Epidemiology of Psoriasis in Diyala Province

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Graduation Project

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2022-2021 1443-1442

وبائيات الصدفية في محافظة ديالى

كلية الطب

جامعة ديالى

2022-2021 **1443-1442**

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Abstract :

Background: Psoriasis is one of the most common dermatologic diseases, affecting up to 2% of the world's population .It is an immune-mediated disease clinically characterized by erythematous, sharply demarcated papules and rounded plaques covered by silvery micaceous scale. The skin lesions of psoriasis are variably pruritic. Traumatized areas often develop lesions of psoriasis , In addition, other external factors may exacerbate psoriasis, including infections, stress, and

medications .its associated with morbidities such as psoriatic arthropathy, psychological, cardiovascular and hepatic diseases. requires a holistic and multidisciplinary care approach.

***Aim*:** To determine the prevalence of Psoriasis in Diyala province .

Patient and methods : This cross-sectional study was conducted at the outpatient Dermatology clinic at the Baqubah Teaching Hospital using special questionnaire . from the 1st October 2٠٢١ to the ٣١th of march 2022 .

Results : The sample of the study included (154) patients with psoriasis, comprising 50.6% males ranging in age from 3-62 years. The mean age±SD at presentation was 30.2±15.1 years; the mean age±SD at onset was 22.8±12.0 years. The mean duration of the illness was 7.4 years. At unimodal distribution curve of age at onset was noticed with a peak at the third decade. Early onset of psoriasis before 30 years was significantly associated with family history. Severity of psoriasis was mild in 74 (48.1%) of cases and it was more severe in elderly with longstanding disease. Itching and disfigurement were the main complaints especially the young and female patients. Plaque type (64.9%) was the most common variant, arms (52.6%) were the most commonly affected body site, and the scalp (27.9%) was the most common initial site affected by psoriasis. Nail involvement was seen in 30 (19.5%) patients especially fingernails.

Conclusions :

The study conclude that psoriasis was a disease affecting all ages, genders and socio-economic state.

***Keywords*:** psoriasis , prevalence, Comorbidities, Iraq.

خلاصة البحث :

الخلفية: الصدفية هي واحدة من أكثر الأمراض الجلدية شيوعًا ، حيث تصيب ما يصل إلى ٢٪ من سكان العالم ، وهي من الأمراض المناعية التي تتميز سريريًا بحطاطات حمامية واضحة المعالم ولويحات مستديرة مغطاة بمقياس فضي دقيق. الآفات الجلدية للصدفية حاكة متفاوتة. غالبًا ما تصاب المناطق المصابة بالصدفية بآفات الصدفية ، بالإضافة إلى ذلك ، قد تؤدي العوامل الخارجية الأخرى إلى تفاقم الصدفية ، بما في ذلك

الالتهابات والتوتر والأدوية. يرتبط بأمراض مثل الاعتلال المفصلي الصدفي والأمراض النفسية وأمراض القلب والأوعية الدموية والكبد. يتطلب نهج رعاية شامل ومتعدد التخصصات.

الهدف: تحديد مدى انتشار الصدفية

المريض وطرقه: أجريت هذه الدراسة المقطعية في العيادة الخارجية في مستشفى بعقوبة التعليمي في مدينة بعقوبة في الفترة من ١ تشرين الأول ٢٠٢١ إلى ٣١ آذار ٢٠٢٢.

النتائج: اشتملت عينة الدراسة على ١٥٤ مريضاً بالصدفية ، منهم ٥٠.٦٪ ذكور تتراوح أعمارهم بين ٣-٦٢ سنة. كان متوسط العمر SD ± عند العرض ٣٠.٢ ± ١٥.١ سنة ؛ كان متوسط العمر SD ± في البداية ٢٢.٨ ± ١٢.٠ سنة. كان متوسط مدة المرض ٧.٤ سنوات. عند التوزيع أحادي النسق ، لوحظ منحنى العمر عند البداية والذروة في العقد الثالث. ارتبط الظهور المبكر لمرض الصدفية قبل ٣٠ عامًا بشكل كبير بالتاريخ العائلي. كانت شدة الصدفية خفيفة في ٧٤ (٤٨.١٪) من الحالات وكانت أكثر حدة عند كبار السن المصابين بمرض طويل الأمد. كانت الحكة والتشوه من أهم الشكاوى وخاصة المرضى الصغار والنساء. كان نوع البلاك (٦٤.٩٪) هو النوع الأكثر شيوعًا ، وكانت الذراعين (٥٢.٦٪) أكثر مواقع الجسم إصابةً ، وكانت فروة الرأس (٢٧.٩٪) هي أكثر الأماكن شيوعًا للإصابة بالصدفية. لوحظ تورط الأظافر في ٣٠ (١٩.٥٪) من المرضى وخاصة الأظافر.

الاستنتاجات والتوصيات:

وكشفت الدراسة أن الصدفية مرض غير متجانس يصيب جميع الأعمار والأجناس والطبقات الاجتماعية والاقتصادية. يوصى بإجراء مزيد من الأبحاث لدراسة مدى انتشار الصدفية وخصائصها .

الكلمات المفتاحية: الصدفية، انتشار المرض ، أمراض المصاحبة ، العراق.

Introduction

Psoriasis is a complex and multifactorial chronic inflammatory autoimmune skin disease associated with systemic manifestations. The interaction between genetic and environmental factors comprises an interplay in the pathogenesis of psoriasis. It can occur at any age, although it is most common between the ages of 15 and 30 [1,2].

Even though psoriasis is not contagious, the affected individuals experience significant social and psychological problems as a result of its disfiguring and debilitating effects, including loss of productivity and, worst of all, social rejection and a negative impact on their quality of lif(QoL). Furthermore, psoriasis is considered a major health concern that requires a complete cure, and a well-monitored treatment can reduce its morbidity and improve quality of life.

The global prevalence is estimated to be around 2%; however, this differs from country to country.[3] The prevalence of psoriasis in different nations has been observed to range from 0.09% to 11.4%.[4]) Psoriasis is prevalent in irregular intensity among different populations and ethnic groups around the world. Adult prevalence estimates range from 0.51% to 11.43%, while children's prevalence estimates range from 0% to 1.37% [5].

Psoriasis is considered an immune-mediated chronic illness with the involvement of crucial genetic components; (however, still the identification of its causative immunogen has not been discovered) [6,7]. The condition is thought to start when an unknown antigen activates T cells, causing them to secrete a variety of cytokines, which are then released by activated T cells, inflammatory cells, and keratinocytes. Thus, psoriasis can be attributed to a deficiency in keratinocyte proliferation and differentiation, as well as inflammatory cell infiltration, including T-lymphocytes, macrophages, and neutrophils[8].

The hyper-proliferation of the keratinocyte causes the typical psoriasis lesion; (therefore, psoriasis is characterized by a high rate of epidermal turnover)[9]. Psoriasis shows a genetic predisposition, but environmental variables also play a role in clinical manifestations of the disease. Therefore, ethnicity, genetics, and environmental variables all have a role in determining the disease's prevalence. In comparison to other ethnic groups, higher prevalence rates have been found in those living in higher latitudes and white people[6,7].

In this narrative review, we provide outcome of a literature search on prevalence, cutaneous manifestation, and clinical characteristic of psoriasis with a focus on Iraq.

Psoriasis shows wide geographic variations in clinical features and prevalence, ranging from 3% in Scandinavians to absent among Aborigines (natives of Australia)[10]. In Iraq, prevalence of psoriasis varies from 0.5% to 0.7%[11,12].

Risk factors: Family history, viral and bacterial infections, stress, obesity, smoking ,injury to the skin, cold weather, certain medications and heavy alcohol consumption .psoriasis diagnosed by physical examination and medical history, skin biopsy .The most common ***differential diagnosis*** is seborrhic dermatitis, lichen planus, ringworm of the body (tinea corporis) and pityriasis rosea ***.Psoriasis is treated*** either topically such as corticosteroids, vitamin D analogues, anthralin, retinoids, calcineurin inhibitors, salicylic acid and moisturizers, or Light therapy (phototherapy) Sunlight, UVB phototherapy, Goeckerman therapy, photochemotherapy, Excimer laser, pulsed dye laser, combination light therapy ,or systemic retinoids methotrexate, cyclosporine, hydroxyurea, immunomodulator drugs (biologics), thioguanine. ***Possiple Complications*** , secondary skin infection caused by scratching in an attempt to relieve itching, thickened of skin, fluid and electrolyte imbalance in the case of severe pustular psoriasis, low self-esteem, depression, stress, anxiety, social isolation .

Clinical Classification

The dermatologic manifestations of psoriasis are varied; psoriasis vulgaris is also called plaque-type psoriasis, and is the most prevalent type. The terms psoriasis and psoriasis vulgaris are used interchangeably in the scientific literature; nonetheless, there are important distinctions among the different clinical subtypes.

- ***Psoriasis Vulgaris :***

About 90% of psoriasis cases correspond to chronic plaque-type psoriasis. The classical clinical manifestations are sharply demarcated, erythematous, pruritic plaques covered in silvery scales. The plaques can coalesce and cover large areas of skin. Common locations include the trunk, the extensor surfaces of the limbs, and the scalp [13,14].

Inverse Psoriasis :

Also called flexural psoriasis, inverse psoriasis affects intertriginous locations, and is characterized clinically by slightly erosive erythematous plaques and patches.

- ***Guttate Psoriasis :***

Guttate psoriasis is a variant with an acute onset of small erythematous plaques. It usually affects children or adolescents, and is often triggered by group-A streptococcal infections of tonsils. About one-third of patients with guttate psoriasis will develop plaque psoriasis throughout their adult life [15,16].

- ***Pustular psoriasis :***

Pustular psoriasis is characterized by multiple, coalescing sterile pustules. Pustular psoriasis can be localized or generalized. Two distinct localized phenotypes have been described: psoriasis pustulosa palmoplantaris (PPP) and acrodermatitis continua of Hallopeau. Both of them affect the hands and feet; PPP is restricted to the palms and soles, and ACS is more distally located at the tips of fingers and toes, and affects the nail apparatus. Generalized pustular psoriasis presents with an acute and rapidly progressive course characterized by diffuse redness and subcorneal pustules, and is often accompanied by systemic symptoms [18].

Erythrodermic psoriasis is an acute condition in which over 90% of the total body surface is erythematous and inflamed. Erythroderma can develop on any kind of psoriasis type, and requires emergency treatment.

Comorbidities in Psoriasis

Psoriasis typically affects the skin, but may also affect the joints, and has been associated with a number of diseases. Inflammation is not limited to the psoriatic skin, and has been shown to affect different organ systems. Thus, it has been postulated that psoriasis is a systemic entity rather than a solely dermatological disease. When compared to control subjects, psoriasis patients exhibit increased hyperlipidemia, hypertension, coronary artery disease, type 2 diabetes, and increased body mass index. The metabolic syndrome, which comprises the aforementioned conditions in a single patient, was two times more frequent in psoriasis patients [18,19].

Coronary plaques are also twice as common in psoriasis patients when compared to control subjects [20]. Several large studies have shown a higher prevalence of diabetes and cardiovascular disease correlating with the severity of psoriasis [21,22,23,24,25]. There are divided opinions regarding the contribution of psoriasis as an independent cardiovascular risk factor [26,27]; however, the collective evidence supports that psoriasis independently increases risk for myocardial infarction, stroke, and death due to cardiovascular disease (CVD) [28,29,30,31,32,33,34,35].

Psoriatic arthritis develops in up to 40% of psoriasis patients [36,37,38,39,40,41,42]; around 15% of psoriasis patients are thought to have undiagnosed PsA [43]. It presents clinically with dactylitis and enthesitis in oligoarticular or polyarticular patterns. The polyarticular variant is frequently associated with nail involvement [44]. Nails are specialized dermal appendages that can also be affected by psoriatic inflammation. Nail psoriasis is reported to affect more than half of psoriasis patients, and can present as the only psoriasis manifestation in 5–10% of patients [45]. The clinical presentation of nail psoriasis depends on the structure affected by the inflammatory process. Nail matrix involvement presents as pitting, leukonychia, and onychodystrophy, whereas inflammation of the nail bed presents as oil-drop discoloration, splinter hemorrhages, and onycholysis [46]. Psoriatic nail involvement is associated with joint involvement, and up to 80% of patients with PsA have nail manifestations [47,48].

In addition to an increased risk for cardiometabolic disease, psoriasis has been associated with a higher prevalence of gastrointestinal and chronic kidney disease. Susceptibility loci shared between psoriasis and inflammatory bowel disease support

this association in particular with regard to Crohn's disease [49,50]. An association with mild liver disease, which correlates with imaging studies, has been reported [51,52]. Psoriasis might be a risk factor for chronic kidney disease and end-stage renal disease, independent of traditional risk factors (demographic, cardiovascular, or drug-related) [53].

Taken together, the different factors contributing to psoriasis as a systemic disease can have a dramatic effect on the quality of life of patients and their burden of disease. Psoriasis impairment to psychological quality of life is comparable to cancer, myocardial infarction, and depression [54]. The high burden of disease is thought to be owed to the symptoms of the disease, which include pain, pruritus, and bleeding, in addition to the aforementioned associated diseases [55].

The impact of psoriasis on psychological and mental health is currently an important consideration due to the implications of the disease on social well-being and treatment. Patients with psoriasis have an increased prevalence of depression and anxiety and suicidal ideation. Interestingly, psoriasis treatment leads to improvement in anxiety symptoms [56,57].

Patient and methods

This work was carried out as a cross-sectional study on patients with psoriasis who attended dermatology clinics in at the Baqubah Teaching Hospital using special questionnaire containing (age , sex , sociodemographic , site , types , nail , involvement of chronic morbidity)

The study was conducted during the period of 1st October 2021 to 31th march 2022. Data was collected at baseline and every 1 week. However, follow-up data was not available for all patients, as some were notifed only once. The diagnosis of psoriasis is made based on clinical evaluation. Confrmation of diagnosis by histopathology examination is optional. Data were analyzed using descriptive analyses for sociodemographic characteristics of the patients, aggravating factors, comorbidities, types of psoriasis, and treatment modalities.

After identifying eligible patients with psoriasis and invited to participate in the study, each patient was exposed to the following: - Oral consent. - Filling demographic data form (age, gender, education level, occupation, marital status, and socioeconomic status). - Assessing of clinical information (age at onset, duration of

disease, site of lesions, and the types of psoriasis). - Determining clinical severity using the extent of body surface area involved by psoriatic lesions. The area of lesions covered by single palm will be equal to 1% of body surface area involvement (BSA). The disease will be classified into mild (10% BSA) . Descriptive statistical methods were used to summarize and tabulate the different sociodemographic and clinical parameters of the studied sample.

RESULTS

During study period the proportional morbidity rate of psoriasis from all the cases recorded in the consultation clinics of dermatology was 5.26%. A total of (154) patients suffering from psoriasis agreed to participate and were enrolled in the current study. **Table 1** shows that They were 78 (50.6%) males and 76 (49.4%) females with male to female ratio about1:1.

Table (1) frequency distribution according to gender .

Gender	Number	%
Male	78	50.6
Female	76	49.4
total	154	100%

Table 2 shows that Minimum and maximum age at presentation were 3 years and 62 years respectively with mean and standard deviation of 30.2±15.1 years. After tabulating the age into 15 years intervals, highest proportion was found among age group 15-29 years (36.4%).

Table (2) frequency distribution according to age .

Age grope	Number	%

1-14 year	28	18.2
15-29 year	56	36.4
30-44 year	42	27.3
45+ year	28	18.2
total	154	100%

Table 3 shows that The most frequent variants of psoriasis were plaque 100 cases (64.9%), guttate in 24 (15.6%), palmoplanter in 18 (11.7%), flexural in 6 (3.9%), generalized pustular in 3 (1.9%), and erythroderma in 3 (1.9%).

Table (3) frequency distribution according to Types .

Type of psoriasis	Number	%
Plaque	100	64.9
Guttate	24	15.6
Palmoplanter	18	11.7
Flexural	6	3.9
Generalize pustular	3	1.9
Erythroderme	3	1.9
total	154	100%

Table 4 shows that The nails were involved in 30 (19.5%) cases. Among the 30 patients with nail changes 16 (10.4%) had their fingernails involved, 9 (5.8%) suffered from toenails psoriasis while the remaining 5 (3.2%) had both finger and toe nails involved. Six (3.9%) patients complained from arthralgia and in 2 (1.3%) frank arthritis was elicited.

Table (4) frequency distribution according to Nail involvement .

Nail involvement	Number	%

absent	124	80.5
Present	30	19.5
total	154	100%

Table 5 shows that The most common sites affected by psoriasis were the arms 81 (52.6%), followed by legs 67 43.5%), trunk 24 (15.6%), scalp 16 (10.4%), hands 12 (7.8%), genitalia 8 (5.2%), soles 7 (4.5%), and the least were the face which was involved in 3 (1.9%). Scalp was the most common initial site affected by psoriasis accounting for 27.9% of the patients followed by elbows (21.4%), knees (13.6%), feet (13%), palms and soles (9.7%), arms (6.5%), trunk (3.9%), and axillae (1.9%).

Table (5) frequency distribution according to sites .

Site of cutaneous lesions	Number	%
Arms	81	52.6
Legs	67	43.5
Trunk	24	15.6
Scalp	16	10.4
Hands	12	7.8
Genitalia	8	5.2
Soles	7	4.5
Face	3	1.9

Table 6 Approximately 50.0% of the cases had past history and comorbidities (males, 52.8%; females, 44.9%). The patients' past histories and comorbidities included hypertension (42.0%; males, 43.4%; females, 39.0%), dyslipidemia (30.0%; males, 30.0%; females, 30.0%), diabetes mellitus (23.7%; males, 25.2%; females, 20.2%), hyperuricemia (15.1%; males, 19.1%; females, 6.3%), cardiovascular disease (6.0%; males, 7.1%; females, 3.6%), and cerebral vascular disorders (6.0%; males, 6.6%; females, 4.8%) (Table 2). More male patients suffered from past history and comorbidities like hyperuricemia and cardiovascular disease than the female patients.

Table (6) frequency distribution according to comorbidities .

	Male %	Female %	All %
Hypertension	43.4	39.0	42.0
Dyslipidemia	30.0	30.0	30.0
Diabetes mellitus	25.2	20.2	23.7
Hyperuricmia	19.1	6.3	15.1
Cardiovascular disease	7.1	3.6	6.0
Cerebral vascular dissorders	6.6	4.8	6.0

DISCUSSION

this study showed that 6.5% of patients were under 10 years and the percentage raised to 18.2% of the sample in those 15 year old or younger..The mean age at presentation (30.2 years) found in this study was in agreement with previous epidemiologic studies conducted locally [58] and internationally [59] .

There is remaining controversy regarding psoriasis gender preponderance and it lies between no difference[60] to male preponderance[61] .The current study supports the opinion of equal male and female ratio which was 1.03:1.00.

Although psoriasis may occur from birth to advanced ages, most of reviewed literature[62] . including the present study suggested that third decade to represent peak of onset. Determination of age at onset is a problematic issue for researchers due to the followings: first, it relies onpatient 's recall; second, date of first diagnosis doesn't reflect the onset as many patients suffer long time before seeking medical care [63].

Smith et al [63]. (postulated that psoriasis has a bimodal peak of activity). They stated that the bimodal distribution in psoriasis incidence represented two clinical presentations of psoriasis, so called type I (genetically determined) and type II (environmentally determined). The current study did not show any indication of bimodal prevalence.

The distribution of age at onset of psoriasis in the current study showed only one peak in the age group 20-29 years. Familial clustering in psoriasis had been observed for many years[64] . A positive family history in 34.4% of the studied sample provided another support of this concept. Moreover, it confirmed the important role of genetics in the etiology of psoriasis especially in those with early onset[65]. This figure was also in

agreement with the figure reported few years ago in the same Country which was (38.5%)[٥٨].

The clinical manifestations of psoriasis are heterogeneous, ranging from limited to very extensive disease[66] .The severity yielded from studied sample was compared with a recent study of psoriatic patients selected from USA population via random digit dialing which show the followings: 57.4% had mild psoriasis, 38.8% had moderate,and the remaining were considered as severe cases[67] .

The present study to some extent is in agreement with US study. Minor difference may be due to variation in the severity assessment between researchers (due to lack of standardized severity assessment method)[68] and variation in the course of disease (due to the nature of psoriasis to wax and wane)[69].

Nail changes are relatively common in psoriasis yet often an overlooked aspect of the disease. Findings in this study reflected similar results as reported in previous literatures. A notable difference was noticed in the frequency of nail involvement between the current study (19.5%) and other studies (58%) [70]. This discrepancy may be due to difference in case definition (minor roughing of nail, which was omitted in the current research while considered significant change by other researchers) or difference in population (percentage of severe cases).

Conclusions :

- we conclude that , results of the current study are mentioned in the points below :

1. That psoriasis is a heterogenous disease affecting all ages, genders and socio-economic strata.
2. The current study supports the opinion of equal male and female ratio which was 1.03:1.00.
3. Although psoriasis may occur from birth to advanced ages.

4. suggested that third decade to represent peak of onset , also The distribution of age at onset of psoriasis in the current study showed only one peak in the age group 20-29 years .
5. The Nail changes are relatively common in psoriasis .

Recommendation:

- Further large sample size to be done in Diyala province .

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