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The present study is derived from the master's thesis entitled "Assessment of the risk of dysphagia in hospitalized elderly and its relationship with nutrition, sarcopenia, hydration, and quality of life: an analytical and observational cross-sectional study", written by Ronivaldo Pinto Ferreira and supervised by Laura Davison Mangilli, from the Postgraduate Program in Rehabilitation Sciences at Universidade de Brasília, presented in December 2022. Brasília, DF, Brasil.

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Dysphagia: elements in the statements of hospitalized elderly people with nutritional risk

Disfagia: elementos na fala de idosos hospitalizados com risco nutriciona

Abstract

Introduction: The association between dysphagia and malnutrition can be explained by the fact that dysphagia directly impairs the ability to eat and drink, reduces dietary intake of energy, water, and other nutrients, resulting in malnutrition and dehydration. A skill that may contribute to identifying risks for dysphagia and/or malnutrition is sensitive, qualified, and decisive listening to the elderly in a hospital environment. ***Objective***: Identify elements in the statements of hospitalized elderly people with nutritional disorders that may contribute to the screening for dysphagia. ***Methods***: Quali-Quantitative Research using the content analysis technique, carried out with 52 elderly people admitted to the medical clinic of a public hospital in the Federal District, using the Mini Nutritional Assessment shortform and the guiding question about swallowing. ***Results***: Higher frequency of risk of malnutrition (63.46%), related to the use of poorly adapted dental prosthesis, the consistency of the oral diet offered, choking, and the aging process as factors that may interfere with nutritional status and promote the risk of dysphagia. ***Conclusion***: These modifiable factors need to be identified by the healthcare team and actions for the effective treatment and prevention of malnutrition and dysphagia need to be implemented and monitored.

Keywords: Malnutrition. Dysphagia. Dental Prosthesis. Elderly. Multiprofessional Team.

Resumo

Introdução: A associação entre disfagia e desnutrição pode ser explicada pelo fato de que a disfagia prejudica diretamente a capacidade de comer e beber, reduz a ingestão alimentar de energia, água e outros nutrientes, resultando em desnutrição e desidratação. Uma habilidade que poderá contribuir na identificação de risco para disfagia e/ou desnutrição é a escuta sensível, qualificada e resolutiva dos idosos em ambiente hospitalar. ***Objetivo***: Identificar elementos na fala de idosos hospitalizados com alteração nutricional que possam contribuir para o rastreio de disfagia. ***Métodos***: Pesquisa quali-quantitativa com a técnica de análise de conteúdo, realizada com 52 idosos internados em unidade de clínica médica de um hospital público no Distrito Federal, com aplicação do *Mini Nutritional Assessment shortform* e da pergunta norteadora sobre engolir. ***Resultados***: Maior frequência de risco de desnutrição (63,46%), tendo na fala a questão relacionada ao uso de prótese dentária mal adaptada, a consistência da dieta oral ofertada, o engasgo e o processo de envelhecimento como fatores que podem interferir no estado nutricional e favorecer o risco para disfagia. ***Conclusão***: É preciso que esses fatores modificáveis sejam identificados pela equipe de saúde e que ações para o tratamento e prevenção eficazes de desnutrição e de disfagia sejam implantados e monitorados.

Palavras-chave: Desnutrição. Disfagia. Prótese Dentaria. Idoso. Equipe Multiprofissional.

INTRODUCTION

Nutrition is an important component for maintaining the well-being and health of the elderly, especially if they are hospitalized. Inappropriate nutrition for this audience contributes to the onset of several diseases and is a predisposition factor for frailty syndrome, sarcopenia, and increased length of hospitalization.[1]

Among many causes, one factor that may alter the nutritional status in the elderly is dysphagia, understood as the difficulty in transferring food from the mouth to the stomach. The swallowing process requires the coordination of a complex series of voluntary and involuntary motor, sensory, and psychological activities, and most of the changes in its function occur with aging.[2]

Dysphagia is associated with symptoms such as inability to swallow, pain when swallowing (odynophagia), a feeling of food stuck in the throat, saliva, reflux, frequent heartburn, unexpected weight loss, coughing while eating, nausea when swallowing, and a preference for foods with an easy-to-chew consistency.[3]

Considering the results of a meta-regression,[4] the prevalence of dysphagia showed an increasing trend with increasing age. In addition, the results of the subgroup analysis demonstrated that the prevalence in the age group over 75 years is higher than in other subgroups.

The Inquérito Nacional Brasileiro de Nutrição Hospitalar (IBRANUTRI) – (Brazilian National Hospital Nutrition Survey),[5] on the other hand, showed that hospital malnutrition was present in 48.1% of hospitalized individuals and severe malnutrition in 12.5%. Medical knowledge about malnutrition, on the other hand, is low and nutritional therapy is under-prescribed. Malnutrition was related to the primary diagnosis upon admission, age (>60 years), presence of cancer or infection, and longer length of hospitalization ($p< 0.05$).

The association between dysphagia and malnutrition can be explained by the fact that dysphagia directly impairs the ability to eat and drink, reduces dietary intake of energy, water, and other nutrients, resulting in malnutrition and dehydration.[2]

These changes in dietary dynamics decrease the quality of life of these elderly people and may cause negative changes during the hospitalization process. A study[6] demonstrated that the quality of life related to swallowing problems in hospitalized older adults is directly manifested by reduced social interaction, increased eating time, fear, and burden during eating.

In addition, it is necessary to take into account the qualitative challenge that refers to the sociocultural issues that permeate the elderly. We live in a society in which dining moments are opportunities for family reunions, get-together, leisure, celebration and meetings with friends. Thus, establishing an oral diet in a safe and enjoyable manner is an objective for individuals inserted in this society. To do this properly it is necessary to understand that the human being is constructed historically, and that environmental, biological, and sociocultural factors permeates the body - the body that provides care (healthcare professionals) and the body that receives care (patients) - and feelings and emotions also must be taken into account in this context. Knowledge of the “biological body” and its various functions is important when not separated from its emotional, subjective, historical, spiritual, cultural, cognitive, and unique components.[7]

A skill that may contribute to identifying risks for dysphagia and/or malnutrition is sensitive, qualified, and decisive listening to the elderly in a hospital environment. It is crucial that professionals have a different perspective for this individuals, always seeking their well-being - after all, hospitalization is faced differently by each person. This skill is based on the ability to foster an agreement between the individual's health needs and the service's capacity to respond, which translates into the qualification of health production. Listening

to the patient is a therapeutic and identification tool for improving our work, as it provides a space to talk, security, forms bonds and reduces anxiety.[8]

Thus, the objective of this study was to identify elements in the statements of hospitalized elderly people with nutritional disorders that may contribute to the screening for dysphagia.

METHOD

Quali-quantitative research using the content analysis technique[9] carried out with elderly people admitted to an infirmary unit, a medical clinic, of a public hospital in the Distrito Federal (DF), between September and December 2021. The sample population, selected for convenience, consisted of elderly people aged 60 years or older. Elderly people were excluded after extubation and/or who presented serious cognitive disorders affecting perceptual, discernment, and language abilities.

This study is derived from the research project "Assessment of the risk of dysphagia in hospitalized elderly people and its relationship with nutrition, sarcopenia, hydration, and quality of life: an analytical and observational cross-sectional study", approved by the Comitê de Ética e Pesquisa da Faculdade de Ceilândia da Universidade de Brasília (CEP/FCE) - (Ethics and Research Committee of Ceilândia College of the University of Brasilia) , according to report number 3.749.82, and Fundação de Ensino e Pesquisa em Ciências da Saúde da Secretaria de Saúde do Distrito Federal (CEP/FEPECS) – (Foundation for Teaching and Research in Health Sciences of the Federal District Health Secretariat), according to report number 3,820,960. All participants were informed about the research objectives and the confidentiality of the data and signed the Free and Informed Consent Form.

Initially, the participants' sociodemographic and health data were searched through a structured survey, accessing the participant's medical record through the TrakCare® health information system of Secretária de Saúde do Distrito Federal – (Federal District Health Secretary) and through questions answered by the participant at the time of the anamnesis.

The risk of malnutrition was assessed using the Mini Nutritional Assessment shortform (MNA-SF revised®). The Brazilian consensus on nutrition and dysphagia recommends the application, by nurses, of this reduced version of the form, ensuring the identification of the elderly at risk and the possibility of indication, when the score is less than or equal to 12, for specific evaluation with a nutritionist.[10] The benefits of this shortform are: the exclusion of redundant items, those that required special training, ones that involved subjectivity and the patient's memory, or those that produced many blank or "don't know" answers.[11]

The MNA-SF revised® is a screening questionnaire made up of five questions with answers assigned points (ranging from 0 to 3), to be added up at the end of the assessment. It addresses decreased dietary intake, weight loss, mobility, psychological stress or acute illness, neuropsychological problems, and body mass index (BMI). At the end, the numbers corresponding to the answers were summed up to obtain the final screening score: 12-14 points: normal nutritional status; 8-11 points: at risk of malnutrition; and 0-7 points: malnourished.[10,11]

To assess the self-perception of dysphagia, the participant was asked the following question: "Do you have trouble swallowing?" Their statements, complaints, and perceptions on the subject were noted by the researcher, without interfering with the participant's statement.

For the analysis and interpretation of the results, the Microsoft Excel 2018 program was used. Content analysis[9] of the answers regarding the problem with swallowing followed the following steps: 1) pre-analysis; 2) exploration of the material, categorization or coding; 3) treatment of results, inferences, and interpretation.

RESULTS

The sample was comprised of 52 participants. The detailed sociodemographic and health characterization of the elderly who comprised the sample of this study is described in a previous study, also prepared by this group of researchers.[6] As a brief description of the participants, the gender was balanced in the sample (female 53.85%; male 46.15%), the majority were white (61.54%), married (40.38%) and there was a predominance of incomplete primary schooling (50.00%). The biggest reason for hospitalization was respiratory issues (76.92%). Diabetes *mellitus* (DM) and systemic arterial hypertension (SAH) were the most prevalent comorbidities (DM 42.31%; SAH 65.38%).

The characterization of issues related to diet, taste, and dentition are described in Table 1. The nutritional assessment is shown in Table 2, and the classification of nutritional risk is the most common.

Table 1. Characterization of the diet, taste and dentition of hospitalized elderly people. Brasilia, DF, 2023.

Variable	Classification	N=52	%
Type of diet	Soft (S)	28	53.85%
	Pasty (P)	13	25.00%
	Liquid	2	3.85%
	Two consistencies OR (S+P)	6	11.54%
	Enteral + OR (P)	3	5.77%
Routes of Nutrition	Oral	49	94.23%
	Nasoenteral/oral tube	3	5.77%
Sense of taste	Absent	2	3.85%
	Diminished	18	34.62%
	regular	30	57.69%
	Altered taste complaint	2	3.85%
Dentition	Permanent dentition	2	3.85%
	Edentulism	4	7.69%
	Partial prosthesis	12	23.08%
	Total prosthesis	34	65.38%

Source: Research data, 2021. OR = oral route

Table 2. Absolute and relative frequency of the *revised® MNA -SF classification in hospitalized* older adults. Brasilia, DF, 2023.

Variable	Classification	N=52	%
MNA -SF *revised®*	Normal nutritional status	14	26.92%
	At risk of malnutrition	33	63.46%
	Malnourished	5	9.62%

Source: Research data, 2021.

In the content analysis, the following elements emerged in the statements of hospitalized elderly people with nutritional risk that may indicate the need for risk assessment for dysphagia: diet consistency (26.32%), dental prosthesis (28.95%), gagging (18.43%), and illness/aging (15.79%). These elements were grouped in Chart 1, with the participants' respective statements. We highlight that four elderly (10.51%) with nutritional risk reported having no problems with swallowing.

We remember that, in this study, when the question was asked “do you have a problem swallowing?”, there was no direct answer “yes” or “no”; the participants' answers were with more detailed sentences, as shown in Chart 1.

Chart 1. Risk elements for dysphagia in the statements of elderly hospitalized with nutritional disorders. Brasilia, DF, 2023.

Group	Elements of the statement
Consistency of the diet	“At home only pasty food to swallow” *
	“I can't swallow solid food because I feel the passage is narrow”
	“In my house when I eat I choke, not here at the hospital”
	“I don't like pasty food because it has no flavor”
	“I don't eat normal food like hard foods because they get stuck my mouth” *
	“I prefer to eat soft food”
	“Hospital food is better to chew because it's soft”
	“Sometimes I have to force myself for thicker food to go down”
	“I don't like hard food”
	"Only when my throat gets sore it's hard to swallow"
Dental prosthesis	"My dentures are loose and interfere with my eating""
	“I started to eat slowly after dental treatment, my prosthesis makes it difficult for me to chew and pasty food has no flavor”
	“I get food stuck in my throat and my chewing is bad because of the prosthesis”
	"I've got reflux and I can't chew properly because of my dentures”
	“My prosthesis is loose and when I chew it hurts my gums”
	“I had facial paralysis and my chewing is difficult and I don't have the lower prosthesis either”
	"I have reflux and sometimes when I eat or talk I start coughing and my bottom denture is also loose"
	“Sometimes food gets under the dentures and it gets bad”
	“I hurt my gums when I chew because my dentures are loose and I don't use them”
	“My dentures are worn out and that's why I no longer chew" *
	“My reflux makes me choke and cough and I also don't have all my teeth to chew”

Chart 1. Risk elements for dysphagia in the statements of elderly hospitalized with nutritional disorders. Brasilia, DF, 2023. (Continues)

Grupo	Elementos da fala
Gagging	"Food doesn't go down, I have to force myself" "With COVID-19, food will not go down, it gets stuck" "I have frequent gagging, but I think it's because I eat too fast" "I choke with saliva and water" "I get jammed with thick food" * "I have gagging and hiccups after the stroke" "I eat very slowly so I don't choke"
Disease/Aging	"I don't have problems, but sometimes it hurts to swallow" "I'm having shortness of breath when chew and my hands shake when I am holding the spoon" "I eat very slowly" "I have heartburn and reflux after I swallow" "My mouth is very dry" "I have no problem chewing, but I have this hoarseness"
No problem	"I have no problems" "I have no problems" "I have no problems" "I have no problems"

Source: Research data, 2021. *Classified as malnourished by the MNA -SF revised®

DISCUSSÃO

Food plays an important role in restoring the health of hospitalized individuals, and it is therefore necessary to adapt the different types of diet to the particularities of each individual. The route of administration of the diet should be evaluated so that it suits the patient, and to ensure that their diet plan is carried out correctly and satisfactorily - orally, enterally or parenterally.[12]

The exclusive oral feeding route was present in 94.23% of the hospitalized elderly, demonstrating that food was being offered voluntarily and without contraindications. Only 5.77% had two simultaneous feeding routes - oral and enteral via a nasoenteric catheter. This dual route was found in the elderly who, at the time of hospitalization, had malnutrition and low acceptance of the oral diet.

Regarding the consistency of diets, the three most prevalent were 53.85% individuals receiving a soft oral diet, 25.0% a pasty oral diet, and 11.54% receiving soft/pasty meals. During the application of the survey, the elderly reported a preference for pasty diets because they are easier to chew. As a result, some consistencies were offered at the request of the elderly to improve their quality of life, and not necessarily by

medical or nutritional prescription. This prescription and offer of dietary consistency preference is in accordance with what is recommended by the European Society for Clinical Nutrition and Metabolism (ESPEN): hospital nutrition must be analyzed, reevaluated, and adapted for each patient at regular intervals (every 3 to 5 days), according to the course of the disease, monitored oral intake, acceptance, and individual nutritional needs.[13]

On the other hand, the change in the texture of food represents a challenge for hospital cuisine in sensory and nutritional terms, since pasty diets normally have a low energy density. This indicates that a greater amount of food needs to be ingested to meet nutrient requirements, which may impose a physiological burden on the elderly. In addition, foods with a modified texture may look unattractive. However, in individuals at risk of dysphagia, systematic screening should be performed, and the need and type of texture-modified diet should be identified, prescribed, and monitored by the health team.[13.14]

Thus, it is necessary for the care team to know the characteristics of the diets, for a better analysis of suitability during hospitalization. These characteristics include diets such as: soft food diet, pasty oral, liquid oral and enteral.[15,16]

The indications described in other studies[15,16] are in line with what was pointed out in this study, where 96.15% of the elderly had some alteration in their dentition and needed dietary adjustments to meet their nutritional needs and maintain quality of life.

With the aging process, the manifestation of decreased sense of taste is common, which can also be aggravated in the face of certain clinical conditions. As a result, the elderly population needs a more intense gustatory stimulus to produce the same taste sensation as young individuals. This sensory impairment may result in inappetence, dietary monotony, decreased intake, and malnutrition.[17] In the study, self-reported normal taste was reported by 58.0% of the elderly, but a significant number (48.0%) reported changes with a predominance of diminished taste. This predominance of unaltered sense of taste may be explained by the adaptations that the individual makes during the ageing process and the average age presented, which was 73 years Studies[17,18] indicate that sensory gustatory losses are progressive and show complaints and the higher frequency of self-reports after the age of 70, affecting overall health and quality of life.

Regarding dentition, the study revealed that only 4.0% of the elderly had permanent dentition; those who used some type of prosthesis represented 88.0% and total edentulous without the use of prosthesis, 8.0%.

These results are in line with a study that aimed to analyze the oral health profile of elderly women in Distrito Federal (DF), and whose results demonstrated that the vast majority of elderly women used some type of prosthesis, with total prosthesis being the most common in the upper (74.3%) and lower arch (47.1%).[19] The loss of natural dentition interferes with various aspects of the body, including phonetics, aesthetic appearance, and chewing function. This edentulism can be solved, in part, by the use of prosthesis. However, some studies have shown that the number of unsatisfactory prostheses due to functional and/or aesthetic problems is high. In addition, most elderly people do not use the lower prosthesis, justifying discomfort with it.[20]

In the nutritional assessment (Table 2), the elderly hospitalized at risk of malnutrition and malnutrition had, respectively, a relative frequency of 63.46% and 9.62%, totaling 73.08% of the altered sample, according to the revised MNA-SF®. This is a considerably high number, which requires tracking and monitoring by the care team. A study conducted by this research group, with this same population, found an association between the risk of self-reported dysphagia and nutritional status, with chances that hospitalized elderly people exposed to malnutrition are 52 times more likely to be at risk of dysphagia.[21]

In the categories grouped by the statements of the elderly with nutritional alterations (Chart 1), there are elements that may indicate the need to assess the risk of dysphagia. These elements require attentive and qualified listening to be identified during daily monitoring during hospitalization.

Diet consistency is an element reported in statements that are manifested by words such as “hard food”, “soft food” and accompanied by aspects related to the biomechanics of swallowing, such as “food stuck”, “going down” and “chewing”. The consistency of the diet may also present reports regarding flavor in this study, being identified as an inferior flavor, not pleasant to the palate - “I don't like pasty food, because it has no flavor”. These elements demonstrate, even if subjectively, the difficulty in swallowing solid-consistency foods, pointing to the need to adapt dietary consistency during hospitalization, taking into account, within the patient's clinic condition, their preference and acceptance of the diet offered.

Studies report that an inadequate hospital diet, associated with low oral intake, puts hospitalized individuals at nutritional risk. An intake of approximately 50% of the oral diet offered is associated with malnutrition and is an independent risk factor for longer hospitalization.[22,23]

The use of dental prosthesis was the element with the highest frequency in the content analysis (28.95%). The statements of the hospitalized elderly mentioned terms related to the adaptation to the use of prosthesis: “loose dentures”, “dentures are worn out”, “loose prosthesis”, and the lack or absence of use of the prosthesis “I don't have a lower prosthesis”, “I don't have all the teeth”. These elements in the statements were associated with ineffective chewing, pain, accumulation of food in the prosthesis, adaptations to be able to eat, and a change in the consistency of the diet that altered the taste of food for some elderly people: “I started to eat slowly after dental treatment, my prosthesis makes it difficult for me to chew and pasty food has no flavor”, “I hurt my gums when I chew, because my dentures are loose and I don't wear them".

These reports show that the first phase of swallowing, the oral preparatory phase, may be impaired. Thus, the chewing process of incising, grinding, and pulverizing solid food is not taking place functionally. A systematic review[24] found that these changes demonstrate oral fragility, and this alteration may cause malnutrition, aspiration pneumonia, asphyxiation, and sometimes death. Thus, decreased oral function and the development of dysphagia should be prevented with early intervention in the elderly during and after hospitalization.

In the gagging group, we can observe a content manifested by expressions such as “food doesn't go down”, “I choke” or "I've got food stuck in me". The association of these elements occurred in statements that demonstrate a possible decrease in the strength of the muscles involved in swallowing or in the propulsion force of the tongue, thus making it difficult to transport food to the esophagus: “food doesn't go down, I have to force myself”, “I get jammed with thick food”, “I have gagging and hiccups after the stroke”. A study[25] points out that the reason for this alteration is that the generalized decline in muscle mass and strength also affects muscles related to swallowing, such as the tongue, infrahyoid, suprahyoid, and pharyngeal muscles. Therefore, in elderly patients at risk of malnutrition and dysphagia, tongue pressure should be examined for early detection of these changes.

The adaptations were also elements observed in the statements. The researchers in this study observed that, because they adapt to these changes, many times the elderly may not understand this fact as harmful to their swallowing or dietary pattern. Adjustment to the consistency of the diet: “I get jammed with thick food”, adaptation to chewing: “I eat very slowly so I don't choke”.

The analysis of the diseases/aging group presented a content with elements related to health conditions at the time of the research. Odynophagia, gastroesophageal reflux disease (GERD), xerostomia, and hoarseness in the voice may be in the subjectivity reported: “I have no problems, but sometimes it hurts

to swallow"; "I have heartburn and reflux after I swallow"; "my mouth is very dry"; "I have no problem chewing, but I have this hoarseness". The elements of adaptive aspects to aging/pathology are in statements that may go unnoticed. Thus, in addition to sensitive listening, a direct observation during eating is necessary: "I'm having shortness of breath when chew and my hands shake when I am holding the spoon"; "I eat very slowly".

It is necessary that these elements of signs and symptoms present in the pathology/aging group be evaluated in more detail, in order to rule out other pathologies. In this study, this group was being evaluated and investigated by the multidisciplinary health team during hospitalization. Studies[26,27] demonstrate that signs and symptoms of odynophagia, GERD, and xerostomia can limit oral intake and are predictive factors of nutritional status and risk for dysphagia in patients with various pathologies.

As seen in Chart 1, four hospitalized elderly people did not present risk elements for dysphagia in their statements, even though they had altered nutritional status. In these cases, in addition to the right questions and sensitive listening, the team must be observant mainly during feeding. Research[28] shows that, to avoid and control symptoms resulting from dysphagia, the elderly create adaptation strategies, and the use of these strategies would be one of the reasons why they do not report and do not recognize these symptoms.

In this study, we can cite as strengths the effectiveness of sensitive and qualified bedside listening and the identification of individuals with nutritional risk and dysphagia using low-cost financial instruments. On the other hand, the hospital environment, during the Covid-19 pandemic, was a limiting factor due to restrictions and contact precautions.

CONCLUSION

The elements in the statements of hospitalized elderly people demonstrated that the use of ill-adapted dental prosthesis, the consistency of the oral diet offered, gagging, and the aging process are factors that may interfere with nutritional status and promote the risk of dysphagia. These modifiable factors need to be identified by the healthcare team and actions for the effective treatment and prevention of malnutrition and dysphagia need to be implemented and monitored.

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