The effect of progressive muscle relaxation on the management of fatigue and quality of sleep in patients with chronic obstructive pulmonary disease: A randomized controlled clinical trial

Pooya Seyedi Chegeni a, Mohammad Gholami b,*, Alireza Azargoon c, Amir Hossein Hossein Pour d, Mehdi Birjandi e, Hamed Norollahi d

a Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
b Social Determinants of Health Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran
c Department of Internal Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran
d School of Nursing and Midwifery, Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
e Nutrition Health Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

ARTICLE INFO

Article history:
Received 30 November 2017
Accepted 29 January 2018

Keywords:
Chronic obstructive pulmonary disease
Fatigue
Sleep quality
Progressive muscle relaxation

ABSTRACT

Objective: To assess the effect of progressive muscle relaxation (PMR) on fatigue and sleep quality of patients with chronic obstructive pulmonary disease (COPD) stages 3 and 4.

Materials and methods: The pretest posttest clinical trial recruited 91 patients COPD grades 3 and 4. Following random assignment of subjects, the treatment group (n = 45) performed PMR for eight weeks and the control group (n = 46) received routine cares. At baseline and after the intervention, fatigue and sleep quality was assessed. Data obtained were analyzed in SPSS.

Results: It was determined that PMR decreased patients’ fatigue level and improved some sleep quality subscales including subjective sleep quality, sleep latency, sleep duration and habitual sleep efficiency, but no improvement was found in global sleep quality and other sleep subscales.

Conclusion: An eight-week home-based PMR program can be effective in reducing fatigue and improving certain subscales of sleep quality in patients with COPD stages 3,4. (IRCT2016080124080N3).

© 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a progressive chronic lung disease and one of the main causes of mortality worldwide. It is estimated that 210 million people are living with this disease, and COPD is anticipated to become the third leading cause of mortality in the world by 2030 [1]. A survey conducted in Iran has reported the prevalence of COPD 5.7% [2].

Due to the obstruction in airflow, patients with COPD experience symptoms such as dyspnea, coughing, and fatigue (Cochrane). Fatigue is a complex and multidimensional stressful sensation [3] and the second most common symptom in COPD patients [4]. In a study, almost all COPD patients (95.3%) had experienced high levels of physical fatigue [3]. Tissue oxidation and muscle atrophy, changes in muscle structure, sleep disturbances, stress, medication side-effects, and eating disorders are among factors causing fatigue in COPD patients [5]. Fatigue in COPD patients is a debilitating symptom that leads to diminished exercise capacity and difficulty in performing routine daily activities [5,6]. The results of a study showed fatigue and fatigue-induced functional limitations are mainly affected by psychological and physiological factors such as insomnia, dyspnea, and symptoms of depression and surfactant protein D [4]. Fatigue is associated with exacerbation of health status, increased burden of disease, poor social participation, reduced focus on the bodily sensation, poor sleep quality, and reduced level of physical activity [7]. In patients with COPD, fatigue is a predictor of mortality. However, it is often overlooked despite its high prevalence and important outcomes such as impaired quality of life (QOL) and increased risk of hospitalization [4].

Patients with COPD often report sleep impairment, and next to dyspnea and fatigue, disturbed sleep is the most common symptom in these patients [8]. A descriptive study reported poor sleep quality
The effectiveness of these techniques in the management of COPD symptoms is not clear, and only some studies have examined the effects of techniques such as yoga, tai chi, and biofeedback on mental health, respiratory capacity, respiratory muscle strength, and QOL [23,24]. Moreover, rehabilitation studies, especially in Asian countries, have so far mainly focused on medications, training, oxygen-therapy, and respiratory and traditional exercises [9]. Thus, given the prevalence of COPD-related sleep disturbances and fatigue and the effect of these symptoms on the QOL and health outcome measures [15], and also given contradictions relating to the effect of relaxation techniques on COPD symptoms, short period of intervention, methodological differences in these studies [22,24,25] and single-group participants [19], the present study was conducted to assess the effect of PMR (as a complementary medicine method) on sleep quality and severity of fatigue in patients with COPD stages 3 and 4. PMR can improve adaptation of these patients to fatigue and poor sleep quality.

2. Materials and methods

2.1. Study design

This pretest-posttest clinical trial was conducted on two groups.

2.2. Participants

A total of 91 COPD patients attending the respiratory clinic of Shohada Teaching Hospital in the city of Khorramabad affiliated to Lorestan University of Medical Sciences (West of Iran) between July 2016 and March 2017 were recruited for this randomized controlled study.

The inclusion criteria were COPD diagnosed by the physician (based on physical examination and spirometry indices), living in the city (Khorramabad) for more than six months, fatigue score ≥36 based on Fatigue Severity Scale (FSS), sleep disturbance score of 21 based on Pittsburgh Sleep Quality Index (PSQI), patients with COPD stage 3 or 4 (based on GOLD 2007), no comorbidities such as neurological diseases, acute myocardial infarction, or cancer, 45−70 years of age, BMI<30, no psychiatric disorders such as anxiety or severe cognitive impairment, having a CD player at home, no hearing problems, the ability to read and write, and willingness to take part.

The exclusion criteria were hospitalization during the study, exacerbation of the disease, stressful life events (death of a family member, etc.) participation in other rehabilitation, relaxation and meditation programs, such as yoga, and discontinuation of exercises. The present study was approved by the Ethics Committee of the Lorestan University of Medical Sciences (ID: Lums-REC1395.107) and performed in accordance with the Declaration of Helsinki. Informed consent was obtained from all participating patients. The trial was registered on the Clinical Trials Registry (ID: IRCT2016080124080N3).

A total of 155 eligible consecutive patients were interviewed, and 55 patients were excluded for various reasons (Fig. 1). A total of 100 patients met the inclusion criteria and consented to take part in the present study. Before randomization, all patients' clinical assessment and pulmonary function measurements had been performed by a pulmonologist at the respiratory clinic.

The patients were randomly assigned to PMR (n = 50) and control (n = 50) groups using block randomization with randomly selected block sizes of 4 and an allocation ratio of 1:1. PMR and control group patients were matched in terms of severity of the disease. Based on two-sided α = 0.05, power = 0.8, and an effect size = 0.65, the sample size was determined 40 patients for comparison of means between the two groups [26]. With an anticipated 25% dropout rate and to ensure adequacy of final sample size, 50 patients were selected per group. However, a total of 91 patients took part in the study, including 45 in the PMR group and 46 in the control. The reasons for participants’ dropping out were patient’s death in the course of the study (n = 3 from control group and n = 2 from PMR; 2) and loss of contact (n = 1 from control group and n = 3 from PMR).

2.3. Blinding

Neither the researcher who collected data before and after PMR nor patients had knowledge of allocations into treatment and control groups. Treatment and control groups were trained and exercised in different times and places.
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات