How to Cite:
Kanakareddi, B., Chukkanakal, J. L., Narayanamurthy, A. K., & Senapathi, P. (2022). A cross sectional study of psoriasis and its association with lipid profile among the patients in a tertiary care centre. *International Journal of Health Sciences*, *6*(S1), 13806–13812.
https://doi.org/10.53730/ijhs.v6nS1.8498

A cross sectional study of psoriasis and its association with lipid profile among the patients in a tertiary care centre

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***Abstract*---**Background: One of the most prevalent dermatological disorders seen in everyday practise is psoriasis. There has been a lot of new study on it being considered a systemic disease, with experts believing that the dermatological indications are only a small portion of the picture. Psoriasis is linked to aberrant lipid profiles, elevated fasting blood glucose levels, increased waist circumference, and elevated blood pressures, all of which are symptoms of the metabolic syndrome. Objectives: To study the serum lipid Profile among Psoriasis patients attending out patient Department in a tertiary care hospital. Materials and Methods: The Present cross sectional study was conducted by the Department of Dermatology at Gadag Institute of Medical Sciences from January 2021 to December 2021. A total of 50 study subjects were enrolled for the purpose of the study. After obtaining informed consent, a detailed history including demographic data, drug history, personal history, family history, present and past medical history, emotional stress and exposure to Sexually transmitted diseases were taken. Results: The mean age of the study subjects was found to 39.21$\pm$15.3 years of age in the present study majority (80%) of them were males and 20% were females. In the present study nearly 6% of them were categorized into Mild PASI, 64%

Manuscript submitted: 18 March 2022, Manuscript revised: 9 April 2022, Accepted for publication: 27 May 2022

were in Moderate PASI and 30% had Severe PASI score for grading of the severity of Psoriasis On analysing the lipid profile among the study subjects it was found that all the parameters like Total Cholesterol, Serum triglyceride, High Density Lipoprotein, Very low Density Lipoprotein and Low Density Lipoprotein were found to be within normal limits among the majority of the study subjects. Conclusion: Amongst the various lipid parameters, like Serum Triglyceride HDL, VLDL, LDL and Total Cholesterol did not show any significant increase from the normal. Further there is no relationship between lipid parameters and severity of disease. In patients with psoriasis, derangements of lipids may be independent factor.

***Keywords*---**Lipid Profile, Psoriasis, Cholesterol, Skin Disease.

Introduction

Psoriasis is a prevalent, persistent, disfiguring, inflammatory, and proliferative skin disease that is influenced by both hereditary and environmental factors. [1] In various nations, the prevalence of psoriasis ranges from 1.5 percent to 4.8 percent. [2]

It is important to recognize that psoriasis is a term that embraces a spectrum of diseases ranging from localized plaques to more severe generalized involvement, with or without psoriatic arthritis and associated manifestations of other autoimmune diseases. The occurrence of The prevalence of psoriasis ranges from 0.1 to 3% and found to be more common in northern, colder areas. [3,4] Psoriasis aetiology is heavily influenced by genetic factors. Psoriasis tends to worsen at times of stress, cold weather, and low humidity, as well as when certain drugs are administered and certain illnesses are present. Five ethnic elements are also essential.

Psoriasis lesions are red scaly, strongly delineated, indurated plaques that appear mostly on extensor surfaces and the scalp. The length, frequency, and breadth of the condition are all highly varied.[5] Psoriasis has no established cause, however genetic, metabolic, and immunologic causes have been suggested. The loss of scale found on the surface of lesions as the disease progresses might be linked to lipid problems in the epidermis and serum. [6]

Psoriasis is a complicated systemic inflammatory dermatological condition that affects around 2% to 3% of the global population. Lea, Cornish, and Block observed higher serum lipid concentrations in patients over half a century ago. Since then, several studies have shown that people with psoriasis are more likely to develop non-cutaneous disorders such arterial and venous occlusive diseases.[6,7]

Psoriasis patients may have an increased risk of atherosclerosis due to changes in plasma lipid composition. 9 Psoriasis may be linked to lipid metabolism problems based on changes in plasma lipid and lipoprotein composition, such as an increase in total cholesterol (TC), triglyceride (TG), low density lipoprotein

cholesterol (LDL-C), and a reduction in high-density lipoprotein cholesterol (HDL-C) levels. [8,9] Chronic inflammation, a common hallmark of psoriasis, may have a role in the onset and progression of dyslipidemia and atherosclerosis, according to evidence. The early diagnosis of such anomalies may help psoriasis sufferers have fewer cardiovascular incidents.

Objectives

To study the serum lipid Profile among Psoriasis patients attending out patient Department in a tertiary care hospital.

Materials and Methods

The Present cross-sectional study was conducted by the Department of Dermatology at Gadag Institute of Medical Sciences from January 2021 to December 2021.

A total of 50 study subjects were enrolled for the purpose of the study. After obtaining informed consent, a detailed history including demographic data, drug history, personal history, family history, present and past medical history, emotional stress and exposure to Sexually transmitted diseases were taken. The data was collected in proforma and 50 age and sex matched controls were also recruited. Relevant laboratory investigations were done to diagnose any underlying disease states and other organ/system involvement. Biopsy was done in doubtful cases after obtaining a written consent from the patient.

INCLUSION CRITERIA:
All clinically diagnosed new cases of psoriasis >18 years of age .

EXCLUSION CRITERIA :

1. Patients not willing to take part in the study or unwilling to give their written consent for the study.
2. Pregnant patients and Patients with Liver disease, Renal disorder and HIV Patients treated earlier or on treatment

A detailed history was taken pertaining to the duration of psoriasis, treatment taken for psoriasis, family history of psoriasis, occupation, drug intake other than for psoriasis, personal history of diabetes, hypertension, cardiac events, smoking and alcohol intake. All the patients were subjected to general physical examination and cutaneous examinations. Height and weight of all patients were recorded. All the patients were graded according to Psoriasis Area Severity Index (PASI) and Body Surface Area (BSA) into 3 categories - Mild, Moderate and Severe. All the changes involving nails, scalp, genitalia were documented as per the proforma.

The patients were classified based on Psoriasis Area Severity Index (PASI) and Body Surface Area (BSA). PASI: Is a useful tool in monitoring the response of psoriasis to any the rapeutic regimen. Four sites of affection - head (h), upper limbs (u), trunk (t) and lower limbs (l) are separately scored. Morphologic scoring of psoriasis plaques is done by evaluation of three parameters - erythema,

induration and desquamation, each of which is graded on a severity scale of 0 to 4 where 0 = nil, 1 = mild, 2 = moderate, 3 = severe and 4 = very severe.

Psoriasis area severity index (PASI) Graded as

MILD (PASI 3-10)
Moderate (PSAI >3-10)
SEVERE (PASI >10)

Body surface area (BSA):

BSA was calculated using rule of nine and was graded as

MILD (BSA < 10)
MODERATE (BSA 10-20)
SEVERE (BSA >20).

Case control statistical analysis was carried out in the present study. Results on continuous measurements are presented on Mean±SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5% level of significance.

Results

A total of 50 cases of psoriasis were screened, examined and recruited. A history was taken and thorough examination was carried out.

Table 1: Social Profile of the study subjects in the study

		Frequency	Percentage
Age Group	< 20 years	7	14
	21-30 years	11	22
	31-40 years	14	28
	41-50 years	6	12
	>50 years	12	24
Gender	Male	40	80
	Female	10	20

In the present study nearly 14% of the subjects were aged below 20 years , 22% were between 21 to 30 years, 28% were between 31 to 40 years, 12% were between 41 to50 years of age and 24% were aged more than 50 years of age . The mean age of the study subjects was found to 39.21$\pm$15.3 years of age . in the present study majority (80%) of them were males and 20% were females .

Table 2: Distribution of cases according to Psoriasis Area Severity Index

PASI	Frequency	Percentage
Mild	3	6
Moderate	32	64
Severe	15	30

In the present study nearly 6% of them were categorized into Mild PASI , 64% were in Moderate PASI and 30% had Severe PASI score for grading of the severity of Psoriasis.

Table 3: Distribution of Serum Lipid Profile among the Study subjects

Lipid Profile	Criteria	Frequency	Percentage
Total Cholesterol	< 250 mg/dl	47	94
	>250 mg/dl	3	6
Serum Triglyceride	<170 mg/dl	42	84
	>170 mg/dl	8	16
HDL	<70 mg/dl	48	96
	>70 mg/dl	2	4
VLDL	<34 mg/dl	45	90
	>34 mg/dl	5	10
LDL	<190 mg/dl	45	90
	>190 mg/dl	5	10

On analysing the lipid profile among the study subjects it was found that all the parameters like Total Cholesterol, Serum triglyceride , High Density Lipoprotein, Very low Density Lipoprotein and Low Density Lipoprotein were found to be within normal limits among the majority of the study subjects.

Discussion

Psoriasis is a chronic and relapsing inflammatory skin condition that, with the exception of Psoriatic arthritis, was thought to be limited to the skin. There has been a lot of new study on it being considered a systemic disease, with experts believing that the dermatological signs are simply one portion of the spectrum. Psoriasis' systemic inflammation, numerous psoriasis therapies, and an increasing incidence of poor lifestyle variables may all contribute to this adverse cardiovascular risk profile. This research looked into one such contentious relationship.

Psoriasis and cardiovascular disease have comparable pathogenic traits, according to genetic research, in which inflammatory cytokines like TNF- and IL-1 play a key role. Psoriasis' chronic inflammation has a negative impact on the cardiovascular risk profile. Several cardiovascular risk variables, including blood pressure, oxidative stress, dyslipidemia, endothelial cell dysfunction, homocysteine levels, and blood platelet adhesion, appear to be impacted. Furthermore, traditional cardiovascular risk factors like smoking and obesity, which are more common in psoriasis patients, indirectly aggravate the cardiovascular risk profile by promoting psoriasis activity.[10,11]

In the present study majority of the subjects were in the age group of 31 to 40 years of age with more male predominance. These findings of our study was found to be comparable to the findings of the study done by Kaur et al [12], Mehta et al [13]. The severity of the grading of Psoriasis was done based on the PASI scoring method and majority of them were classified into moderate type in the present study which can be comparable to the study findings of Kremers H M et al [14] and Koba S et al [15].

The serum cholesterol levels among the study subjects were found to be normal in nearly 94% of the study subjects which is similar and comparable to the study findings of the study done by Malbaris et al [16] and Rocha Pereira et al [17].

The Serum triglyceride was normal in 84% of the study subjects which was found to be contrast to the study findings of Koba et al [15].The HDL levels was within the normal range in nearly 96% of the study subjects which was in comparision to the study findings of Piskin et al [18] , whereas in the study done by Rocha-Pereira et al [17] had found decreased levels of HDL in psoriatic patients. The VLDL was found to be within normal range in nearly 90% of the subjects but studies done by Kremers H M et al [14] and Koba S et al [15] have reported an increase in the levels of VLDL in psoriatic cases. Similarly the Level of LDL was found to be within normal range in nearly 90% of the subjects which was comparable to the study done by Uyanik et al [19] and Rocha Pereira et al [17].

Conclusion

Amongst the various lipid parameters, like Serum Triglyceride HDL, VLDL, LDL and Total Cholesterol did not show any significant increase from the normal. Further there is no relationship between lipid parameters and severity of disease. In patients with psoriasis, derangements of lipids may be independent factor. This has significant consequences for dermatologists, as it helps them to be more effective. more daring and forceful in treating these people while also saving money the cost of unneeded and expensive investigations that they may conduct in order to rule out metabolic syndrome underpinning Additional metabolic and other risk variables may exist. Psoriasis patients have an increased frequency of metabolic syndrome.

References

1. Baker H. Psoriasis a review. Dermatologica. 1975; 150: 16-25.
2. Linden KG, Weinstein GD. Psoriasis: current perspectives with an emphasis on treatment. Am J Med.1999; 107: 595-605.
3. Mallbris L, Larsson P, Bergquist S, Vingard E, Granath F, Stahle M. Psoriasis phenotype at disease onset: Clinical characterization of 400 adult cases. J Invest Dermatol. 2005;124:499-504.
4. Griffiths CEM, Camp RDR, Barker JNWN. Psoriasis. In: Rook"s Textbook of Dermatology. Burns T, Breathnach S, Cox N, Griffiths C editors. 7thedition. Blackwell Science, Oxford 2005; pp. 35.1- 35.69.
5. Michael P, Schon W, Boehncke H. Psoriasis. New Eng J Med. 2005; 352: 1899-912
6. Raychaudhari SP, Run G, Farber EM. Neuropathogenesis and neuropharmacology of psoriasis. Int J Dermatol. 1995; 34: 685-93.
7. Seishima M, Mori S, Noma A. Serum lipid and apolipoprotein levels in patients with psoriasis. Br J Dermatol. 1994;130:738-42.
8. Seckin D, Tokgozoglu L, Akkaya S. Are lipoprotein profile and lipoprotein a levels altered in men with psoriasis? J Am Acad Dermatol. 1994; 31: 445-449.
9. Javidi Z, Meibodi NT, Nahidi Y. Serum lipid abnormalities and psoriasis. Indian J Dermatol. 2007; 52: 89-92.

10. Wakkee M, Thio HB, Prens EP, Sijbrands EJG, Neumanna HAM. Unfavorable cardiovascular risk profiles in untreated and treated psoriasis patients. Atherosclerosis. 2007; 190: 1-9.
11. Torkhovskaia TI, Fortinskaia ES, Ivanova LI, Nikitina NA, Zakharova TS, Kochetova MM, et al. characteristics of lipid transport system in psoriasis. Vopr Med Khim. 2002; 48:297-303.
12. Kaur I, Kumar B, Sharma VK . Epidemiology of psoriasis in a clinic from North India. Indian J Dermatol Venereol Leprol. 1986; 52: 208-21.
13. Mehta TK, Shah RN, Marquis LA. A study of 300 cases of psoriasis. Indian J Dermatol Venereol Leprol. 1976; 42(2): 67-9.
14. Kremers HM, McEvoy MT, Dann FJ, Gabriel SE. Heart disease in psoriasis. J Am Acad Dermatol. 2007; 57:347-54.
15. Koba S, Hirano T, Sakaue T, Takeuchi H, Adachi M, Katagiri T. An increased number of very low density lipoprotein particles is strongly associated with coronary heart disease in Japanese men, independently of intermediate density lipoprotein or low-density lipoprotein. Coron Artery Dis. 2002; 13:255-62.
16. Mallbris L, Granath F, Hamsten A, Mona S. Psoriasis is associated with lipids abnormalities at the onset of skin disease. J Am Acad Dermatol. 2006; 54(4): 614-21.
17. Rocha -Pereira P, Santos -Silva A, Rebelo I, Figueiredo A, Quintaniiha A, Teixeria F. Dyslipidemia and oxidative stress in mild and in severe psoriasis as a risk for cardiovascular disease. Clin Chim Acta. 2001; 303:33-9.
18. Piskin S, Gurkok F, Ekuklu G, Senol M. Serum lipid levels in Psoriasis. Yonsei Med J. 2003; 44:24-6.
19. Uyanik BS, Ari Z, Onur E, Gunduz K, Tanulku S, Durkan K. Serum lipids and apolipoproteins in patients with psoriasis. Clin Chem Lab Med. 2
20. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). The COVID-19 pandemic. *International Journal of Health Sciences*, *5*(2), vi-ix. https://doi.org/10.53730/ijhs.v5n2.2937
21. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2022). Post-pandemic health and its sustainability: Educational situation. *International Journal of Health Sciences*, *6*(1), i-v. https://doi.org/10.53730/ijhs.v6n1.5949