Profile of oropharyngeal dysphagia patients in a teaching hospital in Northern Brazil: a descriptive cross-sectional study

Ives Marcelo Pinheiro Gonçalves[1] , André Pontes-Silva[2]* , Matheus Morbeck Zica[3] ,
Aldair Martins Barasuol[1] , Erika da Silva Maciel[1] , Fernando Rodrigues Peixoto Quaresma[1]

SUMMARY

OBJECTIVE: The aim of this study was to describe the profile of patients with oropharyngeal dysphagia in a teaching hospital in the public health system in northern Brazil.
METHODS: This is a descriptive cross-sectional study. All procedures of this study were approved by the ethics committee. A convenience sample composed of participants aged >18 years, of both sexes, with any underlying pathology admitted to the medical clinic on exclusive oral feeding, alternatively enteral or gastric tube feeding (Gastrostomy), or associated by both routes, whose swallowing assessment was performed by a Speech-Language Pathologist. Data from the database/medical records were investigated from March 2020 to September 2021.
RESULTS: The sample consisted of 44 patients diagnosed with oropharyngeal dysphagia, with a higher frequency of males (63.64%) aged over 60 years (70.45%). Almost half of the evaluated patients were diagnosed with neurological disorders (47.73%) and had dysphagia associated with other underlying diseases (31.82%). Excluding patients with neurological disorders, trauma/polytrauma, and respiratory disorders from the last group, some patients (11.36%) had two concomitant underlying diseases.
CONCLUSION: According to the sample of this study, the profile of oropharyngeal dysphagia patients includes pneumonia, respiratory failure, bronchoaspiration, and the consequent need for ventilatory support.
KEYWORDS: Swallowing disorders. Deglutition disorders. Public health. Epidemiology.

INTRODUCTION

Swallowing is the result of fine neuromotor control responsible for transporting the food bolus from the mouth to the stomach in a safe and effective way. Some patients admitted to hospital units have difficulty in transporting food from the mouth to the stomach (dysphagia)[1]. This difficulty is accompanied by coughing, choking, pain when swallowing, and pharyngeal globus[2]. Dysphagia is a commonly observed symptom in neurological and respiratory disorders. According to Bassi et al.[3], hospitalized patients with respiratory diseases had a higher risk index for oropharyngeal dysphagia. Another study showed the presence of oropharyngeal dysphagia in 80% of hospitalized patients[4].

In addition to dysphagia related to neurological disorders, there are other causes that occur due to different conditions, known as mechanical dysphagia, in which the anatomical structures responsible for swallowing suffer some structural damage, as occurs in head and neck cancers, cardiovascular diseases, lung diseases, and respiratory diseases[5]. When difficulty in swallowing is associated with respiratory diseases, there is a possibility of bronchoaspiration[6], in which entry of food or fluids into the lower airways can generate pneumonia and death[7]. It is also known that the elderly are more susceptible to dysphagia due to the diseases, such as stroke and cardiovascular diseases, which accompany this condition[4,5].

However, considering the period of the COVID-19[6] pandemic in Brazil, there are still no studies that show the health profile of these patients after the pandemic. Therefore, it is still necessary to understand the presentation of dysphagia and its impact on the general condition of the patient after the COVID-19 pandemic in order to propose measures to minimize or interrupt the resulting sequelae. An opportunity for investigations in this scenario is scientific research in Teaching Hospitals, as these are related to care in the unified health system and receive patients from different regions of Brazil. Thus, the objective of this study was to describe the profile of patients with oropharyngeal dysphagia in a teaching hospital in the public health system in northern Brazil.

METHODS

Study design

A descriptive cross-sectional study was carried out according to STROBE guidelines. We included all underlying diseases, which were divided into large groups: neurological disorders, trauma/polytrauma, respiratory disorders, COVID-19 (isolated from respiratory diseases due to its peculiarities), others (which include cancers, cardiovascular diseases, and gastrointestinal diseases), two underlying diseases, and three or more underlying diseases.

Sociodemographic data and variables such as feeding path, underlying disease, and diagnosis of dysphagia were obtained through analysis of the patients' medical records. The exposure variables were sociodemographic characteristics and the outcome variable was hospital discharge with exclusive oral feeding.

Context

A study was carried out at the medical clinic of a referral hospital in the city of *Blinded for review*. Data from medical records were investigated from March 1, 2020 to September 1, 2021. This is a public hospital, classified as a size III hospital (medium and high complexity), accredited as a specialized health care service. The results of the patients' characteristics were described by relative and absolute frequencies using the Stata program (Statistics/Data Analysis). We used the chi-square test to determine the association between underlying disease and diagnosis of dysphagia.

Participants

All procedures of this study were approved by the ethics committee (*Blinded for review* 5.081.409) according to ethical guidelines recommended in Brazil. A convenience sample composed of participants aged >18 years, of both sexes, with any underlying pathology admitted to the medical clinic on exclusive oral feeding, alternatively enteral or gastric tube feeding (Gastrostomy), or associated by both routes, whose swallowing assessment was performed by a Speech-Language Pathologist. Patients on zero or exclusive parenteral diets, as well as medical records with incomplete information on the study variables were excluded.

Variables

Data on demographic and health characteristics of patients (age, sex, marital status, underlying disease, and comorbidities were collected and documented in a collection protocol prepared by the researchers. We evaluated patients with dysphagia, according to a speech-language diagnosis, in order to determine the repercussion of dysphagia in patients with any underlying pathology. Based on this, we sought to identify the main complications associated with dysphagia that could further compromise the health status of these patients.

Sociodemographic data and variables such as feeding path, underlying disease, and diagnosis of dysphagia were obtained through analysis of the patients' medical records. The information collected was documented in a collection protocol prepared by the researchers.

Measurements

Data collection instrument covers the following variables: qualitative or dynamic policy to determine the patient's month, anatomy, and age; qualitative nominal dichotomies for gender, marital status, underlying disease, and dysphagia diagnosis; qualitative nominal polychotomous to detect via feeding, symptoms of dysphagia, degree of dysphagia, and complications during hospitalization; and nominal mechanical decisions for hospital treatment, airway, days of treatment in an invasive care unit, and intensive food treatment.

Bias

An expert in dysphagia linked to the Federal Council of Speech-Language Pathologists was responsible for data collection. We created an electronic data collection form using the Excel software to build the database.

Statistical analysis

In the statistical analysis, the results of the patients' characteristics were described by relative and absolute frequencies using the Stata program (Statistics/Data Analysis). Missing data were disregarded and, therefore, excluded from this research.

RESULTS

We recruited 108 patients and excluded 64 (59.26%) patients due to the absence of diagnosis of dysphagia. Thus, the final sample is composed of 44 participants. Table 1 shows a higher frequency of oropharyngeal dysphagia in males (63.64%), a lower frequency in young adults, and a higher incidence of dysphagia in adults aged ≥60 years (70.45%).

Regarding dysphagia-associated diseases, most patients (47.73%) have neurological disorders, followed by 31.82% with dysphagia associated with other underlying diseases, 2.27% with trauma/polytrauma, 2.27% with respiratory diseases, and 2.27% with COVID-19. Besides, 11.36% of patients had two underlying diseases, and 2.27% had ≥3 underlying diseases (Table 1). Mean complications during hospitalization are related to respiratory diseases such as pneumonia, bronchoaspiration, respiratory failure, and the need for ventilatory support (Table 2).

Table 1. Sample characteristics (n=44).

Variables	n (%)	Cum.
Sex		
Male	28 (63.64)	63.64
Female	16 (36.36)	100.00
Age (years)		
18–24	1 (2.27)	2.27
24–49	5 (11.36)	13.64
49–60	7 (15.91)	29.55
>60	31 (70.45)	100
Underlying diseases		
Neurological disorders	21 (47.73)	47.73
Trauma/polytrauma	1 (2.27)	50.00
Respiratory diseases	1 (2.27)	52.27
COVID-19	1 (2.27)	54.55
Other	14 (31.82)	86.36
2 underlying diseases	5 (11.36)	97.73
≥3 underlying diseases	1 (2.27)	100.00

Table 2. Complications under hospitalization (n=44).

Variables	n (%)	Cum.
Pneumonia	1 (2.27)	84.09
Pneumonia and bronchoaspiration	1 (2.27)	86.36
Respiratory failure	3 (2.27)	93.18
Respiratory failure	3 (2.27)	100.00

DISCUSSION

Mean outcomes

In this study, there was a higher frequency of males in the diagnosis of dysphagia associated with underlying diseases. The number of patients are similar among the studies carried out (62.5% of involvement in males)[8-10]. Regarding age, in this study, there was a higher frequency of elderly people, corroborating the dysphagia literature, with 16–22% of elderly people over 50 years old and 90% of patients with a mean age of 83 years[8,11]. The age of participants in a study on a higher frequency of dysphagia in ischemic stroke ranged from 30 to 96 years, with a mean of 68.62 years[10].

Regarding the underlying diseases, there was a higher frequency of neurological disorders (corroborating with the literature). In the study by Gaspar et al., out of 35 patients diagnosed with stroke, 21 had neurogenic dysphagia[9]. Ferreira et al. also observed a predominance of neuropathies (53.4%) and severe neurogenic oropharyngeal dysphagia (37.2%)[12]. Almeida et al.[13]

emphasized that a higher frequency of oropharyngeal dysphagia is high in individuals diagnosed with stroke after cardiac surgery: of the 25 (100%) individuals, 24 (96%) had some degree of oropharyngeal dysphagia in the clinical evaluation. It was found that 41.66% had severe dysphagia, 33.66% had moderate dysphagia, and 25% had mild dysphagia.

Regarding dysphagia in patients with orthopedic trauma injuries or multiple traumas as underlying diseases, in this study, there was a low frequency, which is not consistent with the literature dealing with this topic. In a hospital specializing in traumatic injury, a study was carried out on 229 patients, of whom 64 (27.9%) had complaints in swallowing solid foods and 26 (11.4%) had complaints for liquids[14]. The low frequency of dysphagia in multiple traumas is justified by the fact that the hospital in this research has exclusive wards for trauma and multiple traumas, an orthopedics and neurology sector, and this research was carried out on patients admitted exclusively to the institution's medical clinic.

Regarding respiratory diseases, although the frequency was low, when the variable complications during hospitalization were evaluated, 18.18% (n=08) of patients presented pneumonia, bronchoaspiration, respiratory failure, and the need for ventilatory support as the main complications. These complications may result from oropharyngeal dysphagia, depending on the degree of dysphagia. Bassi et al. determined the risk group for dysphagia in a hospital in which patients admitted with respiratory diseases had a higher risk index for oropharyngeal dysphagia[3]. Gazzana et al. found that the presence of dysphagia is most common in patients with chronic respiratory diseases[15].

The low frequency of COVID-19 as an underlying disease in this study is justified by the fact that the hospital has a specific ward for the treatment of patients affected by this injury. Cardoso[16] highlighted a close relationship between COVID-19 and dysphagia, as shown by the fact that the frequency of swallowing disorders was higher when associated with the factors like age and use of tracheostomy in individuals who were infected by COVID-19[6].

Regarding groups termed other diseases, these were the symptoms mainly distributed among heart diseases, degenerative diseases, gastrointestinal diseases, kidney diseases, and cancers. According to the literature, the comorbidities most commonly associated with patients with symptoms and signs of dysphagia were chronic obstructive pulmonary disease, systemic arterial hypertension, congestive heart failure, diabetes mellitus, and myocardial infarction[3].

We highlighted the need to perform dysphagia screening using validated protocols in order to determine the safest feeding route for the patient. Of the 44 patients analyzed, regardless of

underlying diseases, dysphagia was present to varying degrees, which may have been the cause of some, if not all, respiratory problems observed in 18.18% of patients.

Dysphagia has been the subject of studies over the past decades, especially as a result of its multivariate sequelae, which often go unnoticed as the main aggravating factor of the patient's clinical situation. This may be due to the fact that dysphagia is rarely addressed and studied in health professionals' training centers. Studies are clear in pointing out the destructive and often deadly comorbidities of dysphagia, as is the case with bronchoaspirations.

The lack of a unified and validated protocol in the institution where the research was carried out emphasizes the need for new similar assessments, this time after the introduction of validated protocols for more accurate assessments. However, it should be noted that, although there is no validated evaluation protocol, the institution's speech therapists have a wide range of experience in the area and have performed an excellent job, based on a comprehensive and correct clinical evaluation, from the point of view of the technician. We also emphasized the importance of continuing education in the process of consolidating transdisciplinary monitoring in dysphagia. Without it, the advantages such as the introduction of dysphagia specialists in the hospital team would be unlikely.

This study needs to be addressed. For example, the hospital surveyed in this study does not have validated protocols in the dysphagia estimation flowchart, and there are some missing data that reduced the sample size. In addition, since this is a descriptive study with convenience sampling, further research is suggested.

CONCLUSION

According to the sample of this study, the profile of oropharyngeal dysphagia patients includes pneumonia, respiratory failure, bronchoaspiration, and the consequent need for ventilatory support.

AVAILABILITY OF DATA AND MATERIALS

The data and materials in this paper are available from the corresponding author on request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Research Ethics Committee (protocol number 5.081.409). All respondents participated in this study freely and with consent.

AUTHORS' CONTRIBUTIONS

IMPG: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. **APS:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. **MMZ:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. **AMB:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. **ESM:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. **FRPQ:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing.

REFERENCES

1. Leira J, Maseda A, Lorenzo-López L, Cibeira N, López-López R, Lodeiro L, et al. Dysphagia and its association with other health-related risk factors in institutionalized older people: a systematic review. Arch Gerontol Geriatr. 2023;110:104991. https://doi.org/10.1016/j.archger.2023.104991

2. D'Netto P, Rumbach A, Dunn K, Finch E. Clinical predictors of dysphagia recovery after stroke: a systematic review. Dysphagia. 2023;38(1):1-22. https://doi.org/10.1007/s00455-022-10443-3

3. Bassi D, Furkim AM, Silva CA, Coelho MS, Rolim MR, Alencar ML, et al. Identification of risk groups for oropharyngeal dysphagia in hospitalized patients in a university hospital. Codas. 2014;26(1):17-27. https://doi.org/10.1590/S2317-17822014000100004

4. Mirmosayyeb O, Ebrahimi N, Shekarian A, Afshari-Safavi A, Shaygannejad V, Barzegar M, et al. Prevalence of dysphagia in patients with multiple sclerosis: a systematic review and meta-analysis. J Clin Neurosci. 2023;108:84-94. https://doi.org/10.1016/j.jocn.2023.01.006

5. Potente P, Buoite Stella A, Vidotto M, Passerini M, Furlanis G, Naccarato M, et al. Application of ultrasonography in neurogenic dysphagia: a systematic review. Dysphagia. 2023;38(1):65-75. https://doi.org/10.1007/s00455-022-10459-9

6. Lin CW, Chiang TY, Chen WC, Chiu LW, Su YC, Lin HC, et al. Is postextubation dysphagia underestimated in the era of COVID-19?.

A systematic review and meta-analysis. Otolaryngol Head Neck Surg. 2023;168(5):935-43. https://doi.org/10.1002/ohn.168

7. Qin Y, Tang Y, Liu X, Qiu S. Neural basis of dysphagia in stroke: a systematic review and meta-analysis. Front Hum Neurosci. 2023;17:1077234. https://doi.org/10.3389/fnhum.2023.1077234

8. Souza CLM, Guimarães MF, Penna LM, Pereira ALC, Nunes JA, Azevedo EHM. Rastreio do risco de disfagia em pacientes internados em um hospital universitário. Distúrb Comun. 2020;32(2):277-84. https://doi.org/10.23925/2176-2724.2020V32I2P277-284

9. Gaspar MRF, Pinto GS, Gomes RHS, Santos RS, Leonor VD. Avaliação da qualidade de vida em pacientes com disfagia neurogênica. Rev CEFAC. 2015;17(6):1939-45. https://doi.org/10.1590/1982-0216201517619114

10. Maneira A, Zanata IL. A frequência de disfagia em idosos em um hospital da cidade de Curitiba-PR. Rev Saúde Pública Paraná. 2018;1(1):20-6. https://doi.org/10.32811/2595-4482.2018V1N1.36

11. Luccia GCP, Kviecinski B, Viviane H, Da M, Santos S. Pacientes geriátricos e disfagia: quais os reais riscos?. COORTE Rev Cient Hosp Santa Rosa. 2017;0(06). https://doi.org/10.52908/COORTE.V0I06.66

12. Carmo LFS, Santos FAA, Mendonça SCB, Araújo BCL. Management of the risk of bronchoaspiration in patients with oropharyngeal dysphagia. Rev CEFAC. 2018;20(4):532-40. https://doi.org/10.1590/1982-021620182045818

13. Almeida TM, Cola PC, Magnoni D, França JÍD, Silva RG. Prevalência de disfagia orofaríngea no acidente vascular cerebral após cirurgia cardíaca. Rev CEFAC. 2015;17(5):1415-9. https://doi.org/10.1590/1982-0216201517520914

14. Delevatti C, Rodrigues EC, Almeida ST, Santos KW. Prevalência e fatores de risco para disfagia orofaríngea em idosos frágeis com fraturas traumato-ortopédicas. Audiol Commun Res. 2020;25:e2388. doi:10.1590/2317-6431-2020-2388

15. Gazzana MB, Freitas CDD, Rabaioli AG, Lima TM, Folador L, Maciel AC. Gravidade da disfagia e intensidade da aspiração laringo-traqueal observados na videofluoroscopia da deglutição em pacientes com doenças respiratórias. Jornal brasileiro de pneumologia. 2016. [cited on Jun 20, 2022]. Available from: https://www.lume.ufrgs.br/bitstream/handle/10183/230268/001017929.pdf?sequence=1

16. Cardoso AMS. TEDE: a prevalência de disfagia e a evolução de alterações na qualidade da deglutição em pacientes infectados por covid-19. 2022. [cited on Jun 20, 2022]. Available from: https://tede.utp.br/jspui/handle/tede/1854