ISSN: 0975-3583, 0976-2833 VOL14, ISSUE11, 2023

Original Research Article

TO DETERMINE & COMPARE LIPID & URIC ACID LEVELS ABNORMALITIES IN THE PATIENTS OF PSORIASIS, AND ITS RELATIONSHIP WITH THE SEVERITY OF PSORIASIS

Dr. Amrita Vamne[1] (Assistant Professor), Ms Zainab Khan[2] (Assistant Professor) & Dr. Prachi Kori[3] (Senior Resident)

Department of Biochemistry, Dr. LN Pandey Government Medical College, Ratlam (MP)[1]
Department of Biochemistry, Index Medical College Hospital and Research Centre, lndore (M.P.)[2]
Department of Community Medicine, Index Medical College Hospital and Research Centre, Indore (MP)[3]

Corresponding Author: Dr. Prachi Kori

Abstract

Background & Methods: The aim of the study is to determine & compare lipid & uric acid levels abnormalities in the patients of psoriasis, and its relationship with the severity of psoriasis. Total 160 study subjects were divided into two groups, group A comprising 80 apparently healthy controls and group B comprising 80 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.

Results: 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.

Conclusion: We suggest early screening with serum lipid profile and uric acid levels in all psoriatic patients at the time of diagnosis and follow-up for evaluating risk of cardiovascular disease and treatment of hyperlipidemia and hyperuricemia to modify and prevent the risk of cardiovascular disease.

Keywords: lipid, uric, psoriasis & severity.
Study Design: Observational Study.

1. Introduction

Psoriasis affects about 125 million of people worldwide (National Psoriasis Foundation), is common in Caucasians and affects equally men and women[1]. The onset of psoriasis can be at any time of life and, afterwards, it usually persists for life. The mean age of onset of

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE11, 2023

psoriasis vulgaris is at 33 years, and 75% of the patients develop psoriasis before 46 years of age.

Psoriasis affects approximately 2% of the world population, and of these cases, 2% manifest as guttate psoriasis. Guttate means "drop" in Latin; aka Teardrop Psoriasis, Raindrop Psoriasis or Psoriasis Exanthematic) is the second most common type of psoriasis. Guttate psoriasis (GP), an important clinical variant, most frequently occurs in adolescents and young adults. It is characterized by the sudden onset of widely dispersed small red scaly plaques mainly over the trunk and proximal limbs[2]. The symptoms of GP are numerous small, red, drop-like spots which cover a large portion of the skin. Spots have an abundant scaling. Lesions are usually located on the trunk, arms, legs and scalp[3]. GP can clear up without treatment or disappear and resurface in the form of plaque psoriasis. GP is especially common in children or young adults with a family history of psoriasis and follows streptococcal infection and/or acute stressful life events[4].

The commonest type of psoriasis, accounting for 90% of all cases, in which papulosquamous plaques are well-delineated from surrounding normal skin. The plaques are red or salmon pink in color, covered by white or silvery scales and may be thick, thin, large or small[5]. They are most active at the edge: rapidly progressing lesions may be annular, with normal skin in the centre. Plaques are usually distributed symmetrically, and occur most commonly on the extensor aspects of elbows and knees scalp.

2. Material and Methods

The present study was conducted at …… included 80 cases of psoriasis aged between 18 to 50 years and 80 apparently healthy controls matched for age and sex. Informed written consent was taken from all the subjects.

Total 160 study subjects were divided into two groups, group A comprising 80 apparently healthy controls and group B comprising 80 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. Cholesterol esters are enzymatically hydrolyzed by cholesterol esterase (CHE) to cholesterol and free fatty acids. Free cholesterol, including that originally present, is then oxidized by cholesterol oxidase (CHO) to cholest-4-en-3-one and hydrogen peroxide.

Exclusion Criteria:

1. Diabetes mellitus
2. Anti-hypertensive
3. Corticosteroids
4. Lipid lowering agents
5. Patient of psoriasis on treatment for more than 1 month
6. Smokers and alcoholics
7. Pregnant females
8. Obstructive liver diseases
9. Patients of gout

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE11, 2023

3. Result

Table 1: Basic Characteristics of Study Population

Characteristics	(Mean±S.D) Cases (N=80)	(Mean±S.D) Controls (N=80)
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.)	26.43±3.53	25.51±2.07

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 26.43±3.53 and of control were 25.51±2.07.

Table 2: Comparison of Lipoprotein (A) in Multiple Groups

S. No.	Group	Lipoprotein (A)	P value
1	Control (Group A)	24.33±17.09	>0.05
	Psoriasis Case (Group B)	33.01±25.45	
2	Control	24.33±17.09	>0.05
	Mild Psoriasis (Group C)	26.16±24.65	
3	Control	24.33±17.09	< 0.001
	Moderate/Severe Psoriasis (group D)	44.43±23.22	
4	Mild Psoriasis	26.16±24.65	< 0.05
	Moderate/Severe Psoriasis	44.43±23.22	

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.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE11, 2023

Table 3: Comparison of total cholesterol in Multiple Groups

S. No.	Group	Lipoprotein (A)	P value
1	Control (Group A)	168.8±31.89	>0.05
	Psoriasis Case (Group B)	193.1±42.67	
2	Control	168.8±31.89	>0.05
	Mild Psoriasis (Group C)	179.44±30.59	
3	Control	168.8±31.89	< 0.05
	Moderate/Severe Psoriasis (group D)	215.86±50.78	
4	Mild Psoriasis	179.44±30.59	< 0.05
	Moderate/Severe Psoriasis	215.86±50.78	

Total cholesterol between group A and B and between group C and D were significant. Difference in total cholesterol between group A and group D were highly significant.

4. Discussion

Psoriasis has been traditionally viewed as an inflammatory skin disorder of unknown aetiology. Recent advances in our understanding of the immunopathogenesis and genetics of the disease have shifted the focus from a single organ disease confined to dermal structures to a systemic inflammatory condition. Patients with psoriasis are prone to cardiovascular disease[6]. The biologic mechanisms that putatively contribute to accelerated atherosclerosis and increased risk of cardiovascular events in psoriasis are largely unknown but are likely to be multifactorial. Dyslipidemia is one of the important risk factors for cardiovascular disease. In the present study we evaluated lipid profile in patients of psoriasis[7-9].

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] [10], 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[11].

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE11, 2023

5. Conclusion

We suggest early screening with serum lipid profile and uric acid levels in all psoriatic patients at the time of diagnosis and follow-up for evaluating risk of cardiovascular disease and treatment of hyperlipidemia and hyperuricemia to modify and prevent the risk of cardiovascular disease.

6. References

1. Zheng Y, Danilenko DM, Valdez P, Kasman I, Eastham-Anderson J, Wu J, Ouyang W Interleukin-22, a T(H)17 cytokine, mediates IL-23-induced dermal inflammation and acanthosis, Nature. 2007 Feb 8;445(7128):648- 51. Epub 2006 Dec 24.
2. Di Cesare A, Di Meglio P, Nestle FO, The IL-23/Th17 axis in the immunopathogenesis of psoriasis. J Invest Dermatol. 2009 Jun; 129(6):1339-50. doi: 10.1038/jid.2009.59. Epub 2009 Mar 26.
3. Theoharides, Zhang ,Megdalini vasiadi,Pio conti, Kempuraj,IL-33 augments substance P–induced VEGF secretion from human mast cells and is increased in psoriatic skin 2010; vol. 107 no. 9, 4448– 4453.
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. Salomon J, Szepietowski JC, Proniewicz A. Psoriatic nails: a prospective clinical study. J Cutan Med Surg. 2003; 7: 317–321.
7. Gelfand JM, Gladman DD, Mease PJ, Smith N, Margolis DJ, Nijsten T, Stern RS, Feldman SR, Rolstad T. Epidemiology of psoriatic arthritis in the population of the United States. J Am Acad Dermatol. 2005; 53: 573.
8. Cohen AD et al. Psoriasis and metabolic syndrome. Acta Derm Venereol. 2007;87(6):506-9.
9. Liew SC, Das-Gupta E, Chakravarthi S, Wong SF, Lee N, Safdar N, Jamil A.Differential expression of the angiogenesis growth factors in psoriasis vulgaris. BMC Res Notes. 2012 Jul 3;5:201.
10. 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.
11. Naldi, L., L. Chatenoud, et al. "Cigarette smoking, body mass index, and stressful life events as risk factors for psoriasis: results from an Italian case-control study." J Invest Dermatol;2005:125(1): 61-7.