Original Research Article

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ASSESSMENT OF METABOLIC SYNDROME AMONG PATIENTS OF PSORIASIS AT TERTIARY CARE CENTER

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Abstract:

Objectives: Psoriasis is a common skin disease with a variable prevalence across different regions of the world, depending upon racial, geographical and environmental factors. According to various published reports, its prevalence varies from 0.9 to 8.5%.**Material & Methods:** The present prospective study was conducted at department of dermatology of our tertiary care hospital. It was a non-interventional hospital-based cross-sectional study, which was conducted over a period of 11 months. The study was approved by the Institutional Ethical Committee. During the study period, fifty psoriasis patients satisfying the following inclusion criteria were enrolled.**Results:** In present study, Metabolic syndrome was more prevalent in psoriasis patients than controls but the difference was not significant statistically (30% vs 16%, p=0.0979). Although psoriasis patients had higher prevalence of hypertriglyceridemia, hyperglycemia, hypertension and central obesity than controls, but the difference was statistically insignificant. The prevalence of low high-density lipoprotein (HDL) cholesterol was significantly higher in cases compared to controls (40% vs 18%, OR 3.0370, p=0.0159).calemia, hypophosphatemia as well as hypokalemia and (to a lesser degree) Hypomagnesemia. **Conclusion:** Metabolic syndrome and dyslipidemia are common in psoriasis patients, which signify the need for routine screening of metabolic syndrome in those patients.

Keywords: Psoriasis, Metabolic syndrome, Obesity, Hypertension, Dyslipidemia.

INTRODUCTION:

Psoriasis is a common skin disease with a variable prevalence across different regions of the world, depending upon racial, geographical and environmental factors. According to various published reports, its prevalence varies from 0.9 to 8.5%.(1) It usually manifests as raised, well demarcated, erythematous, oval plaques with adherent silvery scales, which may be limited or widespread in extent, having a profound effect on the quality of life of the patients.

The disease is believed to be multifactorial, with both genetic and environmental factors

playing a role in its development. Currently, the disease is hypothesized to be an immune-mediated, systemic inflammatory disorder with Th1 cells, Th17 cells and inflammatory cytokines contributing to its pathogenesis.(2,3)

Traditionally viewed as an inflammatory skin disorder of unknown etiology, recent advances have shifted the focus from a single organ disease confined to skin structures to a systemic inflammatory condition. More recently, psoriasis has also been reported to be associated withmetabolic disorders including obesity, hypertension, dyslipidemia and diabetes.(4,5) Metabolic syndrome (MetS), a conglomerate of various clinical and biochemical parameters, is a significant predictor of atherosclerotic disease and the associated risk for cardiovascular events in such patients. These risk factors include central obesity, atherogenic dyslipidemia, elevated blood pressure, and raised plasma glucose.(6) Moreover, an increased mortality from cardiovascular disease in patients with severe psoriasis may confer an independent risk of myocardial infarction, especially in young patients.(7)

MATERIALS & METHODS

The present prospective study was conducted at department of dermatology of our tertiary care hospital. It was a non-interventional hospital-based cross-sectional study, which was conducted over a period of 11 months. The study was approved by the Institutional Ethical Committee. During the study period, fifty psoriasis patients satisfying the following inclusion criteria were enrolled: (i) diagnosed case of chronic plaque psoriasis for more than 6 months of duration of disease, (ii) patients aged between 18 to 75 yrs. Patients with atypical presentation of psoriasis (linear or zonal lesion, seborrheic psoriasis, mucosal and ocular lesions), with history of familial dyslipidemia, family history of diabetes and hypertension were excluded from the study. Fifty age- and sex-matched controls were also enrolled. The controls were patients with diseases other than psoriasis, attendants and staff members of the hospital.

Data was analyzed using SPSS (version 17, SPSS Inc. Chicago, Illinois, USA). Descriptive statistics (mean, standard deviation, percentage), student's t-test, and chi-square test were used.

RESULTS

In present study, included 50 cases and 50 controls with descriptive characteristics of each group given in Table 1. In both the groups, 34 were males and 16 were females. The mean age of the cases were 40.32±12.19 years with age ranging from 22 to 70 years. The mean age of the controls was 42.08±11.14 years (range 21-68 years). Psoriasis area and severity index (PASI) score ranged from 4 to 36.6 (mean PASI 14.59± 9.24). Body surface area (BSA) involved ranged from 3 to 85% (mean BSA 35.22±27.48%).

Table 1: Distribution of patients according to descriptive characteristics of cases and controls.

Characteristics	Cases	Controls
Male/female	34/16	34/16
Age range in years (mean ±SD)	22-70 (40.32±12.19)	21-68 (42.08±12.66)
Smoker N (%)	19 (38)	13 (26)
Alcoholic N (%)	11 (22)	7 (14)

Table 2: Distribution study participants according to clinical and laboratory findings in cases and controls.

Clinical/ laboratory findings	Cases (n=50)	Controls	P value
Triglycerides ≥150 mg/dl	21	12	0.056
HDL <40 mg/dl (M)*, <50 mg/dl (F)†	20	9	0.0159‡
Fasting blood sugar ≥ 100 mg/dl	21	14	0.1442
Waist circumference ≥90 cm (M), ≥80 cm (F)	19	17	0.6785
Metabolic syndrome	15	8	0.0979

Thirty six patients had BSA involvement >10% while fourteen patients had BSA involvement ≤10%. Disease duration in cases ranged from 7 months to 30 years with a mean disease duration of 8.04± 6.89 years. Nineteen cases (38%) and 13 controls (26%) were chronic smokers, while 11 cases (22%) and 7 controls (14%) were chronic alcoholics. (Table 1)

We observed a higher prevalence of MetS in cases (15/50=30%) than in controls (8/50=16%), but the difference was not significant on statistical analysis (p=0.0979, NS). The prevalence of various components of MetS in cases and controls along with odds ratio and p value are given in Table 2. Hypertriglyceridemia, low HDL cholesterol, hyperglycemia, hypertension, and central obesity were more prevalent in cases than in controls. However, statistically significant difference was noted in case of low HDL cholesterol among both the groups.

The various components of MetS were compared among psoriasis patients and controls (Table 3). Fasting triglycerides were higher among patients with psoriasis than controls, but the difference was not significant on statistical analysis. Similarly, there were no statistically significant differences between HDL, low-density lipoproteins (LDL), very low-density lipoproteins (VLDL), blood sugar and blood pressure (systolic and diastolic) on comparing the cases and controls.

DISCUSSION

Psoriasis is an immune mediated, chronic inflammatory disease, where genetic and environmental factors play significant roles in determining the clinical manifestations. Recently, it has been conceptualized that psoriasis is not merely a disease limited to skin and joints, rather, it has been shown to be associated with metabolic syndrome, which is a cluster of risk factors such as diabetes mellitus, hypertension, obesity and dyslipidemia. Although, the exact

etiopathogenetic link is yet to be elucidated, certain proinflammatory cytokines, angiogenic factors and immunological mediators, which are shared by the pathogenetic mechanisms of the two diseases, have been identified.

Table 3: Distribution study participants according to findings of psoriasis patients with and without MS.

Characteristics	With MS* (n=15)	Without MS (n=35)	P value
Disease duration (years)	9.9±9.53	7.25±5.36	0.2157
PASI† ≥ 10	*11 (73.3%)*	18 (51.42%)	0.1550
BSA‡ >10%	12 (80%)	24 (68.57%)	0.4142
Mean PASI	17.39±10.19	13.39±8.68	0.1629
Mean BSA (%)	42.07±2.71	32.29±27.25	0.1743

Several studies have found that metabolic syndrome is associated with psoriasis. Gisondi et al studied 338 psoriasis patients as well as 334 controls and found significantly higher prevalence of MetS in psoriasis patients (30.1%) compared with the controls (20.6%) on statistical analysis.(8,9) Similarly, Nisa et al evaluated 150 psoriasis patients and 150 healthy individuals and found the prevalence of MetS as 28% in cases and 6% in controls, which was statistically significant.(10)

Lakshmi et al observed a higher prevalence of MetS in cases (32.5%) compared to controls (30%), but the difference was not statistically significant.(11) Similarly, in the present study, MetS was found in 15/50 psoriasis patients (30%) and 8/50 controls (16%), using SAM-NCEP ATP III criteria and the difference was not statistically significant. The difference between the results of the various studies can be partly explained by geographical and ethnic differences, different characteristics of the investigated patients with psoriasis, and differences in the applied diagnostic criteria of MetS.

On comparing the prevalence of MetS among different age groups of cases and controls, we observed higher prevalence among cases than controls in the age groups 21-30 years (4% vs 0%), 31-40 years (2% vs 0%) and 41- 50 years (18% vs 8%), equal prevalence in the age group of 51-60 years (6% each), and lower prevalence among cases than controls (0% vs 2%) in 61-70 years. Nisa et al documented a higher prevalence of MetS in psoriasis patients than controls right from the late second decade (12.9% vs 0% in the age group 18-30 years, 29.7% vs 2% in 31-40 years, 44.4% vs 7.1% in 41-50 years, 37.5% vs 9% in 51-60 years and 50% vs 42% in >60 years).(10) In contrast, Gisondi et al documented the higher prevalence of MetS in psoriasis patients than controls after the age of 40 years.

CONCLUSION

We concluded from the present study that The results from the present and previous studies support the possibility of a benefit from regular screening for metabolic syndrome and its components among all adults with psoriasis when visiting their general practitioner or dermatologist, regardless of age and severity, in order to reduce their risk of secondary diabetes and cardiovascular disease. The high prevalence of hypertension, diabetes, dyslipidemia and obesity among psoriasis patients reiterates the need for counselling of patients regarding healthy dietary habits and regular exercise, and the need for large- scale, community-based programs for health awareness and lifestyle modification.

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