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Kelaniya. SPSS version 21.0 software was used for the data analysis. The Fisher's Exact Test was used to determine any associations between the phase and severity of dysphagia and the anxiety and depression scores.

Results

Of the 95 participants included in the study, a majority were male (80%) (Table 1). The mean age was 60.6 (±10.58) years. More than half of the participants presented with nasogastric tube feeding (67%). A majority of participants had severe dysphagia (51%), followed by moderately severe dysphagia (28%) (Table 2). A majority presented with dysphagia in the pharyngeal phase (52%).

According to the anxiety subscale of the HADS, 45% and 39% of participants were found to be suffering from borderline and abnormal levels of anxiety, respectively. Based on the depression subscale of the HADS, half (51%) of the participants were found to screen positive for features of depression, while 37% had borderline-levels of symptoms (Table 3). Increasing severity of dysphagia was significantly associated with the presence of either borderline or abnormally high scores for anxiety (p=0.031) (Table 3). There was no apparent pattern or association between the phase of dysphagia and scores of the anxiety subscale of HADS (Table 3). There was also no significant association between the severity of dysphagia and occurrence of depression.

Table 1. Demographic and clinical details of study participants (n=95)

Gender, n(%)	
Male	76 (80)
Female	19 (20)
Age	
Mean (± SD)	60.6 (±10.6)
Range	29 - 85
Body Weight(Kg), mean ± SD	
Pre-operative	67.3 (±8)
Post-operative	56.8 (±8.3)
Type of the surgery, n(%)	
Neck	51 (54)
OMF	20 (21)
Oral	24 (25)
Nutritional intake, n(%)	
NG	64 (67)
NG+PEG	01 (01)
NG+oral-intake	02 (02)
Oral-intake	24 (25)
PEG	04 (04)

PEG - Percutaneous Endoscopic Gastrostomy

NG - Nasogastric Tube

Table 2. Distribution of phase and severity of dysphagia			
Phase of dysphagia	n (%)	Severity of dysphagia	n (%)
Oral	14 (15)	1 - Minimal dysphagia	00 (00)
Oral & Pharyngeal	28 (29)	2 - Mild dysphagia	12 (13)
Pharyngeal	49 (52)	3 - Mild-moderate dysphagia	05 (05)
Oesophageal	04 (04)	4 - Moderate dysphagia	03 (03)
		5 - Moderately severe dysphagia	27 (28)
		6 - Severe dysphagia	48 (51)

Table 3. Association between the phase and severity of dysphagia and severity of anxiety / depression						
Phase of dysphagia	HADS - A n(%)			HADS - D n(%)		
	N	**B**	**A**	**N**	**B**	**A**
Oral	05 (36)	04 (29)	05 (36)	03 (21)	05 (36)	06 (43)
Oral + Pharyngeal	01 (04)	13 (46)	14 (50)	02 (07)	10 (36)	16 (57)
Pharyngeal	09 (18)	24 (49)	16 (33)	04 (08)	20 (41)	25 (51)
Oesophageal	00 (00)	02 (50)	02 (50)	02 (50)	00 (00)	02 (50)
Total	15 (16)	43 (45)	37 (39)	11 (12)	35 (37)	49 (52)
	F= 9.06 (p=0.134)			*F= 7.67 (p=0.223)*		
Severity of dysphagia	**HADS - A n(%)**			**HADS - D n(%)**		
	N	**B**	**A**	**N**	**B**	**A**
2 - Mild dysphagia	03 (25)	01 (08)	08 (67)	04 (33)	02 (17)	06 (50)
3 - Mild – Moderate dysphagia	03 (60)	01 (20)	01 (20)	01 (20)	01 (20)	03 (60)
4 - Moderate dysphagia	00 (00)	02 (67)	01 (33)	00 (00)	01 (33)	02 (67)
5 - Moderately severe dysphagia	03 (11)	15 (56)	09 (33)	02 (07)	12 (44)	13 (48)
6 - Severe dysphagia	06 (13)	24 (50)	18 (38)	04 (08)	19 (40)	25 (52)
Total	15 (16)	43 (45)	37 (39)	11 (12)	35 (37)	49 (52)
	F= 145.78 (p=0.031)			*F= 7.95 (p=0.4)*		

HADS; Hospital Anxiety and Depression Scale, HADS-A: Anxiety Subscale, HADS-D: Depression Subscale, N=Normal, B=Borderline, A=Abnormal (p< 0.05).
Scoring Ranges; Normal (0-7), Borderline (8-10), Abnormal (11-21)

Discussion

Post-operative dysphagia can be managed by pharmacological, behavioural, psychological, and rehabilitation methods (28, 29). The psychological health of the patient is an important factor that affects treatment outcomes, and it is very important to investigate for symptoms of anxiety and depression in this population (30, 31). In this study, a majority of participants with post-surgical dysphagia were found to have either borderline or abnormally high levels of anxiety and/ or depression, according to the HADS. A study done in the Netherlands among a group of participants with oncological diseases of the head and neck, or

neurological or miscellaneous aetiologies, found that clinical symptoms of anxiety and depression were present among 37% and 33% of the participants respectively, and depression was significantly associated with the perception of disabled dietary intake and poor quality of life (13). In this study, we found a significant association between the severity of dysphagia and the presence of borderline or abnormal levels of anxiety, in keeping with previous findings (13, 32). However we did not find any statistical significance between the severity of dysphagia and depression.

Strengths and limitations

A strength of our study is that questionnaires used for screening of depression and anxiety have been validated for use in the Sri Lankan context (24). Given the cross-sectional nature of our study, we were not able to establish a causative relationship between dysphagia and anxiety. Many other factors, such as fears about the underlying disorder, the long hospital stay, family or financial stressors, may also have contributed towards the anxiety in our study population. Furthermore, anxiety itself may worsen the feeling of dysphagia (33).

Conclusions

Our findings indicate the importance of exploring for symptoms of anxiety and depression in patients with dysphagia, and of conducting psychiatric assessments to diagnose and treat anxiety and/or depressive disorders. A considerable number of participants diagnosed with post-operative dysphagia in our study were experiencing symptoms of anxiety or depression. The severity of the dysphagia was significantly associated with the degree of anxiety experienced. Untreated anxiety and depression is likely to be an obstacle in the management of dysphagia in these patients.

At present, assessment for psychiatric symptoms is not routinely incorporated in the evaluation of patients with dysphagia following OMF, neck, and oral surgeries, and this should be considered in future. It is also important to educate the patient and the family members regarding the risk of developing dysphagia and associated psychological stressors, during the preoperative consultation.

Future studies should be conducted in different locations in Sri Lanka, to explore other factors that could be associated with psychological morbidity, such as socioeconomic and educational status of the participants, post-operative pain or discomfort, and details of the hospital stay. More research is also needed for development of specific evaluation procedures, and establishment of multidisciplinary care plans for management of dysphagia, including consideration of both psychological and physical aspects of healthcare.

Acknowledgements

The authors gratefully acknowledge the help of the study participants, hospital directors and consultant specialists who granted permission or supported data collection in the relevant hospitals. The authors also thank Dr. Asiri Rodrigo, Prof. A Pathmeswaran, Mr. Udara Sovis, Mr. Nimantha Bandara, Mr. S Chandraserkara, Mr. S D Karunarathne, Mr. R Kularathane, Ms. C Sewwandi, Mr. H Amunugama and all others who supported this study.

Statement of contribution

All authors contributed to the development of project. The first author conducted data collection, analysis and drafting of the manuscript. Both the second and third authors reviewed, commented on drafts and supervised the study. All authors have reviewed and approved the final version of the article.

Conflicts of interest

None declared.

G K S Fernando, Faculty of Medicine, University of Kelaniya, Sri Lanka

W K T R Fernando, Department of Psychiatry, Faculty of Medicine, University of Kelaniya, Sri Lanka

M D K De Silva, Department of Disability Studies, Faculty of Medicine, University of Kelaniya, Sri Lanka

Corresponding author: G K S Fernando

Email: 1130kethakifernando@gmail.com

http://orcid.org/0000-0001-9687-6813

References

1. Logemann JA. Role of the modified barium swallow in management of patients with dysphagia. Otolaryngol Head Neck Surg 1997; 116(3): 335-8.
2. Cichero J, Murdoch B. Foundation, Theory and Practice. John Wiley & Sons, Ltd.; 2006. 26 p.
3. Garden AS, Lewin JS, Chambers MS. How to reduce radiation-related toxicity in patients with cancer of the head and neck. Curr Oncol Rep 2006; 8(2): 140-5.
4. Landera MA, Lundy DS, Sullivan PA. Dysphagia after total laryngectomy. Perspectives on Swallowing and Swallowing Disorders (Dysphagia). 2010; 19(2): 39-44.

5. Pauloski BR. Rehabilitation of Dysphagia Following Head and Neck Cancer. Phys Med Rehabil Clin N Am [Internet]. 2008; 19(4): 889 928.http://dx.doi.org/10.1016/j.pmr.2008.05.010

6. Gilbody JS. Review Article Errors of deglutition – real and imagined; or, don't forget the psyche. J Laryngol Otol 1991; 105: 807-11.

7. Gundry SR, Borkon AM, McIntosh CL, Morrow AG. Candida esophagitis following cardiac operation and short-term antibiotic prophylaxis. J Thorac Cardiovasc Surg [Internet] 1980; 80(5): 661-8. http://dx.doi.org/10.1016/S0022-5223(19)37710-4

8. Leslie P, Carding PN, Wilson JA. Investigation and management of chronic dysphagia. Br Med J 2003; 326(7386): 433-6.

9. Martin RE, Neary MA, Diamant NE. Dysphagia following anterior cervical spine surgery. Dysphagia 1997; 12(1): 2-8.

10. Andersson B, Andersson R, Brandt J, Höglund P, Algotsson L, Nilsson J. Gastrointestinal complications after cardiac surgery – improved risk stratification using a new scoring model. Interact Cardiovasc Thorac Surg 2010; 10(3): 366-70.

11. Penner JL. Psychosocial Care of Patients with Head and Neck Cancer. Semin Oncol Nurs [Internet] 2009; 25(3): 231-41. http://dx.doi.org/10.1016/j.soncn.2009.05.008

12. Shan HZ, Liang CW, Quan HZ, Hui YZ. Dysphagia in Tongue Cancer Patients Before and After Surgery. J Oral Maxillofac Surg [Internet] 2016; 74(10): 2067-72. Available from: http://dx.doi.org/10.1016/j.joms.2016.03.031

13. Verdonschot RJCG, Baijens LWJ, Serroyen JL, Leue C, Kremer B. Symptoms of anxiety and depression assessed with the Hospital Anxiety and Depression Scale in patients with oropharyngeal dysphagia. J Psychosom Res [Internet] 2013; 75(5): 451-5. Available from: http://dx.doi.org/10.1016/j.jpsychores.2013.08.021

14. Verdonschot RJCG, Baijens LWJ, Vanbelle S, Kolk I van de, Kremer B, Leue C. Affective symptoms in patients with oropharyngeal dysphagia: A systematic review. J Psychosom Res 2017; 97(March): 102-10.

15. Sadock BJ, Sadock VA, Ruiz P. Synopsis of Psychiatry Behavioral Sciences/Clinical Psychiatry. 11th ed. Wolters Kluwer at Two Commerce Square, 2001 Market Street, Philadelphia, PA; 2005.

16. Ghoneim MM, Hara MWO. Depression and post-operative complications: An overview. BMC Surg [Internet]. 2016; 1-10. http://dx.doi.org/10.1186/s12893-016-0120-y

17. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state" A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975; 12: 189-98.

18. De Silva HA, Gunatilake SB. Mini Mental State Examination in Sinhalese: A sensitive test to screen for dementia in Sri Lanka. Int J Geriatr Psychiatry 2002; 17(2): 134-9.

19. Castell DO, Donner MW. Evaluation of dysphagia: A careful history is crucial. Dysphagia 1987; 2(2): 65-71.

20. Molokwu AJ. Assessment of dysphagia in people with Parkinson's disease, multiple sclerosis and muscular dystrophy. J Behav Dev 2015; 36(15): 367-73.

21. Vertigan AE, Gibson PG. Urge to cough and its application to the behavioural treatment of cough. Bratislava Med J 2011; 112(3): 102-8.

22. Waxman MJ, Durfee D, Moore M, Morantz RA, Koller W. Nutritional Aspects and Swallowing Function of Patients With Parkinson's Disease. Nutrition Clinical Pract 1990; 5(5): 196-9.

23. Zigmond A, Snalth R. The Hospital Anxiety and Depression Scale. Acta Psychiatric Scand [revista en Internet] 2014 [acceso 28 de noviembre de 2019]; 64(5): 361-370. 1983; (6): 361-70.

24. Suraweera C, Hanwella R, Sivayokan S, De Silva V. Rating Scales validated for Sri Lankan populations. Sri Lanka J Psychiatry 2013; 4(2): 16.

25. Galhenage JS, Rupasinghe JP, Abeywardena GS, De Silva AP, Williams SS, Gunasena B. Psychological morbidity and illness perception among patients receiving treatment for tuberculosis in a tertiary care centre in Sri Lanka. Ceylon Med J 2016 Mar 21; 61(1).

26. Galhenage JS, Rupasinghe JP, Weerasinghe WB, Abeywardena GS, Williams SS, Gunasena B. Anxiety and depression among patients at a tertiary care respiratory clinic in Sri Lanka. Sri Lanka J Psych. 2018 Jun 28; 9(1): 9-14.

27. De Silva D. Anxiety disorders in Sri Lanka. (unpublished dissertation). Colombo: Postgraduate Institute of Medicine, University of Colombo; 2003.

28. Pais-Ribeiro JL, da Silva AM, Vilhena E, Moreira I, Santos E, Mendonca D. The hospital anxiety and depression scale, in patients with multiple sclerosis. Neuropsychiatric Dis Treat 2018; 14: 3193-7.

29. Langton SG, Bradley PF. The management of dysphagia after surgery for oral malignancy. Br J Oral Maxillofacial Surg 1992; 30(1): 8-13.

30. Terlingen LT, Pilz W, Kuijer M, Kremer B, Baijens LW. Diagnosis and treatment of oropharyngeal dysphagia after total laryngectomy with or without pharyngoesophageal reconstruction: Systematic review. Head Neck 2018; 40(12): 2733-48.

31. Holland G, Jayasekeran V, Pendleton N, Horan M, Jones M, Hamdy S. Prevalence and symptom profiling of oropharyngeal dysphagia in a community dwelling of an elderly population: a self-reporting questionnaire survey. Dis Esophagus 2011; 476-80.

32. Zhang L, Huang Z, Wu H, Chen W, Huang Z. Effect of swallowing training on dysphagia and depression in postoperative tongue cancer patients. Eur J Oncol Nurs 2014; 18(6): 626-9.

33. Verdonschot RJ, Baijens LW, Vanbelle S, Florie M, Dijkman R, Leeters IP, Kremer B, Leue C. Medically unexplained oropharyngeal dysphagia at the University Hospital ENT outpatient clinic for dysphagia: A cross-sectional cohort study. Dysphagia 2019; 34(1): 43-51.

35. Galea S, Ahern J, Nandi A, Tracy M, Beard J, Vlahov D. Urban Neighborhood Poverty and the Incidence of Depression in a Population-Based Cohort Study. Ann Epidemiol 2007; 17(3): 171-9.