



ORIGINAL ARTICLE

Does fibromyalgia affect physical activity due to pain?

Fibromiyalji ağrı nedeniyle fiziksel aktiviteyi etkiliyor mu?

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Summary

Objectives: The aim of this case–control study was to evaluate the physical activity levels of patients with fibromyalgia syndrome (FMS) and to assess a possible relation between physical activity and FMS characteristics.

Methods: Seventy patients with FMS and 50 age-gender-matched controls were included. Pain was evaluated using the visual analog scale. The Fibromyalgia Impact Questionnaire (FIQ) scoring system was used for the evaluation of the impact of FMS. Furthermore, for assessing the physical activity in our participants, we used the International Physical Activity Questionnaire (IPAQ). The Mann-Whitney U and Pearson's correlation tests were used for group comparisons and correlation analyses.

Results: The patients presented significantly less transportation-related, recreational, and total physical activity levels, besides reporting significantly less time spent walking and less time spent in vigorous activities than controls ($p<0.05$). Furthermore, there was a negative correlation between pain and the scores of self-reported moderate or vigorous physical activity ($r=-0.41$, $p<0.01$) in patients. However, we could not find any correlation between FIQ and IPAQ scores.

Conclusion: Patients with FMS are physically less active than healthy individuals. This reduced activity seems to be associated with pain, but not with the impact of the disease. In the management of the patient with FMS, considering the patient's physical activity behavior negatively affected by pain may contribute to holistic approach to the patients.

Keywords: Fibromyalgia; pain; physical activity.

Özet

Amaç: Bu olgu kontrol çalışmasının amacı, fibromiyalji sendromu (FMS) tanılı hastaların fiziksel aktivite düzeylerini değerlendirmek ve FMS karakteristikleri ile fiziksel aktivite arasındaki olası ilişkileri belirlemektir.

Gereç ve Yöntem: Çalışmaya FMS tanılı 70 hasta ile yaş ve cinsiyet olarak eşleştirilmiş 50 sağlıklı kontrol dahil edildi. Ağrı, görsel analog skala ile değerlendirildi. FMS etkisinin ölçülmesi için Fibromiyalji Etki Anketi (FEA) skorlama sistemi uygulandı. Ayrıca katılımcıların fiziksel aktivite düzeylerinin değerlendirilmesi amacıyla Uluslararası Fiziksel Aktivite Anketi (UFAA) uygulandı. Grupların karşılaştırılması ve korelasyon analizleri için Mann-Whitney U testi ve Pearson korelasyon testi uygulandı.

Bulgular: FMS tanılı olguların kontrollere oranla istatistiksel olarak anlamlı şekilde daha az ulaşım ilişkili aktiviteler, boş zaman aktiviteleri ve total fiziksel aktivite düzeyleri sergiledikleri, yürüme ve yoğun fiziksel aktivitelerde daha az zaman geçirdikleri tespit edildi ($p<0,05$). Ayrıca hastaların ağrı skorları ile kendi rapor ettikleri orta ve yoğun fiziksel aktiviteleri arasında anlamlı bir negatif korelasyon saptandı ($r=-0,41$, $p<0,01$). Ancak FEA ve UFAA skorları arasında bir ilişki bulunamadı.

Sonuç: Çalışmada, FMS tanılı hastaların sağlıklı kontrollerden daha düşük fiziksel aktivite düzeyine sahip olduğu tespit edildi. Bu azalmış aktivitenin hastalığın impaktı ile değil, ağrı ile ilişkili olduğu gözlemlendi. FMS olgularının yönetiminde hastanın ağrı nedeniyle azalmış fiziksel aktivite davranışının dikkate alınması hastalığa bütüncül yaklaşıma katkıda bulunabilir.

Anahtar sözcükler: Fibromiyalji; ağrı; fiziksel aktivite.

Introduction

Fibromyalgia syndrome (FMS) is a chronic pain syndrome characterized by wide-spread musculoskeletal system pain, frequent sleep disturbances, and fatigue.

^[1] Together with the other symptoms such as joint stiff-

ness, depression, anxiety, and cognitive dysfunction, FMS may limit the daily life, affect the physical activity, and reduce the ability to cope with life.^[2] FMS may also cause labor loss and high therapy costs by reducing the patients' productivity. FMS, as a chronic pain

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condition, may cause impaired functional capacity, possibly through the adoption of sedentary behavior.^[3] FMS-related pain and fatigue may lead to inactivity, which in turn causes muscle deconditioning that may be resulted with an increase in pain and fatigue. It has been shown that exercise, by breaking this vicious cycle, causes improvement of FMS-associated symptoms and psychological problems.^[4] In view of its proven positive effect on FMS, exercise was recommended with a level of evidence in the current EULAR revised recommendations for the management of FMS.^[5]

Although exercise has been verified to be beneficial in FMS, its symptoms often create obstacles that discourage exercise.^[6] With the thought that exercise would increase the intensity of their symptoms, many patients with FMS may avoid physical activity. Anecdotal data showed that most patients with FMS may have a sedentary life style.^[7–9] Although exercise has been recommended as an important part of the FMS management, studies investigating the level of individual physical activity seem to be limited in the literature.^[10–12] Furthermore, the physical activity behavior of the patients outside the therapeutic exercise program applied has not been evaluated.

The aims of this case–control study were to compare the physical activity levels of FMS patients with healthy controls and to assess the possible effect of FMS impact on the physical activity level.

Material and Methods

Study Design and Patients

This study was planned as a case–control study, conducted in accordance with the 1989 Declaration of Helsinki and was approved by the Local Ethics Committee (Atatürk University Clinical Trials Ethics Committee, April 24, 2014–5). Written informed consent was obtained from the participants.

After calculating the sample size as 67 with 95% reliability and $\pm 5\%$ deviation (with G*Power), 70 patients with FMS aged 18–65 years and 50 healthy controls with matching age and gender were included in the study.^[3] The patients who fulfilled the 2016 revised classification criteria for FMS were included.^[13] Patients with disorders that could cause limitation in physical activity such as cardiovascular, pulmonary, or metabolic disease, additional problems

in the locomotor system, and patients using medications were not included in the study.

Evaluations

The demographic features (age and gender) and duration of symptoms of the participants were recorded. The level of pain was evaluated using the visual analog scale (VAS). Furthermore, “The Fibromyalgia Impact Questionnaire (FIQ)” scoring system which evaluates the impact of FMS on multidimensional aspects was used. A total score of the scale can range between 0 and 100; higher scores indicate a more severe impact.^[14–16]

Pain was evaluated by VAS, 100 mm.

For assessing the physical activity in our participants, we used The International Physical Activity Questionnaire (IPAQ) which has been widely used to assess the physical activity in general populations. It is known to be a valid and reliable instrument to measure physical activity, and it has also been validated for our population.^[17,18] This questionnaire was developed for adults aged 18–65 years, and it also allows subscales for work-related, transportation, housework, and recreational physical activity to be computed, as well as calculations of weekly time spent walking, sitting, and moderate-intensity and vigorous-intensity activities.

Statistical Analysis

All the statistical analyses were performed using the SPSS 20.0 software package program. The Mann-Whitney U-test was used for group comparisons, and the Pearson’s correlation was used for correlation analyses. Statistical significance was determined as $p \leq 0.05$. The correlation analysis was considered low, moderate, strong, and very strong according to correlation coefficient ≤ 0.30 , > 0.30 and ≤ 0.50 , > 0.50 and < 0.80 , and ≥ 0.8 , respectively.^[19]

Results

Seventy patients with FMS (60 females and 10 males) and age–gender similar 50 healthy controls (43 females and seven males) were included in our study. The mean age of the patients and healthy controls was 41.90 ± 8.53 years and 41.52 ± 9.01 years, respectively. The symptom duration of the patients was 61.0 ± 45.8 months. The demographic features, pain, and FIQ scores are shown in Table 1.

Table 1. Demographic features, pain, and FIQ scores of the individuals

	Patients with FMS	Controls	p
Gender (female/ male)	60/10	43/7	NS
Age (years)	41.9±8.5	41.5±9.0	NS
Symptom duration (months)	61.0±45.8		
Pain (VAS 100 mm)	72.3±16.2		
FIQ	67.8±13.5		

FIQ: Fibromyalgia Impact Questionnaire; FMS: Fibromyalgia syndrome; NS: Not significant; VAS: Visual analog scale.

Table 2. Comparison of the IPAQ scores between patients with FMS and healthy controls

	Patients with FMS Mean±SD	Controls Mean±SD	p
Work-related (MET min weekly)	901±247	1113±284	0.08
Transportation (MET min weekly)	231±197	774±129	<0.05
Housework (MET min weekly)	1103±548	977±574	0.075
Recreation (MET min weekly)	443±243	1300±1184	<0.05
Total (MET min weekly)	2819±1081	4438±3212	<0.05
Sitting time (min/day)	421±149	377±147	0.11
Walking (min/day)	32±28	59±48	<0.05
Moderate-intensity activities (min/day)	51±48	70±52	0.09
Vigorous-intensity activities (min/day)	11±9	17±11	<0.05

IPAQ: International Physical Activity Questionnaire; FMS: Fibromyalgia syndrome; SD: Standard deviation; MET: Metabolic equivalent of task.

In our study, patients with FMS presented significantly less transportation-related, recreational, and total physical activity levels, besides reporting significantly less time spent walking and less time spent in vigorous activities than healthy controls ($p < 0.05$). There were no significant differences in work-related or housework physical activities, time spent in sitting, or time spent in moderate-intensity activities between patients and healthy controls. Results from the IPAQ are shown in Table 2.

Furthermore, in patients with FMS, there was a moderate negative correlation between pain and the scores of self-reported moderate or vigorous physical activity ($r = -0.41$, $p < 0.01$). However, we could not find any correlation between FIQ and IPAQ scores ($r = -0.13$, $p = 0.083$).

Discussion

The main findings of this study demonstrated that physical activity in FMS patients was lower than that in healthy controls with similar demographic profile.

Furthermore, we observed that decreased physical activity in FMS patients was associated with pain, not with the impact of FMS.

The level of physical activity in FMS was assessed in previous studies reporting different results. Korszun et al.^[12] compared the physical activity levels in FMS patients with those in healthy controls and found no significant difference. Furthermore, Kop et al.^[11] reported similar results with this study. On the other hand, evaluating physical activity with a different methodology, McLoughlin et al.^[10] reported that physical activity in FMS patients was lower than that in healthy controls. In this study, an accelerometer was placed on the lower extremities, and a reduction in activities related to motions of lower extremities and whole body was determined in patients with FMS.^[10] Our results, which were obtained by the self-report method, support the presence of reduced activity in FMS patients. These different results about the physical activity status in patients with FMS may be due to different methodologies used.

In our study, patients with FMS presented significantly lower transportation-related, recreational, and total physical activity levels, besides reporting significantly shorter time spent walking and less time spent in vigorous activities than healthy controls. These results were also parallel to the results of the study of McLoughlin et al.^[10]

The main symptom in FMS is pain. In our study, we found a negative correlation between the scores of physical activity and pain. There were studies finding an association between pain and physical activity in FMS patients^[11] as well as studies finding no such association.^[10] In another study, de Bruijn et al.^[19] aimed to investigate the association of physical fitness levels with pain and activity-avoidance beliefs in patients with FMS. In that study, they demonstrated some associations between physical fitness and pain in these patients and pointed to the importance of activity avoidance. In spite of different results obtained, pain may seem to be a main cause of limited physical activity in these patients. Recently, the World Health Organization (WHO) recommended in their International Classification of Functioning, Disability, and Health to accentuate patients remaining possibilities in functioning instead of focusing on restrictions. In patients with musculoskeletal pain, this would imply that a person's "daily activity level" rather than his/her "disability level" has to be focused on.^[20]

In our study, we determined no association between the impact of FMS and physical activity. Previous studies have also determined no association between impact of FMS and reduced physical activity.^[10] It may be concluded that independent from the impact of the disease, FMS itself may be associated with reduced physical activity.

In the light of these data, one of the important questions arising is whether reduced physical activity in FMS is the cause or the result. It is possible that pain and other symptoms may limit physical activity in FMS or that a vicious cycle of FMS symptoms may develop in patients with relatively reduced physical activity. The symptoms of FMS, particularly pain, may lead to avoidance of physical activity, and reduced physical activity may negatively affect the clinical course of FMS.

Conclusion

Patients with FMS were found to be physically less active than healthy individuals of similar profile. This reduced activity seems to be associated with pain, but not with the impact of the disease. In the management of the patient with FMS, considering the patient's physical activity behavior negatively affected by pain may contribute to holistic approach to the patients.

Ethics Committee Approval: The Atatürk University Clinical Research Ethics Committee granted approval for this study (date: 24.04.2014, number: B.30.ATA.0.01.00/74).

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