

## STUDY OF LIPID PROFILE IN PSORIASIS PATIENTS

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### ABSTRACT

*Psoriasis is a skin disease with the population prevalence. Its prevalence in the population is affected by genetic, environmental, viral, infectious, immunological, biochemical endocrinological and psychological factors as well as alcohol and drug abuse. In the recent years, psoriasis has been recognised as a systematic disease associated with numerous multiorgan abnormality and complications. With growing awareness of psoriasis and its impact on life span especially in India, special attention is being paid to early detection, management and treatment of Psoriasis.*

*The aim of this study was to measure 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. The results were compared between psoriasis patients and healthy controls by using 'Z' test. Serum total cholesterol, triglyceride, low density lipoprotein were significantly increased in psoriasis patients as compared to control group. But serum High density lipoprotein were 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.*

**Keywords:** Cholesterol, Triglyceride, High density lipoprotein, Low density lipoprotein, Psoriasis.

### INTRODUCTION

Psoriasis affecting upto 1-2% of the world's population<sup>(1)</sup>. It is a chronic inflammatory disorder clinically characterized by erythematous, sharply demarcated papules and rounded plaques, covered by silvery micaceous scales. The skin lesions of psoriasis are variably pruritic. The most common areas of involvement are the elbows, knees, gluteal cleft and the scalp. <sup>(2)</sup>Psoriasis is characterized by defects in the normal cycle of epidermal development that lead to the epidermal hyperproliferation, altered maturation of skin cell, vascular changes and inflammation. Earlier data has suggested that abnormal lipid profile Psoriasis has been associated with an may be the reason for the increased risk of cardiovascular diseases in these patients<sup>(3-4)</sup>.

Moreover, determinants of lipids profile, such as high concentration of total cholesterol, triglyceride, low density lipoprotein and low concentration of High

density lipoprotein are associated with increased risk of vascular damage<sup>(5-6)</sup>. The present study undertaken to determine the lipid profile status and its impact on psoriasis patients

### MATERIALS AND METHODS

Present study was conducted in the Department of Biochemistry Government Medical College, Miraj and P.V.P Government Hospital Sangli during January 2008 to June 2010. All participants completed a medical history form and provided informed consent. 70 psoriatic patients in the age group of 30-60 years were studied for estimation of serum Total Cholesterol, Triglycerides, High density lipoprotein, Low density lipoprotein. And also these biochemical parameter were determined in 70 control groups in the same age.

The patients having classical symptoms of psoriasis like thick red patches of skin or plaques, dry silvery scales of skin and dermatologists decision were included

in our study<sup>(17,18,19)</sup>. The patients with psoriasis also subjected to normal renal and liver function tests patients kept for fasting at least 14 hours prior to sample collection.

Those patients who were positive for HBsAg and HIV and hemolytic sera samples were excluded from the study and those with the family history of hypertension, hyperlipidemia, diabetes mellitus were excluded from study. Also hemolysed sera samples were not taken. The institutional Ethical committee at the Government medical college and P.V.P Government Hospital, Sangli, Maharashtra, India approved the study and informed consent was obtained from each participant in the study.

Blood sample were collected by venepuncture with all aseptic precautions. Blood sample were collected in plane bulbs and were allowed to clot. After two hours the serum was separated by centrifuging at 2500 r.p.m. for 5 mm at room temperature. The sera with no sign of hemolysis used for

the measured of the total cholesterol, triglyceride, high density lipoprotein and low density lipoprotein as index of lipid profile.

Serum total cholesterol concentration was measured by wybenga and pileggis end point method<sup>(7)</sup> Estimation of Triglycerides carried out by Bucolo G; Esder T.W. end point GPO-PAP method<sup>(8)</sup>. And serum High density lipoprotein was estimated by wybenga and pileggis end point method<sup>(7)</sup>. Numerical variables were reported in terms of mean and standard deviation. Statistical analysis of results were done by normal distribution 'Z' test. In this analysis, variables showing P. value= 0.001 was considered to be statistically significant.

## RESULT

Our finding suggests that levels of serum total cholesterol, Triglyceride, High density lipoprotein, Low density lipoprotein altered in psoriasis patients than in age-matched control subjects.

**Table No: 1**

Sr. No.	Parameters	Conteol group	mild	Moderate	Severe	P-value.
1	N	70	24	23	23	
2	Total Cholesterol	200.8±37	222.4±48	233.9±58	289± 29	0.03
3	Triglyceride	145.3± 89	174.5± 81.2	189.1±96.9	265.7±114.3	0.16
4	High density lipoprotein	50.7 ±4.6	44.9 ±8.1	40.9 ±7.4	35.2 ±3.6	0.09
5	Low density lipoprotein	127.7 ±31.6	141.4 ± 36.4	146.7 ±51.2	188.2 ± 22.3	0.07

**Table No. 2**

Sr. No.	Parameter	Control group	Psoriasis group	P- value
1	N	70	70	
2	Total cholesterol	200.8± 37	228.8 ± 50.9	0.001
3	Triglyceride	145.3 ± 89	183.0 ± 87.5	0.001
4	High density lipoprotein	50.7± 46	40.33 ± 6.36	
5	Low density lipoprotein	127.7 ± 31.6	145.4 ± 39.7	0.003

Importance of these parameter has been determined by estimating cardiovascular disease risk. In our study levels of total cholesterol levels were significantly increased in mild (p = 0.03), moderate (p=0.03) and severe (p=0.03) Psoriasis patient as compared with healthy controls (table No. 1). further more the

serum total cholesterol levels in moderate psoriatic patients were significantly higher (p=0.03) than the patients with mild psoriasis. Whereas, severe psoriatic patients exhibited significant rise in serum total cholesterol levels (p=0.03) as compared with moderate psoriatic.

## DISCUSSION

In our study table no.2 shows that the range of serum cholesterol levels was  $228.8 \pm 50.9$ . In case and  $200.8 \pm 37$  in control group which was statistically significant ( $p= 0.001$ ). The degree of elevation of serum total cholesterol is associated with the progression of psoriasis. Several studies have demonstrated that serum total cholesterol levels are higher in psoriasis. (9-10) these findings supports our results.

The present study indicated that the serum triglyceride were significantly increased in mild ( $p=0.16$ ), moderate ( $p=0.16$ ) and severe ( $p=0.16$ ) psoriasis patients as compared with healthy controls. Further more , the serum triglycerides levels in moderate psoriasis patients were significantly higher ( $p=0.16$ ) than the patients with mild psoriasis, where as, severe psoriasis patients exhibited significant rise in serum triglyceride levels ( $p=0.16$ ) than the patients with mild psoriasis. Whereas, Severe psoriasis patients exhibited significant rise in serum triglyceride levels ( $p=0.16$ ) as compared with moderate psoriasis.

Table no. 2 show that the serum triglycerides significantly rised ( $p=0.001$ ) in psoriasis patients ( $183.0 \pm 87.5$ ) than in

control group ( $145.3 \pm 89$ ) . Similar observations were reported by pietrzak et al (11) and Mustafa calapogly et al (12). High density lipoprotein levels were significantly decreased in mild ( $p= 0.09$ ), moderate ( $p=0.09$ ) and severe ( $p=0.09$ ) psoriasis patients as compared with healthy control. The serum high density lipoprotein levels are progressively decrease was seen as the disease. (14)In present study We observed significant high value of low density lipoprotein in psoriasis patients  $145.4 \pm 39.7$  as compared to healthy controls  $127.7 \pm 31.6$  which was statistically significant ( $p=0.003$ ). The serum low density lipoprotein levels were significantly increased in mild ( $p=0.07$ ), moderate ( $p=0.07$ ) and severe ( $p=0.07$ ) psoriasis patients as compared with healthy controls. Similar result were shown by Lea KIATr, Cornish et.al (14), Lyer D, Woods P. (15), m akhyani. AH Ehsanietal (16).

## CONCLUSION

Our study shows that 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. Therefore, controlling the lipid fractions and early mangement can save psoriasis patients from cardiovascular risk

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