Demographical study for participants suffering psoriatic arthritis in Basrah city

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Abstract

Psoriatic arthritis (PsA) is an inflammatory arthritis linked to psoriasis that often has no rheumatoid factor in its serological profile. The purpose of this study is to determine the epidemiological PsA patients in Basrah. There were 88 participants in the current study, 59 of whom had psoriasis, 29 had psoriatic arthritis, and 48 were healthy controls (HC)matching apparently healthy people were considered as control group (Negative control). For each patient included in the study, the data required for the study were collected by a questionnaire form which was evaluated by two clinicians (dermatologist and rheumatologist).The age range of Ps patients (15-70) years, and the age was ranged in PsA group (15-70) years, while in control group (15-70) years. The genders in Ps groups were (33) females and (24) males, and in PsA group (15) females, (14) males. In the control group the genders were (23) females and (25) males. From August 2020 to February 2022, samples were taken from patients who were receiving care at the Biological Therapy Center, Rheumatology Unite, and Al-Sadar Teaching Hospital in Basrah.

Keywords: Psoriatic arthritis,Psoriasis,PASI,DAS-28
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Introduction

Psoriasis can impact a variety of tissues, including the gut, eye, and musculoskeletal system, in addition to the skin. This can lead to accompanying symptoms such inflamatory bowel infection, uveitis, and arthritis (Chandran V and Raychaudhuri ,2010). Due to the underlying chronic inflammation that underlies psoriasis, patients are more likely to acquire comorbid illnesses like metabolic syndrome and cardiovascular disease(Riyadh ,M.E,2021). Of the many symptoms connected to psoriasis, psoriatic arthritis is the most common. There are estimates that between 6 and 42% of people with psoriasis also have psoriatic arthritis (Chandran V and Raychaudhuri ,2010).In his 1813 book "Practical Synopsis of Cutaneous Diseases," the English doctor Thomas Bateman (1778–1821) was the first to link psoriasis with arthritis. Additional references to a cutaneous-articular syndrome can be found in later writings by French dermatologists Jean Louis Alibert (1766-1837), Pierre Rayer (1793-1867), and Ernest Bazin

(1807-1878). (Benedek TG, 2013).Psoriatic arthritis (PsA), a specific type of arthritis that affects people with psoriasis, was not recognized by the American Rheumtism Association (now known as the American College of Rheumatology) until 1964. Psoriatic arthritis, which is distinct from rheumatoid arthritis in that it only affects those with psoriasis (Eder L and Gladman DD,2013).

SRA, along with juvenile idiopathic arthritis, inflamatory bowel disease-associated arthritis (IBD-AA), and undifferentiated spondyloarthropathy, are all classified as seronegative spondyloarthropathies, one of the more than 100 different kinds of arthritis. Seronegative spondyloarthropathies include the subtype of severe reactive arthritis (SRA). The MHC gene HLA-B allele 27 (HLA-B*27) is highly related with seronegative spondyloarthropathies. Seventy percent of the time, PsA occurs after the onset of psoriasis and often manifests in the third or fourth decade of life. However, it can emerge concurrently with psoriasis in 15% of instances, and in the remaining 15% of cases, it can appear either before or after the onset of psoriasis (Gladman DD ,2006).The likelihood of a psoriatic person obtaining PsA stays the same over the course of the disease since PsA incidence in psoriasis patients is consistent over time (AL-Hwas Z.S. etal,2022)

1. Oligoarthritis with an asymmetric distribution
2. Polyarthritis that is symmetrical
3. Arthritis mostly affecting the distal interphalangeal joints
4. Spondylitis
5. Arthritis mutilans (singular) (Moll JM and Wright V,1973)

Materials and methods

August/2020 to February /2022. The patients are subdivided into: twenty nine suffered from psoriatic Arthritis and other (57 patients with Psoriasis). The last patients designed as positive control groups, they were attending Al-Sadar Teaching Hospital, and Basrah Teaching hospital, Rheumatology Unite, Biological Therapy Center, Other forty-eight matching apparently healthy people were considered as control group (Negative control). (Appendix 1)

The age range of Ps patients (15-70) years, and the age was ranged in PsA group (15-70) years, while in control group (15-70) years.

The genders in Ps groups were (33) females and (24) males, and in PsA group (15) females, (14) males. In the control group the genders were (23) females and (25) males.

Inclusion criteria:

1. Patients showed willingness to participate in the study.
2. Those who have Ps and/or PsA.

Exclusion criteria

1. Those with cognitive, speech, or hearing deficits affecting questions & understanding.
2. Those suffering other skin disorders.
3. Those having higher titer anti-CCP.
4. Concomitants other significant chronic diseases.
5. Pregnant or lactating women.
6. Those providing incomplete information.
7. Patients currently receiving immunosuppressive drugs

The questionnaire form

For each patient included in the study, the data required for the study were collected by a questionnaire form which was evaluated by two clinicians (dermatologist and rheumatologist) (Appendix 2) .

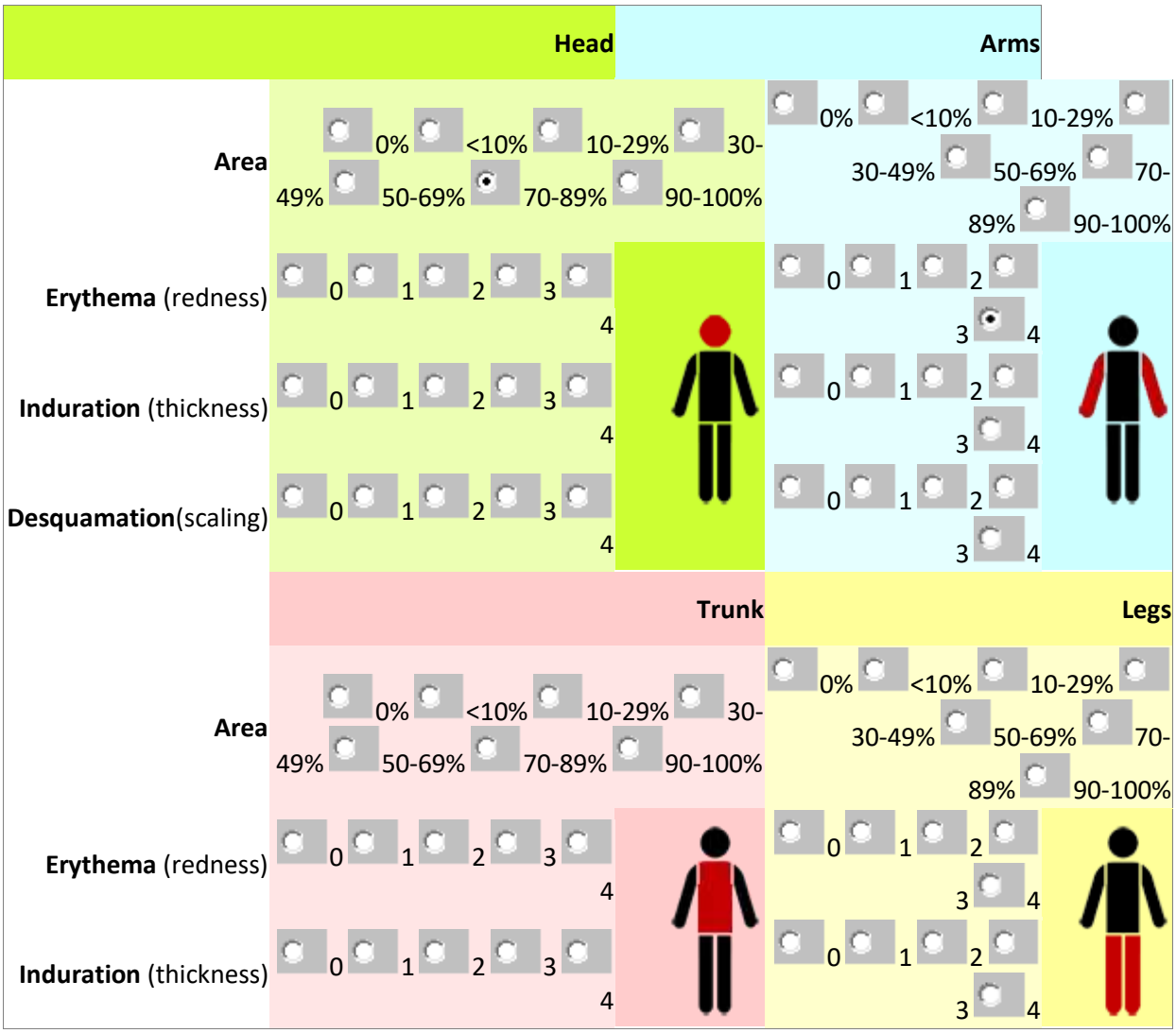
Sociodemographic information data: Age; Gender; Residency (Urban or suburban); and Occupation. .1

Clinical information: .2

A- For Ps group:

We utilized the Psoriasis Area Severity Index (PASI) for showing how sever is psoriasis combining the severity (erythema, desquamation and induration) and affected area percentage. This online application https://www.google.com/url?esrc=s&q=&rct=j&sa=U&url=http://pasi.corti.li/&ved=2ahUKEwiHrL3h8-j2AhWiSvEDHXIVD_kQFnoECAwQAg&usg=AOvVaw3zkaqQ7HRfDD2fXslpNS9T

(Figure 1) was used to assess psoriatic patients clinically.



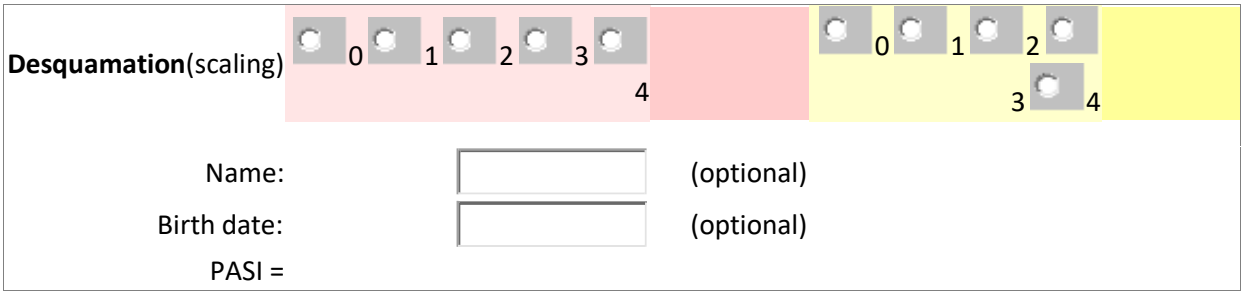


Figure 1 Area Severity Index (PASI) Calculator
(https://www.google.com/url?esrc=s&q=&rct=j&sa=U&url=http://pasi.corti.li/&ved=2ahUKEwiHrL3h8j2AhWiSvEDHXIVD_kQFnoECAwQAg&usg=AOvVaw3zkaqQ7HRfDD2fXslpNS9T

According to PASI, mild cases (PASI <3), moderate diseases (PASI 3-10) and severe onset (PASI >10) (Mattei *et al*., 2014).

B - For PsA group

We examine the PsA disease activity by the well-established clinical scores of Disease Activity in Psoriatic Arthritis (DAS 28) by the electronic program (RheumaHelper program) Figure 2.

C- For healthy control group: Forty-eight apparently healthy individuals matched to patients were included as negative control group. They were selected from lab workers, relative, and friends

Results

Study subjects demography

The study subject distribution according to sex and age

The results of the of participant distribution according to age and sex showed that the median age of the participants were: 35.67±12.35 years for PsA ,30.44±16.94 years for Ps (the disease positive control group); and 37.31±18.02 years for Healthy control, no significant differences were found among the age of participants.

Gender were the results showed that the majority of participants were female but no significant difference were found and the

percentage 52.5% of all patients while males percentage was 47.5%. Table 1.

Clinical study

The distribution of study subjects according to family history

The present study showed that only 15.7% of Ps patients have a family history and 11.24% of PsA have a family history of psoriasis. (Figure 3).

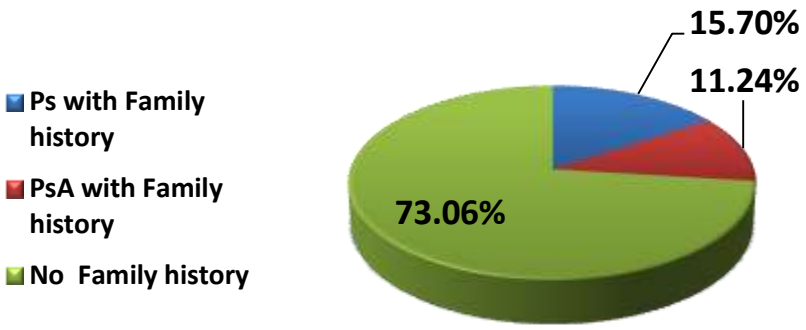


Figure The percentage of Ps and PsA groups with family history in the present study.

Table 1 The distribution of study population according to age and sex

Age groups		Sex		Total	Sig.
		Male	Female		
Fifteen years or younger	Ps	6	8	14	0.333*
		75.0%	72.7%	73.7%	
	PsA	0	2	2	
		0.0%	18.2%	10.5%	
	Control	2	1	3	
		25.0%	9.1%	15.8%	
	Total	8	11	19	
		100.0%	100.0%	100.0%	
From 16 to 49 years	Ps	13	15	28	0.839**
		41.9%	34.9%	37.8%	
	PsA	8	12	20	
		25.8%	27.9%	27.0%	
	Control	10	16	26	
		32.3%	37.2%	35.1%	
	Total	31	43	74	
		100.0%	100.0%	100.0%	
From 50 to 65 years	Ps	4	6	10	0.372*
		30.8%	60.0%	43.5%	

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	PsA	2	1	3	
		15.4%	10.0%	13.0%	
	Control	7	3	10	
		53.8%	30.0%	43.5%	
	Total	13	10	23	
		100.0%	100.0%	100.0%	
Sixty six or older	Ps	1	4	5	0.078**
		9.1%	57.1%	27.8%	
	PsA	4	0	4	
		36.4%	0.0%	22.2%	
	Control	6	3	9	
		54.5%	42.9%	50.0%	
	Total	11	7	18	
		100.0%	100.0%	100.0%	
Total	Ps	24	33	57	0.586**
		38.1%	46.5%	42.5%	
	PsA	14	15	29	
		22.2%	21.1%	21.6%	
	Control	25	23	48	
		39.7%	32.4%	35.8%	
	Total	63	71	134	
		100.0%	100.0%	100.0%	

* Chi^2 Test

** Fisher's Exact Test

Disease activity (DAS28)

The results of the disease activity in PsA group showed 3 categories: high disease activity with 6.07± 0.034 score, moderate disease activity with 4.16±0.06 score and low disease activity with 2.88± 0.13 score (Table 2).

Table 2 Disease activity (DAS28) of PsA

DAS 28 activity	Active	Moderate	Low
Male	N=4 5.72±0.35	N=8 4.21±0.63	N=0 0
Female	N=16 6.12±0.71	N=2 4.31±0.07	N=2 2.88±0.26
Total	N=20 6.07±0.03	N=10 4.16±0.06	N=2 2.88±0.26

Clinical feature of PsA

Table 3 Descriptive of DAS-28 score for PsA groups.

Sex		Tender joint	Swollen joint	Visceral area severity	ESR
Male	N	12	12	12	12
	Median	10.00	7.00	6.50	5.00
	Minimum	3	0	5	2

	Maximum	21	17	9	30
Female	N	20	20	20	20
	Median	11.00	10.00	7.00	24.50
	Minimum	1	0	4	5
	Maximum	23	21	9	75
Sig.*		0.494	0.270	0.905	0.014

* Mann Whitney-U Test

PASI score

The PASI score among the three types of psoriasis (Plague, Pustular, Guttate and Erythrodermic) showed that Plaque is the most frequent type which Table 4 besides Figure 4 show.

Table 4 The distribution of patients according to the types of psoriasis

Type of psoriasis	No. Of patients	Percentage
Plaque	53	89.8
Pustular	2	3.4
Guttate	1	1.7
Erythrodermic	3	5.1
Total	59	100

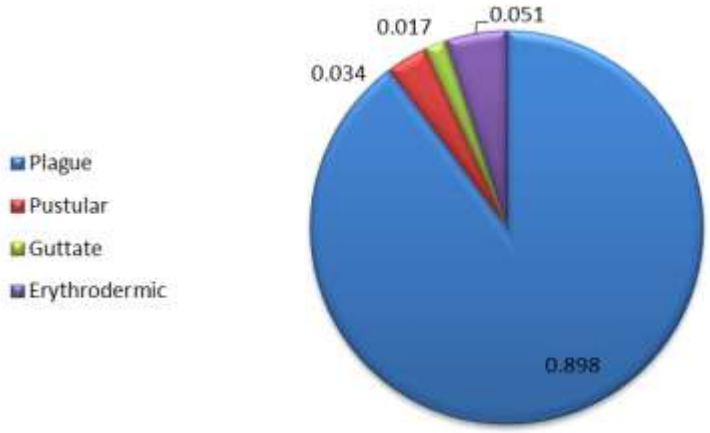

Figure 4The distribution of patients according to the types of psoriasis

According to the PASI, 5.13%of patients had mild PAS I3, 30.76% suffered a moderate PAS I3-10, and 64.10% had severe PASI>10, as Table 5 shows.

Table 5 Case distribution according to PASI.

PASI	No Ps	Percentage
Mild **<3**	2	5.13
Moderate 3-10	12	30.76
Sever **>10**	25	64.10

Discussion

Age groups:

The study included three groups (Ps,PsA and Hc).As the results showed with PsA were in age (16-49) years. Similar age group was found in other studies carried in Iraq, by Khalaf (2015), Ali (2018), and Al-Janabi (2018).

Moreover, the current result agreed with the international studies by many researches IbraheemSh *et al*. (2020) and Lopez-Estebaranz *et al*. (2016), Abdullah S. and cowrker. (2021) which indicated the age of PsA patients was within the second and third decades. While Parisicolleagus (2013) reported that psoriasis disease could occur at any age, its prevalence gets along age, and its peak usually appears between the twenties to thirties.

The patient gender:

The distribution of studied patients based on their gender showed showing no significant differences between males and females.

Also itis not affect the diseases spread among them. Regardless of whether they are men or women, this result agrees with Abbas (2016),Jassim,H.A.,(2007) and Al-Mokhtar (2016) showing no statistically significant differences between psoriatic arthritis illness and gender.

Colombo and others (2014), mentioned that the prevalence of psoriasis among males to females was equal, as well as a study by Gupta *et al*. (2005) had also shown that equal incidence of psoriasis in both sexes. In contrast to some local research, such as Sharquie *et al*. (2017), Ali (2018), and Al-Janabi (2018), they found that gender affects the disease and its severity since men are more susceptible to the illness than women. It was found that the effects of gender on psoriasis are not well established, and published data are sparse and inconclusive.

Study revealed interesting gender-specific differences in various aspects of the disease, including epidemiology, pathogenesis, clinical characteristics, comorbidities, quality of life, and treatment. Multiple factors may influence these differences, including skin anatomy, physiology, genetics, and hormones (Hagg *et al*., 2017), but further research is needed to define these differences better that is come agreement with current study.

Family history:

In a multicentre, cross-sectional examination in the United States, 51.4 % of paediatric psoriasis in those with a positive family history of Ps (Mercy *et al*., 2013). In Australia, 71 % of children with psoriasis suffer first-degree relative with Ps (Bronckers *et al*., 2015) that is agreement with current study.

A study of Iraqi children claims that roughly 37% have a psoriasis positive family history (Khalil, 2008;AL-Hwas Z.S.,2022). Another Iraqi study found that about 53% of psoriatic people have affected a family member at least (Ali, 2018). According to a Turkish study, approximately 40% of people with Ps or psoriatic arthritis (PsA) had a Ps or PsA family history (Solmaz *et al*., 2020). Psoriasis is a strongly heritable condition, with a heritability estimate of 68% (Lonnberg *et al*.,2013).

It was not 100% as a genetic disease according to twin examinations, thus psoriasis is complex and Mendelian inheritance rules have not explained it yet (Hız *et al*., 2017).

Though the inheritance patterns are not yet clear, people with psoriasis since childhood have a positive family history; siblings and first-degree relatives are very vulnerable to develop psoriasis (Mak *et al*., 2009). Positive family history is a psoriatic individual having afirst-degree family member impacted by psoriasis (Haoyan *et al*., 2011). The vulnerability to develop psoriasis and psoriatic are 41% and 14% respectively if a parent is psoriatic, 6%if one sibling is psoriatic, and 2% if no relative is psoriatic (Hani and Muhammad, 2013).

DAS-28

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PsA is a chronic, heterogeneous. It is an inflammatory arthritis in those suffering psoriasis (Cunha *et al*., 2015). The studied patients have classic psoriatic arthritis including swelling of all fingers and toes appearing as sausage-like. This usually occurs in link to changes to the nail like small depressions (pitting), nail thickening, and detachment of the nail from the nail beds, skin alters consistently with psoriasis (e.g., red scaly and itchy plaques).

Jadon and colleagues (2013) referred to 7% - 42% of psoriasis patients which inflammatory arthritis affecting. Cunha *et al*. (2015) indicated that psoriatic arthritis could develop at any age. However, it usually appears between 30 and 50 years. Here, women are suffering equally or slightly less than men.

The predominant psoriasis type was psoriasis Plaque more than 53 (89.9%) and that agree with a recent study conducted in Iraq (Abdulridha *et al*.,2021) that noted 77.7% of psoriatic cases were of type vulgaris, as well this result is consistent with the findings of other studies done in Morocco (Khoudri *et al*., 2013), Mexico (Garcia-Sanchez *et al*.,2017), and Malaysia (Affandi *et al*., 2018), where the psoriasis Vulgaris was very widespread psoriasis (Sendrasoa F.A.*et al*.,2020).

Psoriasis is an immune-mediated inflammation with a main influence on a patient's life, in particular if the disease ranges from severe to moderate.

About 125 million people universally, 2 to 3% of the whole population, have psoriasis, based on the World Psoriasis Day consortium (Parisi *et al*., 2020). In Iraq, many studies that stated low percentage as Al-Hamdi *et al*. (2006) stated that the psoriasis in Iraq was 1.5%, whereas Al- Samarai (2009) mentioned that psoriasis prevalence was 2.3% and that confirmed by a study of Al-Ashow and Al-Neema (2012).

The increase of psoriasis cases in Iraq makes it one of the significant dermatological problems. Although in our country, many cases appear every year, however, examinations on the occurrence and influence of psoriasis on Iraqi patients are few in this direction.

PASI

The psoriasis area severity index (PASI) is a widely used psoriasis trial tool that evaluates and scores the severity of psoriatic lesions and the patient's response to treatment (Carlin *et al*., 2004). The severity of the disease ranges from mild disease with a localized inflammatory skin lesion to severe with common plaques covering of more than 10% of the body surfaces (Gladman, 2015).

In the current study, psoriatic patients are classified cross the body surface area affected into three groups, which dermatologists assessed and classified as mild, moderate, or severe.

In current study, this finding agrees with Yeung *et al*. (2013) who indicated that 51.8%, 35.8%, and 12.4% of psoriatic patients with mild, moderate, and severe disease. As well Palfreeman *et al*. (2013) concluded through their study that 121 (43.2%) out of 280 suffer moderate Ps. Of these, most were suffering moderate Ps. Also, Jashin (2013) detected that 80% of psoriatic patients have mild to moderate with the other 20% having moderate to severe illness. In addition, a study in Iraqi, by Ali (2018) was observed that 47,39% of Ps patients suffer from a mild lesion.PsA is a chronic inflammatory arthritis. It influences nearly 10% of people with psoriasis with higher occurrences in those with more extensive skin diseases. Identifying PsA could improve the outcomes. It is still not clear which patients with psoriasis could enhance PsA, many examinations have shown several vulnerabilities to PsA in those with psoriasis. This study tests the gene expression principles to identify vulnerabilities and examines the up to date evidence of vulnerabilities to PsA in those with psoriasis. The biology of developing PsA are not crystal clear; "however, there is strong evidence from family studies that support a relevant genetic component" (Chandran, V, etal,2021) (10).

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According to Karason *et al*., the genetic factors in PsA moves from the generation to another with a 40-fold rise in the vulnerabilities to develop PsA for first-degree relatives of individuals with PsA and reducing the possibilities as the relationship is a farther. This and other explanations show that PsA is complex interacting with many factors from the environment and random events occurring in genetically predisposed people, triggering pathological paths developing the disease (Karmacharya, P.*etal*,2021).

Conclusion

To summarize, the current research shows that psoriasis area severity index (PASI) is a widely used psoriasis trial tool that evaluates and scores the severity of psoriatic lesions psoriatic arthritis (PsA) is a chronic inflammatory arthritis with an unclear origin, the cellular and molecular connections that govern its pathogenesis are still unknown. indicated that psoriatic arthritis could develop at any age. However, it usually appears between 30 and 50 years. the development and activation of innate and adaptive immunity, it is linked to a complicated pathophysiology involving several effectors and transducers.

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