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Implementing Dysphagia Screening and Assessment in an Intermediate and Long-Stay Hospital: A Hospital-Based Quality Improvement Project

Research Article

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Abstract

Dysphagia can occur due to a wide range of medical conditions including acute or progressive neurological disorders, trauma or surgery, with secondary effects such as dehydration and malnutrition causing an increase in morbidity and mortality rates. Dysphagia screening and assessment of swallowing function by a multidisciplinary care team is essential to identify, diagnose and manage patients with dysphagia. A cross-sectional study of dysphagia screening and assessment was performed from the 1st to the 15th of April 2022 on patients hospitalised in an intermediate and long-stay hospital in Cartagena in the southeast of Spain. The Eating Assessment Tool-10 (EAT-10) questionnaire was used as a direct-scoring screening test for dysphagia together with the standardised Volume-Viscosity Swallow Test (V-VST) in all patients with an EAT-10 score ≥ 3 points. After confirming dysphagia, different dietary and pharmaceutical interventions were performed. The following data were collected from the medical record program EKON®: age, gender, primary diagnosis, diet and texture and the use of thickener for liquids. A total of 86 patients were included in the study with a mean age of 80.0 ± 12.0 years. The mean EAT-10 score was 2.5 ± 1.7 points with 36 patients (43.9%) testing positive for being at risk of presenting dysphagia. Of these patients at risk, the V-VST detected dysphagia and the necessity of a nectar consistency in 24 patients, a honey consistency in 3 patients and a pudding consistency in 2 patients. Only 10 of the patients with dysphagia were using thickener prior to the screening and the assessment. Dietary and pharmaceutical interventions were made in the other 19 patients with dysphagia. Dysphagia screening in intermediate and long-stay hospitals is not common practice even though there is a high prevalence and important clinical repercussions. Implementing dysphagia screening and assessment protocols will improve quality of care in these patients.

Keywords: Dysphagia; Swallowing; Screening; Assessment; Intermediate and long-stay hospital; Neurodegenerative diseases; Dietary and pharmaceutical interventions; Thickener; Consistency; Quality of care

Abbreviations: EAT-10: Eating Assessment Tool-10; V-VST: Volume-Viscosity Swallow Test

Introduction

Swallowing is the term that describes the action of transporting solid and liquid substances, as well as saliva, from the mouth to the stomach. This action implies the coordinated participation of anatomical areas that, through different types of movements and pressures, allow food to be conducted efficiently and safely through the digestive tract [1]. Dysphagia is defined as a swallowing difficulty in the passage of substances from the oral cavity to the stomach. This condition can be associated with symptoms such as pyrosis, hoarseness, hiccup, odynophagia, regurgitation and tracheobronchial aspiration [2]. Although this condition can appear at any age, ageing, neurodegenerative diseases and/or head and neck diseases are factors that are commonly associated with the prevalence of dysphagia [3].

The prevalence of dysphagia is underdiagnosed and varies depending on the definition used, the study population, and the sensitivity of the screening or diagnostic technique involved. The prevalence of swallowing disorders in those over 65 years is 40%, and more than 60% among nursing home residents. The highest prevalence (> 80%) has been detected in hospitalised patients with dementia, especially in the more advanced stages of the disease [4,5]. In hospital settings dysphagia is also related with longer length of hospital stay, higher costs and higher mortality risk [6,7]. It is also associated with a decrease in quality of life, aspiration pneumonia, dehydration, malnutrition, and social isolation [8].

The ageing process causes neurological, anatomical and muscular changes that result in a loss of function that may affect the act of swallowing. In healthy elderly people these changes are known as presbyphagia and are not necessarily pathological. However, when these changes occur in frail elderly people, with comorbidities and polymedication, the risk of dysphagia increases [9,10].

Clinical guidelines recommend an early identification through screening of dysphagia risk, as it represents a practical and low cost alternative that enables to identify early cases in which a more detailed evaluation is later required [11].

Currently, there are multiple tests for the screening and diagnosis of dysphagia. One of the most common tests used is the Eating Assessment Tool-10 (EAT-10) questionnaire. It is considered a valid and solid self-assessment tool to measure dysphagia risk and identifies individuals that need early multidisciplinary intervention [12]. This screening tool has 10 simple questions and provides information on functionality, emotional impact and physical symptoms that a swallowing problem can bring to an individual´s life. These questions are scored by the patient from 0 (no problem) to 4 (a serious problem), with a total score of 3 or greater indicating a potential risk/presence of dysphagia [13]. Other tests that can be used for the screening and diagnosis of dysphagia are validated swallowing screening tools, such as the Volume-Viscosity Swallow Test (V-VST). This water swallowing test is one of the most simplest and cost-effective bedside screening tools available in practice and is usually used after a positive EAT-10 score (≥ 3 points) [14].

This study was designed to improve the quality of care in patients with dysphagia by implementing a screening and assessment project in an intermediate and long-stay hospital to identify and diagnose earlier patients with this condition.

Materials and Methods

This cross-sectional study of dysphagia screening and assessment was carried out in an intermediate and long-stay hospital in Cartagena, Spain. This tertiary hospital is one of many that assists the population of Murcia in the southeast of Spain, with over 100 hospital beds dedicated to patients belonging to the Murcian Public Healthcare Service.

This study was carried out respecting the Helsinki Declaration of the World Medical Association, the Convention on Human Rights and Biomedicine, and the Spanish legislation about human research. The project was reviewed and approved by the hospital ethics committee.

Patient Recruitment

The inclusion criteria for this study consisted of all patients hospitalised in the intermediate and long-stay hospital from the 1st to the 15th of April 2022. Patients who were hospitalised for less than 24 hours, and patients in terminal stages of their disease, in whom death was expected in the following hours during this period, were excluded from the study.

Study Design

The multidisciplinary team responsible for dysphagia screening and assessment consisted of an internal medicine physician, registered nurses and a hospital pharmacist and nutritionist.

The EAT-10 questionnaire was used as a direct-scoring screening test to identify risk or presence of dysphagia. The standardised V-VST was carried out in all patients with a positive result for dysphagia in the EAT-10 questionnaire (scores ≥ 3 points). Other data that was collected from the medical record program EKON® included the age and gender of the patients, the primary diagnosis for hospitalisation, the type and texture of the diet being given in the hospital and the use of thickener for liquids. After confirming the presence of dysphagia in a patient, different dietary and pharmaceutical interventions were performed.

Statistical Analysis

Qualitative data were calculated and presented as percentages and quantitative data were calculated and presented using mean and standard deviation.

Results

A total of 86 patients (54.7% female) were included in the study, whose general characteristics are presented in Table 1.

Table 1: General characteristics of the patients.

n	86
Female	54.70%
Age (years)	80.0 (12.0)
EAT-10 (points)	2.5 (1.7)
Patients with EAT-10 ≥ 3 points (n)	36

EAT-10: Eating Assessment Tool-10. Quantitative data are presented as mean (standard deviation).

The EAT-10 questionnaire was carried out in 82 of the 86 patients included in the study (95.3%), as 4 of the patients received enteral nutritional support and had no functioning oral route. The EAT-10 questionnaire was positive for the risk of presenting dysphagia in 36 (43.9%) of the patients that were screened. A total of 21 (58.3%) of these patients found at risk were female. The dietary and primary diagnosis characteristics of the patients at risk for dysphagia are presented in Table 2.

Table 2: Dietary and primary diagnosis characteristics of the patients at risk for dysphagia.

Diet	No added salt diet	16.70%
	Diabetic diet	44.40%
	Puree diet	38.90%
Primary diagnosis	Dementia	47.20%
	Stroke	27.80%
	Parkinson´s disease	16.70%
	Multiple sclerosis	5.50%
	Esophageal cancer	2.80%

Qualitative data are presented as percentages.

The V-VST detected dysphagia and the necessity of the use of a thickener for liquids in 29 of the 36 patients that had a positive result in the EAT-10 questionnaire. The consistencies of thickened liquids needed in these patients are shown in Figure 1. Only 10 of the patients with dysphagia were using thickener prior to the screening and assessment, and in 3 patients the consistency had to be adjusted. Dietary and pharmaceutical interventions were made in the other 19 patients (65.5%) diagnosed with dysphagia, including modifications of the diet texture, tailoring of medical formulations available or drug administration mixed with more textured food.

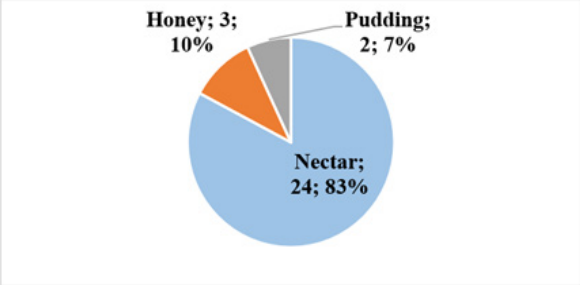

Figure 1: Distribution of the consistencies of thickened liquids needed in the patients detected with dysphagia using the V-VST.

Discussion

In this cross-sectional study, the prevalence of patients at risk of dysphagia detected with the EAT-10 was 43.9%, a much higher percentage than that obtained in the PREDyCES® study (20.5%) [15]. The prevalence of a possible swallowing disorder was highest in patients with dementia (47.2%) compared to other primary diagnosis, coinciding with the high prevalences of risk of dysphagia in patients with dementia (potentially reaching up to 93%) found in other studies [4,16]. Older people are more susceptible to dysphagia because they often present more diseases associated with this condition, such as Parkinson´s disease, stroke, Alzheimer´s disease, amyotrophic lateral sclerosis, head and neck cancer and dementia as seen in this study. However, many other studies that used the EAT-10 as a screening tool excluded patients who are the most at risk with cognitive impairment or serious neurological diseases who were unable to answer the items in the questionnaire, so they did not test the actual feasibility of this tool in a hospital environment [13,17-19]. The questionnaire was more frequently positive in female patients (58.3%), as has been observed in other studies, although there is no consensus in the scientific literature about this subject [20]. On the contrary, the study that validated the Spanish EAT-10 only found associations between the risk of dysphagia, older age and higher morbidity [13]. Lastly, higher scores in the EAT-10 and indications of dysphagia risk have been associated with change in nutritional status in older individuals and risk of nutritional deficits and malnutrition [19,21].

Regarding the treatment, there is a lot of variability between hospitals since there are no generalised protocols, but a preventive treatment is the most commonly used. This consists of adopting safety measures for swallowing by adapting the diet to the appropriate texture, and adequating liquids to the allowed viscosity determined by the V-VST using a commercial thickener. Thus, modifying the texture of foods and fluids is essential [22]. Related to this, an important aspect of this study was also the confirmation of the underdiagnosis of dysphagia. Only 10 (34.5%) of the 29 patients with dysphagia were using thickener prior to the screening and assessment, with a total of 22 patients having the consistency determined and adjusted. Dietary and pharmaceutical interventions were made, such as modifications of the diet texture, tailoring of medical formulations available or drug administration mixed with more textured food. An appropriate diagnosis and adequate treatment are crucial aspects in the treatment of dysphagia, however, there is still a high percentage of underdiagnosis in the clinical setting as seen in this study (65.5%), coinciding with other authors that describe up to 60% [23].

A dysphagia that receives poor treatment compromises the quality of life of the individual and increases morbidity, mortality and costs of care [24]. Sometimes it can not be prevented, but it can be detected early enough to be managed correctly by a multidisciplinary team to avoid complications and improve the quality of patient care and their safety.

A limitation of this study was the cross-sectional design adopted that did not enable causal inferences related with dysphagia. A strength of this study is that all patients with a potential risk of dysphagia were included, so the results show the real utility of the EAT-10.

Conclusion

Dysphagia screening and assessment in intermediate and long-stay hospitals is not common practice, even though there is a high prevalence of dysphagia and therefore important clinical repercussions in these settings such as malnutrition and dehydration, aspiration pneumonia, compromised general health chronic lung disease, choking, and even death.

As demonstrated in this study, a high number of patients are not correctly diagnosed with dysphagia and do not receive the necessary dietary and pharmaceutical interventions if dysphagia screening and assessment protocols are not put into place. Screening for the risk of dysphagia using the EAT-10 and an assessment using the V-VST by a multidisciplinary team are simple, quick and economic methods that can be used to identify patients with swallowing problems, ensuring that they receive a higher quality of dietary and pharmaceutical care during their hospitalisation.

Hence the authors recommend that more studies and projects for dysphagia screening and assessment should be carried out, especially in hospitals of similar characteristics, to help implement permanent protocols and improve quality of care in these patients.

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Conflicts of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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