Original Article

A cross-Sectional Study of Psoriatic Arthritis in One Center in Baghdad

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Abstract

Background: Psoriatic arthritis is a chronic inflammatory illness. Nearly, 15% of psoriasis patients have undiagnosed psoriatic arthritis. **Objective:** The aim of this study was to investigate the prevalence of psoriatic arthritis and different clinical–epidemiological characteristics of the disease of patients. **Materials and Methods:** This cross-sectional study included psoriatic patients who attended Baghdad Teaching Hospital. Clinical examination, laboratory investigations including rheumatoid factor analysis and radiological examination of axial and peripheral skeleton were done. The prevalence of PsA, age, sex, clinical variants of PsA, and psoriasis type were assessed. **Results:** The prevalence of psoriatic arthritis was 0.02% during the period of study, mean age of participants was 44 ± 33. Obesity and overweight were reported by 34.75%, smoking by 24.58% with significant association with gender, also 28.81% with family history more in females. Regarding comorbidity, 33.9% of patients were suffering from metabolic syndrome, 23.72% with dyslipidemia, 22.88% with hypertension, and 17.8% with diabetes. Higher percentages (65.31%) of polyarthritis had family history followed by oligoarthritis (24.45%) and distal interphalangeal (10.20%). However, the association between types of arthritis was found to be statistically nonsignificant. Regarding the distribution of study sample according to the types of treatment, higher percentage of patients (72.88%) were on methotrexate (MTX) followed by NSAIDs (64.4%), while the lower percentage (4.7%) for Golimumab. **Conclusions:** A high percentage of comorbidities such as metabolic syndrome, diabetes mellitus, hypertension, dyslipidemia, and obesity were observed. Psoriasis vulgaris was the most common type of skin lesion associated with axial involvement. Family history was associated with oligoarthritis more than other types. The first choice of treatment was MTX.

Keywords: Psoriasis, psoriatic arthritis, metabolic syndrome, family history

Introduction

Psoriatic arthritis is a chronic inflammatory disorder commonly concomitant with psoriasis existing in approximately 30% of psoriatic patients. Psoriatic arthritis is considered as inflammation at joints, tendons, and entheseal sites making the involvement of the joints particularly varied.[1] The clinical heterogeneity of PsA, in addition to different comorbidities, makes it challenging for rheumatologists regarding the treatment choice.[2] Moreover, new evidence proposes a complex relationship between genetic predisposition and innate and acquired immune response.[2,3] The prevalence of psoriasis among Asians is reported to be about 0.1%,[2,3] which is lower than the 2% reported among Westerners.[4] The current study was carried out in order to determine the prevalence of psoriatic arthritis patients and various clinico-epidemiological features of psoriatic arthritis among a sample of patients attending a center in Baghdad during the period of the study.

Clinical features of the disease may assist in recognizing patients with psoriasis at risk of modifying to arthritis. The severity of psoriasis raises the possibility of PsA, as revealed in a substantial cohort study.[4] Holding more than three body areas involved by psoriasis (compared to one site) was linked with a 2.24-fold increased risk of PsA.[5] The location of psoriatic lesions also affects the risk of PsA. One study revealed a 3.98-fold increase in PsA with

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scalp involvement and another study showed a 2.35-fold increase with intergluteal and perianal lesions.[5]

PsA is a chronic inflammatory disease that involves a clinical pattern that can exist with skin lesions, peripheral or axial arthritis, dactylitis, or nail lesions.[6] The clinical range of PsA is varied in nature; psoriatic patients might have axial skeleton involvement, peripheral joint inflammation, dactylitis, entheses, tenosynovitis, or nail changes. Each of these circumstances can be found alone or in combination with other clinical findings.[7]

Materials and Methods

A cross-sectional study was carried out in Baghdad Teaching Hospital for a period of 9 months on the prevalence of psoriatic arthritis patients and different clinico-epidemiological features of psoriatic arthritis among a sample of patients attending Baghdad Teaching Hospital during the period of the study. Clinical examination, laboratory investigations including rheumatoid factor and radiological examination for axial and peripheral skeleton were done. The prevalence of PsA, age, sex, psoriasis type, and clinical variants of PsA were evaluated. Descriptive and inferential statistics were applied.

Statistical analysis

Analysis of data was carried out using the available statistical package of Statistical Packages for Social Sciences, version 25 (SPSS-25). Data were obtainable in simple measures of frequency, percentage, mean, standard deviation, and range (minimum–maximum values).

The significance of difference of different means (quantitative data) was tested using Student's *t* test for the difference between two independent means. The significance of difference of different percentages (qualitative data) was tested using Pearson's chi-square test (χ^2 test) with the application of Yate's correction or Fisher's exact test whenever applicable. Statistical significance was considered whenever the *P* value was equal to or less than 0.05.

Ethical considerations

The study was accomplished with ethical approval in correspondence with the Declaration of Helsinki. It was carried out with patients' verbal and analytical approval and consent forms were reviewed and approved by a local ethics committee according to document number 18 in 12/1/2022.

Results

The prevalence of psoriatic arthritis in Baghdad Teaching Hospital was 0.02 during the period of study. The mean age of the study sample was 44 ± 33. Most cases were from urban areas. Obesity and overweight were reported by 34.75% of patients The results also found that 24.58% of the study sample were smokers, 37.5% for males and 4.35% for females with significant association. Family history of psoriatic arthritis was reported by 28.81% of the total sample (25% for males and 34.78% for females). Regarding the higher percentage of comorbidity (33.90%) for metabolic syndrome followed by dyslipidemia (23.72%), hypertension (22.88%), and diabetes mellitus (17.80%) [Table 1].

Significance differences between axial involvement and enthesitis, dactylitis, and skin involvement while

Table 1: Distribution of study sample according to demographic variables and gender

		Gender						
		Males		Females		Total		
		N = 72	100%	*N* = 46	100%	*N* = 118	%	*P* value
Age (years)	20–29	10	13.89	11	23.91	21	17.80	0.567
	30–39	27	37.50	13	28.26	40	33.89	
	40–49	23	31.94	20	43.48	43	36.44	
	50–59	12	16.67	2	4.35	14	11.87	
Residency	Urban	68	94.44	38	82.6	106	89.83	0.078
	Rural	4	5.56	8	17.4	12	10.17	
Obesity and overweight	Positive	26	36.11	15	32.61	41	34.75	0.848
	Negative	46	63.88	31	67.39	77	65.25	
Smoking	Positive	27	37.50	2	4.35	29	24.58	0.0001*
	Negative	45	62.50	44	95.65	89	75.42	
Family history	Positive	18	25	16	34.78	34	28.81	0.349
	Negative	54	75	30	65.22	84	71.19	
Comorbidity	HT	16	22.22	11	23.91	27	22.88	0.065
	DM	14	19.45	7	15.22	21	17.80	
	Dyslipidemia	18	25	10	21.74	28	23.72	
	Metabolic syndrome	24	33.33	14	30.43	40	33.90	

non-significance differences were seen between axial involvement and types of arthritis and nail involvement (*P* value = 0.0318, 0.0168, 0.0123, 0.0654, and 1.000, respectively). Moreover, the psoriasis vulgaris was the most common type of skin lesion associated with axial involvement [Table 2].

The results in Table 3 reveals that the highest percentages of patients with family history were (41.18%) for patients with oligoarthritis followed by polyarthritis (32.35%). However, the association between types of arthritis was found to be statistically non-significant (*P* = 0.0572).

Table 4 shows the distribution of study sample according to the types of treatment. Higher percentage of study sample (72.88%) on cDMARDs (methotrexate) followed by NSAIDs (64.4%) followed by bDMARDs (43.53% for infliximab, 32.95% for etanercept, 18.82% for adalimumab) while the lower percentages (4.7%) for golimumab.

Table 2: Distribution of study sample according to axial involvement and types of arthritis and enthesitis, dactylitis, skin and nail changes

	Axial involvement						*P* value
	Present		Absent		Total		
	N	%	*N*	%	*N*	%	
Types of arthritis							
Distal interphalangeal	2	4.2	8	11.4	10	8.47	0.0654
Oligoarthritis	22	45.8	36	51.4	58	49.2	
Polyarthritis	14	29.2	24	34.3	38	32.2	
Arthritis mutilans	0	0	2	2.9	2	1.7	
No peripheral arthritis	10	20.8	0	0	10	8.47	
Total	**48**	**100.00**	**70**	**100.00**	**118**	**100.00**	
Enthesitis							
Present	29	60.4	27	38.58	56	47.46	0.0318*
Absent	19	39.6	43	61.42	62	52.54	
Total	**48**	**100.00**	**70**	**100.00**	**118**	**100.00**	
Dactylitis							
Present	25	52.1	20	28.6	45	38.14	0.0168*
Absent	23	47.9	50	71.4	73	61.86	
Total	**48**	**100.00**	**70**	**100.00**	**118**	**100.00**	
Skin							
Psoriasis vulgaris	39	81.25	53	75.71	92	77.97	0.0123*
Pustular psoriasis	6	12.5	9	12.86	15	12.71	
No skin lesion	3	6.25	8	11.43	11	9.32	
Total	**48**	**100.00**	**70**	**100.00**	**118**	**100.00**	
Nail							
Present	17	35.41	25	35.71,	42	35.59	1.000
Absent	31	64.59	45	64.29	76	64.41	
Total	**48**	**100.00**	**70**	**100.00**	**118**	**100.00**	

Table 3: Distribution of study sample according to family history and types of arthritis

Types of arthritis	Family history					
	Positive		Negative		Total	
	N	%	*N*	%	*N*	%
Distal interphalangeal	3	8.82	7	8.33	10	8.47
Oligoarthritis	14	41.18	44	52.38	58	49.2
Polyarthritis	11	32.35	27	32.14	38	32.2
Arthritis mutilans	0	0.00	2	2.38	2	1.7
No peripheral arthritis	6	17.65	4	4.77	10	8.47
Total	**34**	**100.00**	**84**	**100.00**	**118**	**100.00**

$\chi^2 = 2.915$; df= 4; $P = 0.572$

Table 4: Distribution of study sample according to types of treatment

Treatment	*N*	%
NSAIDs	76	64.4
Corticosteroid	16	13.6
Total	**118**	**100**
cDMARDs[a]		
Methotrexate	86	72.88
Leflunomide	10	8.47
Sulfasalazine	22	18.65
Total	**118**	**100**
bDMARDs[b]		
Infliximab	37	43.53
Adalimumab	16	18.82
Etanercept	28	32.95
Golimumab	4	4.7
Total	**85**	**10**

[a]Some patients use more than one DMARD

[b]Only 85 out of 118 on biological therapy

Discussion

The prevalence of psoriatic arthritis was 0.02% in Baghdad Teaching Hospital during the period of the study. Different articles discussed the prevalence, it ranged from 0.06% to 0.25% in the United States; and in Europe, it ranged from 0.05% in Czech Republic and Turkey to 0.21% in Sweden. On the other hand, lower prevalence was found in Asia and South America.[8,9] Underdiagnosis of PsA may be the cause of this low prevalence due to the use of different clinical criteria. Despite limited data about the epidemiology of rheumatic diseases in Iraq and the Arab region, PsA is less reported than rheumatoid arthritis as shown in a recent study in Iraq.[10]

Psoriatic arthritis is treated as a chronic systemic inflammatory condition and is associated with developing various comorbidities including metabolic syndrome, cardiovascular disease, infections, psychiatric diseases, and other diseases. The findings of this study provide evidence that most patients develop the disease in 4th to 6th decades, in consistent with Gottlieb *et al*. [11] and Ritchlin *et al*. [12] who reported that this disease commences at the age of 30–50 years although the disease can be developed at any period.

This study showed the prevalence of metabolic syndrome was 33.9% and these findings are similar to other studies by Lopez *et al*.[13] who reported (35.8%) and Paschoal *et al*. [14] (43.3%). Furthermore, the prevalence of dyslipidemia, hypertension, and diabetes mellitus were 23.72%, 22.88%, and 17.8%, respectively. These results were similar to Valenzuela *et al*.'s[15] findings who revealed the presence of hypertension in 20.3% and DM in 11.1%.

Obesity is a comorbidity that adds more difficulty in the management of the disease and affects the response to the treatment. This study revealed that the overweight and obesity were (34.75%) among the sample. Labitigan *et al.* [16] reported a higher prevalence of obesity in PsA (45%) in comparison to patients with rheumatoid arthritis (39%). Furthermore, several studies revealed that the prevalence of obesity is high among patients with PsA.[17] Obesity and PsA are share multiple passageways of systemic inflammation [18] and different inflammatory mediators that secreted by adipose tissue such as leptin, and adiponectin in addition to interleukin-6 and tumor necrosis factor-alpha (TNFa) are inducing a chronic low-grade inflammatory condition and better control of disease activity in PsA patients causing improvement of components of metabolic syndrome. [17,19]

The data of this study showed that positive family history was found in 28.81% with female relatives being affected more by the disease. Ciurtin and Roussou [20] studied family members of patients among different ethnic groups in the same geographic area and found differences between these groups with the highest in Caucasians than others with three times more probability of developing the disease.

The inflammatory process of the disease can involve both axial and peripheral joints and may lead to damage of these joints with subsequent loss of functional capacity. A number of studies discussed the prevalence of axial involvement in PsA and showed significant differences do exist. Gottlieb *et al.* [21] showed that axial involvement was found in up to 50% of patients. Furthermore, the results of this study revealed that 40.6% of the patients with axial involvement and these differences related to using different diagnostic criteria.

Also, it established that skin lesions were found in 93.75% of patients with axial disease in comparison to 88.57% with peripheral involvement consistent with findings by Ritchlin *et al*.[12] who reported that a small proportion (around 15%) had no skin lesion at diagnosis. Studies of nail involvement in PsA are extremely variable with a wide range of results. The present study demonstrated that 35.59% of patients with nail involvement in contrast to the study by Sobolewski *et al*. [22] who indicated that nail involvement is up to 80% in psoriatic arthritis. It needs for more large studies on nail involvement in PsA should be directed by applying the CASPAR criteria as the method of recruitment with high specificity and good sensitivity so as not to limit the taking part only to skin changes.

Other clinical features reported by this study that enthesitis present in 47.46%, and dactylitis in 38.14% both of them more with axial PsA. The present finding also supports Coates and Helliwell's[23] study, which concluded that enthesitis is present in 60–80% and dactylitis in 30% of PsA patients. Although both RA and PsA have similar and different clinical features it is well known that enthesitis and dactylitis are typically not present in rheumatoid patients with sparing of sacroiliac joint and these findings can be

seen in peripheral PsA, particularly with polyarthritis. On the other hand, enthesitis and dactylitis are similar to the axial spondyloarthritis phenotype.

Not much data is available about the association between type of arthritis and family history positivity. The present study revealed that the highest percentages of patients with family history were with oligoarthritis but no significant association between the type of arthritis and positive family history. Tsitsami *et al*. [24] found that family history does not affect clinical features among juvenile idiopathic arthritis patients with oligoarthritis. Another study revealed that family history is associated with more risk of joint deformity and disease activity.[25] Moreover, it proposed that the link between the disease and family history may indicate various genetic backgrounds and different mechanisms of pathology in these subsets.

Treatment of PsA necessitates concern for both skin and joint manifestations, thus the best therapeutic agents must be successful for both the psoriatic and arthritic aspects of the disease.

Nonsteroidal anti-inflammatory drugs (NSAIDS) may decrease the symptoms of PsA essentially pain and joint swelling, but do not modify the course of the disease. Moreover, they do not inhibit or slow the development of joint erosions. Oral steroids, a traditional treatment for inflammatory arthritis are usually not used to treat PsA considering the fear of aggravation of the skin symptoms upon withdrawal as well as the risk of initiation of pustular psoriasis that remarkably debilitating. The results of this study revealed that 64.4% of patients are on NSAIDS and only 13.6% of them on oral steroids and these findings agree with many protocols of management of PsA.

Traditional disease-modifying antirheumatic drugs (DMARDs) are commonly used in the management of PsA. Methotrexate (MTX) is usually used as a first choice as a monotherapy or in combination with other drugs. MTX decreases inflammation and reduces the possibility of joint damage with better control of disease activity of joint and skin manifestations but it obviously with limited role in the treatment of axial involvement and other manifestations such as enthesitis. Although the MTX is widely used, response rates seem modest at the best. Moreover, MTX is used to decrease the immunogenicity of biological therapy.[26]

Multiple studies concluded that leflunomide was found to induce substantial clinical responses in both joint and skin manifestations in comparison to placebo while fewer patients showed improvement of pain score without effect on radiologic progression to treatment with sulfasalazine.[27] In this study, it was found that (72.88%) of patients on MTX, (18.65%) on sulfasalazine, and only 8.47% on leflunomide, some of the patients used combination therapy, MTX particularly with sulfasalazine. Despite this management, 30–40% of patients have not attained satisfactory response and need other treatment.[7]

Biological therapy has revolutionized the management of inflammatory arthritis and the treatment of PsA has improved dramatically since the advancement and establishment of these medications. FDA-approved biological therapy for the treatment of psoriatic arthritis: etanercept in 2002, infliximab and adalimumab in 2005, golimumab in 2009, certolizumab-pegol in 2013, apremilast in 2014, secukinumab in 2016, ixekizumab and tofacitinib in 2017, guselkumab in 2020, upadacitinib in 2021, risankizumab in 2022. These drugs are expensive and prescriptions for them depend on national guidelines, financial resources, insurance system, and other factors. In the center of the study, only etanercept, infliximab, adalimumab, and golimumab in addition to two biosimilars (infliximab biosimilar CT-P13 and adalimumab biosimilar ABP 501) are available. The bDMARDs improve signs of inflammation in both peripheral and axial joints in addition to improvement to periarticular tissues such as entheses with subsequent recovery in quality of life and functional capacity. Moreover, the improvement involves skin and nail symptoms of the disease.

The data of this study demonstrated that only 72% on bDMARDs most of them in combination with MTX. Furthermore, in decreasing order of frequency the group of patients on biological showed that (43.53%) on infliximab, 32.95% on etanercept, 18.82% on adalimumab, and only 4.7% on golimumab. The main factors affecting choosing the biological therapy are safety, tolerability, efficacy, convenience of the treatment, presence of extraarticular manifestations, patient preference, and availability of the drug in our center. Although polypharmacy is not the aim of this study, most patients use different medications at the same time for symptomatic treatment and for comorbidities with supplement and proton pump inhibitors in addition to DMARDs and biological therapy as this large public health concern is prevalent in other inflammatory arthritis especially rheumatoid arthritis[28,29] and these phenomena concomitant with adverse effects of potential drug–drug interactions.

Conclusions

A high percentage of comorbidities such as metabolic syndrome, diabetes mellitus, hypertension, dyslipidemia, and obesity were observed. Psoriasis vulgaris was the commonest type of skin lesion associated with axial involvement. Family history was associated with oligoarthritis more than other types of joint involvement. Methotrexate has frequently been utilized as the first DMARD to be administered in PsA because of its efficacy in the treatment of joint and skin disorders despite its limited role in axial management. Infliximab was the most common biological used in the treatment of PsA.

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Conflicts of interest
There are no conflicts of interest.

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