Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 32s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Dyslipidemia frequency in patients with plaque psoriasis: A cross-sectional study

Farooq Azam Khan[1], Muhammad Abdullah[2], Amjad Hussain Soomro[3], Muhammad Zubair[4], Jamil Ahmad[5], Abdul Qayum Khan[6]

[1]FCPS Dermatology HOD Dermatology Naseer ullah Khan babar memorial hospital, Peshawar

[2]University of Lahore teaching hospital

[3]PhD Scholar at Shah Abdul Latif University Khairpur

[4]Associate Professor of Pathology Saidu Medical College/ Saidu Group of Teaching Hospitals, Swat

[5]Department of Laboratory, Oriana hospital and Clinic, UAE

[6]Assistant professor Dermatology Lady Reading Hospital Peshawar

Corresponding Author:

Abdul Qayum Khan

Assistant professor Dermatology Lady Reading Hospital Peshawar

Email ID : qayum008@gmail.com

Cite this paper as: Farooq Azam Khan, Muhammad Abdullah, Amjad Hussain Soomro, Muhammad Zubair, Jamil Ahmad, Abdul Qayum Khan, (2025) Dyslipidemia frequency in patients with plaque psoriasis: A cross-sectional study.*Journal of Neonatal Surgery*, 14, (32s) 9389-9393.

ABSTRACT

Background: Psoriasis is a disorder of the skin that is non-contagious and has a long duration. It affects 1- 3% of the population. Psoriasis is a chronic disorder of the skin and associated with dyslipidemia.

Objective: The aim of this study was to find out the frequency of dyslipidemia in individuals with plaque psoriasis

Materials and method: The present cross-sectional study was conducted at the dermatology department Naseer ullah Khan Babar memorial hospital, Peshawar from January 2025 to June 2025 after taking approval from the research committee of the hospital. Non probability sampling method was used and sample size was determined through WHO calculator. The size of the sample was 106 using 95% confidence level and 7% margin of error. Individuals of both genders and different age groups (ranged 15-65) years with chronic plaque psoriasis were included. SPSS Version 24 was used for data analysis.

Results: A total of 106 individuals were enrolled in this study out of which 63 were males and 43 were females. The mean age of the study population was 38.77 with standard deviation 12.11(ranged 18-65) years. The participants were classified in to two age groups < 15-40 years and above 40 to 65 years. Based on the duration of the illness, individuals were divided into two groups. Those who have had the illness for less than ten years, whereas the other group has had it for more than ten years. The mean duration was 8.52±6.2 standard deviations, with a minimum of one year and a maximum of twenty-five years**.** Dyslipidemia was found in 36 (34%) of the selected individuals in the whole sample. It was found that 24% of patients had increased total cholesterol, 10% had higher triglycerides, 4% had greater low density lipoproteins, and 21% had elevated high density lipoproteins**.** There were 16 individuals with dyslipidemia in the 15–40 age group and 20 individuals in the 40–65 age group, with a substantial P-Value of less than 0.001. Dyslipidemia was discovered in 16 patients in the disease duration group under 10 years and in 20 patients in the duration group over 10 years, with a significant P Value less than 0.001.

Conclusion: The present study concluded that dyslipidemia was most prevalent (34%) in individuals with plaque psoriasis and its frequency increased with the duration of the disease

Keywords: Psoriasis, dyslipidemia, scaly plaques

1. INTRODUCTION

Psoriasis is a disorder of the skin that is non-contagious and has a long duration. It affects 1- 3% of the population. [1] The severity of the disease varies, affecting nearly the entire body or only a few isolated red, scaly plaques. The cause of this disorder is currently unclear. Yet, factors such as genetic predisposition, exposure to environmental antigens, climate, and immunological metabolic processes are involved.[2] The pathophysiology of psoriasis is caused by an imbalance in the Th1 and Th2 pathways. Defective cellular

immunity and its associated mediators, such aspro-inflammatory transcription factors (AP-1, NF-κB, signal transduction), inflammatory cytokines (IL-1, IL-6), and tumor necrosis factor-α (TNF-α), also play a part.[3-4] Skin is the primary site of psoriasis, and other morphological forms have been documented especially joint involvement is observed in a small number of cases.[5] This disease has two major types. Type II psoriasis develops after the age of 40 and is not associated with HLA, whereas type I psoriasis starts between the ages of 15 and 30 and is associated with HLA. Patients with psoriasis have abnormal blood lipid levels and a deviation in lipid metabolism when they have the disorder.[6]Compared to the general population, psoriasis patients appear to have higher rates of diabetes, dyslipidemia, hypertension, and obesity.[4] The metabolic syndrome is one of the most frequent findings in these cases. Other risk factors associated with dyslipidemia in psoriasis individuals include a BMI > 30 kg/m2, a family history of the condition, a diet high in fat, a sedentary lifestyle, and individuals who are taking retinoid or cyclosporine.[1] It has been believed that the chronic inflammatory nature of dyslipidemia and psoriasis contributes to the progression of co-morbidities such as coronary artery disease, atherosclerosis, and myocardial infarction, which increases the risk of heart attack and stroke.[7] There are several causes of the dyslipidemia that contribute to psoriasis. Defective lipid metabolism may be caused by structural and functional alterations in the digestive system, immunological mechanisms that include cellular oxidative stress, C-reactive protein, IL-6, and tumor necrosis factor. Individuals with psoriasis have been identified to develop autoantibodies against oxidized LDL. Dyslipidemia sustains the inflammatory response in the skin in along with encouraging atherosclerosis.[8] The severity of the disorder is correlated with the amount of antibodies against oxidized LDL.

It has been discovered that psoriatic individuals had higher levels of total cholesterol (TC), total triglycerides, and low-density lipoprotein cholesterol. High-density lipoprotein cholesterol, is either decreased or retained unchanged. Psoriasis is also linked to metabolic syndrome as dyslipidemia is one of the diagnostic criteria for the condition. Individuals with psoriasis may develop type two diabetes as a result of insulin resistance.[9] The present study was carried out to determine the frequency of dyslipidemia in patents with plaque psoriasis.

2. MATERIALS AND METHOD

The present cross-sectional study was conducted at the dermatology department Naseer ullah Khan Babar memorial hospital, Peshawar from January 2025 to June 2025 after taking approval from the research committee of the hospital. Non probability sampling method was used and sample size was determined through WHO calculator. The size of the sample was 106 using 95% confidence level and 7% margin of error. Individuals of both genders and different age groups (ranged 15-65) years with chronic plaque psoriasis were included in while individuals with family history of dyslipidemia, heart diseases, hypertension (140/90) and diabetes were excluded. SPSS Version 16 was used for data analysis. For age and disease duration descriptive statistics like mean and standard deviation was used. Frequencies and percentages for dyslipidemia, high LDL, low HDL, high triglycerides, high cholesterol, and sex were computed. After using the chi square test, dyslipidemia was stratified by age, sex, and illness duration to determine the impact modifiers. Tables and figures were used to display all of the results.

3. RESULTS

A total of 106 individuals were enrolled in this study out of which 63 were males and 43 were females. The mean age of the study population was 38.77 with standard deviation 12.11(ranged 18-65) years. The participants were classified in to two age groups < 15-40 years and above 40 to 65 years. Based on the duration of the illness, individuals were divided into two groups. Those who have had the illness for less than ten years, whereas the other group has had it for more than ten years. The mean duration was 8.52±6.2 standard deviations, with a minimum of one year and a maximum of twenty-five years as presented in **table 1.** Dyslipidemia was found in 36 (34%) of the selected individuals in the whole sample. It was found that 24% of patients had increased total cholesterol, 10% had higher triglycerides, 4% had greater low density lipoproteins, and 21% had elevated high density lipoproteins as presented in **figure 1.** There were 16 individuals with dyslipidemia in the 15–40 age group and 20 individuals in the 40–65 age group, with a substantial P-Value of less than 0.001 as presented in **table 2.** Dyslipidemia was discovered in 16 patients in the disease duration group under 10 years and in 20 patients in the duration group over 10 years, with a significant P Value less than 0.001 as presented in **table 3**.

Table 1.Demographic features of the study participants n= 106

Gender	Frequency %			
Male	63(59.4%)			
Female	43(40.5%)			
Total	106			
Age in years	Maximum	Minimum	Mean	Std. Dev

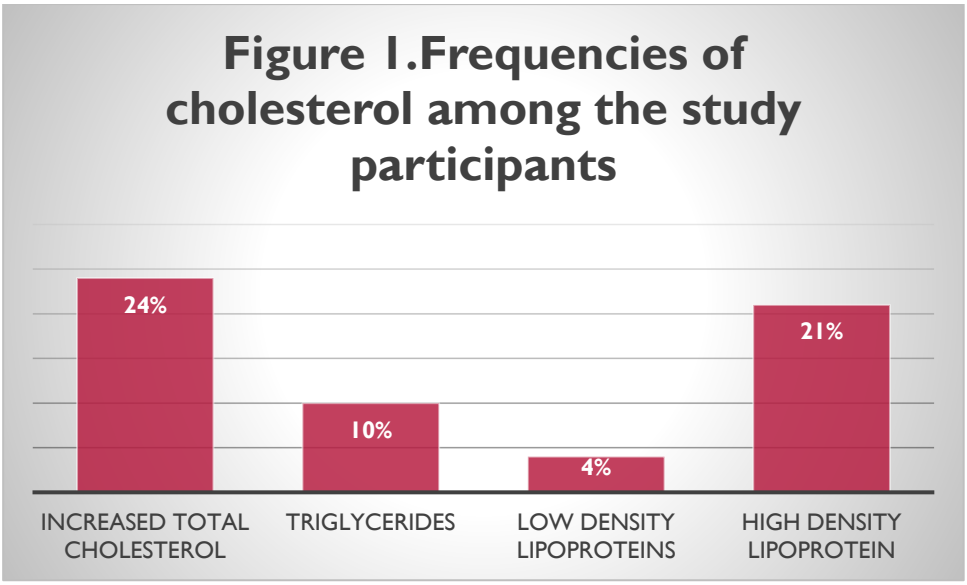
	65	18	38.77	12.11
Disease duration	25	1	8.52	6.2

Table 2. Age wise distribution of dyslipidemia

Dyslipidemia	Age groups in years		Total	Value of P
	15 to 40	above 40 to 65		
No	55	15	70	<0.001
Yes	16	20	36	
Total	71	35	106	

Table 3. Age wise distribution of dyslipidemia and duration of disease

Dyslipidemia	Duration of disease in years		Total	Value of P
	Less than 10	above 10		
No	55	15	70	<0.001
Yes	16	20	36	
Total	71	35	106	



4. DISCUSSION

An increased awareness of psoriasis as a possible risk factor for cardiovascular disorders is justified by the available evidence. Many studies have been conducted globally to emphasize the connection between dyslipidemia and psoriasis. Nevertheless, there is a dearth of local evidence to support the need of dyslipidemia screening in psoriatic patients. The purpose of this research was to evaluate the true prevalence of dyslipidemia in psoriatic patients in our community and to help further solidify the data supporting the association between dyslipidemia and psoriasis. The goal is to make dyslipidemia screening a crucial component of psoriasis patients' workups so that early detection and management of these contributing factors may occur, hence averting cardiovascular problems in psoriatic patients.[10]

A research was carried out by Dr. Doulat Rai Bajaj and colleagues at Liaquat University Hospital in Hyderabad to identify lipid abnormalities in psoriasis patients. [11] According to their findings, men were more likely than females to have dyslipidemia. Our patients showed a similar pattern. One possible explanation for the higher proportion of men than women is that, in our conservative culture, men are more likely than women to actively seek medical attention for their illnesses. [12] Another possibility is that guys are more susceptible to developing dyslipidemia due to things including alcohol, stress, smoking, and hormones (testosterone).[12] The discrepancy may have resulted from the inclusion of several forms of psoriasis, such as plaque, guttate, palmoplantar, and flexural psoriasis, in the study mentioned above. [13]. Furthermore, the disease's duration varied from 18 months to 10 years, with a minimum of 1 year and a high of 25 years in our research. [14] This finding emphasizes the link between an extended period of psoriasis and the ensuing rise in the incidence of dyslipidemia. The higher incidence of dyslipidemia in the disease duration group over 10 years of our study, indicates that prolonged duration is associated with increased oxidative stress, prolonged inflammation, and long duration of cumulative exposure to multiple risk factors for the development of dyslipidemia. In both investigations, the severity of psoriasis was not categorized.[15-16]

Jacob Dreiher and *et al* from Israel conducted a population-based study to assess the relationship between dyslipidaemia and psoriasis. The study comprised 10,669 patients with psoriasis. The prevalence of dyslipidaemia was significantly higher in patients with psoriasis. Dyslipidaemia was diagnosed in 57.1% of cases. Additionally, their patients were diagnosed more frequently with other diseases associated with dyslipidaemia, including smoking, diabetes, obesity, and hypothyroidism.[17-18] In this study, these comorbidities were not assessed. The association remained significant after controlling for confounders, with a prevalence of 34% in the study cases. The observed difference in percentage may be attributed to the large sample size in the referenced study, whereas our study included only 106 patients. All individual components of dyslipidaemia were similarly altered in our study. In the previous study, serum cholesterol levels were elevated in 14.7% of patients, whereas in our study, this figure was 24%. LDL levels were observed in 40% of individuals in the earlier report, while our study reported a prevalence of 4%. Triglycerides (TG) were elevated in 15.9% of participants in the referenced study, compared to 10% in our study. HDL levels were deranged in 24.9% of patients in the referenced study, while our study found this to be true for 21% of participants. [19] The factors contributing to dyslipidemia in psoriasis may be numerous. Structural and functional changes in the gastrointestinal tract, immune mechanisms involving IL-624 or tumor necrosis factor, as well as C-reactive proteins as well as cellular oxidative stress, may contribute to altered lipid metabolism.[20] The prevalence of coronary artery disease in the population has increased. It is anticipated to increase further due to Th1 mediated diseases such as psoriasis. This study corroborates previous research by demonstrating an increased prevalence of lipid abnormalities in psoriasis. This information may indicate an increase in the already high prevalence of cardiovascular events in our population.[21] Therefore, early screening and treatment of hyperlipidemia in psoriasis are recommended to prevent atherosclerosis and its associated complications. The study had a limited sample size. It may serve as a foundation for a more extensive future study.[22]

5. CONCLUSION

The present study concluded that dyslipidemia was most prevalent (34%) in individuals with plaque psoriasis and its frequency increased with the duration of the disease. This study recommends the establishment of adequate and continuous therapeutic control of psoriasis from the outset to mitigate morbidity and mortality associated with cardiovascular complications

REFERENCES

[1] Jamil A, Ahsan U, Malik LM, Azfar NA, Jahangir M. Frequency of dyslipidemia in patients with psoriasis. J Pak Assoc Dermatol 2014; 24(4): 307-11.

[2] . Parisi R, Symmons DP, Griffiths CE, Ashcroft DM. Global epidemiology of psoriasis: a systematic review of incidence and prevalence. J Investigative Dermatol 2013;133(2):377-85.

[3] . Mahajan R, Handa S. Pathophysiology of psoriasis. Indian J Dermatol Venereol Leprol 2013;79(7):1-9.

[4] . Mawla MA, Abulmajd Y, Soliman M, Amer A, Nasr M, Victor O. Serum Interleukin (IL)-17 in Psoriasis. J Am Sci 2013;9(12):229-32.

[5] . Myers WA, Gottlieb AB, Mease P. Psoriasis and psoriatic arthritis: clinical features and disease mechanisms. Clin Dermatol 2006;24(5):438-47.

[6] Bajaj DR, Mahesar SM, Devrajani BR, Iqbal MP. Lipid profile in patients with psoriasis presenting at Liaquat University Hospital Hyderabad. J Pak Assoc Dermatol 2009;59(8):512.

[7] . Prodanovich S, Kirsner RS, Kravetz JD, Ma F, Martinez L, Federman DG. Association of psoriasis with coronary artery cerebrovascular, and peripheral vascular diseases and mortality. Arch Dermatol 2009;145(6):700-3.

[8] . Escárcega RO, García-Carrasco M, Fuentes-Alexandro S, Jara LJ, Rojas-Rodriguez J, Escobar-Linares LE, et al. Insulin resistance, chronic inflammatory state and the link with systemic lupus erythematosus-related coronary disease. Autoimmun Rev 2006;6(1):48-53.

[9] . Brauchli YB, Jick SS, Meier CR. Psoriasis and the risk of incident diabetes mellitus:

[10] .Gibson LE, Perry HO. Papulosquamous eruptions and exfoliative dermatitis. In: Moschella SL, Hurley HJ, editors. Dermatology. Philadelphia: WB Saunders, 2017.p.607-51

[11] .Ortonne JP. Psoriasis, metabolic syndrome and its components. Ann Dermatol Venereal. 2008;135:235-42.

[12] . Ayala F. Clinical aspects and comorbidities of psoriasis. J Rheumatol. 2009;83:19-20

[13] .Gelfland JM, Neimann AL, Shin DB, Wang X, Margolis DJ, Troxel AB. Risk of myocardial infarction in patients with psoriasis. JAMA. 2006;296:1735-41.

[14] . Gisondi P, Girolomoni G. Cardio metabolic comorbidities and the approach to patients with psoriasis. Actas Dermosifiliogr. 2009;2:14-21.

[15] . Wu Y, Mills D, Bala M. Psoriasis: cardiovascular risk factors and other disease comorbidities. J Drugs Dermatol. 2008;7:373-7.

[16] . Velageleti RS, Massaro J, Vasan RS, Robin SJ, Kannel WB, Levy D. Relation of lipid concentrations to heart failure incidence: The Framingham heart study. Circulation. 2009;120:2345-51

[17] .Khan NI, Naz L, Mushtaq S, Rukh L, Ali S, Hussain Z. Ischemic stroke: Prevalence of modifiable risk factors in male and female patients in Pakistan. Pak J Pharm Sci. 2009;22:62-7

[18] Malone DC. Association of cardio metabolic risk factors and prevalent cardiovascular Events. Metabolic Syndr Relat Disord. 2009; 7:585-93

[19] .Richardson SK, Gelfland JM. Update on the natural history and systemic treatment of psoriasis. Advances in Dermatology. 2008;24:171-96

[20] .Owen CM, Chalmers RJG, Sullivan TO, Griffiths CEM.A systemic review of antistreptococcal interventions for guttate and chronic plaque psoriasis. Br J Dermatol.2000;143:15-24

[21] .Zelickson BD, Muller SA. Generalized pustular psoriasis: a review of 63 cases. Arch Dermatol 1991; 127:1339–45

[22] .Naldi L, Peli L, Parazzini F. Association of early-stage psoriasis with smoking and male alcohol consumption. Arch Dermatol. 2016; 135:1479-84..