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THE EFFECT OF PULMONARY REHABILITATION IN COVID-19 PATIENTS

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Abstract

COVID-19 is a disease characterized by involvement in multiple tissues and organs throughout the body, especially lung damage. Clinically, most patients have symptoms of fever, cough, fatigue, anorexia, shortness of breath, and myalgia. COVID-19 affects people both physically and psychologically. Pulmonary rehabilitation is defined as a multidisciplinary intervention based on exercise training, behavioral modification, personalized assessment and treatment designed to improve the physical and psychological state of people with respiratory disease. The aim of pulmonary rehabilitation is to reduce the patient's dyspnea and increase the efficiency of breathing, to prevent complications of long-term bed rest, to reduce the duration of hospitalization by reducing the symptom burden of the disease. It is seen that pulmonary rehabilitation is possible and safe in the acute phase of the disease, and it also increases the patient's exercise capacity, muscle strength and endurance, self-efficacy and knowledge level, participation in daily life activities and quality of life. In addition, considering the possibility of long-term disability in post-discharge COVID-19 patients, outpatient pulmonary rehabilitation should be planned in the post-discharge period. Therefore, acute treatment of COVID-19 and post-discharge pulmonary rehabilitation are very important. Nurses, who are important members of the multidisciplinary team in pulmonary rehabilitation, take an active role in managing respiratory problems of patients, increasing endurance, reducing respiratory fatigue and anxiety. Aims at nurses at COVID-19 patients o maintain effective breathing by providing exercises and mobilization that ensure the excretion of airway secretions,relieve the patient by reducing dyspnea,ensuring skin integrity by preventing pressure sores, to increase the endurance and tolerance of the patient, to reduce anxiety and depression with general exercises,mprove the patient's quality of life by reducing the length of hospital stay.

Keywords: COVID-19, pulmoner, rehabilition;nurse, care

1. Introduction

Discovered in the 21st century and known to cause respiratory system diseases in humans after1960, Coronaviruses (CoVs) are single-stranded, positive polarity, enveloped RNA viruses. CoVs are also zoonotic and can cause disease by transmitting from animals to humans(TR Ministry of Health, 2023; McIntosh & Perlman, 2015). COVID-19, known as the new type of coronavirus SARS-CoV-2 (2019), emerged in December 2019 in Wuhan City, China (Bulut & Kato, 2020). Since the virus is 96% like SARS-CoV, it wasnamed SARS-CoV-2 (2019), and the disease was called "Coronavirus Disease-2019" (COVID-19) (Zhou et al., 2020; WHO, 2020). At the end of 2019 and the beginning of 2020, it was observed that the disease was transmitted from person to person rapidly through droplet transmission, coughing or sneezing,and contact with droplets scattered on surfaces. Although transmission mainly occurs through sick people, asymptomatic cases are essential in spreading the disease (Wu et al., 2020). The COVID-19 pandemic, which profoundly affects life in all its dimensions, was declared a "pandemic"on March 11, 2020 (WHO, 2020).The first positive case in Turkey was recorded on March 11, 2020. As of April 25, 2023, the total number of COVID-19 cases in Turkey is 17,232,066, and the number of deaths related to this disease is 102,174 (TR Ministry of Health, 2023). COVID-19 is a disease that causes involvement in multiple tissuesand organs throughout the body, especially the lung. Some patients may have long-term dysfunction in the heart, liver, kidney, nervous and immune

systems (Güzel & Basaran, 2020). Clinically, most patients may experience specific symptoms such as fever, shortness of breath, cough, fatigue, loss of appetite, myalgia, loss of smell and taste, as well as other non-specific symptoms such as sore throat, nasal congestion, headache, diarrhoea, nausea and vomiting (WHO, 2020). In addition to its physical effects, COVID-19 also affects people psychologically. It has been reported that COVID-19 prevalence increases anxiety, depression, and stress levels in the general population (Chen et. al., 2020; Karaağaç & Karaağaç, 2021). Pulmonary Rehabilitation (PR) is vital during COVID-19 treatment and after discharge. PR is a comprehensive and patient-specific program implementedby a multidisciplinary team, aiming to reduce the patient's long-term physical and psychological symptoms and length of hospitalization, prevent long-term bed rest complications, increase exercise capacity, muscle strength and endurance, self-efficacy level, participation in activitiesof daily living and quality of life, and gain long-term positive health behaviours after discharge (Altınışık & Arıkan 2021; Lestari et al., 2020; Barker-Davies et al. 2020; Carda et al., 2020). Therefore, acute treatment of COVID-19 and post-discharge PR are crucial (Güzel & Basaran, 2020; Lestari et al., 2020).

Basic Principles of Pulmonary Rehabilitation in COVID-19 Patients

A multidisciplinary team consisting of a physician, nurse, physiotherapist, occupational therapist, nutritionist and psychologist prepares an individual-specific PR program according to the effects of COVID-19 and the severity of the disease. The program includes positioning, respiratory physiotherapy, early mobilization and respiratory management. Applications depend on the cognitive and functional status of the patient, and the basic principles of the program are as follows (ARIR, 2020; Zhao et al., 2020).

Prerequisite: Current guidelines for preventing and managing the disease must befollowed. Within the scope of PR, all personnel in close contact with patients must undergo a hospital infection control unit examination (Zhao et al., 2020).

Timing-appropriate method: Treatment should be planned considering the indications and contraindications for ROP. For example, if the condition of critically ill patients is not stabilisedor gradually worsens, an integrated rehabilitation program with multiple methods can be applied to patients who do not meet the recovery criteria and are not in isolation, although PR is not used (Zhao et al., 2020).

Evaluation: Evaluation and follow-up should be performed from the beginning to the completion of rehabilitation (Zhao et al., 2020).Protection: The multidisciplinary team performing PR should take appropriate protective measures by using human and equipment resources effectively (ARIR, 2020; Zhao et al., 2020).

In the literature, positive changes were observed in the pulmonary function test results of COVID-19 patients who underwent PR (Liu et al., 2020). In a metanalysis study evaluating the results of 22studies in which rehabilitation and pulmonary rehabilitation methods were applied to patients after COVID-19 infection, it was emphasized that regular rehabilitation programs should be organized to restore patients' respiratory and physical functions, reduce anxiety and depression,and improve their quality of life (Demeco et al., 2020). Gloeckl et al., (2021) concluded that pulmonary rehabilitation is a feasible, safe and effective method due to his study with patients diagnosed with

COVID-19 (Gloeckl et al., 2021). Nopp et al. (2022) found that PR increased exercise capacity, functional status, decreased dyspnea and fatigue and improved quality of life in their study with long-term COVID-19 patients (Nopp et al., 2022). Zampogna et al. (2021) found an increase in the physical symptoms of patientswho underwent PR after COVID-19 (Zampogna et al., 2021). Sun et al. (2021) found an increase in activities of daily living and a significant improvement in dyspnea levels due to three-week PR in patients with severe COVID-19 (Sun et al. 2021). In another study, PR is recommended in the acute periodwhen COVID-19 patients are hospitalized and after discharge (Wang et al., 2020). Chikhanie et al. (2022) observed significant improvement in fatigue, anxiety and depression levels in COVID-19 patients who underwent PR after intensive care (Chikhanie et al., 2022).

In conclusion, COVID-19 is a disease that causes system complications and may require a pulmonary rehabilitation process after discharge. PR is a phenomenon that requires multidisciplinary due to its components. Nurses are essential members of the multidisciplinary healthcare team that provides ROP practices. Within the scope of the PR program, nurses have active roles in managing patients' respiratory problems, increasingendurance, reducing the psychological symptoms of the disease such as fatigue, anxiety and depression, inhaler therapy training, training of respiratory support devices, and using oxygen therapy (Altınışık & Arıkan 2021; Chikhanie et al., 2022; Ergün, 2019; Kurtaris et al., 2020). Pulmonary rehabilitation is a possible and safe method during the treatmentprocess of COVID-19 patients and after discharge.

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