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TRIAGEM DE DISFAGIA EM PESSOAS COM ACIDENTE VASCULAR CEREBRAL COM RECURSO AO MECV-V
DYSPHAGIA SCREENING IN STROKE PATIENTS USING V-VST
DETECCIÓN DE DISFAGIA EN PACIENTES CON ACIDENTE CEREBROVASCULAR MEDIANTE MECV-V

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RESUMO

Introdução: A disfagia tem elevada incidência a nível mundial, sobretudo em pessoas com idade superior a 65 anos e com Acidente Vascular Cerebral, estando associada a maior risco de pneumonia por aspiração e mortalidade. A prevenção destas complicações depende da deteção precoce através de métodos de triagem. No Hospital Professor Doutor Fernando Fonseca utiliza-se o Método de Exploração Clínica Volume-Viscosidade, inicialmente aplicado no Serviço de Urgência Geral e no Serviço de Neurologia.
Objetivo: Compreender o impacto da triagem de disfagia em pessoas com Acidente Vascular Cerebral internadas no Serviço de Urgência Geral e no Serviço de Neurologia do Hospital Professor Doutor Fernando Fonseca.
Métodos: Estudo observacional prospetivo, seguindo as orientações STROBE, com parecer favorável da Comissão de Ética da Unidade Local de Saúde Amadora-Sintra. Incluíram-se todas as pessoas admitidas com diagnóstico de Acidente Vascular Cerebral entre 5 de março e 5 de setembro de 2024.
Resultados: Identificaram-se 427 doentes, com idade média superior a 65 anos. A taxa de disfagia foi 13,11%, de pneumonia por aspiração 5,85%, de mortalidade 10,07% e a média de internamento foi 18,06 dias. A mortalidade e o tempo de internamento foram superiores nas pessoas com pneumonia por aspiração. Os resultados foram mais favoráveis comparativamente a 2023 e à maioria dos estudos publicados.
Conclusão: A implementação da triagem de disfagia traduziu-se em ganhos em saúde, com melhoria dos resultados clínicos, apesar da ausência de associações estatisticamente relevantes.

Palavras-chave: acidente vascular cerebral; avaliação de resultado de ações preventivas; cuidados de enfermagem; métodos; transtornos de deglutição

ABSTRACT

Introduction: Dysphagia has a high incidence worldwide, especially in people over 65 years of age and those with stroke, and is associated with a higher risk of aspiration pneumonia and mortality. Prevention of these complications depends on early detection through screening methods. At the Professor Doctor Fernando Fonseca Hospital, the Volume-Viscosity Clinical Exploration. The method is used, initially applied in the General Emergency Room and the Neurology Service.
Objective: To understand the impact of dysphagia screening in patients with stroke admitted to the General Emergency Room and the Neurology Service of Professor Doctor Fernando Fonseca Hospital.
Methods: Prospective observational study, following STROBE guidelines, with a favorable opinion from the Ethics Committee of the Amadora-Sintra Local Health Unit. All patients admitted with a diagnosis of stroke between March 5 and September 5, 2024, were included.
Results: 427 patients were identified, with a mean age of over 65 years. The dysphagia rate was 13.11%, aspiration pneumonia 5.85%, mortality 10.07%, and the mean length of stay was 18.06 days. Mortality and length of stay were higher in patients with aspiration pneumonia. The results were more favorable compared to 2023 and most published studies.
Conclusion: The implementation of dysphagia screening resulted in health gains, with improved clinical outcomes, despite the absence of statistically significant associations.

Keywords: stroke; evaluation of results of preventive actions; nursing care; methods; deglutition disorders

RESUMEN

Introducción: La disfagia tiene una alta incidencia a nivel mundial, especialmente en personas mayores de 65 años y en quienes han sufrido un ictus, y se asocia con un mayor riesgo de neumonía por aspiración y mortalidad. La prevención de estas complicaciones depende de la detección temprana mediante métodos de cribado. En el Hospital Profesor Doctor Fernando Fonseca, se utiliza el Método de Exploración Clínica de Volumen-Viscosidad, inicialmente aplicado en Urgencias y el Servicio de Neurología.
Objetivo: Conocer el impacto del cribado de disfagia en personas con ictus ingresadas en Urgencias y el Servicio de Neurología del Hospital Profesor Doctor Fernando Fonseca.
Métodos: Estudio observacional prospectivo, siguiendo las directrices STROBE, con dictamen favorable del Comité de Ética de la Unidad Local de Salud de Amadora-Sintra. Se incluyeron todas las personas ingresadas con diagnóstico de ictus entre el 5 de marzo y el 5 de septiembre de 2024.
Resultados: Se identificaron 427 pacientes con una edad media superior a 65 años. La tasa de disfagia fue del 13,11%, la de neumonía por aspiración del 5,85%, la de mortalidad del 10,07% y la estancia media fue de 18,06 días. La mortalidad y la estancia hospitalaria fueron mayores en las personas con neumonía por aspiración. Los resultados fueron más favorables en comparación con 2023 y la mayoría de los estudios publicados.
Conclusión: La implementación del cribado de disfagia generó beneficios para la salud, con mejores resultados clínicos, a pesar de la ausencia de asociaciones estadísticamente significativas.

Palabras clave: accidente cerebrovascular; evaluación de resultados de acciones preventivas; atención de enfermería; métodos; trastornos de deglución

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INTRODUCTION

Swallowing is a complex physiological process essential to the maintenance of life, involving the coordination of multiple neuromuscular structures. This process occurs in four sequential phases: oral preparatory, oral, pharyngeal, and esophageal (Garcia, 2024). The impairment of the swallowing process or difficulty in swallowing solid or liquid foods is termed dysphagia (Lembo, 2022).

Dysphagia affects millions of people worldwide and more than 50% of patients following a stroke (Dziewas et al., 2021). This represents a major public health challenge and concern in nursing practice, given its association with severe complications such as aspiration pneumonia, prolonged hospitalizations, and increased mortality rates (Banda et al., 2022; Silva, 2020).

A meta-analysis including studies published between 1987 and 2021 demonstrated that the presence of dysphagia in stroke patients increases the risk of aspiration pneumonia by a factor of 4.08 and the mortality rate by a factor of 4.07 (Banda et al., 2022).

Despite its clinical relevance, the medical diagnosis of dysphagia is frequently under-coded. Furthermore, attributing dysphagia as the sole cause of its complications is hindered by the coexistence of multiple clinical factors, which also contribute to the underdiagnosis of these complications (Barbosa et al., 2020).

Early identification of complications and preventive strategies are fundamental principles of nursing practice, enabling the reduction of adverse events and the optimization of care delivery. In this setting, the timely identification of dysphagia is the first step toward the detection and prevention of its complications, making the use of valid and reliable screening tools essential (Dziewas et al., 2021; Oliveira et al., 2021; Ordem dos Enfermeiros, 2016; Rowe et al., 2024).

At the Hospital Professor Doutor Fernando Fonseca (HFF), part of the Unidade Local de Saúde Amadora-Sintra (ULSASI), a cross-cutting dysphagia screening protocol was implemented in January 2024, employing the Volume-Viscosity Swallow Test (V-VST). This method allows for rapid screening of oropharyngeal dysphagia and, according to its authors, exhibits high sensitivity (Clavé et al., 2008).

ULSASI selected the V-VST due to its near-100% sensitivity in preventing aspiration into the tracheobronchial tree, as well as the possibility of a rapid and comprehensive assessment of nectar, liquid, and pudding consistencies (Clavé et al., 2008). The Emergency Department and the Neurology Department at HFF immediately began implementing this protocol for stroke patients.

Although dysphagia has been studied extensively, evidence on the impact of systematic V-VST screening in stroke patients in Portuguese hospitals remains scarce. Therefore, this study aims to evaluate the impact of dysphagia screening in stroke patients admitted to the Emergency Department and the Neurology Department at HFF.

1. LITERATURE REVIEW

Dysphagia can manifest in any of the phases of swallowing and, according to the anatomical structures involved, is classified into oropharyngeal dysphagia, when it affects the oral cavity and/or pharyngeal structures, and esophageal dysphagia, when it involves the esophagus (Lembo, 2022). Nursing intervention focuses predominantly on oropharyngeal dysphagia, within the scope of assessment, screening, and prevention of complications (Sousa, 2023).

Dysphagia can be identified in various care settings and throughout the entire lifespan (Clayton et al., 2024; Rivelsrud et al., 2023). In adults aged 18 to 64, it is frequently associated with neurological or oncological pathologies, whereas in people aged 65 and older, it is related to the natural aging process and to neurological and neurodegenerative diseases (Bosch et al., 2023; Rivelsrud et al., 2023; Silva, 2020).

Stroke is the leading cause of dysphagia, particularly in the elderly population (Bosch et al., 2023; Silva, 2020), with a direct relationship between the occurrence of stroke and the development of dysphagia being well-described in the literature (Huang et al., 2024; Ribeiro et al., 2024).

The incidence of dysphagia in the acute phase of stroke varies across different studies between 31% and 78% (Ribeiro et al., 2024; Rofes et al., 2018; Silva, 2020), with a significant impact on patients' functionality in the short, medium, and long term (Aguiar et al., 2023; Dziewas et al., 2021; Huang et al., 2024).

Among the main complications associated with dysphagia in stroke patients, aspiration pneumonia, malnutrition, and dehydration stand out, particularly in older people (Banda et al., 2022; Dziewas et al., 2021; Rivelsrud et al., 2023). These complications contribute to increased mortality rates, length of hospital stay, and readmission rates, as well as a decrease in quality of life, with a significant economic impact on healthcare systems (Bosch et al., 2023; Rofes et al., 2018; Silva, 2020).

In this context, the early screening of dysphagia assumes particular relevance. There are several screening instruments for oropharyngeal dysphagia, most notably the Volume-Viscosity Swallow Test (V-VST), which was recently validated for the Portuguese context. It is a simple, rapid method with high sensitivity and specificity in preventing aspiration (Clavé et al., 2008; Simões, 2018).

The V-VST allows for the sequential assessment of swallowing across different food consistencies (nectar, liquid, and pudding) and in increasing volumes, considering signs of impaired safety and efficacy of swallowing (Clavé et al., 2008; Simões, 2018).

Despite the diversity of literature on dysphagia screening methods, gaps remain regarding comparative evidence that would identify the most effective approach for screening stroke patients (Dziewas et al., 2021). Therefore, the present study aims to

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evaluate the impact of implementing the V-VST within the Emergency Department and the Neurology Department at HFF (ULSASI), contributing to addressing this knowledge gap.

2. METHODS

This is an observational, analytical, and prospective study with a historical comparative component, complying with the STROBE guidelines. Favorable approval was obtained from the ULSASI Ethics Committee for the conduct of the study (Approval No. 030/2024), under the premise of collecting the minimum data strictly necessary to achieve the study objectives.
To assist in addressing the study's purpose, the following specific objectives were defined:

- To identify factors associated with performing dysphagia screening within the first 24 hours;
- To identify the percentage of stroke patients with dysphagia;
- To identify the frequency of the main complications and consequences of dysphagia;
- To compare the frequency of dysphagia and its main complications between the period of March 5 to September 5, 2024, and the corresponding period in 2023;
- To determine the relationship between the study variables: dysphagia screening, dysphagia, age, length of hospital stay, aspiration pneumonia, and mortality.

2.1 Sample

Data collection took place from March 5 to September 5, 2024, including all patients admitted to the Emergency Department and the Neurology Department with a diagnosis of stroke, aged ≥18 years.
Dysphagia screening was performed using the V-VST (Volume-Viscosity Swallow Test, validated in Portugal) only in patients meeting prior safety conditions. According to the HFF protocol, the absence of these conditions precludes the safe performance of the screening. The safety conditions include:

- Assessment of consciousness level (alert for at least 15 consecutive minutes);
- Cervical and postural control (ability to maintain a 90º seated position);
- Ability to understand and follow simple commands;
- Ability to swallow voluntarily and effectively;
- Ability to cough voluntarily and effectively.

2.2 Data collection instruments

Data regarding dysphagia screening were recorded for the period from March 5 to September 5, 2024, in comparison with the same period in 2023. A specific data collection table was created, containing:

- Patient clinical record number (coded);
- Department where the dysphagia screening was performed;
- Age;
- Gender;
- Admission date;
- Dysphagia screening performed within the first 24 hours ("Yes", "No", "Not applicable");
- If applicable, reason for not performing the dysphagia screening within the first 24 hours;
- Dysphagia screening result;
- Aspiration pneumonia ("Yes", "No", "Yes, prior to admission");
- Discharge date;
- Discharge destination ("Home", "Nursing Home", "Deceased/Death", "Other hospital", "Rehabilitation Unit").

Regarding the data for the 2023 period, the HFF Planning and Control Department was requested to provide aggregated data concerning the total number of patients admitted with a stroke diagnosis to the General Emergency Department and the Neurology Department, the frequency of dysphagia, the frequency of aspiration pneumonia, mortality, and the length of hospital stay.

2.3 Statistical Analysis

The variables selected for analysis were

- Age: continuous numerical variable;
- Length of hospital stay: continuous numerical variable;
- Dysphagia screening: nominal dichotomous variable (1 = assessment ≤24 hours; 0 = assessment >24 hours);
- Dysphagia: nominal dichotomous variable (1 = with dysphagia; 0 = without dysphagia);
- Aspiration pneumonia: nominal dichotomous variable (1 = present; 0 = absent);
- Mortality: nominal dichotomous variable (1 = deceased; 0 = not deceased).

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The analysis was conducted using a quantitative method, with data anonymization to ensure confidentiality. Measures of central tendency and dispersion were calculated, including the mean, standard deviation, median, mode, minimum, and maximum, as well as absolute (*f*) and relative frequencies.

Associations between variables were also assessed using:

- Pearson Correlation (r): for relationships between numerical variables;
- Point-Biserial Correlation (r_pb): for relationships between numerical and nominal dichotomous variables;
- Phi Coefficient (ϕ): for relationships between nominal dichotomous variables

Since this is an observational study, the identified associations do not allow for the establishment of causal relationships. All calculations were performed using Microsoft Excel tools, considering the descriptive and analytical nature of the study.

3. RESULTS

Between March 5 and September 5, 2024, 389 patients (91.1%) with a stroke diagnosis were admitted to the Emergency Department and 38 patients (8.9%) to the Neurology Department, for a total of 427 patients.

Patients' ages ranged from 24 to 100 years (mean 72.68 ±13.95; median 74; mode 85). Regarding gender, 52.22% of the patients were male (*f* = 223) and 47.78% were female (*f* = 204).

In this sample, 56 patients (13.11%) tested positive on the V-VST screening (Figure 1), thus presenting with dysphagia. The rate by consistency type was 6.1% for nectar, 0.7% for liquid, and 4.68% for pudding. Additionally, 1.64% required a nasogastric tube (NGT) after assessment, and one individual already had a positive screening from another type of test performed at a different healthcare institution.

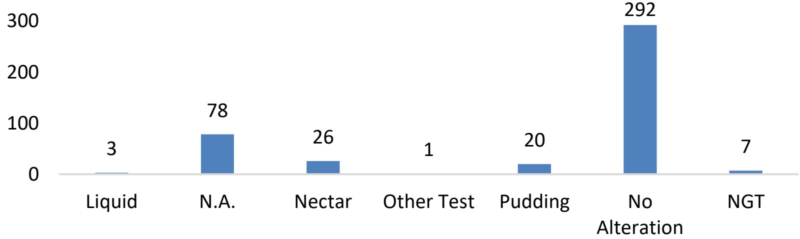

Figure 1 - Dysphagia screening results

Patients with dysphagia had a mean age of 72.41 years (±13.36), a median of 74 years, and a mode of 90 years.

Figure 2 shows the frequency of dysphagia screening performed within the first 24 hours after hospital admission, where 331 (77.72%) screenings were performed ≤24 hours and 94 (22.01%) were performed after the first 24 hours. In two cases, dysphagia screening was conducted at another hospital prior to admission to the HFF, as these patients were inter-hospital transfers.

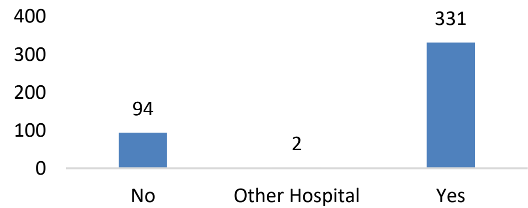

Figure 2 - Dysphagia screening performed within the first 24 hours of hospital admission

Figure 3 presents the incidence of factors that led to the dysphagia screening being performed >24 hours after admission.

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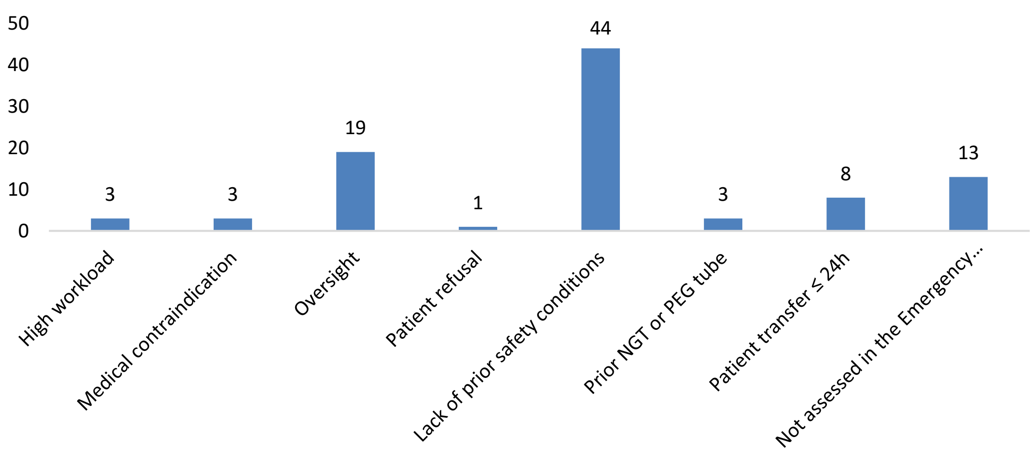

Figure 3 - Factors affecting swallowing assessment > 24 hours after admission

Figure 4 represents the incidence of aspiration pneumonia. The total rate is 6.56%; however, when excluding cases where aspiration pneumonia was already present before the dysphagia screening, that is, prior to admission to the Emergency Department or the Neurology Department, the rate drops to 5.85%. Among patients with dysphagia, the aspiration pneumonia rate was 4.9%, with only one case occurring when screening was delayed beyond 24 hours.
In the same period of 2023, 33 patients with dysphagia presented with aspiration pneumonia, corresponding to 7.73% of the population during that timeframe.

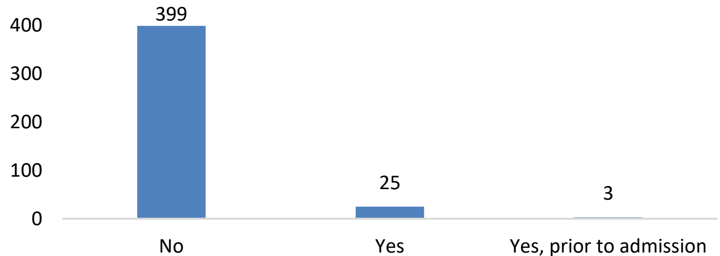

Figure 4 - Aspiration pneumonia

Figure 5 illustrates the discharge destinations of the patients, highlighting the return home (66.28%). Additionally, 43 deaths were identified (10.07%).

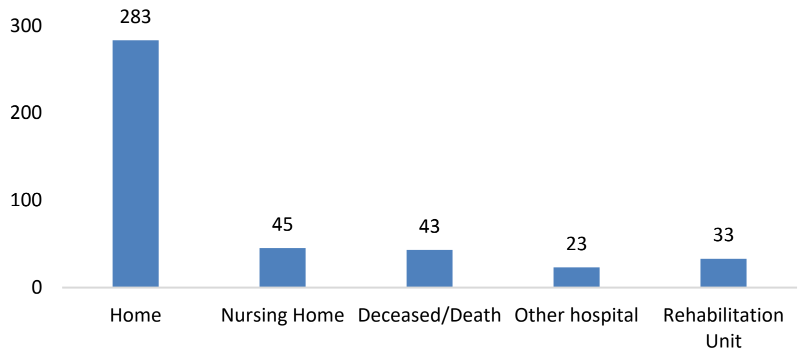

Figure 5 - Discharge destination

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The overall mortality rate was 10.07% (*f* = 43). Among patients who lacked the prior safety conditions required to perform the dysphagia screening, the mortality rate was 56.82% (*f* = 25). In patients with dysphagia, the incidence of mortality was 14.29% (*f* = 8), whereas in those without dysphagia, the mortality rate was 1.8% (*f* = 8). Regarding aspiration pneumonia, a mortality rate of 28.57% (*f* = 8) was observed among patients with this condition, compared to 8.77% (*f* = 35) in those without aspiration pneumonia. In the same period of 2023, there were 53 deaths (total mortality rate of 13.02%), with 16 deaths involving aspiration pneumonia (57.14%) and 37 deaths without aspiration pneumonia (9.76%).
The length of stay for the total sample ranged from 0 to 135 days, with a mean of 18.06 days (±18.93), a median of 12 days, and a mode of 8 days. Regarding patients without aspiration pneumonia, the length of stay also ranged from 0 to 135 days, with a mean of 16.65 days (±17.34), a median of 12 days, and a mode of 8 days. For patients with aspiration pneumonia, the length of stay ranged from 2 to 109 days, with a mean of 40.04 days (±11.93), a median of 30 days, and a mode of 30 days. In the same period of 2023, the overall mean length of stay was 18.66 days; it was 17.51 days for those without aspiration pneumonia and 31.1 days for those with aspiration pneumonia.
Regarding the relationships between variables, the calculation of r between the numerical variables 'age' and 'length of stay' was -0.02933.
The r_pb correlation between the nominal dichotomous variables and the age variable revealed r_pb values of −0.007 for the relationship with dysphagia, 0.051 for the relationship with aspiration pneumonia, and 0.223 for the relationship with mortality. Regarding the length of stay, the r_pb values were 0.019 for the relationship with dysphagia screening, 0.217 with dysphagia, 0.289 with aspiration pneumonia, and -0.081 with mortality.
As for the correlations between nominal dichotomous variables, the ϕ coefficient presented the following values: 0.001 for the relationship between dysphagia screening and dysphagia; 0.004 between dysphagia screening and aspiration pneumonia; and 0.0000002 between dysphagia screening and mortality. Between dysphagia and aspiration pneumonia, the ϕ value was 0.0001, between dysphagia and mortality 0.039, and between aspiration pneumonia and mortality 0.002.

4. DISCUSSION

The majority of admissions occurred through the Emergency Department (91.1% of patients), which is consistent with the literature, given that stroke is an acute condition initially managed in emergency services (Bosch et al., 2023).
Patients admitted to the Emergency Department and the Neurology Department with a stroke diagnosis showed central tendency measures for ages above 65 years; a similar trend was identified among patients with dysphagia. These findings are in line with several studies indicating that the incidence of dysphagia is higher in the elderly population (Bosch et al., 2023; Horn et al., 2022; Pereira et al., 2023; Rivelsrud et al., 2023; Silva, 2020). The sample distribution was nearly symmetrical regarding biological sex, consistent with other studies conducted in Portugal (Pereira et al., 2023).
The dysphagia rate among stroke patients was 13.11%, which is significantly lower than that documented in other recent national and international studies, where prevalence varies between 31% and 78% in the acute phase (Pereira et al., 2023; Ribeiro et al., 2024; Rofes et al., 2018; Silva, 2020). Although the result obtained in this study is considered satisfactory upon comparison, it may be underestimated because dysphagia screening was not performed on patients lacking prior safety conditions.
Most dysphagia screenings were conducted within the first 24 hours after admission to the Emergency Department or the Neurology Department. Thus, the goal of early dysphagia detection, widely advocated in the literature, was met (Dziewas et al., 2021; Ordem dos Enfermeiros, 2016; Rowe et al., 2024).
The main reason for delayed dysphagia screening was the absence of prior safety conditions (46.8%), reflecting appropriate nursing judgment. Other factors included oversight (20.21%) and ward transfer within ≤24h (8.51%). Although organizational factors, such as training gaps or high workload, can affect dysphagia screening, such obstacles were not reflected in the results observed in this study.
The overall aspiration pneumonia rate (5.85%) and the aspiration pneumonia rate among patients with dysphagia (4.9%) were considerably lower than those reported in other studies. For instance, the aspiration pneumonia rate for patients with dysphagia was 12.6% in the study by Rofes et al. (2018), 16.7% in Pereira et al. (2023), was 16.7% and 17.7% in Bosch et al. (2023). Furthermore, the aspiration pneumonia rate is slightly lower than that of the same period in 2023 within these HFF services (a 1.88% decrease), indicating a positive trend. However, this should be interpreted with caution, as the data were obtained using different methodologies.
The "mortality" variable is considered a key indicator for assessing healthcare quality. The mortality rate among stroke patients was 10.07%, rising to 14.29% in patients with dysphagia, and it was significantly higher in those with aspiration pneumonia (28.57%). In the study by Pereira et al. (2023), the mortality rate for patients with dysphagia was 14.5%, a value nearly identical to the one found in this study.
The mortality rate among patients lacking prior safety conditions was also high (56.82%), which is justified by the greater severity of the overall clinical presentation. No studies were identified that specifically addressed these safety conditions; however, it is

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well-established in the literature that a more severe clinical presentation is associated with a higher probability of mortality (Dziewas et al., 2021; Huang et al., 2024; Pereira et al., 2023).
In the meta-analysis published by Dziewas et al. (2021), it was observed that dysphagia screening reduces both the aspiration pneumonia rate and the mortality rate. This was reflected in the present study when comparing the results with 2023 data, showing a 2.95% decrease in the mortality rate, while the mortality rate among patients with aspiration pneumonia was halved in 2024.
No statistically significant association was found to clearly determine that the implementation of the dysphagia screening protocol was the primary reason for the reduction in aspiration pneumonia and mortality rates among hospitalized stroke patients. However, these correlations have been proven in other studies (Dziewas et al., 2021; Pereira et al., 2023).
Regarding the length of stay, the mean number of inpatient days was lower for patients without aspiration pneumonia compared to those with the condition, with a difference of 22 days. This relationship was also observed in the same period of 2023, although the difference was smaller (approximately 13 days). In the study by Pereira et al. (2023), patients with dysphagia also had a longer length of stay (9 days longer).
A weak correlation was identified between the following variables: “age-death”, “length of stay-dysphagia”, and “length of stay-death”. No relationship was identified for “age-length of stay”, “age-dysphagia”, and “length of stay-death”. The relationships between the remaining variables were positive but with results near zero, establishing an almost null association. No other studies were identified that examined these specific relationships between variables.
It was not possible to obtain dysphagia data for 2023, as the dysphagia screening protocol had not yet been implemented and the medical diagnosis of dysphagia was under-coded; this is considered a limitation of the study. Consequently, a comparison of dysphagia rates between 2023 and 2024 could not be performed.
The results of this study highlight significant implications for nursing practice and healthcare management. The high rate of dysphagia screening performed within the first 24 hours reinforces the nurses' ability to conduct early assessments. The importance of using validated instruments, such as the V-VST, and making decisions based on safety criteria, contributes to the prevention of complications like aspiration pneumonia and the reduction of mortality rates. At the same time, the implementation of institutional protocols demonstrates a positive impact on the quality and safety of care, which may result in shorter lengths of stay and reduced associated costs. These findings also emphasize the need for continued nursing education and the optimization of organizational processes, promoting a systematized and evidence-based approach.
Several limitations were identified during the course of this study:

- Uneven patient distribution across departments;
- V-VST applied only to patients meeting prior safety conditions, possibly underestimating dysphagia frequency;
- The indirect method used to obtain data for 2023, which hindered data processing.
- The difficulty in finding scientific literature for direct comparison of results.
- The lack of literature addressing the associations between the variables “age-death”, "length of stay-dysphagia", and "length of stay-death";
- The exclusion of other complications (e.g., malnutrition and dehydration) and consequences (e.g., readmission rate and quality of life) of dysphagia, limiting the scope of this study to the complications most frequently reported in the literature;
- The fact that the variables under study do not, on their own, explain the health gains achieved after the implementation of the dysphagia screening protocol.

These limitations suggest that the results should be interpreted with caution and cannot be generalized to the entire stroke population. This is particularly relevant for the analyzed associations, as this is an observational study with no possibility of determining causality.

CONCLUSION

The study sample predominantly comprised patients over 65 years of age, reflecting the high frequency of stroke and dysphagia in this age group. Several factors affecting dysphagia screening were identified, namely the patients' safety conditions for oral intake and the organization of care. Dysphagia screening was primarily performed within the first 24 hours after admission, indicating sound practices for early detection.
This study also presented the rates of dysphagia, aspiration pneumonia, and mortality, as well as the length of stay for patients diagnosed with stroke. The dysphagia and aspiration pneumonia rates were notably lower compared to other studies, demonstrating the quality of care provided in the Emergency Department and the Neurology Department at HFF.
Aspiration pneumonia and mortality rates decreased compared to the same period in 2023, with a significant difference in the aspiration pneumonia rate. Although protocol implementation likely contributed to these reductions, the weak correlation between dysphagia screening and dysphagia suggests additional factors may have influenced outcomes.

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Implementing such protocols is recommended, as they enhance nursing care quality, even if short-term statistical significance is not observed. The protocol is broadly applicable across care settings; therefore, its replication in other care contexts is suggested to improve health outcomes for patients with other conditions causing dysphagia.
Future research should replicate this study across different periods and settings to compare and validate these findings. Furthermore, a comprehensive study involving all HFF departments is suggested to evaluate rates of screening, dysphagia, pneumonia, and mortality, as well as other associated complications and variables related to post-stroke treatment and rehabilitation, enabling the generalization of results.

AUTHOR'S CONTRIBUTION

Conceptualization, F.T.; data curation, F.T. e E.P.; formal analysis, F.T.; investigation, F.T., A.S., E.P., A.C. e M.S.; methodology, F.T., A.S., E.P., A.C. e M.S.; project administration, F.T.; resources, F.T.; software, F.T. e E.P.; supervision, A.C. e M.S.; validation, A.S., E.P., A.C. e M.S.; visualization, F.T.; writing – original draft, F.T.; writing – review & editing, F.T., M.S., A.C. e B.M.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

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