ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

Original Research Article

To compare the serum total cholesterol, triglycerides, HDL-C, LDL-C, lipoprotein (a) and uric acid levels in patients of psoriasis with age and gender matched healthy controls.

Dr. Ramesh Chandra Thanna[1] (Assistant Professor), Ms. Zainab Khan[2] (Assistant Professor) & Dr. Amita Mehta[3] (Assistant Professor)

Department of Biochemistry, Government Medical College, Ratlam, M.P.[1]
Department of Biochemistry, Amaltas Institute of Medical Sciences, Dewas M.P.[2&3]
Corresponding Author: Dr. Amita Mehta

Abstract:
Background & Method: The aim of present study is to compare the serum total cholesterol, triglycerides, HDL-C, LDL-C, lipoprotein (a) and uric acid levels in patients of psoriasis with age and gender matched healthy controls.
Psoriasis Area and Severity Index (PASI) is the most widely used tool for the measurement of severity of psoriasis. PASI combines the assessment of the severity of lesions and the area affected into a single score in the range 0 (no disease) to 72 (maximal disease). PASI less than 10 considered as mild Psoriasis and PASI greater than 10 considered as moderate to severe Psoriasis.
Result: Comparison of Lp(a) in multiple groups, Mean Lp(a) level of group B was higher than group A but it is not statistically significant. Difference in group A and group D were highly significant statistically. Difference between group C and group D were statistically significant. Mean levels of triglycerides were higher in patients with moderate/severe psoriasis, cases of psoriasis has raised mean levels of TG but the difference is not significant when compared to control. Difference between group A and group D and between group C and D were significant statistically.
Conclusion: Mean level of Lp(a) was higher in cases as compared to control but the difference was not significant statistically. Difference between control and moderate/severe psoriasis were highly significant statistically. Differences between mild and moderate/severe psoriasis patients were significant. Mean level of Lp(a) was higher in cases as compared to control but the difference was not significant statistically. Difference between control and moderate/severe psoriasis were highly significant statistically. Differences between mild and moderate/severe psoriasis patients were significant.

Keywords: serum, cholesterol, triglycerides, HDL-C, LDL-C, lipoprotein (a), uric & psoriasis.

Study Designed: Observational Study.

ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

1. INTRODUCTION

The primary immune defect appears to be an increase in cell signaling via chemokines and cytokines that act up- regulating gene expression, causing keratinocyte hyper proliferation[1]. T lymphocytes and their cytokines and chemokines appear to be the driver of lesion development and persistence, although other cells, such as endothelial cells, dendritic cells, neutrophils and keratinocytes play also an important role, along with other cytokines and growth factors[2].

Patients with psoriasis require an individual management and long-term planning of therapeutic strategies. The ratio risk versus benefit and the cost-effectiveness of the different treatments should be carefully evaluated[3]. The therapy is chosen in accordance with skin type, clinical history, patient's age, severity of psoriasis and the response to previous treatments.

Patients with psoriasis require an individual management and long-term planning of therapeutic strategies. The ratio risk versus benefit and the cost-effectiveness of the different treatments should be carefully evaluated[4]. The therapy is chosen in accordance with skin type, clinical history, patient's age, severity of psoriasis and the response to previous treatments[5]. Prevalence of psoriasis varies in India from 0.44 to 2.8%, it is twice more common in males compared to females, and most of the patients are in their third or fourth decade at the time of presentation.

2. MATERIAL & METHOD

The present study included 40 cases of psoriasis aged between 18 to 50 years attending dermatology clinics of Amaltas Institute of Medical Sciences, Dewas M.P. from Jan 2021 to Dec 2021 and 40 apparently healthy controls matched for age and sex. Informed written consent was taken from all the subjects.

Total 80 study subjects were divided into two groups, group A comprising 40 apparently healthy controls and group B comprising 40 patients of psoriasis, which is again divided into subgroups on the basis of severity of the disease, group C included mild cases of psoriasis and group D of moderate/ severe cases of psoriasis.

Psoriasis Area and Severity Index (PASI) is the most widely used tool for the measurement of severity of psoriasis. PASI combines the assessment of the severity of lesions and the area affected into a single score in the range 0 (no disease) to 72 (maximal disease). PASI less than 10 considered as mild Psoriasis and PASI greater than 10 considered as moderate to severe Psoriasis.

Excluded Criteria:

Diabetes mellitus
On medications like
Anti hypertensive
Corticosteroids
Lipid lowering agents
Patient of psoriasis on treatment for more than 1 month

ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

3. RESULTS

Table 1: Basic Characteristics of Study Population

Characteristics	**Cases (N=40) (Mean±SD)**	**Controls (N=40) (Mean±SD)**
Age (yrs)	33.55±9.075	32.05±7.81
Height (cm)	155.27±4.16	155.82±3.83
Weight (kg)	59.12±7.33	57.82±5.91
BMI (kg/m sq.)	26.43±3.53	23.51±2.07

This table shows basic characteristics of study subjects, mean age of the cases were 37.55±9.075 and that of controls were 33.05±7.81. Mean BMI of cases were 26.43±3.53 and of control were 23.51±2.07.

Table 2: Basic Characteristics of Study Population

Characteristics	**Cases (N=40) (Mean±SD)**	**Controls (N=40) (Mean±SD)**
Age (yrs)	37.55±9.075	35.05±7.81
Height (cm)	153.27±4.16	153.82±3.83
Weight (kg)	61.12±7.33	59.82±5.91
BMI (kg/m sq.)	24.43±3.53	23.51±2.07

This table shows basic characteristics of study subjects, mean age of the cases were 37.55±9.075 and that of controls were 35.05±7.81. Mean BMI of cases were 24.43±3.53 and of control were 23.51±2.07.

Table 3: Comparison of Lipoprotein (A) in Multiple Groups

S. No.	**Group**	**Lipoprotein (A)**	**P value**
1	Control (Group A) (N=40)	22.33±17.09	>0.05

ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

	Psoriasis Case (Group B) (N=40)	33.01±25.45	
2	Control (N=40)	24.33±17.09	>0.05
	Mild Psoriasis (Group C) (N=25)	27.16±24.65	
3	Control (N=40)	24.33±17.09	< ***0.001***
	Moderate/Severe Psoriasis (N=15) (group D)	44.43±23.22	
4	Mild Psoriasis (N=25)	26.16±24.65	< ***0.05***
	Moderate/Severe Psoriasis (N=15)	42.43±23.22	

ANOVA and then POST HOC tests for multiple comparisons were applied, p-value< 0.05 was taken as statistically significant. P value <0.001 was taken as statistically highly significant.

Above table shows comparison of Lp(a) in multiple groups, Mean Lp(a) level of group B was higher than group A but it is not statistically significant. Difference in group A and group D were highly significant statistically. Difference between group C and group D were statistically significant.

Table 4: Comparison of triglycerides in Multiple Groups

S. No.	Group	Triglycerides	P value
1	Control (group A) (N=40)	146.85±51.90	>0.05
	Psoriasis Cases(group B) (N=40)	169.79±72.26	

ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

2	Controls (N=40)	143.85±51.90	>0.05
	Mild Psoriasis (group C) (N=25)	148.76±57.51	
3	Controls (N=40)	146.85±51.90	< 0.05
	Moderate/Severe Psoriasis (group D) (N=15)	202.00±84.36	
4	Mild Psoriasis (N=25)	148.61±57.51	< 0.05
	Moderate/Severe Psoriasis (N=15)	202.00±84.36	

ANOVA and then POST HOC tests for multiple comparisons were applied, p-value< 0.05 was taken as statistically significant.

Above table shows that mean levels of triglycerides were higher in patients with moderate/severe psoriasis, cases of psoriasis has raised mean levels of TG but the difference is not significant when compared to control. Difference between group A and group D and between group C and D were significant statistically.

4. DISCUSSION

Mechanism of pathogenicity of Lp(a) include destabilization of plaque, increased smooth muscle cell proliferation and migration, inhibition of transforming growth factor β, formation of occlusive thrombus, impaired formation of collateral vessels, enhanced oxidation uptake and retention of LDL-C and up regulation of expression of the plasminogen activator inhibitor [Rajasekhar D et al., 2004][6], It is reported that macrophages activated by engulfing low density lipoprotein (LDL) immune complexes release large quantities of tumor necrosis factor (TNF) -alpha and IL-1β. Cytokine driven inflammation and tissue destruction is a common theme of chronic inflammatory diseases such as psoriasis and atherosclerosis. The striking homology of apo(a) with plasminogen causes impaired fibrinolysis by competing with plasminogen and enhances thrombogenesis. So Lp(a) modulates thrombosis and fibrinolysis. In the present study there was elevated levels of Lp(a) in Psoriatic patients as

ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

compared to controls but difference between the multiple groups varies ;difference between the control and severe cases of psoriasis were highly significant(p value<0.001) and
In our study, the mean value of serum triglyceride in Group A and Group B were 145.85 ± 51.90 mg/dl and 168.97 ± 72.26 mg/dl respectively; the difference being statistically non significant (p value >0.05) but difference between group A and C and between C and D were significant, this shows that derangement in triglycerides levels increases with severity of the disease (table 10).
The finding of our study are in disagreement with the recent study from Pakistan conducted on 50 psoriatic patients demonstrating significantly raised serum triglycerides levels as compared to control (p<0.01).[7]
Our results showed that there was significant increased of TG level in psoriatic patients with severe disease in comparison to controls. This is in agreement with the results obtained by Vahliquist et al [8] as they all found significant increase in plasma level of triglyceride 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 al[9] who found that triglyceride (TG) is low in psoriatic patients than controls.

5. CONCLUSION

Mean level of Lp(a) was higher in cases as compared to control but the difference was not significant statistically. Difference between control and moderate/severe psoriasis were highly significant statistically. Differences between mild and moderate/severe psoriasis patients were significant. Mean level of Lp(a) was higher in cases as compared to control but the difference was not significant statistically. Difference between control and moderate/severe psoriasis were highly significant statistically. Differences between mild and moderate/severe psoriasis patients were significant.

6. REFERENCES

1. Naldi L. Epidemiology of psoriasis. Curr Drug Targets Inflamm Allergy. 2004; 3:121–128.
2. Griffiths CE, Barker JN. Pathogenesis and clinical features of psoriasis. Lancet. 2007;370 (9583): 263-71.
3. Telfer NR, Chalmers RJ, Whale K, Colman G. The role of streptococcal infection in the initiation of guttate psoriasis. Arch Dermatol. 1992; 128: 39-42.
4. Naldi L, Peli L, Parazzini F, Carrel CF. Family history of psoriasis, stressful life events, and recent infectious disease are risk factors for a first episode of acute guttate psoriasis: results of a case- control study. J Am Acad Dermatol. 2001; 44: 433–438.
5. Kahl C, Hansen B, Reich K. Nail psoriasis--an ignored disorder. Pathogenesis, diagnosis and therapy. Hautarzt. 2012; 63: 184-91.
6. D. Rajasekhar, K. S. S. Saibaba, P. V. L. N. Srinivasa Rao, S.A.A. Lateef, and G. Subramanyam Lipoprotein (A): Better assessor of coronary heart disease risk in south Indian population Indian J Clin Biochem. 2004 Jul; 19(2): 53–59.
7. Doulat Raj Bajaj, Mahesar SM, Devrajani BR,Iqbal MP. Lipid profile in patients with psoriasis presenting at Liaquat University Hospital Hyderabad. J Pak Assoc Dermatol. 2009;59:512-5.
8. Vahliquist C , Michaelsson G, and Vessby BSerum lipoproteins in Middle Aged Men with psoriasis .Acta Dermatology Venereology; 1987:67:12-15.

ISSN: 0975-3583,0976-2833 VOL13, ISSUE4, 2022

9. 9. Fortinskaia ES,Torkhovskaia TI, , Ivanova LI, Nikitina NA, Zakharova TS, Kochetova MM, Kliuchnikova ZhI, Sharapova GIa, Khalilov EM..Characteristics of the lipid transport system in psoriasis Vopr med khim.2002 May-Jun;48(3):297-303.