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# The Incidence of Lipoprotein Disorder in Patients with Psoriasis Attending in a Tertiary Care Hospital of Bangladesh

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## Abstract

Objective: In this study our main goal is to evaluate the incidence of lipoprotein disorder in patients with psoriasis attending tertiary care hospital in Bangladesh. Method: This case control study was carried out in the Department of Dermatology Venereology, Chittagong Medical College Hospital (CMCH), Chittagong from June 15, 2013 to May 14, 2014. In this study; 60 patients with Psoriasis (group-A) and 60 patient with skin disease other than Psoriasis (group-B) were included according to availability within the study period. Results: During the study, it was found that; most of the patients were male among the psoriasis patients. Mean ±SD of weight was found 61.87±7.84 kg and height was found 1.62±0.05m among the psoriatic patients. There was a significant differences in Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) between group A (Psoriasis) and group B (Skin diseases other then Psoriasis).

***Index terms***— psoriasis, dyslipidemia, diabetes, hypertension.

soriasis is a chronic inflammatory disease related to many diseases, especially cardiovascular disease. Among these diseases, atherosclerosis plays the most important role. 1 Atherosclerosis is caused by inflammation and an imbalance of the lipid metabolism. Psoriasis and atherosclerosis not only share the same cytokines involved in the immunological mechanism, such as interleukin-17 (IL-17), but also have common angiogenic factors and oxidative pathways. 2 In addition, both of them have similar lipid profiles, including decreased high-density lipoprotein (HDL) levels and/or increased low-density lipoprotein (LDL) levels. 3 In the pathological process of atherosclerosis, the accumulation of cholesterol triggers the production of pro-inflammatory cytokines, such as Tumor Necrosis Factor Alpha (TNF?), and also leads to the aggregation of monocytes and differentiation into foam cells. TNF? eventually induces an inflammatory cascade in blood vessels. 4 In chronic inflammation TNF? may also influence the lipid profile, such as LDL-C levels, via a decreased concentration of a Apolipoproteins. Moreover, TNF? lowers the quality of lipoprotein by inducing the production of LDL and Oxidized LDL (oxLDL) and reducing the level of HDL-C at the same time. Oxidized LDL (oxLDL) not only exacerbates the inflammation but also promotes cholesterol accumulation in lysosomes, which eventually leads to cell death. On the other hand, HDL has a reverse cholesterol transport (RCT) function, anti-oxidative capacity, and anti-inflammatory properties by regulating dendritic cells' (DCs) differentiation, and reducing T cell activation and IL-12 production. However, these properties are reduced during chronic inflammation, such as psoriasis. 5 In this study our main goal is to evaluate the incidence of lipoprotein disorder in psoriasis patients attending tertiary care hospital in Bangladesh.

## 1 II.

## 2 Objective

To assess the incidence of lipoprotein disorder in psoriasis patients attending tertiary care hospital in Bangladesh.

# 3 Medical Research

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The Incidence of Lipoprotein Disorder in Patients with Psoriasis Attending in a Tertiary Care Hospital of Bangladesh III.

# 4 Methodology a) Type of Study

This study is a case control study.

# 5 b) Place of study

# 6 g) Study Procedure

Patients attending in the Dermatology Department were diagnosed case or psoriasis was included in the study. 60 patients with age matched control who were attending in the same Department with skin problem were also selected. These patients were selected after excluding the exclusion criteria, Psoriasis was diagnosed clinically attending in the CMCH. Secondary causes of Diabetes Mellitus and Hypertension were also excluded clinically. Selected patients were informed about the aims, objectives, significance and detail procedure of the study before examination. An informed written consent was taken from all the patients who was selected for the study and encouraged for voluntary participation and allowed freedom to withdraw from the study whenever they liked even after participation. All eligible subjects will be provided a structured questionnaire with direct supervision by the researcher herself to obtain socio-demographic and health related Then clinical examination was done. V.

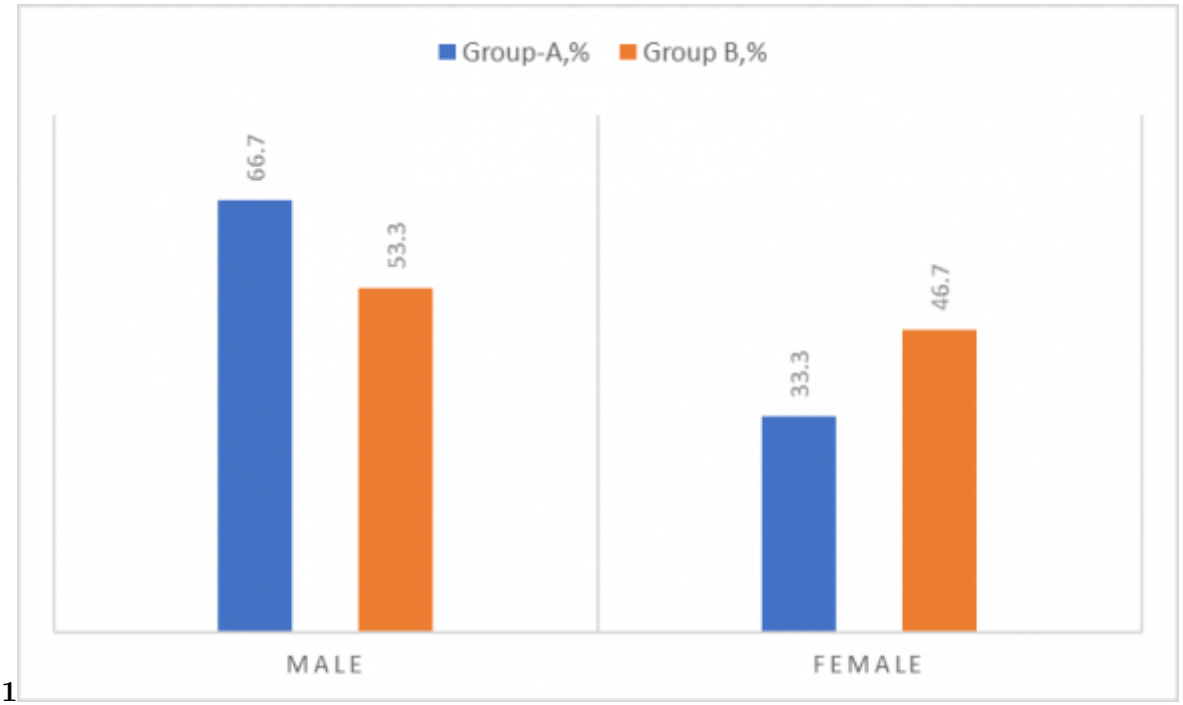
# 7 Discussion

Among the study subjects 60 (50% of the study Subjects) out of 120 patients were with Psoriasis and 60 (50% of the study subjects) out of 120 were without Psoriasis. The patients with Psoriasis were in the age group of 41-50 years. Among gender distribution 72(60% of the study subjects) were male. Group A and group B were statistically insignificant (p0.0).

In our study most of the Psoriasis patients were male (72%). The mean age of the Psoriatic patients are 44 years, which is supported by one other study. 6 In our country female are less conscious about their health.

They have to do many households work. Economically they depend on males. For health related problems, they go to local village doctors for treatment. So, their attendance in tertiary level hospital like CMCH may be less than male.

In one large population-based study from the UK in which over 130,000 patients with psoriasis were included, showed higher incidences of Diabetes and Hypertension. Another study used the General Practice Research Database and found higher rates of Diabetes Mellitus, Hypertension, Hyperlipidemia, obesity and smoking in patients with psoriasis than in the controls subjects. [7][8] In one case control study conducted in USA in 2008 with data taken from the study of 1127 patients with Psoriasis and matched cohort of non-Psoriatic patients, Psoriatic patients were significantly more likely to develop Cardiovascular Co-Morbidities including Diabetes Hypertension, Hypercholesterolemia, compared with non-psoriasis patients. 9 In a hospital based case control study conducted in Italy, Metabolic Syndrome like Hyperglycemia, Hyperlipidemia, Hypertension was found significantly more common in Psoriatic patients than in controls (30.1% vs 20.6%, Odds ratio 1.65). 10 Another case control study conducted in Korea investigators also found a higher prevalence of metabolic syndromes (17.8%), Cardiovascular disease (4.6%), Hypertension (32.5%) and Hyperlipidemia (22.3%) in patients with Psoriasis, as compared with that of the controls. 11 Regarding diastolic blood pressure mean±SD was found 82.67±7.04 mmHg in group A and it was 78.30±9.31 mmHg in group B. It was also found significant ($p<0.05$). Mean±SD of fasting biood sugar was found 102.53±27.67 mg/dl and post prandial blood sugar was found 144.75 ± 49.98 mg/dl among the group A patients whereas it was 92±15.37 mg/dl and 121±41.41 mg/dl in group B. Both the distribution is statistically significant ($p<0.05$). Among the study subjects DM was found in 26 patients (43.




**1**

Figure 1: Figure- 1 :

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The Incidence of Lipoprotein Disorder in Patients with Psoriasis Attending in a Tertiary Care Hospital of Bangladesh

IV. Results

| | | N | Mean | ±SD | Median | Range | Significance |
|---|---|---|---|---|---|---|---|
| Age (years) | Group A | 60 | 47.78 | 8.81 | 48.00 | 27-65 | P=0.159 NS |
| | Group B | 60 | 44.97 | 11.86 | 47.00 | 26-65 | |

Blood pressure was recorded by a standard Sphygmomanometer in sitting position aller 30 minutes rest. At least two records of blood pressure of the patient were taken on two occasions. Then average blood pressure was noted. Patients were asked to come in fasting condition for at least 8 to 12 hours. Fasting blood sample was taken for fasting blood sugar and fasting lipid profile. Then patients were given 75gm glucose mixed in 300ml of plain water. After two hours second blood sample was also collected for post prandial blood sugar. Blood sample was collected by same laboratory technologist and analysis was done in the Clinical Pathology Department of CMCH.

h) Data Collection Method

All relevant information for each individual study subject was recorded on pre-tested data sheet. The data sheet was used for collection of in

Data was collected by the researcher.

i) Data Processing Plan

Data was processed and analyzed using computer software SPSS (Statistical Packages for Social Sciences Version-19). The test statistics was used for analysis of data are student's t test (for comparison of data presented in quantitative scale like blood glucose level), Chi-square test (for comparison of data presented in categorical scale like presence of DM and HTN in two groups). For any analytical test the level of significance is 0.05 and P-value <0.05 was considered significant.

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Figure 2: Table - 1

**1**

Figure 3: Table 1 :

**2**

| Study Groups | Frequency | Percentage |
|---|---|---|
| GroupA (With Psoriasis) | 60 | 50% |
| Group B (without Psoriasis) | 60 | 50% |
| Total | 120 | 100% |

Figure 4: Table 2 :

**2**

Table-3: Socio Demographic status of patients.

| Variables | | Study group Group A, % | | Group B, % | | X 2 Test of significance |
|---|---|---|---|---|---|---|
| | | Number | % percent | Number | % percent | |
| Sex | Male Female | 40 20 | 66.7 33.3 | 72 48 | 53.3 46.7 | P= 0.136 NS |
| Age group | ?30 years 31-40 years | 6 8 | 10.0 13.3 | 20 21 | 23.3 21.7 | P=0.121 NS |
| | 41-50 years | 24 | 40.0 | 38 | 23.3 | |
| | 51-60 years | 18 | 30.0 | 33 | 25.0 | |
| | >60 years | 4 | 6.7 | 8 | 6.7 | |

*[Note: In table-3 shows socio demographic status of patients. Among the study subject, two third was male. There was no significant difference in sex between group A and group B. In group A most of the patients belong to 4th decade and in group B was equal distribution of age group between 30-60 years. The following table is given below in detail In table-6 shows distribution of study groups according to blood pressure. There was a significant difference in systolic blood pressure and diastolic blood pressure between group A and group B.]*

Figure 5: Table 2 :

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Table-8: Distribution of study groups according to lipid profile

| Lipid profiles | | N | Mean | ±SD | Medium | Range | Sign. |
|---|---|---|---|---|---|---|---|
| Serum total cholesterol (mg/dl) | Group A | 60 | 182.58 | 40.64 | 188.50 | 101-299 | P=0.034 significant |
| | Group B | 60 | 168.52 | 30.27 | 170.00 | 80-200 | |
| Serum HDL (mg/dl) | Group A | 60 | 37.97 | 6.68 | 37.50 | 20-62 | P=0.032 significant |
| | Group B | 60 | 35.73 | 4.38 | 36.00 | 30-42 | |
| Serum LDL (mg/dl) | | N | Mean | ±SD | Medium | Range | Sign. |
| | Group A | 60 | 120.47 | 29.63 | 125.00 | 65-185 | P=0.022 significant |
| | Group B | 60 | 109.52 | 21.15 | 110.00 | 68-144 | |
| | | N | Mean | ±SD | Medium | Range | Sign. |
| Serum TG (mg/dl) | Group A | 60 | 160.70 | 40.28 | 160.00 | 80-240 | P=0.046 significant |
| | Group B | 60 | 146.43 | 37.14 | 140.50 | 75-210 | |

*[Note: Table-8 shows distribution of study groups according to lipid profile. There was significant difference in serum Total Cholesterol, HDL, LDL and TG between group A and B.]*

Figure 6: Table - 7

**1**

VI.
of Dyslipidemia?
3. Exploration of therelationshipbetwee
Hyperlipidemia and Psoriasis may unveil the
discovery of another novel treatment option for
psoriasis with most promising outcome.
3) in group A
and 10 patients (16.7%) in group B.[{OR(CI)}= 3.824
(1.635-R 8.942)]. p:0.051. HIN found 23(38.3%) in group
A and 8(13.3%) in group B [{OR(CI)}= 4.041 (1.629-
10020)]. p<0.05).

Figure 7: Conclusion 1 .

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