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STUDY OF CLINICAL PROFILE AND SIGNIFICANCE OF LIPID PROFILE IN PATIENTS OF PSORIASIS

Dermatology

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ABSTRACT

Background: Psoriasis is a chronic inflammatory skin disorder with systemic associations, notably metabolic syndrome and dyslipidemia. Recent research highlights a strong link between psoriasis and lipid abnormalities, increasing cardiovascular risk. **Objective:** To evaluate lipid profile variations in psoriasis patients and their correlation with disease severity. **Methods:** A prospective, descriptive study was conducted on 100 psoriasis patients and 100 age- and sex-matched controls. Clinical parameters, including Psoriasis Area and Severity Index (PASI), body mass index (BMI), and comorbidities, were recorded. Lipid profiles (total cholesterol [TC], low-density lipoprotein [LDL], high-density lipoprotein [HDL], very low-density lipoprotein [VLDL], and triglycerides [TG]) were analysed. **Results:** Psoriasis patients exhibited significantly higher TC, LDL, TG, and VLDL levels, and lower HDL levels compared to controls. A positive correlation was observed between PASI score and LDL, TG, and VLDL, while HDL showed a negative correlation. **Conclusion:** Dyslipidemia is closely associated with psoriasis severity. Regular lipid monitoring and early intervention may reduce cardiovascular risks, emphasising the need for a multidisciplinary approach in psoriasis management.

KEYWORDS

Psoriasis, Dyslipidemia, PASI Score, LDL, HDL, Cardiovascular Risk

INTRODUCTION

Psoriasis affects approximately 2–3% of the global population, with an estimated 120–180 million cases worldwide [1]. Beyond its dermatological manifestations, psoriasis is a systemic inflammatory condition linked to metabolic syndrome, dyslipidemia, and cardiovascular diseases [2,3]. Chronic inflammation in psoriasis, driven by pro-inflammatory cytokines such as TNF-α, IL-6, and IL-17, contributes to lipid metabolism abnormalities, increasing the risk of atherosclerosis [4]. Previous studies have reported elevated TC, LDL-C, and TG, alongside reduced HDL-C, in psoriasis patients, with severity potentially exacerbating these changes [5,6]. This study aims to evaluate lipid profile alterations in psoriasis patients and their correlation with disease severity, providing insights into the systemic implications of psoriasis and the need for comprehensive management.

MATERIALS AND METHODS

Study Design: Prospective descriptive study over 18 months at the Department of Dermatology, Dr. KNS Memorial Institute of Medical Sciences, Barabanki, U.P.

Study Population:

- 100 clinically diagnosed psoriasis patients
- 100 age- and sex-matched healthy controls

Data Collection:

- Clinical history, BMI, lifestyle factors(alcohol , smoking), comorbidities (hypertension , diabetes)
- Severity of psoriasis measured using the PASI score
- Lipid profile: TG, TC, HDL, VLDL (calculated as TG/5), and LDL (Friedewald formula)

Sample Collection: 12-hour fasting venous blood samples were collected in the morning. Lipid levels were analysed using enzymatic methods.

Statistical Analysis: SPSS v26 was used. Independent t-tests compared lipid values between groups. Spearman correlation assessed associations between PASI scores and lipid parameters. A p-value < 0.05 was considered statistically significant.

RESULTS

Table 1: Demographic And Clinical Characteristics

Characteristic	Psoriasis (n=100)	Control (n=100)	p-value
Age (years)	40.34 ± 14.82	41.14 ± 14.66	0.7016
Male (%)	74	79	0.4044
BMI (kg/m²)	25.82 ± 3.63	24.27 ± 2.91	0.0010*
Hypertension (%)	27	-	-
Smoking (current, %)	42	-	-
Alcohol use (%)	29	-	-

Demographic And Clinical Characteristics

- **Mean Age:** Psoriasis 40.3 years, Controls 41.1 years
- **Male Predominance:** 74% in the psoriasis group
- Higher BMI in psoriasis patients (p=0.001)
- 42% current smokers, 29% reported alcohol use
- Hypertension was present in 27% of psoriasis patients. Psoriasis patients had significantly higher BMI.
- Higher prevalence of hypertension, smoking, and alcohol use among psoriasis patients.

Cutaneous Findings:

- **Most Common Lesion:** Plaques (77%), scaling (71%), papules (56%)
- Koebner's phenomenon: 46%; Auspitz sign: 49%
- **Nail Involvement:** 38%, with fingernail pitting being most common.

Table 2: Lipid Profile Comparison

Parameter	Psoriasis (n=100)	Control (n=100)	p-value
TG (mg/dL)	142.23 ± 37.25	112.74 ± 31.89	<0.0001*
TC (mg/dL)	178.66 ± 48.62	156.48 ± 40.72	0.0006*
LDL-C (mg/dL)	117.17 ± 30.35	104.8 ± 31.73	0.0053*
HDL-C (mg/dL)	43.7 ± 16.68	52.59 ± 18.26	0.0004*
VLDL (mg/dL)	27.45 ± 11.74	20.55 ± 10.73	<0.0001*

- Psoriasis patients had significantly higher TG, TC, LDL, and VLDL, and lower HDL compared to controls.

Table 3: Lipid Profile by Psoriasis Severity (PASI Score)

Parameter	Mild (n=13)	Moderate (n=62)	Severe (n=25)	p-value
TG (mg/dL)	105.4 ± 36.31	124.88 ± 51.37	131.6 ± 39.86	0.2637
TC (mg/dL)	153.19 ± 23.98	157.83 ± 25.14	172.75 ± 22.04	0.0189*
LDL-C (mg/dL)	102.48 ± 20.5	107.12 ± 22.04	113.77 ± 21.66	0.2655
HDL-C (mg/dL)	44.86 ± 9.67	43.7 ± 9.28	40.22 ± 10.44	0.2400
VLDL (mg/dL)	21.08 ± 7.26	24.98 ± 10.27	28.32 ± 7.97	0.0772

- Total cholesterol increased significantly with disease severity.
- Other lipid parameters showed worsening trends with severity, though not all reached statistical significance.

Correlation Between PASI Score and Lipid Parameters

Parameter	Spearman r	p-value	Direction
TG	0.45	0.001*	Positive
TC	0.32	0.015*	Positive
LDL-C	0.28	0.042*	Positive
HDL-C	-0.36	0.005*	Negative
VLDL	0.49	0.0008*	Positive

- Lipid parameters were compared across PASI severity groups (mild, moderate, severe). TC showed a significant increase with severity (153.19 ± 23.98 mg/dL in mild vs. 172.75 ± 22.04 mg/dL in severe, p=0.0189). TG, LDL-C, and VLDL levels increased, and HDL-C decreased with severity, but these trends were not statistically significant ($p>0.05$). Spearman correlation confirmed substantial associations between PASI scores and lipid parameters: TG ($r=0.45$, $p=0.001$), TC ($r=0.32$, $p=0.015$), LDL-C ($r=0.28$, $p=0.042$), VLDL ($r=0.49$, $p=0.0008$), and a negative correlation with HDL-C ($r=-0.36$, $p=0.005$).

DISCUSSION

This study confirms that psoriasis is associated with significant lipid profile alterations, consistent with previous research [7,8]. Elevated TG, TC, LDL-C, and VLDL, alongside reduced HDL-C, suggest an atherogenic lipid profile, increasing cardiovascular risk in psoriasis patients. The significant correlation between PASI scores and lipid abnormalities supports the hypothesis that systemic inflammation exacerbates metabolic dysregulation [9]. Higher BMI and hypertension prevalence in psoriasis patients align with findings linking psoriasis to metabolic syndrome [10]. The observed trends in lipid parameters with increasing disease severity, particularly for TC, underscore the need for regular lipid monitoring, especially in severe cases.

Limitations include the moderate sample size, which may have reduced the statistical significance of some lipid parameter trends. Dietary habits and genetic factors, not assessed in this study, could also influence lipid profiles. Future research should explore these variables and include larger cohorts to validate findings.

Consistent with prior research, including studies by Akkara Veetil et al. (2012) and Gupta et al. (2016), this study found that psoriatic patients had higher BMI and dyslipidemia, particularly those with severe disease. Although only TC showed a statistically significant.

CONCLUSION

Psoriasis patients exhibit significant dyslipidemia, with elevated TG, TC, LDL-C, and VLDL, and reduced HDL-C, correlating with disease severity. These findings highlight the systemic nature of psoriasis and its association with cardiovascular risk factors. Routine lipid screening and early intervention are essential to mitigate long-term complications. A multidisciplinary approach, integrating dermatological, cardiological, and metabolic care, is recommended to optimise patient outcomes.

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