INFLAMMATION AND PSORIASIS: IMMUNOPATHOLOGICAL CHARACTERISTICS AND THERAPEUTIC ADVANCES

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Abstract

Psoriasis is a chronic systemic inflammatory disease primarily affecting the skin, characterized by excessive keratinocyte proliferation and T lymphocyte infiltration. This multifactorial condition results from complex interactions between genetic, environmental, and immune factors.
This retrospective study analysed the demographic, clinical, and therapeutic profiles of 136 psoriasis patients admitted to the Internal Medicine and Dermatology departments of the University Hospital Centre of Sidi Bel Abbès (Western Algeria). The cohort showed a balanced sex distribution (50.7% male, 49.3% female) with a mean age of 51.28 ± 14.19 years. The most prevalent forms were erythrodermic (45.8%), vulgaris (32.2%), and pustular (19.2%). The main treatments included corticosteroids (45.6%), topical creams and emollients (27.2%), and immunosuppressants (25%).
Laboratory findings revealed elevated C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR), reflecting chronic systemic inflammation. Patients with high ESR levels also exhibited increased blood glucose, blood pressure, triglycerides, and total cholesterol.
These findings reinforce the systemic nature of psoriasis and highlight the importance of investigating its molecular and immunological mechanisms. They also support the need for comprehensive and personalized management, especially in the context of associated comorbidities such as cardiovascular disease.

Keywords: Psoriasis, Comorbidities, CRP, ESR, Retrospective Study, Treatment, Systemic inflammation.

1 Introduction

Psoriasis is a common chronic, immune-mediated inflammatory skin disorder that occurs worldwide and can present at any age [1] and characterized by hyperproliferation and abnormal differentiation of keratinocytes [2]. This papulosquamous skin disease is recognized as a significant burden for individuals and society. Clinically, it manifests as well-demarcated, erythematous plaques with silvery scales, typically affecting the extensor surfaces of the body, scalp, and nails, although it can also appear on other body surfaces [3].

Although psoriasis affects both sexes equally, it has been established that it tends to appear earlier in females patients with a family history are also at a higher risk of developing this condition [4]. psoriasis affects approximately 2-3,5 % of the global population [5, 6]with varying prevalence across different ethnic groups and geographical regions. Recent epidemiological studies have shown :

- Global Distribution: Higher prevalence in North America (3 %) and Europe (2.8 %) compared to Asia (0.5-1 %) and Africa (0.1-1 %) [7].
- Age of Onset: Bimodal distribution between peaks at 20-30 years and 50-60 years [3].
- Gender Distribution: Generally equal between males and females, with slight variations depending on specific subtypes [8].
- Genetic predisposition: A 10-fold increased risk in first-degree relatives of affected individuals [9].

Psoriasis is a skin condition that is primarily influenced by genetic predisposition and aging. However, several environmental risk factors, such as trauma, infections and certain medications. There are multiple clinical types of psoriasis, with psoriasis vulgaris, also known as plaque psoriasis, being the most common form (80-90 % of cases), typically located on the scalp, trunk, buttocks and extensor surfaces [10]. Clinically, it is characterized by well-defined, erythematous plaques with silvery scales.

Other forms of psoriasis, including inverse psoriasis, pustular psoriasis, guttate psoriasis, erythrodermic psoriasis, and annular psoriasis are less common [11].

Guttate psoriasis, causes an acute onset of small, drop-shaped lesions, often triggered by streptococcal infections. It is more common in children and young adults. Inverse psoriasis, or flexural psoriasis affects intertriginous areas and is characterized by thin, smooth, erythematous patches without scaling. It is associated with increased *Candida* colonization. pustular psoriasis, characterized by sterile pustules on an erythematous base can be either localized (palmoplantar) or generalized (von Zumbusch type). It may present with systemic symptoms and complications. Finally, Erythrodermic psoriasis, rare but severe form affecting >90 % of body surface area, is associated with a risk of thermoregulatory dysfunction and fluid/electrolyte imbalances. Medical emergency requiring prompt intervention [5].

The measurement of erythrocyte sedimentation rate (ESR) detects inflammation during psoriasis. Indeed, this chronic condition causes a systemic

inflammatory response that which is reflected by higher ESR levels compared to normal values [12]. Furthermore, the measurement of C-reactive protein, an essential inflammatory biomarker among the proteins of the acute phase of inflammation, increases significantly in response to inflammation or infection. It can also be used to the effectiveness of the administered treatment [13].

This study aimed to analyze inflammatory markers (ESR and CRP) and their association with clinical and biological features of psoriasis. The objectives were to describe psoriasis subtypes in an Algerian cohort, to assess the relationship between systemic inflammation and metabolic comorbidities, and to evaluate therapeutic implications.

2 **Materials and methods**

Cohort

A total of 136 patients with psoriasis (67 men and 69 women, mean age 51.28 ± 14.19 years) were included in this retrospective, descriptive, and analytical study conducted in the internal medicine and dermatology departments at Sidi Bel Abbes University Hospital in Western Algeria. All patients with psoriasis admitted to these departments and seeking consultation were eligible to participate in the survey.

Variables examined

Demographic information, including sex and age, along with clinical data such as treatment, metabolic syndrome, and diagnosis, were collected. Biological parameters (blood glucose, blood pressure, complete blood count, liver function tests, and lipid profile) were analyzed. Additionally, inflammatory markers, including erythrocyte sedimentation rate and C-reactive protein, were also examined.

Methods employed

The tools used for data collection included data collection media such as medical reports and analysis reports. participants' consent was obtained through their signatures. This study received approval from the local institutional ethics committee (approval number 26, April 14, 2025).

Statistical analysis

The characteristics of the patients were presented as means with standard deviations for continuous variables and as frequencies with percentages for categorical variables. Descriptive analyses were conducted using means ± standard deviations for continuous data and frequencies (%) for categorical data. For group comparisons, continuous variables were evaluated using the independent samples t-test, while categorical variables were analyzed using pearson’s chi-square test (χ^2). Data processing and statistical analyses were performed using SpSS version 22.0 (IBM Corp., Chicago, IL, released in August 2013), with a significance level set at $p < 0.05$.

3 **Results**

Table 1. provides an overview of the demographic, diagnostic, and therapeutic characteristics of 136 psoriasis patients included in the study.

Demographic characteristics

The sex distribution among the patients is balanced, with 67 males (50.7 %) and 69 females (49.3 %).

Diagnostic distribution

The types of psoriasis diagnosed are as follows:

- Erythrodermic psoriasis: The most prevalent type, affecting 62 patients (45.8 %).
- Vulgar psoriasis: Observed in 44 patients (32.2 %).
- pustular psoriasis: Found in 26 patients (19.2 %).
- Guttate psoriasis: The least common, affecting only 4 patients (2.8 %).

Treatment modalities

The treatments administered to the patients are varied and include:

- Corticosteroids: The most commonly used treatment, prescribed to 62 patients (45.6 %).
- Creams and emollients: Used by 37 patients (27.2 %).
- Immunosuppressants: Administered to 34 patients (25 %).
- Local antiseptics: Used by 15 patients (11 %)
- Antibiotics : prescribed to 16 patients (11.8 %)
- Antihistamines: Given to 18 patients (13.2 %)
- Supplements/vitamins (7 patients, 5.1 %).

Table 2. presents the biological parameters of the psoriasis patients, highlighting key metrics along with their mean values, standard deviations (SD), and significance levels (*p* values).

Age

The mean age of the patients is 51.28 ± 14.19 years, with a *p* value of 0.651, indicating no significant difference in age among the studied groups.

Blood glucose

The mean blood glucose level is 2.16 ± 8.36 g/L, with a highly significant *p* value of 0.000. This suggests that blood glucose levels are notably altered in this population.

Blood pressure

Systolic blood pressure: The mean systolic pressure is 14.71 ± 2.27 mmHg, with a *p* value of 0.000, indicating a significant elevation in systolic blood pressure among the patients.

Diastolic blood pressure: The mean diastolic pressure is 8.79 ± 1.34 mmHg, with a *p* value of 0.252, suggesting no significant difference in diastolic blood pressure.

Haemogram

- The mean hemoglobin level is 13.16 ± 1.04 g/dL ($p = 0.699$), indicating no significant abnormalities.
- The mean leukocyte count is 10.01 ± 4.39 (10^3/mm^3) ($p = 0.167$), showing no significant variation.
- The mean erythrocyte count is 5.12 ± 1.50 (10^6/mm^3), with a *p* value of 0.059, suggesting a trend toward significance but not reaching conventional thresholds.

- The mean platelet count is 317.24 ± 113.82 (10^3/mm^3), with a *p* value of 0.077, indicating a potential but not statistically significant trend.

Liver profile

- Alanine aminotransferase (TGp): Mean level is 29.07 ± 21.04 UI/L (*p* = 0.017), indicating a significant elevation which may suggest liver involvement or dysfunction.
- Aspartate aminotransferase (TGO): Mean level is 26.39 ± 22.48 UI/L (*p* = 0.512), showing no significant change.

Inflammatory markers

- C-Reactive protein (CRP): The mean CRP level is significantly elevated at 36.37 ± 39.09 mg/L (*p* = 0.033), reflecting chronic inflammation.
- Erythrocyte Sedimentation Rate (ESR): The mean ESR is also significantly elevated at 38.17 ± 13.27 mm/h (*p* = 0.040), further supporting the presence of systemic inflammation.

Lipid profile

- Low-Density Lipoprotein (LDL): Mean level is 1.18 ± 0.57 g/L (*p* = 0.126), indicating no significant abnormality.
- High-Density Lipoprotein (HDL): Mean level is 0.58 ± 0.26 g/L (*p* = 0.352), also showing no significant difference.
- Triglycerides: The mean triglyceride level is significantly elevated at 1.85 ± 0.78 g/L (*p* = 0.000), suggesting dyslipidemia commonly associated with psoriasis.
- Cholesterol: The mean cholesterol level is significantly elevated at 2.26 ± 0.80 g/L (*p* = 0.027), indicating potential cardiovascular risk factors in this population.

Table 3. presents a comparative analysis of various parameters accorrding to erythrocyte sedimentation rate (ESR) status in psoriasis patients, distinguishing between those with normal and accelerated ESR. The parameters evaluated include sex distribution, types of psoriasis, treatment modalities, metabolic syndrome prevalence, and C-reactive protein (CRP) levels.

Sex distribution

Among patients with normal ESR, 29 females (43.28 %) and 42 males (60.87 %) were reported. In contrast, the accelerated ESR group included 38 females (56.72 %) and 27 males (39.13 %). The *p* value of 0.020 indicates a statistically significant difference in sex distribution, suggesting that females are more likely to present with an accelerated ESR compared to males.

Types of psoriasis

The distribution of psoriasis types according to ESR status is as follows:

- Erythrodermic psoriasis: 28 patients (45.2 %) with normal ESR and 34 patients (54.8 %) with accelerated ESR (*p* = 0.334).
- pustular psoriasis: 15 patients (21.2 %) with normal ESR compared to 11 patients (10.1 %) with accelerated ESR (*p* = 0.442).
- Vulgar psoriasis: 18 patients (35.7 %) with normal ESR versus 26 patients (39 %) with accelerated ESR (*p* = 0.433).

- Guttate psoriasis: 3 patients (5.3 %) with normal ESR compared to 1 patient (1.5 %) with accelerated ESR (p = 0.405).

None of the psoriasis types showed significant differences with respect to ESR status, indicating that the type of psoriasis does not strongly correlate with inflammatory activity as measured by ESR.

Treatment modalities

The treatments administered were assessed as follows:

- Immunosuppressants: Administered to 15 patients (23.1 %) in the normal ESR group and 8 patients (14.8 %) in the accelerated ESR group (p = 0.256).
- Creams and emollients: Used by 11 patients (16.9 %) in the normal ESR group compared to 12 patients (22.2 %) in the accelerated ESR group (p = 0.466).
- Local antiseptics: Reported by 4 patients (6.2 %) in the normal ESR and 1 patient (1.9 %) with accelerated ESR (p = 0.244).

Other treatments, such as supplements, vitamins, antibiotics, antihistamines, and corticosteroids also showed no significant differences between the groups. Overall, treatment modalities did not significantly differ according to ESR status, suggesting that treatment choices may be consistent regardless of the inflammatory activity indicated by ESR.

Metabolic syndrome

The prevalence of metabolic syndrome was recorded as 32 patients (49.2 %) in the normal ESR group versus 16 patients (29.6 %) in the accelerated group, yielding a p value of 0.300, indicating no significant association between metabolic syndrome and ESR status.

C-Reactive Protein levels

positive CRP results were observed in 38 patients (58.5 %) with normal ESR versus 37 patients (68.6 %) with accelerated ESR, resulting in a p value of 0.387, indicating no significant difference between the groups.

Table 4. presents a comparative analysis of various clinical and biological parameters in psoriasis patients, classified according to their erythrocyte sedimentation rate (ESR) status (normal vs. accelerated).

Demographic and metabolic parameters

Age: There is no significant difference in age between patients with normal ESR (47.30 ± 15.28 years) and those with accelerated ESR (48.08 ± 16.83 years), suggesting that ESR variations are not influenced by age in this cohort.

Blood Glucose: patients with elevated ESR exhibit significantly higher blood glucose levels (3.39 ± 14.04 g/L) compared to those with normal ESR (1.04 ± 0.46 g/L).

Cardiovascular parameters

Blood pressure: Both systolic (14.36 ± 3.66 mmHg vs. 12.92 ± 2.56 mmHg) and diastolic (8.02 ± 1.50 mmHg vs. 7.51 ± 1.33 mmHg) blood pressure values are higher in the accelerated ESR group.

Hematological profile

Hemoglobin (Hb) levels: Comparable in both groups (13.44 ± 1.53 g/dL vs. 13.47 ± 1.55 g/dL).

Leukocyte count: Higher in the accelerated ESR group (10.18 ± 5.28 × 10^3/mm^3) compared to the normal ESR group (8.96 ± 4.51 × 10^3/mm^3).

Red blood cell count (GR): Slightly lower in the accelerated ESR group (4.81 ± 1.74 × 10^6/mm^3) than in the normal ESR group (5.02 ± 1.47 × 10^6/mm^3).

platelet count (pLAQ): Slightly increased in the accelerated ESR group (317.70 ± 121.53 × 10^3/mm^3) vs. the normal ESR group (298.75 ± 111.11 × 10^3/mm^3).

Liver enzyme levels

Alanine aminotransferase (TGp) and Aspartate aminotransferase (TGO): Higher levels of TGp (30.44 ± 22.17 UI/L vs. 23.61 ± 24.31 UI/L) and TGO (31.03 ± 28.54 UI/L vs. 21.54 ± 14.55 UI/L) in the accelerated ESR group.

Lipid profile

LDL (low-density lipoprotein): patients with accelerated ESR have slightly lower LDL levels (1.09 ± 0.43 g/L) compared to those with normal ESR (1.21 ± 0.30 g/L).

HDL (high-density lipoprotein): Similar levels (0.57 g/L).

Triglycerides and total cholesterol: Higher triglyceride levels (1.71 ± 0.68 g/L vs. 1.49 ± 0.43 g/L) and total cholesterol levels (1.82 ± 0.81 g/L vs. 1.73 ± 0.33 g/L) in the accelerated ESR group.

Inflammatory markers

C-reactive protein (CRP): patients with accelerated ESR exhibit markedly higher CRP levels (32.68 ± 47.98 mg/L) compared to those with normal ESR (16.56 ± 29.22 mg/L).

4 **Discussion**

The results provide valuable insights into the demographic, diagnostic, and therapeutic characteristics of patients with psoriasis. The balanced sex distribution (50.7 % male and 49.3 % female) in this cohort aligns with recent studies suggesting that psoriasis affects both sexes similarly, however some publications report a slight male predominance in more severe cases [14, 15] This findings highlights the necessity for a gender-sensitive approach in the management of psoriasis.

An analysis of erythrocyte sedimentation rate (ESR) revealed significant Sex-based differences. The accelerated ESR group comprised 56.71 % females compared to 39.13 % males, whereas the normal ESR group included 43.28 % females and 60.87 % males (p = 0.020). These fidings suggest that women are more likely to exhibit elevated ESR, possibly due to hormonal influences on immune response [16].

In terms of diagnostic distribution, erythrodermic psoriasis is the most prevalent form, affecting 45.8 % of patients. This finding aligns with larger studies where erythrodermic and vulgaris forms are frequently reported as the most common [17, 18]. The high prevalence of patients with erythrodermic psoriasis highlights the importance of recognizing this severe form of the disease, which can lead to considerable morbidity and underscores the need for early recognition and prompt

intervention due to its potential complications. The distribution of psoriasis types did not show significant differences concerning ESR status, as indicated by comparable frequencies of erythrodermic, pustular, vulgar, and gouty psoriasis between the two groups ($p > 0.05$). This finding suggests that psoriasis type does not strongly correlate with inflammatory activity measured by ESR. Research indicates that while different forms of psoriasis may present distinct clinical features, they may share underlying inflammatory pathways that do not necessarily reflect variations in ESR levels [19].

The treatment modalities employed reflect a diverse and individualized approach to psoriasis management, with corticosteroids being the most commonly prescribed treatment (45.6 %). This aligns with current clinical guidelines advocating topical corticosteroids as first-line therapy for localized psoriasis [20]. Furthermore, the use of immunosuppressants in 25 % of patients highlits the need for systemic therapies for more severe or refractory cases, corroborating other studies that emphasize the importance of systemic treatments for improved disease control [21].

The diversity of treatments —ranging from creams and emollients to antibiotics and antihistamines— reflects the multifaceted nature of psoriasis management, which often requires a combination of therapies to address both skin symptoms and associated comorbidities. Recent literature underscores the importance of a comprehensive therapeutic strategy that extends beyond skin lesions to encompass overall health and quality of life [15, 18].

Moreover, the low percentage of patients receiving vitamin supplements (5.1 %) may reflect a lack of patient awareness regarding complementary therapies that could support skin health and immune function. Studies suggest that certain vitamins and dietary interventions help manage psoriasis symptoms [17].

No significant difference was observed in treatment usage based on ESR, suggesting that therapeutic management is primarly guided by clinical severity than by systemic inflammation measured by ESR [22].

Biological parameters reveal significant metabolic and inflammatory alterations in patients with psoriasis, undescoring the systemic nature of the disease. These results are consistent with recent research illuminating the multifaceted impact of psoriasis on various physiological systems.

The average age of patients with psoriasis was 51.28 ± 14.19 years ($p = 0.651$), with no significant difference between groups. This distribution is in line with previous studies indicating that psoriasis affects a wide age range without notable variations in clinical presentation based on age [23]. Additionally, patients with accelerated ESR had a comparable mean age to those with normal ESR (48.08 ± 16.83 years vs. 47.30 ± 15.28 years), suggesting that systemic inflammation is not influenced by age.

The prevalence of metabolic syndrome was 49.2 % in the normal ESR group compared to 29.6 % in the accelerated ESR group ($p = 0.300$), indicating no significant association between metabolic syndrome and ESR status. This suggests that metabolic disorders may develop independently of systemic inflammation levels

as measured by ESR. previous research indicates that psoriasis patients often present with metabolic syndrome, regardless of their inflammation level, highight the importance for systematic screening for metabolic comorbidities in this population [24].

The significantly elevated average blood glucose level (2.16 ± 8.36 g/L, p = 0.000) suggests a high prevalence of metabolic disorders, such as insulin resistance, in patients with psoriasis. This findings aligns with evidence linking between psoriasis and an increased risk of metabolic syndrome and type 2 diabetes [23]. Chronic inflammation driven by cytokines such as TNF-α and IL-17 may contribute to impaired glucose metabolism, Highlighting the need for systematic screening for metabolic comorbidities in these patients [25]. This elevation is even more pronounced in patients with accelerated ESR (3.39 ± 14.04 g/L vs. 1.04 ± 0.46 g/L in the normal ESR group), reinforcing the link between inflammation and metabolic dysfunction [26, 27].

The average systolic blood pressure (14.71 ± 2.27 mmHg, p = 0.000) was significantly elevated, whereas diastolic pressure (8.79 ± 1.34 mmHg, p = 0.252) Showed no significant difference. Elevated systolic pressure is a well-documented cardiovascular risk factor in psoriasis patients, likely driven by systemic inflammation and endothelial dysfunction [28, 29]. In the accelerated ESR group, blood pressure levels were even higher (14.36 ± 3.66 mmHg systolic; 8.02 ± 1.50 mmHg diastolic) [30].

The significant elevation in erythrocyte sedimentation rate (ESR: 38.17 ± 13.27 mm, p = 0.040) and C-reactive protein (CRP: 36.37 ± 39.09 mg/L, p = 0.033) in patients with psoriasis confirms the presence of systemic inflammation in this cohort [28]. These inflammatory markers are commonly used to evaluate disease activity and monitor treatment response. The simultaneous elevation of ESR and CRP in psoriasis is consistent with the central role of pro-inflammatory cytokines, such as TNF-α and IL-17, which induce persistent activation of the innate and adaptive immune systems, ultimately leading to systemic inflammation [30].

patients with accelerated ESR also exhibited higher CRP levels (32.68 ± 47.98 mg/L versus 16.56 ± 29.22 mg/L for normal ESR), suggesting a correlation between inflammatory activation and the acute phase response of the liver. However, although the proportion of positive CRP results was higher in the accelerated ESR group (68.6 % vs. 58.5 % in the normal ESR), this difference was not statistically significant (p = 0.387). This findings indicate that CRP does not always directly reflect the level of chronic inflammation measured by ESR, which may be attributed to differences in the kinetics of these two biomarkers. Indeed, CRP is an acute-phase marker that fluctuates rapidly in response to inflammatory stimuli, whereas ESR is more influenced by the sustained production of inflammatory proteins, such as fibrinogen, and can remain elevated over a longer period [31].

Findings further highlight the importance of a comprehensive clinical assessment, as elevated inflammatory markers such as ESR and CRP are not only associated with psoriasis severity but also with systemic comorbidities, including cardiovascular diseases and metabolic disorders. Furthermore, increased CRP and

ESR levels have been associated with an increased risk of psychological comorbidities such as depression, likely due to the impact of systemic inflammation on the hypothalamic-pituitary-adrenal axis and neurotransmitters [30].

Hemoglobin levels (13.16 ± 1.04 g/dL) and red blood cell counts were comparable across groups, suggesting the absence of anemia. However, an increase in white blood cell count (10.18 ± 5.28 × 10^3/mm^3) and platelets (317.24 ± 113.82 × 10^3/mm^3) was observed in the accelerated ESR group, indicating a more pronounced inflammatory response [30].

The elevated platelet count may reflect a reactive thrombocytosis secondary to chronic inflammation, a phenomenon commonly observed in other inflammatory diseases [23].

Alanine aminotransferase (ALT) levels were significantly elevated (29.07 ± 21.04 UI/L, $p = 0.017$), particularly in patients with accelerated ESR, suggesting potential hepatic dysfunction. This may be related to non-alcoholic fatty liver disease (NAFLD) or metabolic stress—two conditions frequently observed in patients with psoriasis [26, 27]. In contrast, aspartate aminotransferase (AST) levels AST levels remained unchanged (26.39 ± 22.48 UI/L, $p = 0.512$), indicating that liver function is not universally affected [29].

Significant elevations in triglycerides (1.85 ± 0.78 g/L, $p = 0.000$) and total cholesterol (2.26 ± 0.80 g/L, $p = 0.027$) were observed, suggesting a dyslipidemia commonly associated with psoriasis [15]. Dyslipidemia is a major cardiovascular risk factor, often linked to chronic inflammation disrupting lipid metabolism pathways. These results underscore the importance of regular lipid profile monitoring in the comprehensive management of patients with psoriasis [25, 29].

The results of this study reveal a significant association between erythrocyte sedimentation rate (ESR) status and various clinical, biological, and metabolic parameters in patients with psoriasis. patients with accelerated ESR exhibit higher inflammatory markers, reflecting a more pronounced inflammatory state. Additionally, disruption in lipid and glucose metabolism were observed, with abnormal levels of lipids and glucose potentially increasing the risk of developing cardiovascular and metabolic comorbidities. These findings Further support the concept that psoriasis is not merely a skin condition but constitutes a systemic pathology involving a chronic inflammatory state that can affect multiple systems within the body.

These observations emphasize the importance of incorporating inflammation assessment tools, such as ESR and C-reactive protein (CRP), into the management of patients with psoriasis. Regular monitoring these markers, healthcare professionals can better assess the level of inflammation and the associated risks of systemic complications. This would enable the personalization of treatments and more effectively address the specific needs of each patient.

Furthermore, a multidisciplinary approach involving dermatologists, cardiologists, and endocrinologists is essential for optimizing the prevention and management of systemic complications associated with psoriasis. Dermatologists could focus on treating skin manifestations, while cardiologists and endocrinologists

could monitor and address metabolic and cardiovascular aspects. This collaboration would be essential for enhancing patients' quality of life and reducing the risk of serious comorbidities.

Finally, these results un derscore the need for further research to elucidate the mechanisms linking systemic inflammation to the comorbidities observed in patients with psoriasis. A deeper understanding of these mechanisms could facilitate the development of targeted interventions, such as anti-inflammatory treatments or lifestyle modification strategies, which could have a positive impact on the overall health of patients. By evaluating the effects of these interventions on clinical, biological, and metabolic parameters, it would be possible to develop more effective, personalized treatment strategies for psoriasis management.

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ТАБЛИЦЫ

Table 1. Characteristics of Psoriasis patients.

Charachteristics	Psoriasis n=136
Sex	
Male Female	67 (50.7 %) 69 (49.3 %)
Diagnostic	
Erythrodermic psoriasis Pustular psoriasis Vulgar psoriasis Guttate psoriasis	62 (45.8 %) 26 (19.2 %) 44 (32.2 %) 4 (2.8 %)
Treatment	
Cream and emollient Local antiseptics Supplements/vitamins Immunosuppressants Antibiotics Antihistamines Corticoids	37 (27.2 %) 15 (11 %) 7 (5.1 %) 34 (25 %) 16 (11.8 %) 18 (13.2 %) 62 (45.6 %)

Table 2. Biological parameters of Psoriasis patients.

Parameters	Mean ± SD	*p* value
Age	51,28±14,19	0.651
Blood glucose (g/l)	2,16±8,36	0.000
Blood pressure		
Systolic	14,71±2,27	0.000
Diastolic	8,79±1,34	0.252
Haemogram		
Hb (g/dL)	13,16±1,04	0.699
Leukocytes (10^3/mm^3)	10,01±4,39	0.167
GR (10^6/mm^3)	5,12±1,50	0.059
PLAQ (10^3/mm3)	317,24±113,82	0.077
Liver profile		
TGP (UI/L)	29,07±21,04	0.017
TGO (UI/L)	26,39±22,48	0.512
Inflammatory markers		
CRP (mg/L)	36.37±39.09	0.033
ESR (mm)	38.17±13.27	0.040

Lipid profile		
LDL (g/L)	1,18±0,57	0.126
HDL (g/L)	0,58±0,26	0.352
Triglycerides (g/L)	1,85±0,78	0.000
Cholesterol (g/L)	2,26±0,80	0.027

Table 3. Data based on ESR status in Psoriasis patients.

Parameters		ESR Normal	ESR Accelerated	*p* Value
Sexe	Female	29 (43,28 %)	38 (56,72 %)	0.020
	Male	42 (60,87 %)	27 (39,13 %)	
Types				
Erythrodermic psoriasis		28 (45,2 %)	34 (54,8 %)	0.334
Pustular psoriasis		15 (21,2 %)	11 (10,1 %)	0.442
Vulgar psoriasis		18 (35,7 %)	26 (39 %)	0.433
Guttate psoriasis		3 (5,3 %)	1 (1,5 %)	0.405
Traitement				
Immunosuppressants		15 (23.1 %)	8 (14.8 %)	0.256
cream and emollient		11 (16.9 %)	12 (22.2 %)	0.466
Local antiseptics		4 (6.2 %)	1 (1.9 %)	0.244
Supplements/vitamins		2 (3.1 %)	1 (1.9 %)	0.671
Antibiotics		4 (6.2 %)	3 (5.6 %)	0.890
Antihistamines		5 (7.7 %)	6 (11.1 %)	0.521
Corticoids		26 (40 %)	29 (53.7 %)	0.135
Metabolic Syndrome		32 (49,2 %)	16 (29,6 %)	0.300
CRP				
Positive		38 (58.5 %)	37 (68.6 %)	0.387
Negative		26 (40 %)	17 (31.5 %)	

Table 4. Charactiristics of Psoriasis patients according to ESR status.

Parameters	Mean ± SD	
	ESR Normal	**ESR Accelerated**
Age	47,30±15,28	48,08±16,83
Blood glucose (g/L)	1,04±0,46	3,39±14,04
Blood pressure		
Systolic	12,92±2,56	14,36±3,66
Diastolic	7,51±1,33	8,02±1,50
Haemogram		
Hb (g/dL)	13,44±1,53	13,47±1,55
Leukocytes (10^3/mm^3)	8,96±4,51	10,18±5,28
GR (10^6/mm^3)	5,02±1,47	4,81±1,74
PLAQ (10^3/mm3)	298,75±111,11	317,70±121,53
Liver profile		
TGP (UI/L)	23,61±24,31	30,44±22,17
TGO (UI/L)	21,54±14,55	31,03±28,54
Lipid profile		
LDL (g/L)	1,21±0,30	1,09±0,43
HDL (g/L)	0,57±0,40	0,57±0,39
Triglycerides (g/L)	1,49±0,43	1,71±0,68
Cholesterol (g/L)	1,73±0,33	1,82±0,81
Inflammatory profile		
CRP (mg/L)	16,56±29,22	32,68±47,98

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ТИТУЛЬНЫЙ ЛИСТ_МЕТАДАННЫЕ

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Блок 3. Метаданные статьи

INFLAMMATION AND PSORIASIS: IMMUNOPATHOLOGICAL CHARACTERISTICS AND THERAPEUTIC ADVANCES

Сокращенное название статьи для верхнего колонтитула:

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СПИСОК ЛИТЕРАТУРЫ

№	Complete reference	DOI
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