Reeducação Funcional Da Pessoa Com Deglutição Comprometida: Estudo De Caso

Reeducación Funcional De La Persona Con Deglución Comprometida: Estudio De Caso

Functional Reeducation Of Person With Committed Deglutition: Case Study

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RESUMO

Objetivos: Identificar os ganhos sensíveis aos cuidados de enfermagem de reabilitação com um programa de optimização da deglutição numa pessoa com deglutição comprometida.

Método: Estudo de abordagem qualitativa, tipo estudo de caso. Centra-se na aplicação do Processo de Enfermagem, respeitando a linguagem CIPE®, e recorre ao Padrão Documental dos Cuidados da Especialidade de Enfermagem de Reabilitação para a fundamentação da intervenções implementadas. Expõe-se o caso de uma pessoa com deglutição comprometida, de etiologia neurológica, admitida numa Unidade de Internamento de um Centro Hospitalar, sendo assegurados os principios éticos na sua abordagem.

Resultados: Não foram evidenciadas complicações na implementação do programa e observou-se a recuperação completa da função deglutição, após dez sessões de treino.

Conclusões: A sistematização dos cuidados de enfermagem de reabilitação revelou-se eficaz para reverter a alteração observada e concorreu para incrementar a autonomia da pessoa.

Descritores: Transtornos de Deglutição, Relatos de Casos, Enfermagem em Reabilitação; Autocuidado.

RESUMEN

Objetivos: Identificar las ganancias sensibles a los cuidados de enfermería de rehabilitación con un programa de optimización de la deglución en una persona con deglución comprometida.

Metodología: Estudio de enfoque cualitativo, tipo estudio de caso. Se centra en la aplicación del Proceso de Enfermería, respetando el lenguaje CIPE®, y recurre al "Pátron Documental de los Cuidados Especializados de la Especialidad de Enfermería de Rehabilitación" para la fundamentación de las intervenciones implementadas. Se expone el caso de una persona con deglución comprometida, de etiología neurológica, admitida en una Unidad de un Centro Hospitalario, siendo asegurados los principios éticos en su abordaje.

Resultados: No se evidenciaron complicaciones en la implementación del programa y se observó la recuperación completa de la función deglución, después de diez sesiones de entrenamiento.

Conclusiones: La sistematización de los cuidados de enfermería de rehabilitación resultó eficaz para revertir la alteración observada y permitió incrementar la autonomía de la persona.

Descriptores: Trastornos de Deglución, Informes de Casos, Enfermeria en Rehabilitación, Autocuidado.

ABSTRACT

Objectives: To identify the sensible gains for rehabilitation nursing care with a swallow optimization program in a person with compromised swallowing.

Methods: Qualitative study, type of case study. It focuses on the application of the Nursing Process, respecting the CIPE® language, and uses the Documentary Pattern of Care of the Rehabilitation Nursing Specialty for the substantiation of the implemented interventions. We present the case of a person with compromised swallowing, of neurological etiology, admitted to a Hospital Center inpatient unit, assuring the ethical principles in their approach.

Results: There was no evidence of complications in the implementation of the program and complete recovery of the swallowing function was observed after ten training sessions.

Conclusion: The systematization of rehabilitation nursing care proved to be effective in reversing the observed change and contributed to increase the person's autonomy

Descriptors: Deglutition disorders, Case Reports, Rehabilitation nursing, Self Care.

INTRODUCTION

When approaching people with impaired swallowing, it is important that the multidisciplinary team is aware of its consequences and knows how to identify its clinical signs[1]. Thus, an early assessment of the swallowing function is as or greater importance as the assessment of the person's state of consciousness and the nursing team must be prepared to quickly identify these persons, facilitating the diagnosis and treatment of the alteration in question[2].

The intervention of the nurse, namely the rehabilitation nurse, is essential for persons with impaired swallowing, accompanying them in the rehabilitation process since its beginning and constantly.

The person's perception is equally fundamental in the nursing diagnosis "compromised swallowing". In this sense, the Eat Assessement Tool (EAT-10) is an instrument that can be applied to persons with impaired swallowing, regardless of their diagnosis, as it allows measuring the degree of swallowing change felt by them[3].

It is a Likert-type questionnaire where the person reports the intensity of the perceived change, assigning a score to each of the ten statements, from which a score can be obtained that can vary between 0 for no problem and 4 that corresponds to big problem. A final score greater or equal to three points indicates the presence or risk of impaired swallowing[3].

A study indicates that 48% of people with aspirations detected by videofluoroscopy did not present cough after aspiration of swallowed content, attesting to a high incidence of silent aspirations[4]. Considering this problem, the Volume-Viscosity Swallow Test (V-VST) is an easy-to-apply clinical exploration method that uses pulse oximetry as a complementary procedure for the rapid identification of these persons without recourse to invasive methods such as videofluoroscopy or videoendoscopy[4].

This method allows the rapid detection of clinical signs of change in the efficiency and safety of swallowing through the administration of three types of consistencies: nectar, liquid and pudding, respecting a flowchart with different degrees of difficulty[4]. Changes in efficacy include: ineffective lip closure, presence of oral or pharyngeal residues, and multiple swallows per bolus administered. Signs of change in safety include: change in voice quality, cough or decrease in pulse oximetry greater or equal to 3%[4].

With the data obtained in the application of the V-VST method, it is possible to categorize the functional limitations in oral feeding[4]. In this sense, the Functional Oral Intake Scale (FOIS), with its 7 items, is an assessment instrument that allows this approach. A person positioned at level 7 does not present any type of limitation, on the other hand, a person positioned at level 1 is not able to swallow any food orally[5].

In turn, in levels from 1 to 3 of this instrument, are those who need a nasogastric tube to maintain an adequate food or water intake. Levels 4 to 7 are intended for those who are capable of oral ingestion without the need for any alternative route[5].

The EAT-10 and the FOIS are two easy-to-apply instruments[5], they are validated for the Portuguese population[3;5] and are a valuable asset for the assessment of those with impaired swallowing, guiding their respective rehabilitation[5].

with regards to treatment of swallowing disorders, it is important to accurately identify the affected structures and the type of deficit in swallowing. If muscle weakness is identified, the person should be guided to perform a series of exercises focused on re-educating specific areas of the base of the tongue or the lateral walls of the pharynx. In the case of the presence of neurological deficit that leads to changes in the swallowing reflex or if the muscle deficit is insurpassed, then the person should be guided to implement compensatory strategies to improve swallowing safety[6].

After identifying the change in swallowing, it is essential to outline the planning of nursing care, aiming at the functional re-education of swallowing which, given its complexity, requires specific skills in the field of intervention[7].

The rehabilitation process of compromised swallowing encompasses skills training and muscle strength components, which aim to ensure safe oral intake and combat swallowing alterations[8].

In parallel, it is also essential to implement other rehabilitation nursing care, such as techniques to improve the ventilatory pattern and ventilatory mechanics, seeking to ensure the permeability of the airways, promote strengthening of the respiratory muscles and reduce the risk of aspiration[7].

The prevention of the consequences of immobility should include nursing interventions focused on promoting self-care using adaptive strategies[9]. It is common to observe changes in mobility in people with impaired swallowing, such change cannot be neglected in the planning and implementation of a rehabilitation nursing program. Thus, nursing interventions, in this context, should promote self-control and self-care for these persons.

Introducing rehabilitation as a process that aims at the person's functional recovery, reintegration into the family, community and society, a holistic approach to the person being cared for is necessary[10]. When approaching the person with compromised swallowing, these premises must always be constant.

Rehabilitation Nursing can play a key role in approaching the person with this disorder. This specialty, with another area of Nursing, must be supported by a framework that guides the practice. In the present approach, Dorothea Orem's Self-Care Deficit Nursing theory fits perfectly.

The aforementioned nursing theory proposes five areas of activities for practice, which are: the maintenance of a therapeutic relationship; determining how the person can be helped through nursing care; the response to the person's needs in relation to the nurse's contact and assistance; the prescription, provision and regulation of direct help to the person and significant companions; the coordination and integration of nursing care in the person's daily life; other health care or the necessary social and education services[11]. The five areas mentioned are well present throughout the case presented.

The present study focused on the implementation of a functional re-education program, consisting of rehabilitation nursing interventions with a person with compromised swallowing of neurological etiology. Thus, strategies were developed duly based on the Nursing Process and on the Documentary Standard of Specialized Care of the Rehabilitation Nursing Specialty[12]. Likewise, the use of appropriate assessment instruments allowed the elaboration of diagnostic criteria that helped to define more accurate rehabilitation nursing diagnoses in this context and sought to guide the process of evaluating the results of that same program.

In this sense, the general objective of this study was to identify the gains sensitive to rehabilitation nursing care with the implementation of a swallowing optimization program in a person with impaired swallowing. The specific objectives aimed to identify swallowing changes using three instruments: assessment of swallowing changes; define the main rehabilitation nursing diagnoses in the context of compromised swallowing; evaluate the impact of implementing a swallowing optimization program in a person with impaired swallowing, in improving rehabilitation nursing diagnoses.

MATERIAL AND METHODS

In Nursing, the approach through the case study allows the researcher to study a complex phenomenon of life in an intensive and profound way, using multiple sources of evidence[13].

Case studies can generate hypotheses for future clinical studies, as well as guidance for the individualization and personalization of care provision. The CAse REport (CARE) guidelines were used as they provide the necessary structure to satisfy the accuracy, integrity and transparency in the scientific approach to case studies[14].

CARE's guidelines are part of a 13-item checklist (title, keywords, abstract, introduction, person information, clinical findings, schedule, diagnostic evaluation, therapeutic intervention, clinical follow-up and results, discussion, person perspective, term of informed consent) and is specially structured to correspond to the main components of a case study and to apprehend the relevant clinical information[14].

Likewise, in the structuring of this study, the six stages of the development of the case study defined by Yin and Stake were fulfilled, namely: Definition of the problem; Case definition; Theoretical foundation; Preparation of the study protocol; Data collection; Analysis and interpretation of results[13].

This study describes the case of a person with compromised swallowing and presents a longitudinal character, which allows to demonstrate the functional swallowing reeducation program developed with this person and showing the results achieved.

It was carried out during the month of November 2017, from admission to a unit in the department of medicine of a Hospital Center of the Regional Health Administration of Lisboa e Vale do Tejo, until the functional swallowing was recovery. It is a unique case and a holistic approach.

The person involved in the study signed the free and informed consent form for health acts/interventions under the terms of standard No. 015/2013 of the Directorate-General for Health.

The study was approved by the Ethics Committee for Health and authorized by the Board of Directors of the Hospital Center.

It is noteworthy that all ethical aspects connected with research carried out with human beings were respected. Thus, was sought to comply with the indications expressed in the Declaration of Helsinki, in the Convention on Human Rights and Biomedicine, in the guidelines of the Council for International Organizations of Medical Sciences and in the Guide to Good Clinical Practices.

The person was designated by a letter (A), safeguarding data confidentiality and anonymity.

The use of specific instruments for the assessment of swallowing commitment required the request for authorization from national researchers who had adapted these same instruments to European Portuguese.

This study shows the results of a participant who was part of a large project whose inclusion criteria for the participants were: a Glasgow Comas Scale score greater or equal to 11 points (maximum score on the items “eye opening” and “best motor response”) , in order to include people with speech deficits; EAT-10 score greater or equal to 3 points (suggesting the perception of commitment in swallowing[3]); FOIS higher than level 1 and lower than level 7 (allowing the inclusion of persons with oral intake, but with commitment in the ingestion of certain consistencies[5]).

A statistical analysis of all EAT-10 questionnaires applied to the person throughout the study was performed, using the IBM-SPSS (Statistical Package for the Social Sciences) version 22.0 software, facilitating a subsequent descriptive analysis.

CASE PRESENTATION

Anamnesis

The anamnesis guides the health professional towards the diagnosis and respective therapeutic plan. Socioeconomic characteristics, past history, family history and current clinical history are fundamental components for a good anamnesis[15].

The case of Mr. A, 57 years-old, male, Caucasian and of Portuguese nationality, is exposed. Has the 9th grade of schooling. Mr. A is married and has no children. As for his employment situation, works in a company as an elevator technician. Was admitted to the Hospital Center emergency department on November 5, 2017 with a hypertensive crisis accompanied by headache, vomiting, prostration and decreased muscle strength in the body segments of the left hemibody, being referred through the green stroke pathway. Afterwards, was referred to the Stroke Unit of the Hospital Center, after performing a Cranio-Brain Computed Axial Tomography, compatible with an acute vertebrobasilar ischemic injury.

Mr. A had hypertension and dyslipidemia as personal history, presenting as usual therapy: captopril 12.5mg/day; bisoprolol 2.5mg/day; pravastatin 20 mg/day. This is his first hospitalization and he is not aware of any type of allergies.

As for the nutritional status, Mr. A had an adequate weight for his height (weight 82 kg and height 180 cm), corresponding to a body mass index of 25.31 kg/m2, a value that was maintained throughout the functional re-education of swallowing. However, Mr. A had 3 to 4 meals a day throughout the hospital stay, showing changes in the safety and effectiveness of swallowing food with liquid consistency from the day of admission, with an evident risk of dehydration.

Since the day of admission, Mr. A had a change in communication, namely in speech fluency (dysarthria). He had no changes in hearing or vision, and did not need any compensation mechanism. The allopsychic and autopsychic orientation were always a constant in Mr. A. He showed perfect awareness of his clinical situation and was always participative in the instituted program.

In the context of activities of daily living and instrumental activities of daily living, Mr. A was independent until hospitalization and reported having an active social life.

As for the socio-family and housing situation, Mr. A mentioned that had no economic difficulties. He lived with his wife in a one-story house in the center of a village. The presence of the wife was a constant from the tenth day of hospitalization, followed since then, her clinical evolution and actively participated in the instituted program.

Rehabilitation Nursing Assessment

The data obtained through the anamnesis complement those achieved in the physical examination of the person and guide the rehabilitation nurse in the implementation of a program based on diagnoses and rehabilitation nursing interventions.

The rehabilitation program and first contact with Mr. A started 24 hours after his admission to the service, on November 6, 2017, and the rehabilitation nursing interventions were implemented until November 24, 2017. Mr. A was discharged on November 28, 2017.

In Mr. A's physical examination, the use of the aforementioned assessment instruments was essential for an adequate categorization of the degree of swallowing alteration. The use of these assessment instruments allowed the definition of rehabilitation nursing diagnoses and the determination of sensitive gains for rehabilitation nursing care.

According to the bibliographic sources consulted, an interval of 48 hours is advocated for the evaluation with the EAT-10[3]. As for FOIS, its application is suggested within 24 hours after admission and 3 hours after an initial evaluation[5]. Thus, Mr. A was subjected to an assessment at the beginning of the swallowing functional reeducation program and the periodicity of assessments was maintained in an interval of three sessions, in order to maintain the recommended time for the application of the FOIS scale.

When the alteration in Mr. A's swallowing was identified with the EAT-10 score and the FOIS level obtained in the subjective evaluation, an objective evaluation was carried out using the clinical exploration method V-VST.

This objective evaluation allowed the determination of food consistency and volume for safe swallowing, confirming or corroborating the level of FOIS obtained in the subjective evaluation, and substantiating the recommended diet and necessary supervision. Signs of change in swallowing safety and effectiveness, detected during the V-VST, were recorded in a recording instrument developed for this purpose.

In each of the assessments carried out, in addition to applying the aforementioned assessment instruments, the nursing diagnoses and respective interventions under the "swallowing" focus were adjusted.

Aiming at a holistic approach, during the swallowing functional reeducation program, it was possible to collect other data that allowed interpreting the person's ventilatory condition and nutritional status. Regarding the ventilatory condition, oxygen saturation, obtained through peripheral oximetry, was monitored and recorded daily. As part of the assessment of nutritional status, the person's Body Mass Index (BMI) was monitored every six sessions.

Rehabilitation Nursing Diagnoses

The three nursing diagnoses that supported the swallowing functional reeducation program were defined respecting the language of the International Classification for Nursing Practice (ICNP®) version 2015[16] and focused on the focus "Swallowing" and on the dimensions of " Knowledge" and "Learning Skills"[12]. Are they:

1. Compromised swallowing;

2. Potential to improve knowledge about exercises and swallowing techniques;

3. Potential to improve ability to perform swallowing exercises and techniques.

Swallowing Functional Reeducation Program

Throughout the functional swallowing reeducation program, by gathering the data collected in the subjective and objective assessment of Mr. A, and after surveying the nursing diagnoses, several nursing interventions were proposed (Table 1).

Swallowing Focus		
Active diagnosis	**Diagnostic Statements**	**Statements of diagnosis action and nursing interventions**
Session 1 to 3	Moderately compromised swallowing	To evaluate swallowing ability
		To monitor swallowing (EAT-10, V-VST, FOIS)
		To supervise swallowing
		To encourage swallowing
		To manage diet
		To plan diet
		To position the Person
Session 4 to 10	Reduced compromised swallowing	To evaluate swallowing ability
		To monitor swallowing (EAT-10, V-VST, FOIS)
		To supervise swallowing
		To manage diet
		To plan diet
		To position person
	Knowledge Dimension	
Active diagnosis	**Diagnostic Statements**	**Statements of diagnosis action and nursing interventions**
Session 1 to 10	Potential to improve knowledge about swallowing exercises and techniques	To teach about pathological process
		To teach about complications of the pathological process
		To teach about diet (adapted diet)
		To teach about swallowing exercises and techniques
		To assess knowledge about swallowing exercises and techniques
	Dimension of Learning Skills	
Active diagnosis	**Diagnostic Statements**	**Statements of diagnosis action and nursing interventions**
Session 1 to 10	Potential to improve ability to perform exercises and swallowing techniques	To instruct/train exercises and swallowing techniques
		To assess ability to perform swallowing exercises and techniques

Table 1: *Swallowing Functional Rehabilitation Program* [12;16]

In the application of the clinical exploration method V-VST, clinical manifestations were observed in the different phases of swallowing, as reported in the consulted bibliography[17, 18].

This fact enabled the identification of the swallowing phase with the greatest number of alterations and guided towards the selection of the most adequate set of exercises and techniques to combat such dysfunctions.

The proposed programs always presented the same three training components: range of motion exercises and muscle strengthening, training in compensatory postures and training in compensatory swallowing techniques, as suggested by several authors[19; 20; 21]. Two programs of functional swallowing reeducation were defined to be applied along the approach to Mr. A (Table 2).

Swallowing phase with greater number of changes	Program	Exercises	Time (min.)
Oral Phase (Program 1)	Muscle Strengthening Exercises	Lips; Tongue; Cheeks; Tongue and Cheeks; Lower jaw.	15’
	Compensatory postures	Reclining position; Cervical extension; Cervical rotation to the less functional side; Cervical rotation to the less functional side and cervical extension; Lateral decubitus with	10’

		head supported.	
	Compensatory swallowing techniques	Food cake control; Multiple swallowing; Effortless swallowing.	5’
Pharyngeal phase (Program 2)	Muscle Strengthening Exercises	Tongue and cheeks; Lower jaw; Larynx.	5’
	Compensatory postures	Reclining position; Cervical Flexion; Cervical Inclination.	5’
	Compensatory swallowing techniques	Thermal stimulation; Effort swallowing; Supraglottic swallowing; Super-supraglottic swallowing; Mendelsohn Maneuver; Masako's maneuver; Shaker exercise.	20’

Table 2: Exercises and techniques for the functional reeducation of swallowing [19;20;21].

Each training session had an average duration of 30 minutes, according to the evidence detected in the consulted bibliography[19]. In addition to these sessions, as mentioned above, a rehabilitation nursing care plan was implemented.

The established care plan proved to be changeable throughout the functional swallowing reeducation program and, taking into account the holistic approach characteristic of this study, there were not only diagnoses centered on the “Swallowing” focus.

Nursing diagnoses were listed as: Self-care: Compromised drinking; Feeding dependent; Compromised airway cleanliness; Risk of aspiration; Risk of dehydration; Risk of compromise in nutritional intake; Sensory deficit present; Impaired body balance; Decreased muscle movement[12,16].

Nursing interventions were ensured in all sessions, aiming at the recovery of the swallowing function (documented by the evolution in the FOIS scale) as well as the rehabilitation of the person as a whole.

RESULTS

As mentioned above, Mr. A was part of a larger project, having started the swallowing functional reeducation program at the beginning of the project selection period.

After signing the informed consent, he completed a total of 10 sessions, with 4 assessments being carried out in total, respecting the interval of 3 sessions, and remained in the program until functional recovery from swallowing.

Decreased levels of awareness, the presence of fatigue and neurological alterations can compromise the person’s response and the maintenance of sufficient alertness to favor their participation in therapeutic sessions[22]. Thus, before any intervention, the level of consciousness was always assessed through the application of the Glasgow Comas Scale.

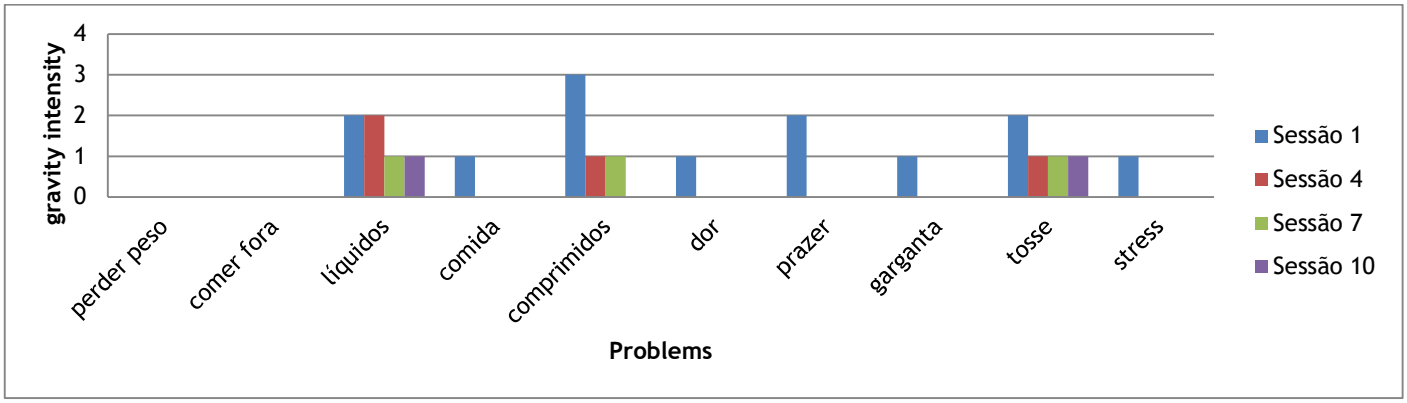
As mentioned above, it could be observed that Mr. A always remained alert and collaborative, with 15 points on that scale, both in the initial assessment and in the remaining assessments.

This was followed by the step of assessing the perception of swallowing changes, using the EAT-10 questionnaire. The questionnaire was always completed by Mr. A, only requiring guidance to filling it out on the day of the initial assessment.

In the analysis of the responses obtained in the EAT-10 questionnaires, it can be seen that the most frequently perceived problems resided at “swallowing liquids requires a greater effort” and “I cough when I eat”, being reported in all evaluations carried out. This fact suggested that these are the most disturbing problems for Mr. A throughout the swallowing functional reeducation program (Graph 1).

In the statistical analysis of the EAT-10 questionnaires, it was also verified that, although it was not reported in all evaluations, the difficulty in swallowing pills was also a relevant problem reported by Mr. A (Table 1).

In the first evaluation, the perception of the change in swallowing was evident, with a very high final score (13 points). However, at the end of the swallowing functional reeducation program, the score obtained was less than 3 points (2 points) (Table 2), suggesting a total remission of symptoms of impaired swallowing[3,5].



Graph 1: *Results of the EAT-10 questionnaires* ***Source:*** *Own data*

	Question - Keyterms									
Statistical Data	Losing weigth	Going out for eating	Liquids	Food	Pills	Pain	Pleasure	Throat	Coughing	Stress
Average	0	0	1.5	0.25	1.25	0.25	0.5	0.25	1.25	0.25
Minimum	0	0	1	0	0	0	0	0	1	0
Maximum	0	0	2	1	3	1	2	1	2	1

Table 1: *Statistical analysis of EAT-10 questionaires* ***Source: Own Data***

Session	Score EAT-10
1	13
4	4
7	3
10	2

Table 2: *Total Score EAT-10* ***Source:*** *Own data*

Regarding the clinical exploration of swallowing, through the application of the V-VST method, it was found that, in the seventh session, Mr. A was already tolerating liquid bolus, maintaining signs of alteration in the safety of swallowing in high volumes (20ml). Supervised fluid intake was recommended in medium volumes (10 ml) (Table 3).

In the tenth session, Mr. A was already ingesting high volumes of liquid (20 ml) without showing signs of compromising the safety or effectiveness of swallowing. It was found that Mr. A completed the swallowing functional reeducation program without presenting oxygen desaturation, a situation that was frequent at the beginning (Table 3).

Session	Last *bolus* with safety signs		Observed clinical signs	
	Consistency	Volume	Safety	Efficiency
1	Nectar	10 ml	Cough; Oxygen desaturation (4%)	Ineffective lip closure; Oral waste; Multiple Swallows; Pharyngeal waste.
4	Liquid	5 ml	Cough	--
7	Liquid	10 ml	Cough	--
10	Liquido	20 ml	--	--

Table 3: *Overview of V-VST results* ***Source: Own Data***

The data obtained from the application of the V-VST clinical exploration method guided the selection of the most appropriate exercises and techniques.

In the initial session, program 1 was selected and program 2 was selected in the remaining sessions that Mr. A had a greater number of alterations in the pharyngeal phase, which justified the selection of program 2 more frequently.

Specialized rehabilitation nursing care inherent to the person with impaired swallowing was ensured, directed at the changes presented by Mr. A, aiming to achieve maximum functionality and autonomy.

Thus, regarding the diagnosis "compromised swallowing", there was a progression of Mr. A's autonomy in the degree of commitment throughout the program. Within the scope of "Knowledge" and "Learning Skills" dimensions, the changes in exercise program and swallowing techniques, from program 1 to program 2, contributed to the existence of some gaps in the transition phase. However, these gaps were being filled (Table 4).

The high adherence to the proposed swallowing exercises and techniques is highlighted.

Mr. A demonstrated increased capacity in the exercises and techniques that were performed more frequently throughout the swallowing functional reeducation program, with greater difficulty in performing the Masako maneuver (because it is a difficult technique to perform). The thermal stimulation technique was initially performed by the nurse. However, at the end of the program, Mr. A has already demonstrated the capacity to carry it out.

Diagnostic statement	Sessions			
	1	4	7	10
Compromised swallowing				--
Knowledge Dimension				
Diagnostic statement	**Sessions**			
	1	4	7	10
Potential to improve knowledge about swallowing exercises and techniques				
Dimension of Learning Skills				
Diagnostic statement	**Sessions**			
	1	4	7	10
Potential to improve ability to perform swallowing exercises and techniques				

Subtitle: moderate degree reduced degree dot not show show

Table 4: *Evolution in nursing diagnoses related to the focus "Swallowing"* ***Source:*** *Own data*

There was a greater lack of knowledge about the super-supraglottic swallowing technique. Although the Masako maneuver is the technique where the person showed greater difficulty in execution, this was not verified with the knowledge about it. Mr. A demonstrated more consistent knowledge of the therapeutic exercises given since the beginning of the program.

The family caregiver (wife) was not always present in all sessions, but correctly apprehended the activities and techniques addressed throughout the program. Like Mr. A, he demonstrated consistent knowledge of the techniques that were most frequently performed throughout the program. Both Mr. A and the family caregiver gradually acquired knowledge about the adapted consistency technique (use of thickener).

Taking into account the change in swallowing, the "risk of compromise in nutritional intake" was evident [16]. At the end of the program, when Mr. A already had the functional capacity to ingest meals with two or more consistencies, this risk was no longer present. The BMI was monitored weekly and, as mentioned above, no changes were detected throughout the program.

In the analysis of the data obtained, it was found that Mr. A presented functional improvement in swallowing, as evidenced by the progression in the FOIS level. It should be noted that Mr. A completely reversed the swallowing changes, reaching level 7 on the FOIS scale (Table 5).

Session	FOIS Level
1	4
4	5
7	6
10	7

Table 5: *Summary of categorization in the FOIS scale*
Source: *Own data*

DISCUSSION

The approach presented and the results achieved demonstrate that specialized rehabilitation nursing care can play an important role in early intervention on people with impaired swallowing and on their functional re-education.

Nurses are the professionals who spend more time with the person, being responsible for ensuring their autonomy and safety[2]. It is recommended that, for an effective approach to persons with impaired swallowing, the need to face this reality as a priority for multidisciplinary action should be considered[2, 23].

Conducting studies in this area is essential to establish the effectiveness of rehabilitation in persons with specific swallowing disorders, to define the appropriate treatment to maximize costs and produce positive results[8]. In order to achieve this objective, this case included the assessment of swallowing through the application of valid, reliable, responsive and efficient assessment instruments[24] and the implementation of a swallowing optimization program based on the detected changes. This set of interventions aimed at the functional recovery of the studied person's swallowing.

In selecting the most appropriate set of exercises and swallowing techniques, the use of the EAT-10 and V-VST instruments was essential to characterize the observed alterations[3,4].

The presence of swallowing changes can lead to feelings of depression and anxiety during meals[3]. The application of the EAT-10 tool made possible to measure the degree of severity of symptoms, monitor the effectiveness of the established program[3,5] and detect the most frequently perceived problems that most disturbed the person approached. There was a significant reduction in reported symptoms.

The combination of the EAT-10 tool with the V-VST clinical exploration method presents great precision with regard to the detection of swallowing alterations[4]. The results presented with the application of these instruments evoke the need for clinical screening and skill training by someone with

skills in swallowing assessment, capable of determining the presence, severity and mechanism of alteration[7,23].

The V-VST allowed the detectition of changes in the safety and effectiveness of swallowing and provided the necessary data to demonstrate that, at the end of the program, the studied person was already tolerating high volumes of fluids, which suggests the effectiveness of the planned interventions.

According to the clinical manifestations observed, it was essential to adjust the muscle strengthening exercises, compensatory postures and techniques that facilitate swallowing[19] throughout this approach. Such adjustment allowed the individualization of the swallowing functional reeducation program.

The functional re-education of swallowing in a person with a stroke should include therapeutic measures focused on increasing oral sensitivity, oral motor exercises and compensatory maneuvers in order to prevent aspiration[25]. Such aspects were always addressed in the two proposed rehabilitation programs.

Positive reinforcement was essential and necessary to achieve the goals outlined for the functional re-education program[26] of swallowing. In the case analyzed, the person demonstrated, in general, to have knowledge and ability to perform exercises and swallowing techniques, with positive reinforcement being the key to such success.

The person's difficulty in performing certain therapeutic exercises, mainly in the scope of compensatory techniques of swallowing, was related to the presence of motor and sensory deficits that made it impossible for them to be independent in their performance.

In order to implement self-care and self-control, a structured approach to rehabilitation nursing care is needed, involving family and informal caregivers in the proposed interventions [27]. Thus, the participation of the informal caregiver in the person's rehabilitation process proved to be essential, reinforcing their role in the continuity and reinforcement of the care provided.

Aiming to promote the re-adaptation processes and promote the capacity for self-care [28], the importance of planning rehabilitation nursing care based on nursing diagnoses in accordance with the observed changes is highlighted.

The effectiveness of the care method advocated by Dorothea Orem depends, to a large extent, on the nurse's creativity, appreciation, knowledge about and respect for the person. An environment favorable to development is also an environment favorable to learning.[29] The approach explained in this study is based on Dorothea Orem's theory of self-care deficit, which focuses on the role of Nursing in learning and developing the skills of the person being cared for.

The clinical reasoning that the nurse makes culminates in a diagnosis and involves making decisions based on the identification of the person's clinical conditions (diagnostic criteria), in this sense, the greater the accuracy of a diagnosis, the more accurate the clinical decision process should be [30]. The use of instruments that allowed the assessment of swallowing alterations contributed to the definition of diagnostic criteria for rehabilitation nursing.

On the other hand, these instruments helped to assess the progress of the person's state with the intervention of the Rehabilitation Nurse and, together with the implemented interventions, contributed to the functional re-education of swallowing, this purpose being attested by the progression in the FOIS scale.

The study of this case allowed us to reflect on the relevance of the systematic assessment of swallowing and reinforce the idea that the nutritional risk of a person with a stroke requires continuous monitoring and effort [31].

From the results of the implementation of this program, some limitations stand out. It would be essential, in future research, to extend the time available for the implementation of different therapeutic activities, allowing for more consistent results. Likewise, the fact that only one person's case is addressed makes it impossible to make inferences about the results obtained.

There are not many publications by nurses in the area of functional re-education of swallowing. In this way, this exhibition can give visibility to the interventions of rehabilitation nurses on the person with this change. Thus, the need to carry out more studies on this theme becomes emergent, namely experimental or quasi-experimental studies.

The case presented may contribute to a properly systematized specialized nursing practice, enabling the dissemination of knowledge about the intervention of the rehabilitation nurse with the person with impaired swallowing, with a view of strengthening the teaching and practice of this specialty.

FINAL THOUGHTS

This case study highlighted the effectiveness of rehabilitation nursing interventions in the context of promoting the safety and functionality of persons with impaired swallowing, which is a possible approach to take into account in persons with alterations of this nature.

Throughout the implemented program, it was essential to detect the person's ability to eat and hydrate safely and effectively, this was possible through constant monitoring of awareness using the Glasgow Coma Scale.

The assessment of the risk of changes in swallowing was possible using the EAT-10 questionnaire, which allowed for the identification of symptoms of impaired swallowing and its degree of severity.

The clinical signs identified with the application of the clinical exploration method (V-VST) were fundamental for the selection of the appropriate set of exercises.

The assessment instruments (FOIS, EAT-10 and V-VST) in addition to helping to define the stated rehabilitation nursing diagnoses, made the diagnostic criteria more objective, facilitating the implementation of diagnostic action statements and interventions for nursing appropriate to the person's clinical situation and the observed dysfunction, and allowed a holistic and personalized approach.

The evolution of the person approached was visible through the results obtained in the application of the assessment instruments and the positive progression in the degree of commitment in the stated nursing diagnoses. Nursing interventions proved to be effective in reversing swallowing changes and contributed to improve the autonomy and independence of the studied person.

Throughout the program, the risk of compromise in nutritional intake was evident, but no large fluctuations in BMI values that could prove such compromise were observed.

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