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Physical therapy intervention in weaning from oxygen therapy in patients with pulmonary emphysema: Literature review

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ABSTRACT

Pulmonary emphysema, characterized by respiratory symptoms and progressive airflow limitation, is associated with long-lasting inflammatory processes caused by exposure to noxious gases for a long period of time (GUIMARÃES; CORREA, 2020). It is a pathology that affects the lower region of the respiratory tract, which causes significant ventilatory difficulties (RONCALLY et al., 2019).

Keywords: Pulmonary emphysema, Respiratory symptoms, Inflammatory processes.

INTRODUCTION

Pulmonary emphysema, characterized by respiratory symptoms and progressive airflow limitation, is associated with long-lasting inflammatory processes caused by exposure to noxious gases for a long period of time (GUIMARÃES; CORREA, 2020). It is a pathology that affects the lower region of the respiratory tract, which causes significant ventilatory difficulties (RONCALLY et al., 2019).

Due to the chronic obstructive process, pulmonary emphysema causes dilation of the air spaces with or without destruction of the lung parenchyma and will have decreased elastance. As there will be a loss of alveolar integrity, it will cause air trapping, hyperinflation, and expiratory airflow limitation and will lead to ineffective gas exchange (COELHO et al., 2021).

Oxygen supplementation for patients with pulmonary emphysema will help them during the performance of exercises and efforts, which will promote an improvement in the execution and intensity of activities; will prevent hypoxemia at rest and aid exercise (RONCALLY et al., 2019). Oxygen therapy can be used at home in patients who are in more advanced stages of the pathology and who have ventilation-perfusion (V/Q) below the appropriate level, which will reduce the systemic respiratory effects, increase their survival, reduce the number of hospitalizations and improve the neuropsychic state of patients (GONÇALVES; SANTIAGO, 2022).

Oxygen therapy is a physical therapy approach aimed at correcting hypoxemia and increasing saturation (SpO2) to values equal to or greater than 89% (CUNHA; CUNHA; FALCÃO, 2019). It is essential that the physiotherapist is able to carry out an appropriate assessment to be able to identify and

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prioritize the treatment goals safely, which will lead to an improvement in the clinical condition of patients (RAMOS et al., 2022). Through specific breathing exercise techniques, physiotherapy will promote a strengthening of respiratory muscles, improve pulmonary ventilation and provide the elimination of pulmonary secretions. With therapeutic approaches, there will be an improvement in lung function, relief of symptoms and, consequently, an improvement in quality of life (MARQUES, 2023).

OBJECTIVE

To analyze the physical therapy intervention in weaning from oxygen therapy in patients with Pulmonary Emphysema.

METHODOLOGY

This is a descriptive study and a literature review. Searches were conducted in the *National Library of Medicine* (PubMed), *Physiotherapy Evidense Database* (PEDro), *Scientific Electronic Library Online* (SciELO), Virtual Health Library (VHL), Latin American and Caribbean Health Science Literature (LILACS), UFSC Institutional Depository, through the Health Descriptors (DEC's): Chronic *Obstructive* Pulmonary Disease); Oxygen *Inhalation Therapy*; *Weaning* and *Rehabilitation*. Scientific literature review articles, clinical trials and case studies, original articles published between 2019 and 2024, which addressed the main theme of the study, in the languages of Portuguese, English and Spanish, were included. As an exclusion criterion, articles were discarded only in abstracts or use of intermittent oxygen therapy. A total of 32 articles were included and 8 articles were excluded. This is a descriptive literature review, without data collection with human beings, and the need to submit it to the Research Ethics Committee (REC) is not required.

DEVELOPMENT

Pulmonary emphysema is a strenuous and progressive lung condition that affects many elderly people and has a high mortality and prevalence (SILVA; BAHIA, 2023). It is related to risk factors that cause pulmonary alterations, especially prolonged tobacco use. (SANTOS, 2023). The main symptoms include chronic cough, dyspnea, excessive secretion production, constant respiratory infections, reduced ability to perform physical exercises (MARQUES, 2023).

Pulmonary emphysema is characterized by chronic respiratory failure, with indication for oxygen supplementation (MARCONDES et al., 2020). Oxygen therapy is an efficient intervention to be used in patients in more advanced stages (III and IV), with symptoms at rest or during outpatient activities and intervention, attributing to a better quality of life (CUNHA; CUNHA; FALCÃO, 2019).

The intervention of respiratory physiotherapy in these patients has been increasingly indicated, focusing on improving respiratory capacity and reducing the work of breathing, improving gas exchange and removal of secretions; through specific techniques and resources (SANTOS, 2023). The main interventions are: bronchial clearance maneuvers, breathing exercises, pulmonary rehabilitation with Resistance Exercises in the Upper Limbs (LLSS) and Lower Limbs (LLILL), and Inspiratory Muscle Training (IMT) (ALMEIDA; SCHNEIDER, 2019).

Pulmonary Rehabilitation (PR) is the central part of the treatment of chronic patients, as it will have a reduction in ventilatory demand, a decrease in respiratory rate and a longer expiratory time will allow a lower dynamic hyperinflation, with physical training it is possible to clearly see a decrease in dyspnea, increased performance during exercises and improvement in activities of daily living (NAGAMINE; MACIEL, 2021, COSÍO et al., 2022).

Thus, physical therapy approaches will improve the functionality of respiratory mechanics, balance respiratory pressures, strengthen muscles, exercise tolerance, ADLs, and feel fatigue, directly reducing clinical manifestations and hospitalizations, thus improving quality of life (NAGAMINE; MACIEL, 2021).

FINAL THOUGHTS

It is hoped that the physical therapy intervention will be effective in reducing oxygen therapy supplementation in patients with pulmonary emphysema, promoting a progressive and successful weaning.

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