Fibromyalgia in patients with psoriasis

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Abstract

Background: Fibromyalgia syndrome (FMS) and widespread pain are observed in many patients with autoimmune and inflammatory disorders. FMS may be underestimated in psoriasis, but not psoriatic arthritis.

The aim of this study was to investigate the prevalence of fibromyalgia and allied symptoms in patients with psoriasis.

Patients and methods: Seventy patients with psoriasis (40 male and 30 female) and 70 age and sex matched controls were enrolled in the study. Psoriatic area and severity index (PASI) was calculated for patients. A two stage classification process was applied to determine the presence of FMS in patients with psoriasis and controls. Stage 1: was answering the diffuse widespread pain questionnaire. In Stage 2, all patients with widespread pain were examined for 18 tender points.

Results: A total of 37 (52.9%) patients with psoriasis were found to have widespread pain. A total of 21 patients met the criteria of FMS with a prevalence rate of 30.0%; of them, 18 (85.7%) were women.

Conclusions: FMS and allied symptoms are more prevalent in patients with psoriasis than in the general population. Women with psoriasis are more frequently affected by FMS than are men. Awareness of this comorbidity is an essential part in the treatment of psoriasis. Because of the strong association between disease severity and FMS, proper treatment that reduces skin involvement and disease severity may be associated with the alleviation of FMS and its allied symptoms.

Key words: fibromyalgia, widespread pain, psoriasis, fibromyalgia allied symptoms, Psoriasis Area and Severity Index

Introduction

Psoriasis is defined as a chronic inflammatory disease of the skin; it usually presents as a red scaly rash over the extensor surfaces, the scalp, flexural areas of the body, palms and soles. It commonly affects the fingers and toenails [1]. The worldwide prevalence is approximately 2%, but it varies according to the geographic regions [1]. The prevalence rate is lower in Asian and some African populations, and is highly prevalent in Caucasians and Scandinavians [2–5]. Psoriasis Area and Severity Index (PASI) is used for the evaluation and measurement of psoriatic skin lesions [6], and its reduction is the standard tool of treatment response [7]. Psoriasis is known to be associated with a genetic predisposition and autoimmune pathogenesis [8]. Although the exact pathogenesis of psoriasis is still not well understood, it is demonstrated that; neurogenic inflammation has been involved in the induction and maintenance of psoriatic lesions [9–11]. A significant alteration of the expression and/or distribution of different neuropeptides and their receptors has been demonstrated in lesions of psoriasis. These neuropeptides are implicated in the pathogenesis of psoriasis and pruritus [12–14]. The exact cause of pruritus in psoriasis remains unknown; pruritic skin lesion was found to have abundant epidermal and papillary dermal innervation and an increase in substance P (SP)-containing nerve fibres, and many degranulating mast cells [15]. Studies suggest that stress may result in alterations in the psoriatic skin lesions by increasing this neuropeptide content [16]. Fibromyalgia syndrome (FMS) is chronic diffuse widespread pain disorder usually associated with other non-musculoskeletal symptoms like morning stiffness, anxiety, fatigue, sleep disturbance, and cognitive problems [17–19]. FMS prevalence rate is 1%-2% in the general population [20]. FMS often presents in association with other rheumatologic and inflammatory conditions such as axial spondyloarthritis, psoriatic arthritis, systemic lupus erythematosus, primary Sjogren's syndrome, rheumatoid arthritis, and scleroderma; the presence of FMS with such conditions is usually associated with greater severity of symptoms, impaired function, and greater disability [21–26]. The etiopathogenesis and development of FMS is correlated to stress; adverse life events, negative childhood experiences and post-traumatic stress [27]. Several neurotransmitters like glutamate, serotonin, and substance P demonstrated to be altered in patients with fibromyalgia, and could explain the increased pain sensitivity in these patients. SP has an important role in the neurotransmission of pain from the peripheral parts of the body to the central nervous system, and the physiological functions of SP are affected by the level of serotonin and coexist with glutamate [28]. Vaeroy et al. reported elevated levels of SP in cerebrospinal fluids obtained from FMS patients [29]. Therefore, stress and substance P, both have an important role in the pathogenesis and the development of both psoriasis and FMS. While the association between FMS and psoriasis may be underestimated, the association between psoriatic arthritis and FMS has been addressed in the literature [22,30,31]. However, to our knowledge, there is only one study evaluating the frequency of FMS in patients with psoriasis [32]. We therefore conducted this study to determine the prevalence of fibromyalgia and allied symptoms in patients with psoriasis.

Patients and Methods

This was a cross-sectional study carried out in the outpatient departments of Dermatology and Rheumatology in Basra Teaching Hospital from October 2018 to January 2020. A sample of 70 (40 male and 30 female) patients with psoriasis, diagnosed by dermatologist in the dermatology outpatient department, and 70 age and sex matched controls recruited from the general population were enrolled for this study. The exclusion criteria were psoriatic arthritis, other rheumatic diseases, any chronic diseases such as uncontrolled diabetes mellitus and heart or renal failure, thyroid disorders, psychiatric disorders, and history of cancer. The age, sex, disease duration, history of widespread pain, and medication history were determined for all patients. They were also assessed by the dermatologist, using the PASI. The PASI is a measure of the average redness, thickness, and scaliness of the lesions (each graded on a 0–4 scale), weighted according to the area of involvement [6]. A diagnosis of FMS was confirmed according to the two-stage classification process that was proposed by the 1990 ACR classification criteria for FMS [17]. Stage 1 was composed of the patients and controls answering the diffuse widespread pain questionnaire. Stage 2 comprised evaluation of all patients and controls complaining of diffuse pain; this evaluation included the assessment of 18 tender points and 4 control non-tender points through digital palpation with an approximate force of 4 kg (the amount of pressure required to blanch a nail). The four control non-tender points are: the middle of the forehead, the volar aspect of the mid forearm, the thumb nail, and the muscles of the anterior thigh. To meet the diagnostic criteria, musculoskeletal pain had to have been present for at least 3 months, and pain must have been present in 11 or more out of 18 specific tender points on digital palpation. All participants were also asked about the following FMS allied symptoms: morning stiffness, sleep disturbance, fatigue, headache, anxiety, and irritable bowel.

Ethical considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki, and verbal consent was obtained from all participants prior to their involvement.

Statistical analysis

SPSS Software version 25.0 was used for data analysis. Percentages and mean was used to present the data in tables. Comparison of study groups was carried out using chi-square and Fisher's exact test for categorical data, and Student's t-test for continuous data. P-value of < 0.05 was considered statistically significant.

Results

Table 1 shows the demographic distributions of both patients and control groups. From the total 70 patients with psoriasis; there were 40 (57.1%) males and 30 (52.9%) females. There were 37 (52.9%) patients with widespread pain compared with 5 (7.1%) individuals with widespread pain in the control group which is a statistically significant difference (P<0.05) as shown in Table 2. There were 21 (30.0%) (18 females and 3 males) patients who fulfilled the 1990 ACR criteria for classification of FMS in the patients group, compared to 1 (1.4%) in the control group which is also a statistically significant difference (P<0.05). Women were more obviously having FMS compared to men in a proportion of 6:1 as shown in Table 2. Table 3 shows high PASI in psoriasis patients with FMS compared to psoriasis patients without FMS; 57.9±4.6 and 15.5±3.4 respectively, (P<0.05) which is a statistically significant difference. The mean age and disease duration were 50.7±7.3 and 10.03± 2.5 respectively as shown in Table 1. FMS allied symptoms were more prevalent in patients with psoriasis than in the control group; the difference is statistically significant (all P<0.05) as shown in Table 4.

Table 1: The demographic distributions of both patients with psoriasis and controls

Characteristics	Psoriasis	Controls	P value
Total No.(%)	70(100%)	70(100%)	
Men	40(57.1%)	38(54.3%)	>0.05
Women	30(52.9%)	32(55.7%)	
Age	50.7±7.3	50.4±7.2	>0.05
Disease duration	10.03± 2.5		
Treatment	methotrexate, Topical		

Table 2: FMS in both men and women is more frequent in patients with psoriasis than in the controls

	Psoriasis	Controls	P value
Total No	70	70	
Widespread pain	37(52.9%)	5(7.1%)	<0.05
FMS:	**21(30%)**	**1(1.4%)**	<0.05
Men	3(14.3%)	0(0%)	
Women	18(85.7%)	1(100%)	

Table 3: Psoriasis patients with FMS have higher psoriatic area and severity index than psoriasis patients without FMS

Patient group	PASI
Psoriasis with FMS	57.9±4.6
Psoriasis without FMS	15.5±3.4
P value	<0.05

Table 4: FMS allied symptoms are more frequent in patients with psoriasis than in the controls

	Psoriasis	Controls	P value
TOTAL (%)	70(100%)	70(100%)	
Morning Stiffness	20(28.5%)	2(2.9%)	<0.05
Sleep Disturbance	20(28.5%)	2(2.9%)	<0.05
Anxiety	21(30%)	1(1.4%)	<0.05
Fatigue	20(28.5%)	1(1.4%)	<0.05
Headache	19(27%)	2(2.9%)	<0.05
Irritable Bowel	19(27%)	1(1.4%)	<0.05

Discussion

In this study, widespread pain was found to be more prevalent in the patients with psoriasis than in the control group in a percentage of 52.9% and 7.1% respectively, whereas the percentage of FMS among patients with psoriasis was found to be 30.0% which is higher when compared to a study done by Thune [32], who found FMS affected 13.0% of his study group. However, the prevalence rate of FMS in patients with psoriasis in our study was comparable to the prevalence rates of 25% in patients with RA (33), 30% in patients with SLE [23], and it seems to be low when compared to the prevalence rate of 37.5% and 50% in patients with psoriatic arthritis and Sjogren syndrome respectively [22,25]. The prevalence of FMS in our study population is considered high when compared to the prevalence rate in the general population [20]. This result may be explained by the psychological burden of this disfiguring disorder that contributes to stress. Stress is usually associated with exacerbation of psoriasis [16]; in addition stress plays an important role in the pathogenesis of FMS [27]. Another explanation for the increased prevalence rate of FMS in patients with psoriasis may be attributed to the common underlying pathway in the pathogenesis of both FMS and psoriasis, which is associated with the dysfunctional neurotransmitter systems, in particular the increased level of substance P in both disorders [15,28]. Women showed a 6-fold higher occurrence of FMS than men, whereas the ratio was 3:1 in the general population [20]. Therefore, FMS is more prevalent in women with psoriasis than women in the general population. This result is comparable with findings of other studies that found a female predominance of FMS in different inflammatory and rheumatic disorders [23,34,35]. In this study we found that psoriasis patients with higher PASI developed FMS more than those with lower PASI. This relationship is not addressed in the literature. This result, also may be explained by the psychological burden of this disfiguring disorder, or may be correlated to the increased level of substance P, that leads to the exacerbation of both psoriasis and FMS. Further studies, with larger patient sample are needed for the confirmation of this result. Morning stiffness, sleep disturbance, fatigue, irritable bowel, headache and anxiety were the most common non-musculoskeletal manifestations recorded in patients with psoriasis in this study. These FMS allied symptoms were more prevalent in psoriatic patients compared to the controls. The increased frequency of these symptoms also may be attributed to the common etiopathogenesis of both FMS and psoriasis. However, these symptoms were not addressed in previous studies; therefore, further studies are needed to estimate the prevalence of these FMS allied symptoms in patients with psoriasis. Prevalence of FMS allied symptoms in this study were found to be comparable with the findings of other studies conducted on acne vulgaris, another skin disorder associated with FMS [36,37].

Conclusion

FMS and allied symptoms are more prevalent in patients with psoriasis than in the general population. Women with psoriasis are more frequently affected by FMS than are men. Awareness of this comorbidity is an essential part in the treatment of psoriasis. Because of the strong association between disease severity and FMS, proper treatment that reduces skin involvement and disease severity may be associated with the alleviation of FMS and its allied symptoms.

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All authors approve that the manuscript has been read and approved. All authors participated equally in the preparation of this manuscript by completing the questionnaires of the patients, preparing and writing the final manuscript preparing it for publishing.

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