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Original article

Dysphagia awareness among dietitians

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Summary. *Objective:* This study was conducted to determine dieticians' awareness of dysphagia, as they have an important role in the screening and diagnosis of dysphagia. In terms of being the first study about dysphagia awareness of dietitians in Turkey, the study is of great importance. *Methods:* The study was conducted between November-December 2013 including 85 dietitians who volunteered to participate in the research from University Hospitals and Education and Research Hospitals in Ankara, Turkey. Through a face-to-face interview or email to dietitians participating in the study, they completed a questionnaire that included questions about their working time, dysphagia symptoms, diagnostic methods, and dietary practices. *Findings:* Of dietitians, 35.3% said that they frequently encounter patients with dysphagia and 7.1% of them didn't. The awareness scores of dieticians in terms of recognition of dysphagia symptoms vary from 0 to 12, with an average of 5.2+2.7 and a median score of 5. The most common aware of dysphagia symptoms were coughing and suffocation (77.6%) during meals. There was no significant difference between the awareness scores and the study period and the units they worked in ($p>0.05$). 82.4% of the dieticians didn't receive any training about dysphagia after undergraduate and postgraduate education. *Conclusion:* This study shows that dieticians do not have enough knowledge about dysphagia symptoms. Dietitians training in this area may provide an important contribution to reducing the negative consequences of dysphagia.

Key words: deglutition, deglutition disorder, dysphagia, dietitian, awareness

Introduction

Swallowing is a sensorimotor behavior beginning in the central cortex of the central nervous system and created by participation of many levels of structures including the bulbusa, ensuring food passes from within the mouth to the stomach. To complete a normal, safe, aspiration-free swallowing action, there needs to be integrated coordination of many neuromuscular structures, functional anatomy and physiology in the head and neck (1). The first swallowing actions begin in the 12-16th week of pregnancy by swallowing amniotic fluid and reaches adult levels at 6 years of age. However, babies born before 32 weeks may have difficulty sucking-swallowing (2). Dysphagia (difficulty swallowing) is a symptom of mechanical obstruction of the transfer of food from the mouth to the stomach, reduction in the power of muscles ensuring the swallowing motion or disrupted coordination (1).

The incidence of dysphagia increases with age, and affects 40-60% of the geriatric population (3). Dysphagia is observed in nearly 12% of patients admitted to hospital, and in 30-60% of patients requiring home care, with the incidence of dysphagia linked to neurological diseases comprising 75-80% of all swallowing disorders (1). High risk patient groups for dysphagia include diseases like stroke, head-neck cancers, cerebral palsy, Parkinsons, multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS) and dementia (1,4).

As a result of dysphagia, insufficient nutrition and malnutrition, lengthened hospital stays, dehydration, acute and chronic aspiration pneumonia due to food and drink entering the airway, permanent lung damage and death may occur (5). Development of malnutri-

tion due to dysphagia negatively affects the rehabilitation duration and functional amelioration speed. Malnutrition causes complications like reduced immunity, pneumonia and compression wounds, and increases mortality. Additionally, dysphagia increases mean hospital stay by 1.64 days, this delay is 4.6 days if accompanied by dehydration and thus, increases hospital costs. Mortality rates are increased 13.7% compared to patients without dysphagia (6, 7).

In oral or pharyngeal dysphagia, the following symptoms are at the forefront; coughing and feeling of suffocation while swallowing, difficulty initiating swallow, feeling food stuck to the throat, sialorrhea, unexplained weight loss, changes in eating habits, recurrent pneumonia, changes in voice and talking (wet voice) and more common nasal regurgitation. During esophageal dysphagia, there may be feeling of food stuck to the chest or throat, oral or pharyngeal regurgitation, changes in nutritional habits and recurrent pneumonia (8, 9).

A multidisciplinary approach is important to increase the success of dysphagia rehabilitation. Important workers include ENT experts, physiotherapist, gastrologist, speech and language therapists, dietitians, radiologists, pediatrists, psychologists/psychiatrists, gerontology and neurology teams (4, 9). Dietitians are a part of early diagnosis and treatment due to awareness of dysphagic patients, and a correct nutritional plan is important for rehabilitation. As a result, dietitians should be knowledgeable and educated about dysphagia and risk factors (10).

As dietitians monitor the nutritional status of patients admitted to hospital, this study inquired about awareness of dysphagia among hospital dietitians and aimed to research the potential for early identification of dysphagia among inpatients.

It is a primary goal in trying to find the answer of the question whether the dieticians are aware of the dysphagia of the patient rather than the approach to the dysphagia.

Material and Method

Research type, location and timing

This research was a descriptive study with the aim of assessing dietitians' awareness of dysphagia and dysphagia symptoms. The research included 85 dietitians working at University Hospitals and Education and Research Hospitals in Ankara province from total 126 dietitians, who volunteered to participate in the study from November 2013 to December 2013.

A table which included to 12 items that may caused of dysphagia or caused of symptoms by dysphagia was presented to dietitians in the study. It was asked participants to whichone of items make dieticians think of exist to dysphagia among patients. The total "yes" answers were determined as an awareness score (between 0-12 points) (Table 1)

In addition, the relationship with the awareness levels between the graduated university, the lessons they received, the working times and the units they work in were evaluated.

Data collection

Using the face-to-face interview technique or e-mail, dietitians completed a survey including questions related to length of employment, dysphagia symptoms, diagnostic methods and dietary applications.

Statistical analysis of data

When assessing results obtained in the study, IBM SPSS 22 (IBM SPSS, Turkey) was used for statistical analyses. When evaluating study data, normal distribution of parameters was assessed with the Kolmogorov-Smirnov test and it was identified that parameters

Table 1. Whichone of items make dietitians think of exist to dysphagia among patients on the table?

	Yes	**No**
Weight loss		
Not fully finishing meals		
Weak control of saliva by patient		
Coughing, feeling suffocated while eating		
Coughing, feeling suffocated after eating		
Presence of tracheostomy		
Patient's choice of food consistency		
Lengthened duration of eating		
Presence of wet, hoarse, breathy voice while talking		
Disrupted posture of patient		

did not have normal distribution. Descriptive statistical methods (mean, standard deviation, frequency), in addition to the Kruskal Wallis test for comparison between the groups for parameters with quantitative data, were used when assessing study data. Spearman's rho correlation analysis was used to investigate the relationships between parameters. Significance was assessed at $p<0.05$.

Limitations of the Research

The research was only completed in University and Education and Research Hospitals located in Ankara.

Results

When unit of employment was examined, 45.9% of dietitians worked in the internal medicine ward, 17.6% in surgical wards, 15.3% on rotation, 9.4% on the nutrition team, 7.1% in food services and 4.7% in clinics. The working durations in their organization varied from 6 months to 26 years, with mean of 4.99±5.81 and median duration of 3 years. Of dietitians, 57.6% stated they sometimes encountered patients with swallowing complaints, with 35.3% encountering them frequently, with 7.1% stated they had never encountered these patients.

While 38.8% of dietitians felt they had sufficient knowledge about dysphagia, 14.1% felt they were very knowledgeable, with 47.1% feeling insufficient. In terms of training/course/symposiums related to dysphagia, 17.6% had participated during undergraduate education, while 17.6% participated after undergraduate education. Of dietitians, 77.6% stated they referred patients with dysphagia symptoms to other experts for assessment.

When dietitians were questioned about symptoms leading to consideration of dysphagia, 63.5% said weight loss, 45.9% said not fully finishing meals, 43.5% said weak control of saliva in patients, 77.6% said coughing or feeling of suffocation during eating, 25.9% said coughing or feeling of suffocation after eating, 40% said tracheostomy, 71.8% said patients choice of consistency in food, 54.1% said longer eating times, 27.1% said wet, hoarse or breathy voice when talking, 14.1% said bad posture of the patient, 22.4% said orientation/cooperation disorder, and 34.1% said recurrent pneumonia/respiratory tract infections (Table 2).

Awareness scores given to dietitians according to knowing dysphagia symptoms varied from 0 to 12, with mean of 5.2+2.7 and median of 5 (Table 3). It means dietitians recognize that average 5 of the 12 symptoms as dysphagia.

There was no statistically significant difference found between awareness scores and graduated university, working duration or clinic of hospital ($p>0.05$).

Dieticians who have enough information about dysphagia (sufficient and very sufficient) score of awareness 5.91±3.13 and 4.58±2.23, respectively (Table 4).

When dietitians were asked about approaches to dysphagia patients, 95.3% stated changes in consistency were made, and 54.1% stated they kept nutritional consumption records to enable assessment of the patient's nutritional status. Of dietitians, 60% recommended oral enteral nutritional products for patients with dysphagia, 29.4% recommended nutrition through a nasogastric tube, 14.1% recommended nutrition with gastrostomy and 11.8% recommended parenteral nutrition.

Table 2. Distribution of dietitians according to their recognition of dysphagia symptoms

	N	%
Weight loss	54	63.5
Not fully finishing meals	39	45.9
Weak control of saliva by patient	37	43.5
Coughing, feeling suffocated while eating	66	77.6
Coughing, feeling suffocated after eating	22	25.9
Presence of tracheostomy	34	40.0
Patient's choice of food consistency	61	71.8
Lengthened duration of eating	46	54.1
Presence of wet, hoarse, breathy voice while talking	23	27.1
Disrupted posture of patient	12	14.1
Disruption of orientation/cooperation	19	22.4
Recurring pneumonia/respiratory tract infections	29	34.1
Other	2	2.4

Table 3. The minimum, maximum, mean, standard deviation, and median values of the awareness score

	N	Minimum	Maximum	Mean±SD	Medyan
Awareness score	85	0,00	12,00	5,2±2,7	5

Table 4. Assessment of awareness score according to levels of feeling informed about dysphagia

Level of feeling informed about dysphagia	Awareness Score	
	Mean±SD	Median
Sufficient	5.91±3.13	6
Very	4.58±2.23	4
Insufficient	4.80±2.35	4
P	0.215	
Kruskal Wallis Test		

Table 5. Distributions of consistency often applied in consistency change practise

	N	%
None	1	1,2
Clear liquid	15	17,6
Fluid liquid	20	23,5
Honey consistency	30	35,3
Soft, smooth (yoghurt, custard ..)	82	96,5
Soft, bite sized	56	65,9

Of dietitians stating they would make consistency changes, 96.5% chose smooth/soft, 65.9% said shredded solids, 35.3% said consistency of honey, 23.5% said fluids and 17.6% said clear liquids. Additionally, 77.6% of dietitians encountering dysphagia referred the patient to another expert for assessment (Table 5).

When knowledge of diagnostic and treatment methods for dysphagia was questioned among dietitians, 62.4% said bedside assessment, 28.2% said MBSS and 21.2% said they knew no methods.

Of dietitians, 98.8% stated they thought dietitians should have an active role in dysphagia rehabilitation; however, of these 76.5% wished to be included in a training process related to dysphagia or were interested in dysphagia rehabilitation.

Discussion

Dysphagia is not rare among hospital patients and is a cause of significant morbidity and morbidity. The main diseases where dysphagia is observed include neurological diseases like stroke, Parkinsons, muscular dystrophy, amyotrophic lateral sclerosis, and multiple sclerosis and it is commonly observed in patients undergoing heart-lung surgery, with head-neck region radiotherapy, with head-neck surgery or with tracheostomy (8, 11). Untreated or neglected dysphagia may cause disrupted quality of life, dehydration, weight loss, aspiration pneumonia and even result in death of the individual (12). Additionally, it negatively affects the general improvement after disease, and increases hospital stays and long-term care requirements (13). However, even with very significant clinical results dysphagia is not sufficiently noticed by health professionals. Additionally, due to an absence of screening protocols and expert personnel related to the topic, dysphagia diagnosis and treatment is delayed which increases hospital malnutrition (14). In Turkey, while the NRS-2002 screening for malnutrition, EAT-10 applications for dysphagia screening test are not yet routine practice.

The role of dietitians in dysphagia diagnosis and treatment encompasses a broad range from traditional nutritional management, to consistency changes within the framework of dynamic nutrition, dysphagia assessment and organization. A patient-centered approach does not only maintain integrity of nutrition and hydration but at the same time is very important to increase the quality of life of the individual (15). In monitoring dysphagic patients, the dietitian tracks the patient's nutritional intake for 3 or 7 days, and calculates levels of consistency selection of foods and energy nutritional element requirements (16). Of dietitians participating in our research, 54.1% reported they would make a nutritional consumption record.

Nutritional consumption records identify whether the patient is receiving sufficient energy and nutritional elements. Thus, necessary interventions are provided in timely manner reducing the risk of malnutrition (17).

There are many methods used to assess dysphagic patients. The most practical and rapidly applied among these is bedside evaluation (18). The presence of symptoms like patient posture, integrity of anatomic structures, weight loss, eating duration, coughing or feeling suffocated during/after eating, wet voice, and fever may lead to consideration of dysphagia and aspiration (19). In this study, 21.2% of dietitians reported they have never heard of bedside assessment. This situation may be due to differences in the employment durations and units of dietitians.

In our research, the majority of dietitians assessed coughing and feeling suffocated during eating (77.6%), weight loss (63.5%) and lengthened eating duration (54.1%) as dysphagia symptoms. Fewer dietitians associated dysphagia with disrupted posture (14.1%), disrupted orientation (22.4%), coughing after eating (25.9%) and wet, hoarse voice (27.4%) (Table 2). Dietitians were given awareness points from 0 to 12 in terms of knowing dysphagia symptoms and mean points were 5.2±2.7. The fact that dieticians know average 5 of the 12 dysphagia symptoms means that patients with other symptoms cannot be considered dysphagic. This is an important problem in terms of causing malnutrition of these patients and delay in recovery processes.

Additionally, the mean awareness points of those dietitians reporting they felt they had sufficient and very sufficient knowledge about dysphagia were 5.91±3.13 and 4.58±2.23, respectively (Table 4). Unfortunately, dietitians, who thought that they had enough knowledge, did not recognize much of the dysphagia symptoms. This situation may be due to the insufficient number of dietitians working in hospitals not allowing sufficient time to assess patients. Because, in hospitals, even a dietitian per 100 beds is not allowed. Of dietitians participating in the study, 82.2% had not received any training on this topic in undergraduate or after undergraduate education. With no speech and language therapists or insufficient dietitians in hospitals, providing basic training about this topic may increase the efficacy of dysphagia rehabilitation.

One study about dysphagia risk screening for stroke patients separately investigated bedside evaluation and diet recommendations by dietitians and speech-language therapists and dietitians identified 40% risk for patients, while speech-language therapists identified 31.5% risk. They concluded that the two study areas had perfect compliance in terms of dysphagia risk and oral/nonoral nutritional recommendations, fluid intake and diet consistency recommendations (20). Diets with changed consistency form the basis of dysphagia management. Modifications may increase quality of life, improve well-being, reduce the risk of malnutrition and dehydration, reduce the risk of aspiration pneumonia and ensure continued oral feeding (21-23). The aspiration risk of fluids and clear liquids are high; however, they may be chosen in patients with bolus conduction problems (22). As a result, it is necessary to choose the consistency according to dysphagia type and level. Of dietitians participating in the research, 95.3% reported they first made consistency changes for dysphagic patients. When making these changes, the most commonly chosen were smooth, pureed food (96.5%) and shredded, blended food (55.9%) (Table 5). Consistency of honey, fluids and clear liquids were chosen less often. A study by Steele et al. showed that nectar-like liquids were primarily recommended for patients with oral insufficiency and laryngeal penetration (24). The fact that all dysphagia symptoms are not recognized by dietitians, will cause not recognise the patients who need to change their consistency. It will also cause mistake in selecting the correct consistency.

Teamwork is important for diagnosis and treatment of dysphagia. It is recommended that dietitians and swallow therapists work together, consistency standards be developed and common and sufficient time be allotted to patient observation (10,5). A study in Spain assessed the food consistency and risk analyses recommended for patients by 30 dietitians and 30 speech and language therapists working in 14 separate hospitals and determined that some differences may lead to significant results in terms of missing aspiration pneumonia, especially, and emphasized that working together would contribute to patient healing (25). In a similar study. Dietitians first assessed patients in the neurology ward in terms of dysphagia over 2 months

and dietitians observed mealtimes and prepared a scale related to dysphagia symptoms. After diet recommendations and regulation was performed, speech-language therapists blind to the study assessed the patients. Of 35 patients with dysphagia identified, 4 were recommended to cease oral nutrition by both dietitians and speech-language therapists. Neither group recommended thin fluids like water or milk, etc. for any patient. It was concluded that dietitians and therapists played a reliable and primary role in oral-nonoral nutrition decisions due to the compatibility between decisions by dietitians and therapists (10).

Conclusion

While the research has been done only 4 university were giving the nutrition and dietetic education in Turkey and the profession of dieticians is obtained by a 4 year undergraduate education. There is no additional qualification exam after graduation. During their training, dietitians receive education about malnutrition and participate in activities aiming to reduce malnutrition. However, one of the significant causes of hospital and geriatric malnutrition, especially, of dysphagia is not sufficiently or carefully screened. Dysphagia rehabilitation, requiring coordinated work by multiple units, is a very specific application area. Dietitians may undertake a key role in these teams with a significant and effective duty in the diagnosis and treatment of dysphagia. Thus, in addition to increasing the quality of life of the patients, it will be possible to reduce the formation of additional diseases, shorten healing times and reduce malnutrition.

This research also carries the character of being a stimulant for dietitians in the hospitals where the data are collected. They will also notice the importance of their role in dysphagia rehabilitation.

References

1. Özdemir A, Çekin AH. Disfajiye Genel Yaklaşım. Güncel Gastroenteroloji 2011; 15(4): 227-234.
2. Logeman J. Evaluation and treatment of swallowing disorders. Austin, TX. Pro-ed Publisher 1999; ss: 24-26, 139-156.
3. Cassel SG. Case Reports: Trial Dysphagia Interventions Conducted via Telehealth. Int J Telerehabil 2016; 5: 8(2): 71-76.
4. Çiyiltepe M. Yutma Bozuklukları Tanı ve Rehabilitasyonu. Ankara, Türkiye: GATA Basımevi. 2005.
5. Heis CJ, Goldberg L, Dzarnoski M. Registered Dietitians and Speech-Language Pathologists: An Important Partnership in Dysphagia Management. Journal of the American Dietetic Association 2010; s: 1290-1293.
6. Leonard R. Integrated Management of Dysphagia and Malnutrition. Satellite Symposium Proceedings. 7th EUGMS Congress. Málaga, Spain. 2011.
7. Umay EK, Gürçay E, Ünlü E, Ekşioğlu E, Çakcı A. Erken Dönem İnmeli Hastalarda Disfajinin Fonksiyonel ve Nütrisyonel Etkisi. J Med Sci 2010; 30(3): 925-931.
8. Aksoy EA, Öz F. Yutma Bozukluklarında Tanı. Acıbadem Üniversitesi Sağlık Bilimleri Dergisi 2012; 3(1): 1-6.
9. Wieseke A, Bantz D, Siktberg L, Dillard N. Assessment and Early Diagnosis of Dysphagia. Geriatr Nurs 2008; 29: 376-383.
10. Broady R, Decker RT, Vonhagen S, Maillet JO. Journal of the American Dietetic Assosiation 2000; 100 (10): 1029-1037.
11. Wirth R, Dziewas R. Neurogenic dysphagia. Internist (Berl) 2017; 58(2): 132-140 doi: 10.1007/s00108-016-0178-8.
12. Harvey S, Gordon L. Recognısıng Dysphagıa Rısk And Compromısed Nutrıtıon In Patıents Wıth Advanced Chronıc Obstructıve Pulmonary Dısease (Copd): Explorıng The Role Of Speech And Language Therapy And Dıetetıcs. BMJ Support Palliat Care 2013; 3: A7.
13. Shelat VG, Garvi JP. Seminars in Dysphagia "Nutritional Support in Dysphagia." http://dx.doi.org/10.5772/61243. 2015; s:121-136.
14. Tuncay F, Taşbaş Ö, Borman P, Geçene M, Coşkun Ö. The Bedside Clinical Evaluation of Swallowing Function of Stroke Patients in Acute Stage. J PMR Sci 2011; 14: 33-8.
15. Macleod M, O'shea S. The Dietitian's Role in Diagnosis and Treatment of Dysphagia. Medical Radiology. Springer, Berlin, Heidelberg. 2017. https://doi.org/10.1007/174_2017_124.
16. Cichero J. Science Supporting Better Nutrition. Clinical Nutrition Highlight 2012; 8(3): 1-8.
17. Kraaijenga SAC, Y, Stuiver MM, P, Al-Mamgani A, Brekel MWMVD, Hilgers FJM Efficacy Of A Novel Swallowing Exercise Program For Chronic Dysphagia In Long-Term Head And Neck Cancer Survivors. Head Neck 2. 2017. Doi: 10.1002/Hed.24710.
18. Trapl M, Enderle P, Nowotny M, Teuschl Y, Matz K, Dachenhausen A, Brainin M. Dysphagia Bedside Screening for Acute-Stroke Patients The Gugging Swallowing Screen. Stroke 2007; 38(11): 2948-52.
19. Selçuk B. Dysphagia in Stroke. Turk J Phys Med Rehab 2006; 52(Suppl B): 38-44.
20. Castellanos VH, Butler E, Glucgh L, Burke B. Use of Thickened Liquids in Skilled Nursing Facilities. Journal of the American Dietetic Association 2004; 104(8): 1222-1226.

21. Macleod M. Dietary Treatment in Dysphagia, 33rd Congress of Clinical Nutrition & Metabolism, ESPEN. 2011.
22. Garcia JM, Chambers E, Matta Z, Clark M Serving Temperature Viscosity Measurements of Nectar- and Honey-Thick Liquids. Dysphagia 2008; 23(1): 65-75.
23. Leonard R, Kendall K. Dysphagia Assesment and Treatment Planning. San Diego, California. Singular Publishing Group 2008; ss: 139-156.
24. Steele C, Van Lieshout PH, Goff HD. The rheology of liquids: a comparison of clinicians' subjective impressions and objective measurements. Dysphagia 2003; 18(3): 182-195.
25. Amaral ACF, Rodrigues LA, Furlan RMMM, Vicente LCC, Motta A. Speech-Language and Nutritional Sciences in hospital environment: analysis of terminology of food consistencies classification. CoDAS 2015; 27(6): 541-9.

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