

Astım ve KOAH Hastalarının Fiziksel Aktivite Düzeylerinin Değerlendirilmesi

The Evaluation of the Physical Activity Levels in Asthma and COPD Patients

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Öz

Amaç: Bu çalışmada; astım ve kronik obstrüktif akciğer hastalığı (KOAH) olan bireylerin fiziksel aktivite düzeylerinin değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntemler: Kesitsel tipteki bu araştırmaya 97 hasta (44 olgu KOAH, 53 olgu astım) dahil edildi. Olguların sosyodemografik özellikleri ile astım ve KOAH farkındalığı sorgulandı. KOAH ve astımlı olguların; düzenli egzersiz alışkanlığı ve fiziksel aktiviteye katılım düzeyi Uluslararası Fiziksel Aktivite Anketi (IPAQ)'nin kısa formu ile değerlendirildi. Normal dağılım göstermeyen değişkenlerin istatistiksel analizinde Mann-Whitney U testi kullanıldı.

Bulgular: Araştırma kapsamına giren KOAH'lı olguların yaş ortalaması 65.3±3.4 yıl, ortalama beden kitle indeksi değeri 25.8±2.5 kg/m² iken; astımlı olguların yaş ortalaması 50.7±5.1 yıl, ortalama beden kitle indeksi değeri 29.2±3.4 kg/m² olarak saptandı. Erişkin astımlı ve KOAH'lı bireylerin ortalama beden kitle indeksi değerleri arasında anlamlı farklılık saptandı (p=0.01). Çalışmamızda KOAH'lı olguların fiziksel aktiviteye bağlı haftalık enerji tüketimi ortalama 1564.2±615 MET-dk, astım hastalığı olan bireylerin ise 2130± 842 MET-dk, olarak saptandı. Bu çalışmada erişkin astımlı ve KOAH'lı bireylerin fiziksel aktivite düzeyleri arasında istatistiksel olarak anlamlı bir farklılık saptanmamıştır (p=0.09).

Sonuç: Araştırma sonuçlarına göre erişkin astımlı ve KOAH'lı bireylerin fiziksel aktivite düzeyleri düşük bulunmuştur. Fiziksel inaktivitenin astım ve KOAH için değiştirilebilir risk faktör olduğu bilinmektedir. KOAH ve astım hastalığı olan bireylerin daha aktif olabilmeleri için bu popülasyona yönelik özel programlar geliştirilmelidir.

Anahtar Kelimeler: KOAH, astım, fiziksel aktivite

Abstract

Objective: To evaluate and compare the prevalence of physical activities in asthma and chronic obstructive pulmonary disease (COPD) patients.

Materials and Methods: This cross-sectional study included 97 patients (44 with COPD and 53 with asthma). Patient's socio-demographic characteristics and awareness about asthma or COPD were determined. The COPD and asthma patient's regular exercise habits and level of participation in physical activities were evaluated using the short form of the International Physical Activity Questionnaire (IPAQ). The Mann-Whitney U test was used for statistical analysis of the variables that did not have normal distribution.

Results: The mean age of patients with COPD was 65.3±3.4 years, and their mean body mass index value was 25.8±2.5 kg/m². The mean age of asthmatic patients was 50.7±5.1 years, and their mean body mass index value was 29.2±3.4 kg/m². There was a significant difference between the mean body mass index values of adult asthma and COPD patients (p=0.01). The weekly energy expenditure of patients with COPD due to physical activity was 1564.2±615 MET-min, and it was 2130±842 MET-min for individuals with asthma. In this study, no statistically significant difference was found between the physical activity levels of adult asthma and COPD individuals (p=0.09).

Conclusion: This study found the physical activity levels of individuals with adult asthma or COPD to be low. Physical inactivity is known to be a modifiable risk factor for asthma and COPD. Specific programs for this population should be developed so that individuals with COPD and asthma can be more active.

Key Words: CCHF, Diarrhea, Fever

INTRODUCTION

Advanced technology and modern lifestyles lead people to become more sedentary. Physical inactivity is an important risk factor for many chronic diseases including coronary artery illness, obesity, non-insulin-dependent diabetes, hypertension, respiratory diseases, stroke, cancer, depression and osteoporosis. Individuals continue to have inactive lives despite the benefits of physical activity and exercise in the prevention and treatment of chronic diseases. In our society, chronic diseases put a burden on healthcare and health expenditures (1, 2). Chronic airway diseases make up an important percentage of illnesses in Turkey and the rest of the world and are important public health problems

because of their economic and social consequences. According to the World Health Organization, COPD was the fourth leading cause of death in 2004 at 5.1%, and it is expected to be third in 2030 at 8.6%. In the National Disease Burden Study of 2000, COPD ranked eighth at 2.8%, and asthma ranked fourteenth in urban areas at 1.3 and 9th in rural areas at 1.1. Chronic airway diseases (asthma, COPD) make up the majority (65%) of chronic respiratory tract diseases (3, 4).

Although the number of studies on the physical activity levels of individuals with COPD and asthma is limited, there are studies that identify physical inactivity and obesity as modifiable risk factors for

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Geliş Tarihi : 17.09.2018

Kabul Tarihi : 14.12.2018

asthma and COPD. Physical inactivity is thought to be a major and independent risk factor for bronchial hyperresponsiveness in adults (5). Studies confirm that a lower level of physical activity in patients with chronic obstructive pulmonary disease (COPD) results in a higher rate of re-hospitalization (6, 7).

Individuals with COPD and asthma need to be informed about their levels of physical activity before they become more active. The goal of this study is to determine the levels of physical activity of individuals with COPD and asthma.

MATERIAL AND METHODS

Ninety-seven patients (44 with COPD and 53 with asthma) participated in this cross-sectional study. The participants had been treated the Pulmonary Polyclinic of Malatya State Hospital between September and November 2016. They were all over 18 years old and joined the study after they were informed about it and gave their consent. Individuals who also had chronic diseases other than asthma and COPD, patients with physical disabilities that prevent them from walking and patients who were not compatible with the tests were excluded from the study. The participants were informed about the study and they signed a consent form that they volunteered to participate and thus the study was performed in compliance with the Declaration of Helsinki.

The patients' socio-demographic attributes such as age, gender, marital status, level of education, and physical and clinical attributes such as their height and weight were recorded. The participants' regular exercise habits and physical activity levels were evaluated using the International Physical Activity Questionnaire (IPAQ)'s short survey. This survey consists of seven questions and solicits information about the time patients spend in

value of 8. Levels of physical activity were grouped as inactive (<600 MET-min/week), low (600-3,000 MET-min/week) and active (beneficial for health) (>3,000 MET-min/week).

SPSS v.23 software was used for statistical analyses. The variables' normal distribution was examined using the Kolmogorov-Smirnov test. The Mann-Whitney U test was used for the statistical analysis of variables that did not have a normal distribution. The threshold for significance was $p < 0.05$.

RESULTS

Of this study's participants, 54.6% were male and 45.4% were female. The mean age of the patients with COPD was 65.3 ± 3.4 years, and the mean age of the participants with asthma was 50.7 ± 5.1 years. Of the participants, 14.6% had not finished primary school.

The mean body mass index value of the patients with COPD was 25.8 ± 2.5 kg/m² and the mean body mass index value of the participants with asthma was 29.2 ± 3.4 kg/m².

The physical activity levels of the patients with COPD and asthma evaluated through the International Physical Activity Questionnaire are shown in Table 1. The weekly energy spending mean of the patients with COPD was $1,564.2 \pm 615$ MET-min and the weekly energy spending mean of the participants with asthma was $2,130 \pm 842$ MET-min. The daily sitting time mean was 408.6 ± 207.3 minutes for the COPD patients and 258.5 ± 173.2 minutes for the patients with asthma. A statistically significant difference between the levels of physical activity between adult asthma patients and the participants with COPD was not found ($p=0.09$). The daily sitting times of patients with COPD and asthma were different ($p=0.03$).

Table 1. The physical activity levels of patients with asthma or COPD obtained using the International Physical Activity Questionnaire (IPAQ)

International Physical Activity Questionnaire (IPAQ)	COPD	Asthma
Total PA score (MET-min/week)	1564.2±615.4	2130±842
Exhausting PA score (MET-min/week)	305.4±132.2	884.1±274.2
Semi- Exhausting PA score (MET-min/week)	62.7±364.6	364.6±143.4
Walking score (MET-min/week)	1196.02±208.2	881.6±102.8
Sitting down (min)	408.6±207.3	258.5±173.2

PA: Physical activity

walking, semi-exhausting and exhausting activities. The time that patients spend sitting down was evaluated in another question. Survey scores reflect the total amount of time (minutes) and frequency (days) patients spend in walking, semi-exhausting and exhausting activities. A MET-minute was obtained using this calculation. A MET-minute consists of the activities' duration multiplied by the MET score. Walking scores were calculated by multiplying the duration of walking (minutes) by 3.3 MET. Semi-exhausting activities were assigned a MET value of 4, and exhausting activities were assigned a MET

Of the patients with COPD, 54.4% were not physically active, 31.8% of the patients with COPD had low levels of physical activity, and 13.8% of the patients with COPD had sufficient levels of physical activity. Similarly, 41.5% of the patients with asthma were not physically active, 37.7% of the patients with asthma had low levels of physical activity, and 20.8% of the patients with asthma had sufficient levels of physical activity (Table 2).

Table 2. The physical activity levels of the COPD and asthma patients

Physical activity levels	COPD	Asthma	Total (n=97)
Physically inactive (%)	54.4	41.5	47.4
Low level of physical activity (%)	31.8	37.7	35.0
Sufficient level of physical activity (%)	13.8	20.8	17.6

DISCUSSION

No statistically significant difference was found between the physical activity levels of the asthma and COPD patients ($p=0.09$). Of the patients with COPD, 13.8%, and of the asthma patients, 20.8% were found to have sufficient levels of physical activity. The limited studies on the physical activity levels of COPD and asthma patients have shown that these levels are low (8, 9). According to a cohort study of 2,386 COPD patients over the course of 20 years, walking for 120 minutes weekly or biking reduces re-hospitalization and deaths caused by respiratory tract diseases by 30 to 40% (7).

Reduced tolerance for exercise is often experienced by COPD and asthma patients (10, 11). It is thought that exercise decreases because of the increase in airway resistance, lung mechanics, metabolic paths, gas exchange reduced cardiac performance, and the weakening of respiratory and peripheral muscles (12, 13). The energy spent weekly in physical activity was calculated to be $1,564.2 \pm 615$ MET-min for the COPD patients and $2,130 \pm 842$ MET-min for the asthma patients. The total physical activity scores obtained by our study differ from those of other studies in the literature (1). The reasons for this difference may be different lifestyles and the differences in patients' access to physical activity opportunities. The time the COPD and asthma patients spend sitting down differ in this study ($p=0.03$). Patients with COPD have an mean time of sitting down of 408.6 ± 207.3 minutes and patients with asthma have an mean time of sitting down of 258.5 ± 173.2 minutes. The reason for this difference could be the difference in mean age between the COPD and asthma patients.

A statistically significant difference was found between the mean body mass index values of the adult asthma and COPD patients ($p=0.001$). The BMI index of the asthma patients was found to be higher than the BMI index of the COPD patients. Epidemiologic studies suggest that there is a positive correlation between BMI and asthma, and that increased BMI is a risk factor for the advancement and progression of asthma (14, 15). Although the cause of the correlation between obesity and asthma is not clear, obesity's impact on the lungs' mechanical functions, immune system and inflammatory responses are likely causes.

To conclude, the physical activity levels of adult asthma and COPD patients were found to be low. Regular physical activities can increase the functional capacities of individuals with asthma or COPD. Individuals should be informed and encouraged to live more active and healthy lives. Therefore, our goal should be increasing asthma and COPD patients' functional capacities and reducing their levels of addiction through the preparation of individualized regular physical activity programs.

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