

The Association between Dyslipidemia and Psoriasis in Bangladeshi People: A Cross-Sectional Study

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ABSTRACT

Background: Psoriasis-related inflammation is linked to dyslipidemia, a significant risk factor for cardiovascular disease. Recognizing the link between psoriasis and dyslipidemia may significantly impact the treatment. This research is to find the association between psoriasis and dyslipidemia among Bangladeshi people.

Materials and methods: A cross-sectional study was conducted in Delta Medical College and Hospital during the period of June 2021 and May 2022. 170 patients with psoriasis were selected aged between 30-50 years of both sexes. Lipid profile test was done for the study populations. After overnight fast, the patients were asked to return early morning and 3 cc of blood of them send to laboratories. Data were processed and analyzed with the help of the Microsoft Office Excel Software.

Results : Among 170 psoriasis patients, 52.94% were from the capital city Dhaka, and about 47% were from the rest of the country. From the Lipid Profile Test (Serum) test, 37% of individuals with psoriasis had dyslipidemia.

Conclusion : This research found that psoriasis patients were at increased risk for dyslipidemia. For this reason, it is crucial to regularly check blood lipid levels in all psoriatic patients to detect dyslipidemia and its potential consequences at an early stage.

Key words: Cholesterol; Dyslipidemia; LDL; Psoriasis; Triglycerides.

Introduction

Psoriasis is a prevalent chronic skin condition that may flare up at any time. The illness's root cause is still a mystery. Psoriasis is caused by a complex interaction of genetics, metabolism, and immunology, and each of these elements plays a significant part in the disease development. Psoriasis is often linked to comorbidities, such as metabolic syndrome, which affect organ systems other than the skin. One of the most significant comorbidities is obesity, a metabolic syndrome component. The relationship between psoriasis and abnormal metabolism of fats, often known as dyslipidemia, has been explored in a variety of research that was carried out on various populations¹. A significant link between the two conditions was found in a study examining the association between psoriasis and dyslipidemia.² Psoriasis is a skin condition that may lead to dyslipidemia. Psoriasis is linked to various conditions, including inflammatory bowel disease, metabolic syndrome, dyslipidemia, and cardiovascular disorders, as shown by an increasing body of research.

On the other hand, a few studies found no significant relationships between psoriasis and dyslipidemia.^{3,4} The protein component of lipoproteins is known as apolipoproteins, and they play an essential role in the transport and metabolism of lipids such as cholesterol (CHO), triglycerides (TG), and other lipids.⁵ Various findings relating to apolipoproteins (apoA1, apoB, and apoE) have been discovered in individuals with psoriatic disease.^{6,7} In addition, during the last several years, there has been a rising recognition that psoriasis and obesity are both chronic inflammatory processes. This knowledge has corresponded with the emergence of a definite relationship between the two conditions. Alterations in the makeup of lipids were a topic of attention, which was a matter of interest next to the prevalence of the condition known as dyslipidemia. In the majority of studies, statistically speaking, the total quantity of cholesterol has risen, as has the amount of LDL cholesterol and triglycerides in people with psoriasis compared to the control groups.⁸

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Date of Submission : 20th October 2022
Date of Acceptance : 15th November 2022



Figure 1 Clinical investigation of psoriasis. Psoriasis affects on hands and legs

In contrast, HDL cholesterol has decreased.⁹ Those who have psoriasis have an increase in their levels of proinflammatory cytokines, such as TNF, IL-1, or IL-6; these cytokines can, in addition to other things, affect the metabolism of lipids.¹⁰ However, the exact nature of the relationship between psoriasis and dyslipidemia has never been determined. The manifestation of dyslipidemia may also be attributable to the subject's lifestyle factors, such as inactivity, insufficient diet, and stress.¹¹ When treating psoriasis with cyclosporine and acitretin, dyslipidemia as a comorbidity may manifest as an additional side effect.² The presence of dyslipidemia in people with psoriasis is significant when one considers that dyslipidemia may be a risk factor for a variety of other diseases, particularly cardiovascular conditions. The aim of this research is to find out the association between psoriasis and dyslipidemia among the Bangladeshi people.

Materials and methods

A cross-sectional study was conducted in Delta Medical College and Hospital during the period from June, 2021 to May, 2022. 170 patients with psoriasis are selected from all around country. Patients included were patients with psoriasis with age ranged between 30-50 years of both sexes who had psoriasis of at least 11 months duration.

Lipid Profile Test was done in Delta Medical College and Hospital. After an overnight fast (12-14 hours) the patients were asked to return early in the morning and their intravenous blood sample about 3cc was sent to Pathology Laboratory, Delta Medical College and Hospital.

The Microsoft Office Excel 2010 software was used to analyze the data about age, sex, lipid features as total cholesterol, LDL, Triglycerides that associated with psoriasis.

Results

A total of 170 participants who met the study's inclusion criteria were enrolled from the study's outpatient settings. 104 (61.18%) male and 66 (38.82%) female. The age section is divided into two groups (A & B). The age range for group A is 31 – 40 years and for group B is 41 – 50 years.

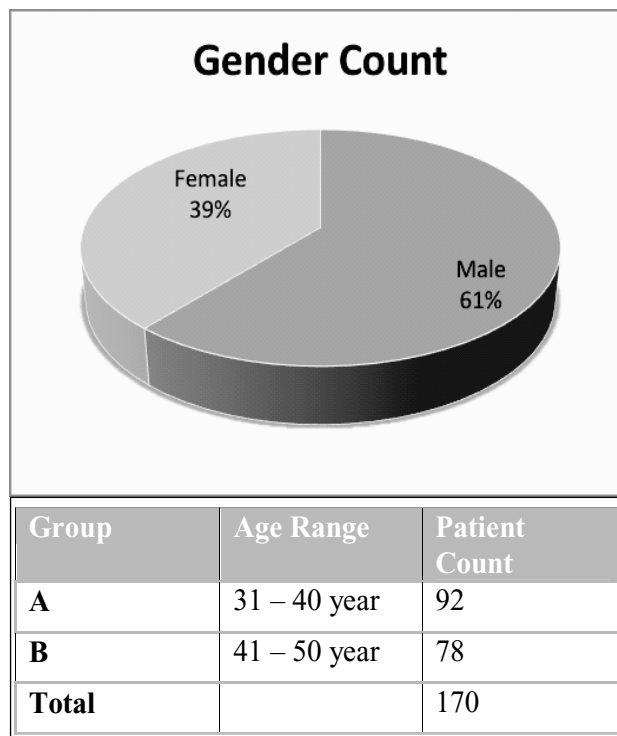


Figure 3 Gender count and age based distribution of psoriatic patients from the study

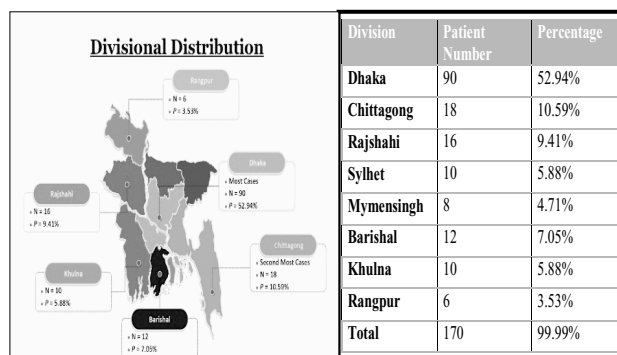


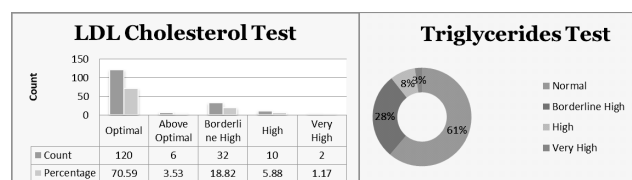
Figure 4 Divisional Distribution of psoriatic patients from this study

52.94% of study patients were from capital city Dhaka. The port city, Chattogram was second, 10.59% patients. A few patients were from northern part of the country, as Rangpur was for 3.53%, Rajshahi was for 9.41% and Mymensingh was for 4.71%. The southern part of the country was equal to northern part, approximately 12.93% of total patients.

Table I Abnormal lipid levels in psoriatic patients

Lipid Profile Test (Serum)	Patient Count	Percentage (%)	Reference Range	Classification
Total Cholesterol Test				
	128	75.29	< 200	Desirable
	20	12.94	200 – 239	Borderline
	22	11.76	> 240	High
LDL Cholesterol				
	120	70.59	< 100	Optimal
	6	3.53	100 - 129	Above Optimal
	32	18.82	130 - 159	Borderline High
	10	5.88	160 - 189	High
	2	1.17	> 190	Very High
Triglycerides				
	104	61.18	< 150	Normal
	48	28.24	150 -199	Borderline High
	14	8.24	200 – 499	High
	4	2.35	> 500	Very High

Table I shows patients had the risk for LDL(32 patients) TG (48 patients) and Cholesterol (20 patients) which could be the indication of association of psoriasis. About 16.48% of patients were affected highly dyslipidemia, according to above stated chart.

**Figure 5** Result of LDL test and triglycerides of psoriatic patients from the study

Discussion

Psoriasis is a skin ailment that causes inflammation and overgrowth and may be debilitating if left untreated.¹⁴ Elevated blood lipid levels have been seen in psoriasis patients, and abnormalities in plasma lipid metabolism have been linked to the skin condition.^{15,16} Obesity likely increases a person's risk of developing psoriasis, and psoriasis likely contributes to weight gain.¹² Patients with psoriasis did have an increased risk of becoming overweight. Psoriatic individuals may become overweight for several reasons. These include, but are not limited to, a lack of social interaction, unhealthy eating habits, depression, increased alcohol use, a lack of motivation to exercise, and so on. But persons with obesity are more likely to get psoriasis.¹³ Psoriasis-related inflammation is linked to dyslipidemia, a significant risk factor for cardiovascular disease.¹⁷ Recognizing the link between psoriasis and dyslipidemia may significantly impact treatment.¹⁸

This research indicated that 37% of individuals with psoriasis had dyslipidemia, suggesting a connection between the two conditions. The risk of dyslipidemia increases with the severity of psoriasis. For this reason, it is crucial to regularly check blood lipid levels in all psoriatic patients to detect dyslipidemia and its potential consequences at an early stage.

Limitation

Age based psoriasis association with dyslipidemia is required to reveal in this study. BMI and other complication was omitted from this research.

Conclusion

In conclusion, dyslipidemia was shown to be more prevalent in individuals with psoriasis than in controls, suggesting that psoriasis may be linked to aberrant lipid metabolism. In the clinic, people who have psoriasis should be examined for lipid abnormalities and treated for them if they are found to have them. This would be beneficial to the treatment of psoriasis.

Disclosure

Both the authors declared no competing interests.

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