Comorbidities and Prevalence of Smoking & Alcohol in Psoriasis

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Abstract

Introduction: Psoriasis is chronic inflammatory disease associated with comorbidities. One of the major comorbidities that is a significant predictor of cardiovascular risk is metabolic syndrome.

Methods: This is the hospital based cross sectional study. Total of 50 patients with clinically diagnosed case of psoriasis were enrolled in the study.

Results: out of 50 patients,only 3 (6%) had metabolic syndrome. It was found that 6 patients (12%) of the patients were smokers and alcoholics. Analyses were also made for dyslipidemia, hypertension, diabetes, and hypothyroidism. The association with metabolic syndrome was not statistically significant.

Conclusion: The research revealed a high level of triglycerides in 12 patients (12%) and a low level of high density lipid profile in 39 patients (78%).

Keywords: Diabetes, lipid profile, metabolic syndrome, psoriasis, Thyroid function test.

INTRODUCTION

Psoriasis is a chronic, inflammatory disease caused by interplay of multiple genes with predominantly particularly involving skin, nails, and joint.[1-3]It is characterized by well defined erythematous plaque covered by silvery white scale often over the extensor aspect of knee, elbow, trunk and scalp.[3]

Psoriasis prevalence varies between 0.51% and 11.43% globally and between 0% and 1.37% in children.[1] The incidence is lowest among people of African and Japanese heritage and highest among Caucasians.[4] Although the etiology is poorly known, it is thought to be complex and involve the immune system, notably T-cells,[5] which generate Type 1 cytokines in genetically predisposed individuals such as INF, IL-2, and TNF α.[6]

Psoriasis is associated with various systemic diseases, including Hypertension, Diabetes mellitus, Metabolic syndrome, Hypothyroidism, Stroke, Coronary artery disease , Renal disease, Liver disease, Cancer, and Chronic obstructive pulmonary disease (COPD).[7,8]

The general objectives are to assess the prevalence of alcohol and smoking, along with the comorbid condition, in psoriatic patients. Specific objective is to see the association of metabolic syndrome with

different variables.

MATERIALS AND METHODS

This cross-sectional study was conducted in the outpatient Dermatology department of Universal College of Medical Sciences, Bhairahawa, with permission from the Institutional Review Committee (IRC). On December 12, 2022, the IRC gave its permission. The period of data collection was December 2022–November 2023. Fifty psoriasis patients in total who met the inclusion criteria were taken into account for the research. Those with psoriasis diagnoses were all included. Patients under the age of twelve, pregnant women, and patients who refuse to give consent were not allowed. The patient signed the consent form before to registration.

Most of the patients of psoriasis were clinically diagnosed with full medical history and examinations. In case of confusion biopsies were done. The data were be collected by the help of proforma. History of alcohol consumption, smoking, and comorbid conditions were carefully examined. Duration and number of cigarette per day for smoking was asked. For alcohol, duration and frequency of alcohol intake were asked. PASI (Psoriasis Area Severity Index) score were calculated in each patient. The information has been calculated using a structural proforma. After enrollment, vitals were noted down and blood samples were taken for fasting lipid profile and thyroid function test (TFT).

According to American heart association and the National heart, lung and Blood Institute, metabolic syndrome[9] is defined if five of the three criteria meets: increased waist circumference ≥90 cm in men and ≥88 cm in women, elevated blood pressure (Systolic ≥130mmHg and diastolic ≥85 mmHg), elevated fasting blood sugar (FBS) ≥100mg/dl, elevated triglycerides (TG ≥150mg/dl) and reduced high density lipid profile (HDL <40mg/dl in men and <50 mg/dl in female). Measuring tape was used to measure the waist circumference and height. Weight was measured by measuring machine. BMI was calculated by weight by height.

The blood samples were withdrawn from the newly diagnosed cases of psoriasis. The already diagnosed cases blood values will be noted down if done before or will be sent if investigations was not done before. The required sample size was calculated by using this formula:

$n=z^2p(1-p)/d^2$

From the previous study, prevalence (p) = 11.43%[1]

Confidence interval = 95% and margin of error (d) = 10% is taken. Hence, the required sample size is 38.89. Fifty patients were included .

Purposive sampling technique was used to collect the data. Descriptive as well as inferential statistic was used to analyze the data. Frequency and percentage was used to find the descriptive information of variables. Chi square test was used to see associations of metabolic syndrome with gender, age, onset of disease, smoking, alcohol and PASI . P value less than 0.05 will be considered significant. Microsoft Excel sheet was used to tabulate the data. Data analysis was done in SPSS software (version 21).

RESULTS

Out of 50 patients of study, 3(n) patients(6 %) has found with metabolic syndrome and 6 patients(n) each among all the patients smokes and drink alcohol (Table 1). The association of metabolic syndromes with ages, duration of onset, PASI, alcohol and smoking were not statistically significant (Table 2). Psoriasis vulgaris was the commonest among all the types of psoriasis(Table 3). Majority of patients presented with mild psoriasis which was measured by PASI and 7 patients(14%) with obesity and 10 patients 20% with

overweight (Table 4). Figure 1 shows association of age group with onset of disease.

Table no 1: Prevalence of metabolic syndrome, smoking and alcohol.

Prevalence	Frequency Percentage 95% C. I
Metabolic Syndrome	3 6 1.3-16.5
Alcohol	6 12 4.5-24.3
Smoking	6 12 4.5-24.3

Table no 2: Association between metabolic Syndrome and variables

Characteristics	Category	Metabolic Syndrome P value No Yes
Gender	Male	20(95.2) 1(4.8)
	Female	0.754 27(93.1) 2(6.9)
Age group(years)	<40	26(96.3) 1(3.7)
	>40	0.588 21(91.3) 2(8.7)
Duration of Psoriasis PASI Alcohol	<1 years 1-5 years >5 years <7 7-12	3(60) 2(40) 31(100) 0(0) 0.013 13(92.9) 1(7.1) 29(96.7) 1(3.3) 15(88.2) 2(11.8) 0.446 3(100) 0(0) 41(93.2) 3(6.8) 0.98
	>12 No	
	Yes	6(100) 0(0)
Smoking	No	41(93.2) 3(6.8)
	Yes	0.97 6(100) 0(0)

Table no.3 Prevalence of sociodemographic variables,duration of psoriasis,types of psoriasis and sites involved

Characteristics	Category Frequency (n)	Percent(%)
Gender	Male 21	42.0

	Female 29	58.0
Age group(years)	<=40 27	54.0
	>40 23	46.0
Duration of Psoriasis(years)	<1 years 5	10.0
	1-5 years 31	62.0
	>5 years 14	28.0
Occupation	Service 12	24.0
	Farmer 10	20.0
	Business 3	6.0
	Housewife 19	38.0
	Student 6	12.0
	inverse psoriasis 3	6.0
	Palmo planter psoriasis 7	14.0
	psoriasis vulgaris 34	68.0

Types of Psoriasis

	scalp psoriasis 6	12.0
	knee 11	22
	Scalp 24	48
	Elbow 7	14
	Palms 4	8
	Forearm 5	10
	Lower back 15	30
	Soles 7	14
	Legs 3	6
	Abdomen 3	6

SitesNeck 2 4

Table no 4:

Characteristics	Category	Frequency	Percentage (%)
PASI	<7	30	60
	7-12	17	34
	>12	3	6
	Normal	33	66

BMIObesity 7 14 Over Weight 10 20

Normal 45 90

T3

Low 3 6

	High	2 4
T4	Normal	43 86
	Low	7 14
TSH	Normal	42 84
	High	8 16
Winter aggravation	yes	34 68
Psychology Disturbance due to psoriasis	Yes	26 52
Chronic disease in family members	Yes	9 18
Waist TG HDL	$\geq$90cm /$\geq$80cm $\geq$150mg/dl <40mg/dl/<50mg/dl	7 14.0 12 24.0 39 78.0
Blood pressure	$\geq$130/85mg/dl	5 10.0
FBS	$\geq$100mg/dl	14 28.0

Figure: 1

Association between age groups and duration of Psoriasis
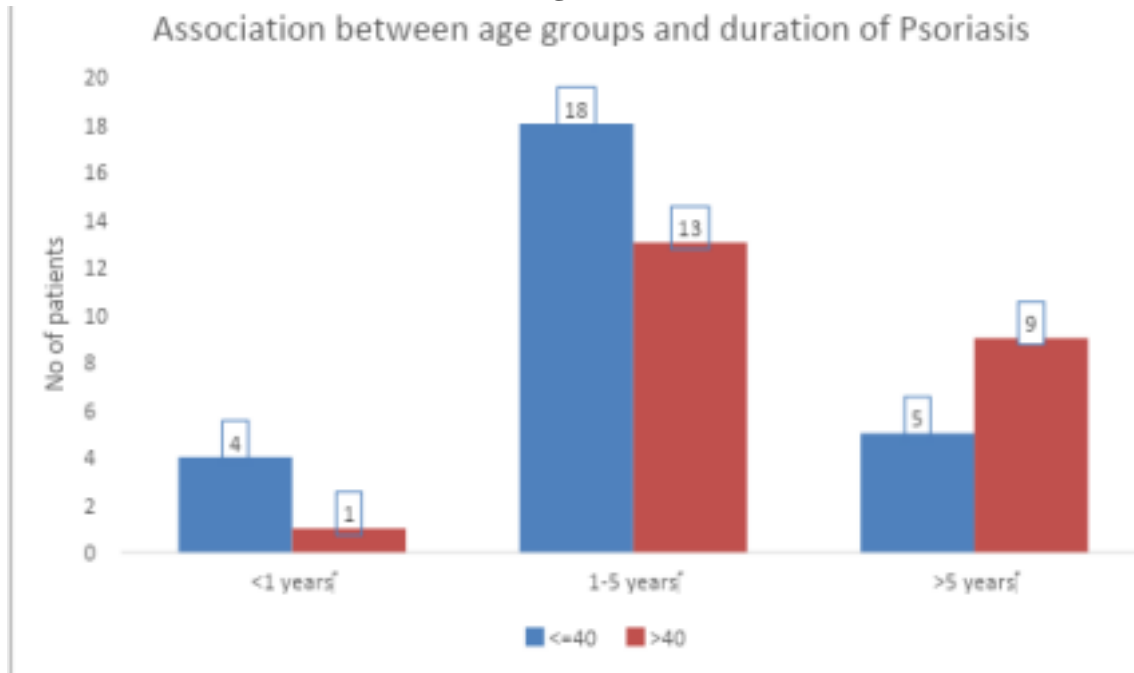
DISCUSSION

We have included a number of parameters in our study . We have used PASI , BMI, waist circumference, blood pressure, winter aggravations and other parameters in addition to blood values. We will be able to understand psoriasis more effectively due to these parameters. The study attempts to look at the metabolic syndrome mirror in addition to comorbidities. Additionally, we did not find a high prevalence of drinking and smoking in our study, which could be caused by two factors. Consuming alcohol and smoking might be confusing variables. Social issues may also play a role, since individuals may not feel comfortable providing accurate medical history.

37 out of 100 participants in the Babu AR study[10] had metabolic syndrome. Metabolic syndrome was more common in cases than in controls in a Brazilian case control

study conducted by Fedinoando LB et al.[11] According to the study, psoriatic patients had a 1.8 times higher risk of metabolic syndrome than control subjects. Psoriasis was associated with metabolic syndrome in a meta-analysis s tudy[12] that included 22 case control and cross-sectional studies, with a combined OR of 2 and a P value < 0.001. In our study, metabolic syndrome was also present, though in small numbers.

In the Nakhwa YC et al study[13], a significantly greater level of triglycerides and a lower level of HDL were observed. The mean TG was significantly higher than the control, at 219.69±105.6%. The HDL component was slightly more than the control. In our study, a total of 78% of patients had low HDL and 24% had high TG. In the Madanagobalane S et al study, the prevalence of obesity was greater in patients than in controls.[14] As in the Nisa N et al [15] study, we found a lower number of obese individuals in the psoriatic group.

Case control study done by Zindaci I et al shows 40.9% hypertensive patient and 48.7% with high blood sugar[16]. The waist circumference was also significantly slimmer in psoriasis patient. Also in our study, 14% has abnormal waist circumference. Presence of hypothyroidism in cases was more than in control in Basnet Binamra et al study.[17]

In an study of 104 patients done in Lahore by Khan GA, the prevalence of smokers were 26.9% and history

of alcohol was found in 2.9%.[6] Cigarette smokes contains toxic materials like nicotine, reactive oxygen species, nitric oxide[6] which activate Tcells and then release of cytokines.[18]In our study, the association of smoking and alcohol with metabolic syndrome was not statistically significant.

Since metabolic syndrome is a risk factor for heart. Numerous studies has shown association to metabolic syndrome. However, there aren't numerous studies of similar

kind conducted in Nepal. Although there was a lower incidence of metabolic syndrome, smoking, and alcohol consumption among psoriasis patients, the prevalence of each individual components of metabolic syndrome was higher.

CONCLUSION

Comorbidities are observed in psoriasis patients in our study but in very low number. Alcohol and smoking had a low and statistically insignificant prevalence.However the study was done in very low sample size. Studies with larger sample sizes should be done in future which might clear out the presence of metabolic syndrome.This benefits the treatment part and can prevent focus in early treatment.

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