



"STUDY ON SERUM LIPID PROFILE IN PSORIATIC PATIENTS: A HOSPITAL BASED STUDY"

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ABSTRACT

Psoriasis is a lifelong chronic inflammatory skin disorder affecting upto 1-2% of the world's population.² Psoriasis is a common chronic recurrent inflammatory skin disorder characterized by hyperproliferation and reduced differentiation of keratinocytes. Our aim was to evaluate the serum total cholesterol, triglyceride, HDL-c, LDL-c and VLDL-c levels in patients with Psoriasis and compared the levels with those of healthy controls. We found significant differences for all examined biomarkers (TC, TG, LDL-c and VLDL-c) with the exception of HDL-c in psoriatic patients compared with controls.

KEYWORDS : Psoriasis and Serum lipid levels.

Introduction:

Abnormalities in lipid metabolism have been considered to play an important role in the pathogenesis of psoriasis and patients with psoriasis may have increased risk of arterial and venous occlusive diseases. Although changes in serum lipid composition in psoriatic patients have been suggested as being the cause of the increased risk of atherosclerosis in these patients, many of results remain controversial.¹

Psoriasis is a lifelong chronic inflammatory skin disorder affecting upto 1-2% of the world's population.² Psoriasis is a common chronic recurrent inflammatory skin disorder characterized by hyperproliferation and reduced differentiation of keratinocytes.³ The etiology is still unknown, while genetic, metabolic and immunological mechanism has been implicated. Psoriasis has been associated with an increased morbidity and mortality from high frequency of cardiovascular events. This seems to be related to the severity of psoriasis, considering that it occurs much more frequently in patients presenting with large areas of body affected with psoriatic lesions.⁴ Our aim was to evaluate the serum total cholesterol, triglyceride, HDL-c, LDL-c and VLDL-c levels in patients with Psoriasis and compared the levels with those of healthy controls.

Material and methods:

The present study was conducted in the Department of Biochemistry, Major S. D. Singh Medical College & Hospital Farrukhabad, U.P., India, during the period from January 2014 to September 2016. The study protocol was approved by the Ethics committee of Major S. D. Singh Medical College & Hospital Farrukhabad. The present study consists of total 70 subjects between the age group 18-60 years who are further subdivided into two groups;

- i. Group-A: Non-psoriatic healthy subjects (n= 35) as controls.
- ii. Group-B: Consists of psoriatic patients (n= 35) as cases.

Biochemical Analysis:

An overnight fasting blood sample were collected under all aseptic precautions 5 ml of blood was collected and was analysed by methods⁵ for following parameters:

1. Total Cholesterol (TC) by enzymatic end point CHOD-POD methods.
2. Triglyceride (TG) by enzymatic glycerol phosphate oxidase/ peroxidase methods.
3. HDL-Cholesterol by direct enzymatic end point method.
4. LDL-Cholesterol by Friedewald's formula.
5. VLDL-Cholesterol by Friedewald's equation.
 $LDL-c = Tc - HDL-c(TG/5)$

Statistical Analysis:

All values were expressed as mean±sd. We used student t-test to find the statistical significance. A P-value <0.05 was to be considered statistically significant.

Results and Discussion:

The present study was conducted on 35 patients with psoriasis and 35 healthy volunteers served as a control groups. Patients in the psoriasis group had a mean age of (46.6 ± 8.12 yrs) while Non-psoriatic healthy subjects had a mean age of (41.26±5.21 yrs) ranged from 18-60 Years. The mean BMI was 25.05±5.21 kg/m² in patient group and 22.0±5.26 kg/m² in control group. Table No-1 shows the values of lipid profile for the control and total psoriasis patient groups. Psoriasis is a chronic inflammatory skin disease characterized by an accelerated turnover of epidermal cells and an incomplete differentiation in epidermis with lesion. However, the exact etiology of Psoriasis is unknown. Also abnormalities in essential fatty acid metabolism, free radical generation, lipid peroxidation, and release of lymphokines have been proposed in Psoriasis.⁶

Table No-1: Shows the Comparison of serum lipid levels in between cases and controls:

Parameters	Controls (n=35) (mean±sd)	Cases (n=35) (mean±sd)	P- value
Age (yrs)	41.26±5.21	46.6 ± 8.12	0.001
BMI kg/m ²	22.0±5.26	25.05±5.21	0.001
Total Cholesterol(mg/ dl)	159±7.02	234±4.14	<0.0001
Triglycerides (mg/ dl)	101±2.32	120±5.03	<0.0001
LDL-c(mg/ dl)	103±4.02	145±2.32	<0.0001
HDL-c(mg/ dl)	45±4.02	48±1.03	NS
VLDL-c(mg/ dl)	18.02±5.31	24±2.73	<0.001

*Statistically Significant (P<0.05)

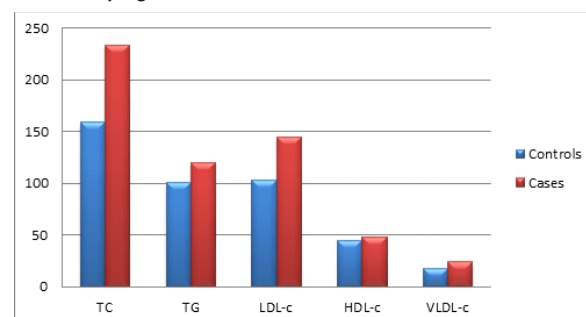


Fig: 1 Shows the Comparison of serum lipid levels in between cases and controls.

Patients with psoriasis could be considered as a group with an increased atherosclerotic risk because of increased oxidant stress, decreased antioxidant capacity and abnormalities in lipid profile and lipoprotein.⁶ It is controversial whether changes in lipid composition are primary events or secondary to psoriasis.⁷ Abnormalities of plasma lipids are likely to play an important role in the increased risk of atherosclerosis,⁸ as patients with psoriasis seem to have an increased morbidity and mortality from cardiovascular events.⁹ Our results showed that there was significant increased of TG level in psoriatic patients in comparison to controls. This is in agreement with the results obtained by Kural et al⁶, Akhyani et al¹¹, Tekin et al¹ and Vahlquist et al¹⁰ as they all found significant increase in plasma level of triglycerid in psoriatic patients in comparison to controls and correlated positively with psoriasis severity.

But these findings are in disagreement with the results obtained by Fortinskaia et al¹² who found that triglyceride (TG) is low in psoriatic patients than controls. Also, The present study showed that highly significant increased level of Cholesterol in psoriatic patients in comparison to controls. These findings are concised with the results obtained by Hashemi et al¹³, Kural et al⁶, Akhyani et al¹¹, Tekin et al⁹ and Pietrzak et al¹⁴ as they all found significant increased level of cholesterol in psoriatic patients in comparison to controls and correlated positively with psoriasis severity, as excessive loss of cholesterol with scaling during active disease may increase significantly the need for its synthesis. But these findings were in disagreement with the results obtained by Brener et al¹⁵ who found that psoriatic patients have low serum cholesterol level as extensive scaling lead to marked loss of cholesterol through the skin and if these was prolonged, it could finally be reflected in the serum cholesterol. Also our results were in disagreement with the results obtained by Sekin et al¹⁶ and Seishima et al¹⁷ as they all found that cholesterol is normal among psoriatic patients. Our results showed that Low density lipoprotein (LDL) in the psoriatic patients was significantly higher than the control groups. These findings were in agreement with the results obtained by Kural et al⁶, Akhyani et al¹¹, and Tekin et al⁹ as they all found that LDL of the psoriatic patients was significantly higher than the control groups especially with extensive and severe skin involvement.

But these findings are in disagreement with the results obtained by Utas et al¹⁸, Cohen et al¹⁹ and Farshchian²⁰, as they all found that LDL is normal in psoriatic patients, but the correlation between duration of the disease and LDL were significant apart from the race and Imamura et al²¹ who found a significant low levels of LDL in psoriatic patients and explained this as there was a reciprocal correlation between cell differentiation and LDL receptor expression. This lead to increased LDL receptor expression in psoriatic keratinocytes and increased catabolism of LDL in psoriatic patients. Our study showed that, High density lipoprotein (HDL) level didn't show significant difference between the patients and controls.

Conclusion:

These findings suggest that the lipid levels were increased with the progression of disease. This rise in lipid levels and decreased High density lipoprotein fraction is an alarming sign that psoriasis is progressing towards Cardiovascular risk. We found significant differences for all examined biomarkers (TC, TG, LDL-c and VLDL-c) with the exception of HDL-c in psoriatic patients compared with controls.

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