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CASE REPORT

Empowering a person with Chronic Obstructive Pulmonary Disease at home, after prolonged hospitalization: Case Report

Capacitación de una persona con Enfermedad Pulmonar Obstructiva Crónica en domicilio, después de una hospitalización prolongada: Reporte de Caso

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ABSTRACT

Introduction: Chronic Obstructive Pulmonary Disease compromises functional capacity and self-care due to fatigue and dyspnea. Respiratory rehabilitation, which includes respiratory and motor training, is essential for recovery and improving quality of life. The intervention of rehabilitation nurses in the implementation of a personalized rehabilitation plan at home is essential to promote autonomy and functionality in people with Chronic Obstructive Pulmonary Disease after prolonged hospitalization.
Objective: describe the benefits of implementing a Rehabilitation Nursing program at home for people with Chronic Obstructive Pulmonary Disease after prolonged hospitalization.
Case Report: a descriptive study, written according to the CARE recommendations, of a person who had difficulties mobilizing and performing Activities of Daily Living due to Chronic Obstructive Pulmonary Disease and prolonged hospitalization. After identifying the rehabilitation nursing diagnoses, a care plan was drawn up based on the Nursing Ontology and a personalized rehabilitation program was implemented.
Conclusion: the results of this study corroborate the existing literature, which highlights the benefits of the Rehabilitation Nurse's role in implementing respiratory rehabilitation and exercise therapy programs to increase the functionality and independence of people with Chronic Obstructive Pulmonary Disease. The personalized home-based approach allowed for a therapeutic plan adapted to the person's needs, promoting greater adherence and autonomy.

Keywords: Rehabilitation Nursing; COPD; Case Report; Functionality; Exercise Therapy; Home Health Nursing.

RESUMEN

Introducción: la Enfermedad Pulmonar Obstructiva Crónica compromete la capacidad funcional y el autocuidado debido a la fatiga y disnea. La rehabilitación respiratoria, que incluye entrenamiento respiratorio y motor, es esencial para la recuperación y la mejora de la calidad de vida. La intervención de la enfermera rehabilitadora en la implementación de un plan de rehabilitación personalizado en el domicilio es fundamental para promover la autonomía y funcionalidad en personas con Enfermedad Pulmonar Obstructiva Crónica tras una hospitalización prolongada.
Objetivo: describir los beneficios de implementar un programa de Enfermería de Rehabilitación en domicilio en una persona con Enfermedad Pulmonar Obstructiva Crónica después de una hospitalización prolongada.
Reporte de Caso: estudio descriptivo, escrito de acuerdo con las recomendaciones de CARE, tipo reporte de caso, de una persona que presentó dificultades para movilizarse y realizar Actividades de la Vida Diaria debido a Enfermedad Pulmonar Obstructiva Crónica y hospitalización prolongada. Luego de identificados

los diagnósticos de enfermería de rehabilitación, se elaboró un plan de cuidados basado en la Ontología de Enfermería y se implementó un programa de rehabilitación personalizado.
Conclusión: los resultados de este reporte corroboran la literatura existente, que destaca los beneficios del trabajo de la Enfermera de Rehabilitación en la implementación de programas de rehabilitación respiratoria, y terapia por ejercicio para aumentar la funcionalidad e independencia de las personas con Enfermedad Pulmonar Obstructiva Crónica. El enfoque domiciliario personalizado permitió un plan terapéutico adaptado a las necesidades de la persona, promoviendo una mayor adherencia y autonomía.

Palabras clave: Enfermería de Rehabilitación; EPOC; Reporte de Caso; Funcionalidad; Terapia por Ejercicio; Cuidados de Enfermería en el Hogar.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a major public health problem and is the fourth leading cause of death in the world.[1,2] Between 2009 and 2019, the COPD mortality rate increased by 35.4 %.[2] Mortality is usually associated with exacerbations requiring hospitalization.[1,3] People with chronic respiratory diseases, such as COPD, have respiratory impairment, significantly impacting self-care due to fatigue and dyspnea. Symptoms include dyspnea, activity intolerance, wheezing, and coughing.[1,3,4,5]

These symptoms reduce the functional capacity for daily activities, affecting the quality of life[3] and requiring the intervention of a rehabilitation nurse specialist (RNS).[4] Prolonged hospitalization not only worsens respiratory symptoms, it contributes to the decrease in functional capacity and muscle strength due to physical inactivity and deconditioning, requiring the intervention of nursing in pulmonary rehabilitation combined with simultaneous inhalation therapy and non-invasive ventilation.[5,6]

In this context, respiratory rehabilitation interventions include physical and cognitive rehabilitation, educational programs that result in improvements in physical symptoms, such as dyspnea, and emotional symptoms, such as anxiety, well-being, lung capacity, functionality and self-care, self-management, self-efficacy, thus contributing to improving quality of life.[7,8]

Exercise training is essential in pulmonary rehabilitation (PR) in patients with exercise intolerance. Muscle strengthening and aerobic conditioning exercises in patients with COPD may be a beneficial adjuvant therapy in improving lung function and relieving dyspnea, improving exercise capacity and independence in daily activities.[8,9]

This is a case report of a patient with COPD, with prolonged hospitalization, who became intolerant to activity, dependent on activities of daily living and was selected for rehabilitation nursing intervention at home. Thus, this case report aims to describe the benefits of a home-based respiratory rehabilitation program in the functional recovery and self-care of a person with COPD after a long hospitalization.

CASE REPORT

This is a case report that follows the CARE recommendations. Mrs. F, 74 years old, female, was referred to the Integrated Continued Care Team (ICCT) after prolonged hospitalization in an intensive care unit and ward, where she was under invasive mechanical ventilation (IMV) multiple times due to decompensation of COPD. She lives with her husband.

She is obese and oxygen-dependent (2L/min at rest, 3L/min on exertion). Uses a walker. Prolonged hospitalization and COPD have reduced muscle strength and activity tolerance, making Activities of Daily Living (ADLs) difficult.

Referred to ICCT for muscle strengthening, improved resistance to exertion and increased independence at home. The initial rehabilitation nursing assessment was carried out:

- Functional Independence Measure (FIM): Assessment of functionality.
- Borg Scale: Perception of exertion.
- Berg Scale: Assessment of body balance.
- Modified Medical Research Council Muscle Scale (mMRC): Assessment of muscle strength.[10]

Nursing diagnoses were identified based on Nursing Ontology:

- Compromised ventilation
- Activity intolerance
- Potential to improve knowledge of rest and energy conservation techniques
- Potential to improve ability to perform rest and energy conservation techniques
- Potential to improve knowledge of Body Balance
- Potential to improve ability to perform Body Balance techniques

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- Potential to improve knowledge of walking with a walking aid
- Potential to improve the ability to perform walking techniques with a walking aid

The rehabilitation plan used interventions such as teaching, instruction and training, following the FITT-VP principles (Frequency, Intensity, Time, Type, Volume and Progression), adjusted to the person's tolerance. Home sessions were held twice a week for four weeks.

After a long period of hospitalization, Mrs. F. had great difficulty in mobilizing, so in addition to respiratory rehabilitation, motor training was carried out, which focused on upper and lower limb strength training, balance training and gait training with an aid.

During the sessions, the numerical pain scale, the modified Borg scale, heart rate and peripheral oximetry as well as blood pressure were assessed before and after the intervention. [10]

An evaluation of the scores shows a favorable evolution over the five weeks, with a significant improvement in functional independence and perceived exertion. Initially, Mrs. F rated the effort as very intense (grade 7) on the Borg scale, while in the last week, despite the greater intensity of the exercises, she rated it between light and very light (grade 1-2).[10]

Gait training became possible and well tolerated after acquiring knowledge about the control and dissociation of breathing times, after knowing how to control breathing during physical exertion, as well as strengthening the upper and lower limbs. The necessary stability was achieved with balance training.

Table 1. Assessment Instruments

Assessment Instruments and Tools		1st week		2nd week		3rd week		4th week		5th week	
		28/05	31/05	04/06	06/06	11/06	14/06	17/06	20/06	24/06	27/06
FIM Scale		84	85	87	91	98	105	105	105	105	106
Borg Scale		7	5	4	3	3	3	3	2	2	1
Berg Scale		5	9	12	15	21	26	32	32	38	40
mMRC Scale:		3	3	3	3	3	4	4	4	4	4
Numerical pain scale		5	5	3	1	3	3	0	1	1	0
Heart Rate	Before	67bpm	71bpm	70bpm	66bpm	68bpm	69bpm	67bpm	70bpm	66bpm	65bpm
	After	75bpm	75bpm	71bpm	65bpm	66bpm	65bpm	67bpm	65bpm	64bpm	63bpm
Peripheral Saturation under stress	Before	88 %	88 %	89 %	89 %	91 %	90 %	90 %	91 %	92 %	92 %
	After	92 %	92 %	93 %	94 %	94 %	94 %	95 %	96 %	96 %	97 %

DISCUSSION

The results obtained corroborate the findings of previous studies[4,5,6,7,8,9], which highlight the effectiveness of respiratory rehabilitation in this clinical case in terms of activity intolerance, improved functionality and independence in carrying out activities of daily living. The reduction in dyspnea and increased resistance to exertion observed in Mrs. F are consistent with the benefits described in the literature, highlighting the positive impact of the multi-competence approach at home.[7,8]

Physical exercise plays a crucial role in the multidisciplinary approach to COPD. Regular practice of aerobic and resistance exercises is essential to improve functional capacity, reduce dyspnea and fatigue, and promote significant gains in quality of life.[3,4,7,8,9]

Aerobic exercises, such as walking, are recommended in a continuous and intense manner. At the same time, resistance training, including weights or resistance exercises, strengthens peripheral muscles, providing additional support to improve lung function and cardiovascular system efficiency.[3,8,9]

This integrated approach not only aims to optimize lung function and exercise capacity, but also contributes to promoting autonomy, independence and general well-being of people with COPD. Thus, physical exercise emerges as an indispensable component of pulmonary rehabilitation, complementing therapeutic strategies such as drug therapy, in line with current guidelines for symptomatic control of this complex chronic condition.[3,9]

Implementation of a personalized multicomponent program in the home environment, favoring adherence and promoting greater autonomy, an essential factor to avoid readmissions and worsening of the condition.

The integration of scientific evidence into clinical practice is essential to ensure that the care provided is not only safe, but also effective and of high quality, promoting better outcomes for people.

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CONCLUSION

The implementation of the home-based respiratory rehabilitation program led to improvements in Mrs. F's functionality and independence. There was a reduction in dyspnea, an increase in muscle strength and an improvement in tolerance to effort, facilitating the performance of activities of daily living.

The analysis of the results obtained highlights the importance of developing a personalized rehabilitation program that considers the individual needs and preferences of the person, including pathologies, associated comorbidities, accessibility, and housing conditions.

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INSTITUTIONAL REVIEW BOARD STATEMENT

The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of Escola Superior de Saúde Atlântica n. 9 ESSATLA 2024 (approved on 12 July 2024) for studies involving humans.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Rita Ruivo, Luís Sousa, Isabel Matos.
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