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Original Research

Assessment of plasma lipid profile in psoriasis patients

[1]Dr. Harish Sharma, [2]Dr. Aditi Sharma, [3]Dr. Apoorva Sharma

[1]Assistant Professor, Department of Skin, Government Medical College, Banswara, Rajasthan, India
[2]Third Year Resident, Department of Paediatric, Rama Medical College Kanpur, Uttar Pradesh, India
[3]First Year Resident, Department of Ophthalmology, Ananta Medical College Udaipur, India

Corresponding author
Dr. Apoorva Sharma
First Year Resident, Department of Ophthalmology, Ananta Medical College Udaipur, India

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ABSTRACT

Background: Psoriasis is a chronic dermatological illness that affects 2-3% of the population. The present study was conducted to assess plasma lipid profile in psoriasis patients.

Materials & Methods:56 psoriasis patients of both genderswere selected. Psoriasis patients were kept in group I and equal healthy subjects in group II. The blood samples were centrifuged at 3500 rpm for ten minutes. The separated plasma was employed for estimation of total cholesterol, triacylglycerols and HDL cholesterol.

Results: Out of 56 patients, 32 were males and 24 were females. In group Iand group II, mean total cholesterol (mg/dl) was 225.8 and 164.3, triacylglycerols (mg/dl) was 245.9 and 118.4, VLDLC (mg/dl) was 50.7 and 27.5, HDLC (mg/dl) was 45.9 and 57.1 and LDLC (mg/dl) was 124.8 and 105.2 respectively. The difference was significant (P< 0.05).in mild, moderate and severe form of psoriasis, mean total cholesterol (mg/dl)was154.3, 189.4 and 225.8, triacylglycerols (mg/dl) was 114.4, 164.4 and 245.9, VLDLC (mg/dl) was 42.1, 45.5 and 50.7, HDLC (mg/dl) was 53.1, 56.2 and 57.2, LDLC (mg/dl)was 112.2, 123.2 and 124.8 respectively. The difference was significant (P< 0.05).

Conclusion: Psoriasis patients are vulnerable group for the dyslipidemia induced cardiovascular complications.

Keywords: dyslipidemia, Psoriasis,lipid profile

Introduction

Psoriasis is a chronic dermatological illness that affects 2-3% of the population. Genetic, environmental, viral, immunological, biochemical, endocrinological, psychological, and alcohol and drug misuse are among the factors that influence its incidence.[1] It is a widespread illness that affects between 120 and 180 million people worldwide.[2] In recent times, it has been acknowledged that psoriasis is a systemic ailment linked to multiple organ abnormalities and consequences. Dyslipidemia is one of the main co-abnormalities observed in psoriasis patients.[3] In this condition, lipid metabolism and lipid turnover appear to be impacted by both underlying cardiovascular involvement and underlying psychological stress. Numerous researchers have noted that psoriasis patients have changed plasma lipid levels.[4]

Because psoriatic dyslipidemia is characterized by marked increases in both total cholesterol and triacylglycerol levels—two lipid parameters that are thought to play a role in cardiovascular complications—psoriasis patients are more susceptible to cardiovascular diseases as a result of this lipid dysregulation.[5] The relationship between plasma lipid parameters and the severity of the disease, as well as the internal reciprocals of these lipid parameters with the severity of the disease in clinically sub grouped psoriasis patients, are not as well documented as the abnormal plasma lipid levels in psoriasis patients.[6]The present study was conducted to assess plasma lipid profile in psoriasis patients.

Materials & Methods

The present study was conducted on 56 psoriasis patients of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Psoriasis patients were kept in group I and equal healthy subjects in group II. PASI score at the sites of affection i.e, head, upper limbs, trunk and lower limbs were scored. Morphologic scoring of psoriasis plaques was done by evaluation of parameters like erythema (E), induration (I) and desquamation (D).5mlblood sample was collected from all. The blood samples were centrifuged at 3500 rpm for ten minutes. The separated plasma was employed for estimation of total cholesterol, triacylglycerols and HDL cholesterol.

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Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table: I Distribution of patients

Total- 56		
Gender	**Male**	**Female**
Number	32	24

Table I shows that out of 56 patients, 32 were males and 24 were females.

Table: II Assessment of lipid profile

Lipid profile	Group I	Group II	P value
Total cholesterol (mg/dl)	225.8	164.3	0.01
Triacylglycerols (mg/dl)	245.9	118.4	0.01
VLDLC (mg/dl)	50.7	27.5	0.03
HDLC (mg/dl)	45.9	57.1	0.05
LDLC (mg/dl)	124.8	105.2	0.04

Table II shows that in group I and group II, mean total cholesterol (mg/dl) was 225.8 and 164.3, triacylglycerols (mg/dl) was 245.9 and 118.4, VLDLC (mg/dl) was 50.7 and 27.5, HDLC (mg/dl) was 45.9 and 57.1 and LDLC (mg/dl) was 124.8 and 105.2 respectively. The difference was significant (P< 0.05).

Graph: I Assessment of lipid profile

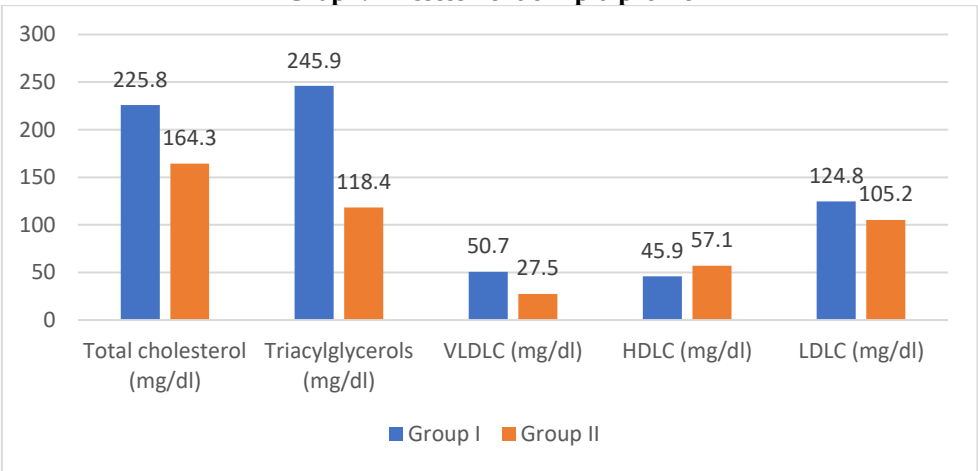

Table: III Lipid profile based no severity of psoriasis

Lipid profile	Mild	Moderate	Severe	P value
Total cholesterol (mg/dl)	154.3	189.4	225.8	0.03
Triacylglycerols (mg/dl)	114.4	164.4	245.9	0.04
VLDLC (mg/dl)	42.1	45.5	50.7	0.05
HDLC (mg/dl)	53.1	56.2	57.2	0.05
LDLC (mg/dl)	112.2	123.2	124.8	0.04

Table III shows that in mild, moderate and severe form of psoriasis, mean total cholesterol (mg/dl) was 154.3, 189.4 and 225.8, triacylglycerols (mg/dl) was 114.4, 164.4 and 245.9, VLDLC (mg/dl) was 42.1, 45.5 and 50.7, HDLC (mg/dl) was 53.1, 56.2 and 57.2, LDLC (mg/dl) was 112.2, 123.2 and 124.8respectively. The difference was significant (P< 0.05).

Discussion

Since psoriasis is primarily an inflammatory disease, inflammatory conditions typically cause the release of various cell signaling compounds, such as cytokines, interlukins, tissue necrotic factors, and others.[7] These compounds tend to enhance systemic lipid and cholesterol synthesis by stimulating SREBP target genes and by up-grading the HMG CoA reductase gene.[8,9] Lipid metabolism and lipid turnover appear to be affected in psoriasis. This results in an increase in the production of cholesterol and lipids in the body, which necessitates an inflammatory state to meet extra lipid requirements.[10]The present study was conducted to assess plasma lipid profile in psoriasis patients.

We found that out of 56 patients, 32 were males and 24 were females. Srinivas S et al[11]assessed the plasma lipid profile parameters and their internal ratios to assess their relationship to cardiovascular risk. A total

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number of 100 subjects including 50 normal control subjects and 50 psoriasis patients were studied. The psoriasis patients were clinically sub grouped into mild (Group-1), moderate (Group-2) and severe (Group-3). A fasting blood sample was collected from normal control subjects and psoriasis patients for the analysis of Total cholesterol, triacylglycerol and HDL cholesterol. The levels of VLDLC, LDLC and their internal ratios was calculated. Results showed that total cholesterol, triacylglycerols are elevated in psoriasis patients whereas HDLC level was decreased. The ratio Triacylglycerol/HDLC was significantly elevated in psoriasis patients as well as a proportionate elevation observed in severity-based psoriasis sub grouped patients

We found that in group Iand group II, mean total cholesterol (mg/dl) was 225.8 and 164.3, triacylglycerols (mg/dl) was 245.9 and 118.4, VLDLC (mg/dl) was 50.7 and 27.5, HDLC (mg/dl) was 45.9 and 57.1 and LDLC (mg/dl) was 124.8 and 105.2 respectively. Prerna[12]investigated the plasma lipid profile parameters and their internal ratios in psoriasis patients who have been clinically grouped.It is evident that TC/HDLC, TC/LDLC, TAG/HDLC, TAG/LDLC are significantly elevated in psoriasis patients as compared to normal control subjects whereas the ratios TC/TAG, TC/VLDLC, HDLC/LDLC, HDLC/VLDLC and LDLC/VLDLC are significantly lowered in psoriasis patients as compared to normal control subjects. The elevation in TAG/ HDLC is much significant (1.86 ± 0.28 in normal controls against 5.42 ± 0.78 in psoriasis patients) indicating the possibility that this ratio may be employed as a cardiovascular disease marker in Psoriasis. It is seen from the table that there is parallel rise in the ratios of TC/ HDLC, TAG/HDLC, TAG/LDLC with the severity of disease whereas a significant parallel decrease in the ratios of TC/TAG, TC/VLDLC, HDLC/LDLC, HDLC/VLDLC and LDLC/ VLDLC with the severity of disease. Further the rise in the ratio of TAG/HDLC is so profound with the severity of psoriasis disease that it is possible to use this ratio as a marker of psoriasis disease severity.

We found that in mild, moderate and severe form of psoriasis, mean total cholesterol (mg/dl)was 154.3, 189.4 and 225.8, triacylglycerols (mg/dl) was 114.4, 164.4 and 245.9, VLDLC (mg/dl) was 42.1, 45.5 and 50.7, HDLC (mg/dl) was 53.1, 56.2 and 57.2, LDLC (mg/dl)was 112.2, 123.2 and 124.8 respectively. Pranali P et al[13]measured the serum total cholesterol (TC), triglyceride (TG), high density lipoprotein (HDL) and low- density lipoprotein (LDL). 70 clinically diagnosed psoriatic patients and 70 healthy individuals were recruited as control. Out of total 70 psoriasis patients included in study, 24 were mild, 23 moderate and remaining 23 were severe psoriatic patients. Serum total cholesterol, triglyceride, low density lipoprotein was significantly increased in psoriasis patients as compared to control group. But serum High density lipoprotein was significantly decrease in Psoriasis patients compared with controls. The study found abnormal lipid profile which is risk factor for cardiovascular diseases (CVD) in psoriasis patients.

The shortcoming of the study is small sample size.

Conclusion

Authors found that psoriasis patients are vulnerable group for the dyslipidemia induced cardiovascular complications.

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