



INCIDENCE OF METABOLIC SYNDROME AMONG INDIVIDUALS AFFECTED BY CHRONIC PLAQUE PSORIASIS

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ABSTRACT

Objective: To ascertain the incidence of metabolic syndrome among individuals affected by chronic plaque psoriasis.

Place and Duration of Study: This was a cross-sectional study conducted at Shaikh Zayed Hospital, Lahore from August 2022, to January 2022..

MATERIAL AND METHODS: The study's sample size was determined to be 175, and a non-probability consecutive sampling method was employed to select participants. Inclusion criteria encompassed individuals of both genders aged 18 to 30 years with confirmed cases of Psoriasis persisting for at least one year. Exclusion criteria involved individuals with other skin disorders linked to metabolic syndrome, those already taking medications known to induce hyperglycemia, dyslipidemia, or hypertension, and those who declined to participate in the study.

Demographic data, including age, blood pressure, total cholesterol, and fasting blood sugar, were recorded using predefined forms. The data was analyzed using SPSS (Registered) Version 22.

RESULTS: The mean age of the group is approximately 35.11 years with a standard deviation of 6.22. Age-wise, 25.7% of the individuals are between 20-30 years old, while the majority, 74.3%, fall into the 31-60 years age group. In terms of gender, 56% are male, and 44% are female. There were 21 smokers (39.62%) among those with MS, and 32 (26.23%) among those without MS. Among patients with MS, 14 (26.42%) were alcoholic, while 25 (20.49%) were alcoholic among those without MS. In the group with MS, 73.58% had a PASI score of 10 or higher, while in the group without MS, 51.64% had a PASI score of 10 or higher.

CONCLUSION: These discoveries should motivate healthcare professionals to perform routine screenings for metabolic disorders in psoriasis patients, particularly in cases of severe disease. This proactive approach is crucial in facilitating early diagnosis and appropriate treatment, and it underscores the elevated clinical suspicion required when psoriasis and metabolic syndrome coexist.

KEYWORDS: Dermatology, Chronic Plaque Psoriasis, Metabolic Syndrome, Triglycerides

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INTRODUCTION:

Metabolic syndrome, a complex and interrelated cluster of metabolic abnormalities, has emerged as a significant public health concern. This condition encompasses a combination of risk factors such as abdominal obesity, elevated blood pressure, impaired glucose metabolism, and abnormal lipid levels. Understanding the intricate interactions among these components is crucial for devising effective preventive strategies and targeted interventions to mitigate the associated health risks. The development of involves a combination of genetic and acquired elements that contribute to the inflammatory processes culminating in CVD.^{1,2} In contemporary times, the significance of MetS has grown due to the dramatic global rise in obesity. Timely detection is essential for the effective implementation of lifestyle changes and risk factor management. It is additionally linked to several concurrent health conditions, including a heightened inflammatory state, cholesterol gallstone disease, a propensity for nonalcoholic fatty liver disease (NAFLD), blood clotting, and issues related to reproduction.³ The metabolic syndrome is recognized as a major contributor to the burgeoning rates of type 2 diabetes and cardiovascular disease in the 21st century. Furthermore, it is primarily attributed to a sedentary lifestyle, excessive food consumption, and the consequent development of abdominal obesity.^{4,5}

Psoriasis is a prevalent, persistent, and inflammatory skin condition characterized by the presence of red, scaly, well-defined, hardened patches, primarily located on the skin's extensor surfaces and the scalp. This is a complex ailment influenced by various factors, including environmental triggers such as injury, infections, and certain medications. The extent and intensity of the condition can vary significantly over time and from one individual to another. Furthermore, psoriasis is a systemic disorder driven by autoimmune mechanisms, and it exhibits a threefold higher prevalence of metabolic syndrome compared to the general population. Globally, approximately 120 to 180 million people grapple with this condition. The documented prevalence of this disease varies within the range of 1% to 11.8%. Plaque psoriasis primarily affects the skin, nails, eyes, and joints. Clinically, it manifests as red, scaly, and mildly itchy patches, predominantly appearing on the extensor surfaces of the limbs and the scalp. The development of chronic plaque psoriasis is attributed to numerous immune-related mechanisms, classifying it as a disorder with systemic implications.

Firstly, it helps bridge the gap between dermatology and internal medicine, recognizing that psoriasis may be a systemic disorder with wider health implications. Secondly, understanding the prevalence of metabolic syndrome in this population is essential as it could lead to early identification and intervention to reduce cardiovascular risk factors. Moreover, such research contributes to a better comprehension of the multifaceted nature of psoriasis and its potential associations with other health conditions.

Material and Methods:

This was a cross-sectional study conducted at Shaikh Zayed Hospital, Lahore from August 2022, to January 2022. The study's sample size was determined to be 175, and a non-probability consecutive sampling method was employed to select participants. Inclusion criteria encompassed individuals of both genders aged 18 to 30 years with confirmed cases of Psoriasis persisting for at least one year. Exclusion criteria involved individuals with other skin disorders linked to metabolic syndrome, those already taking medications known to induce hyperglycemia, dyslipidemia, or hypertension, and those who declined to participate in the study.

All diagnosed cases of Psoriasis seen among outpatients were included in the study under the supervision of the principal investigator. Demographic data, including age, blood pressure, total cholesterol, and fasting blood sugar, were recorded using predefined forms. After comprehensive history-taking and clinical examinations (both local and general), the patients underwent the necessary tests, including the collection of fasting blood samples, which were subsequently analyzed by the institutional pathology laboratory. Informed consent was obtained from all participants. The primary outcome variable was the assessment of metabolic syndrome in patients with psoriasis.

The data was analyzed using SPSS (Registered) Version 22. For qualitative variables like metabolic syndrome and gender, frequencies and percentages were calculated. Quantitative data were presented as mean values along with their standard deviations. Factors that could potentially confound or modify the effects, such as age, gender, and disease duration, were addressed through stratification and post-stratification. The statistical test used was the Chi-square test, with a probability value of ≤ 0.05 considered as statistically significant.

RESULTS:

The mean age of the group is approximately 35.11 years with a standard deviation of 6.22. Age-wise, 25.7% of the individuals are between 20-30 years old, while the majority, 74.3%, fall into the 31-60 years age group. In terms of gender, 56% are male, and 44% are female. Regarding the presence of metabolic syndrome, 30.3% have it, while 69.7% do not given in table 1.

The table illustrates the prevalence of metabolic syndrome (MS) in relation to different variables. Among individuals aged 20-30 years, 24.8% have MS, while the majority (75.2%) does not. In the 31-60 years age group, 74.9% have MS, with 25.1% without MS. In the male population, a significant majority (86.3%) have MS, while only 13.7% do not. Among females, 49.7% have MS,

and 50.3% do not. For individuals with disease duration of the last 6 months, 56.3% have MS, while 43.7% do not. Among those with disease duration of more than 6 months, 65.1% have MS, and 34.9% do not as given in table 2.

The table 3 shows the characteristics, clinical data, and laboratory results for patients with psoriasis, comparing those with metabolic syndrome (MS) and those without MS. There were 21 smokers (39.62%) among those with MS, and 32 (26.23%) among those without MS. Among patients with MS, 14 (26.42%) were alcoholic, while 25 (20.49%) were alcoholic among those without MS. In the group with MS, 73.58% had a PASI score of 10 or higher, while in the group without MS, 51.64% had a PASI score of 10 or higher.

Table No 1. The demographic composition in terms of age and gender among the study (n=175)

Characteristic	Category	Number	Percentage
Age	Mean age	Mean±SD	35.11±6.22
	20-30 years	45	25.7%
	31-60 years	130	74.3%
Gender	Male	98	56.0%
	Female	77	44.0%
Metabolic Syndrome	Yes	53	30.3%
	No	122	69.7%

Table 3: Cross tabulation of the prevalence of metabolic syndrome among psoriasis patients based on age, gender, and disease duration

Variables	Characteristics	MS Present	MS Absent	P value
Age	20-30 years	24.8%	75.2%	0.536
	31-60 years	74.9%	25.1%	
Gender	Male	86.3%	13.7%	0.002
	Female	49.7%	50.3%	
Duration of Disease	Last 6 months	56.3%	43.7%	0.164
	>6 months	65.1%	34.9%	

Table 3: Characteristics, clinical data, and laboratory results of patients with psoriasis, both with MS Present and without metabolic syndrome (MS) present

Characteristics	MS Present (n=53)	MS Absent (n=122)	P value
Smoker	21 (39.62%)	32 (26.23%)	0.646
Alcoholic	14 (26.42%)	25 (20.49%)	0.765
PASI ≥ 10	39 (73.58%)	63 (51.64%)	0.758
BSA > 10%	42 (79.25%)	83 (68.03%)	0.356
Mean PASI	18.50±10.50	13.45±8.70	0.647
Mean BSA (%)	43.20±2.75	32.35±27.30	0.765
Triglycerides (mg/dl)	191.50±84.00	133.60±63.70	0.001
Systolic blood pressure (mm Hg)	135.55±11.65	120.25±8.65	0.001
VLDL (mg/dl)	25.60±4.80	24.90±4.70	0.688
HDL (mg/dl)	40.00±9.30	51.70±16.60	0.002
Fasting blood sugar (mg/dl)	119.80±22.20	91.80±13.50	0.001
LDL (mg/dl)	134.60±36.60	99.40±39.20	0.001
Diastolic blood pressure (mm Hg)	88.00±7.30	76.50±6.00	0.001
Waist circumference (cm)	97.20±13.20	77.60±11.15	0.001

DISCUSSION:

Psoriasis is a chronic inflammatory condition that significantly affects one's health-related quality of life. With an evolving comprehension of its immune-related mechanisms, psoriasis is currently regarded as a systemic ailment that may carry broader health implications.¹¹ In our study mean age of the group is approximately 35.11 years with a standard deviation of 6.22. In terms of gender, 56% are male, and 44% are female. Regarding the presence of metabolic syndrome, 30.3% have it, while 69.7% do not. Our these findings are in line with Jain et al. 2018 & Biagi et al. 2019, they reported that were below the age of 25, with an average age of 24.45 years (± 2.90). The study sample consisted of 80% males and 20% females. The average duration of Psoriasis was approximately 16.99 months, and the mean BMI was measured at 28.67 kg/m². It's worth noting that 25.3% of field workers were affected by this condition. The impact of office work as a potential occupational factor in the development of Psoriasis was identified in 74.67% of patients.^{12,13} Several research investigations have confirmed the correlation between psoriasis and metabolic syndrome. In a study by Gisondi et al., involving 338 psoriasis patients and 334 controls, statistical analysis revealed a significantly elevated prevalence of Metabolic Syndrome (MetS) in psoriasis patients (30.1%) compared to the control group (20.6%).¹⁴ Similarly, Nisa et al., in their examination of 150 psoriasis patients and 150 healthy individuals, identified a statistically significant difference in MetS prevalence, with 28% in cases and 6% in controls.¹⁵ Lakshmi et al. also observed a higher MetS prevalence in cases (32.5%) compared to controls (30%), although this difference did not reach statistical significance.¹⁶

Substantial evidence indicates a significantly elevated prevalence of various metabolic syndrome components in individuals with psoriasis. This association between psoriasis and hypertension is well-documented in studies conducted both in India and the West, reinforcing our own findings. Notably, the research by Pereira et al. and Madanagobalane et al. concurs with our observations concerning the correlation between psoriasis and diabetes.^{17,18}

Langan et al. likewise established a connection between the severity of psoriasis and the existence of obesity, hypertension, and elevated fasting blood sugar. However, their evaluation of disease severity relied on the extent of body surface area involvement, which may not precisely reflect the inflammation extent. Notably, among the various components of metabolic syndrome, discrepancies

across studies are most prominent concerning dyslipidemia. While certain studies suggest an association between dyslipidemia and psoriasis, others emphasize connections with specific serum lipid components. It's noteworthy that several researchers encountered challenges in replicating these findings.^{20,21}

CONCLUSION:

These discoveries should motivate healthcare professionals to perform routine screenings for metabolic disorders in psoriasis patients, particularly in cases of severe disease. This proactive approach is crucial in facilitating early diagnosis and appropriate treatment, and it underscores the elevated clinical suspicion required when psoriasis and metabolic syndrome coexist.

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