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Research Article

**PERVASIVENESS OF ALCOHOL, SMOKING, AND  
ASSOCIATED COMORBID DISEASES IN PSORIASIS**Dr. Anam Riaz<sup>1</sup>, Dr Ahad Sharif<sup>2</sup>, Dr Zainab Hooria<sup>2</sup><sup>1</sup> Islamabad Medical and Dental College<sup>2</sup> Army Medical College**Article Received:** March 2020**Accepted:** April 2020**Published:** May 2020**Abstract:**

**Introduction:** Numerous studies suggest a relationship between smoking and alcohol. Psoriasis is associated with comorbidities such as diabetes, hypertension and metabolic syndromes that have a significant impact on severely affected patients.

**Aim:** To investigate and assess smoking, alcohol and co-morbidities in patients with psoriasis.

**Place and duration:** In the Dermatology department of Benazir Bhutto Hospital Rawalpindi for one year duration from January 2019 to January 2020.

**Patients and methods:** The study included 100 patients with psoriasis who met the inclusion criteria. Detailed medical history and patient examination were conducted with particular attention to the onset, distribution and nature of psoriasis. The history of tobacco and alcohol use was studied, especially with the known history of other diseases. The diagnosis of psoriasis was clinical.

**Results:** 58% of 104 patients were male and 42% were female. The average age was 34.8 + 14.71 years. Most patients had a generalized type of psoriasis. 26.9% of them smoked cigarettes. A history of alcohol consumption was found only in 2.9% of patients. The observed comorbidities accounted for 11.6% and 5.8% of hypertension and diabetes, respectively. 3.9% were positive for hepatitis C virus.

**Conclusion:** In our study, smoking was associated with the severity of the disease, and average PASI scores were directly related to the number of years of packaging. Alcohol data are still scarce and more patients are needed to establish a relationship or refute. Concomitant diseases in psoriasis may require careful evaluation and early treatment.

**Key words:** Psoriasis, smoking, alcohol, comorbidities.

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**INTRODUCTION:**

Psoriasis is a chronic inflammatory disease that can be caused by the interaction of many genes, the immune system and environmental factors. It has a significant impact on the quality of life and is a physical, psychological and economic burden on life. The pathophysiology of psoriasis involves better antigen presentation by dendritic cells and, consequently, activation of T cells into T cells and the release of a larger type 1 (TH1) cytokine by these cells<sup>1-2</sup>. These include interferon, interleukin 2 and tumor necrosis factor alpha (TNF \*). These cytokines cause thick, scaly red plaques and inflammatory changes of the epidermis that cause arthritis in some patients<sup>3</sup>.

Numerous studies show a link between smoking and the severity of psoriasis. Cigarette smoke contains potentially toxic substances, e.g. nicotine, reactive oxygen species, nitric oxide, peroxy nitrite and free radicals of organic compounds that may affect the immunopathogenesis of psoriasis<sup>4</sup>. These toxins act by activating T cells that lead to overproduction of proinflammatory cytokines, e.g. TNF- $\alpha$  may mediate the action of interleukin (IL-2, IL-6, IL-8 and interferon- $\gamma$ ). Adhesion of keratinocytes and migration up to the epidermis,  $\alpha$ 3 and  $\alpha$ 7 containing nicotinic receptors displayed on keratinocytes by immunostaining Negative regulated  $\alpha$ 3 Therefore, nicotine exerts an inhibitory effect on keratinocyte migration and acts as a second messenger on the Ca<sup>2+</sup> signaling pathway and suggests a biological explanation for the relationship between smoking and psoriasis<sup>5</sup>.

There is sufficient evidence that the exacerbation of psoriasis is significantly associated with alcohol consumption. In addition to environmental factors, there are many reports indicating that the incidence of cardiovascular morbidity and mortality is increasing in patients with psoriasis<sup>6</sup>. This can be caused by chronic inflammation or confusing factors such as smoking, obesity and a sedentary lifestyle. Some recent studies have described the relationship between diabetes and other cardiovascular diseases

(hypertension, heart failure or coronary heart disease or hyperlipidemia) with severe psoriasis<sup>7</sup>. To assess these problems, we examined the prevalence of smoking, alcohol and co-morbidities in patients with psoriasis.

**PATIENTS AND METHODS:**

The study was conducted in the Dermatology department of Benazir Bhutto Hospital Rawalpindi for one year duration from January 2019 to January 2020. 140 patients meeting the inclusion criteria were enrolled in the study. Detailed history and physical examination were performed on all patients with psoriasis who were clinically diagnosed. The severity index of psoriasis index (PASI) was calculated for each patient. The history of smoking, alcohol and other associated diseases has been studied in detail. Smoking data includes the duration and number of packs of cigarettes per day. Package years are calculated by multiplying the number of packages per day by the years of smoking. Drug details and a known history of other conditions were also noted. All information was collected in a structured form. Data entered in SPSS 16.0. Numeric variables such as age and PASI score, smoking time, packet year are presented as mean and standard deviation. Frequency and percentage tables were calculated for nominal variables such as the presence and absence of smoking, alcohol and comorbidities.

**RESULTS:**

104 patients were included in the study. The age range was 8–70 years, average age 34.8 + 14.7 years. 68.3% of patients were  $\leq$ 40 years old and  $\geq$ 40 years old 37.7%. Men constituted 58% and women 42%. Most patients have chronic (generalized) plaque psoriasis, or 51%. 73.1% are non-smokers and 26.9% are smokers. The average PASI score for cases was 25.3 + 13.92. The average PASI score for smokers was 28.4 + 11.97 and 24.16 + 14.47 for non-smokers. We observed a direct increase in the PASI score as the number of packing years increased (Table 1). 60.7% of smokers had plaque psoriasis, and 39.3% had localized variety.

**Table 1 Pack years and mean PASI Score in smokers (n=28)**

Pack years	Number of patients	Mean PASI score
1-2	4 (3.8%)	24.75
2-5	5 (4.8%)	27.77
5-10	6 (5.8%)	28.84
10-20	13 (12.5%)	33.30

**Table 2 Co morbid conditions (n=22).**

Comorbidities	N (%)
No disease	75 (72.1)
Hypertension	12 (11.6)
Diabetes mellitus	6 (5.8)
HCV	4 (3.9)

A history of alcohol consumption was found only in 2.9% of patients. The mean PASI score in these patients was 22.6. In our study, some comorbidities occurred in 21.15% of patients. Table 2 lists the comorbidities observed in our patients. Hypertension was observed in 11.6% of patients. Diabetes was diagnosed in 5.8% of patients and hepatitis C virus in 3.86% of patients. The average PASI score was 28.85 in hypertensive patients and 34.16 in diabetic patients.

## DISCUSSION:

Smoking is a risk factor for many chronic diseases, including psoriasis. Our study also confirms evidence that smoking appears to be a risk factor for psoriasis. Herron and Hinckley have found that smoking plays a role in psoriasis. Some other studies report a relationship between smoking and psoriasis. Poikolainen *et al*<sup>8</sup>. He supported the relationship between psoriasis and smoking in two separate studies in 1993–1999. They found that patients who smoke more than one cigarette (20 cigarettes) a day are more likely to suffer from severe psoriasis than those who smoke ten or fewer cigarettes a day. A similar relationship was found in the European population. Naldi *et al*<sup>9</sup>. He studied the effect of smoking on psoriasis in the Italian population. Another multicentre follow-up study showed an increased risk of psoriasis among smokers and former smokers compared to non-smokers. Large-scale study in Boston, USA. The United States has found that they had a more serious illness among smoking patients with psoriasis. Even secondhand smoke in childhood or pregnancy was associated with an increased risk of psoriasis. Huerta *et al*<sup>10</sup> discovered that smoking is an independent risk factor for psoriasis. It has long been known that smoking causes functional and morphological changes in polynuclear leukocytes and may cause excessive release of chemotactic factors, including IL-4, IL-1, TNF $\alpha$ , transforming growth factor  $\beta$  (TGF $\beta$ ). worsening of psoriasis. In our study,

smoking appears to be directly related to the severity of the disease.

Alcohol is a risk factor for exacerbation of psoriasis in middle-aged young men and reduces the effectiveness of treatment. Poikolainen *et al*<sup>11</sup> has been shown that the rate of excessive deaths can be associated with the combined effect of alcohol consumption and smoking in patients with psoriasis. Various foreign studies show that the relationship between alcohol and psoriasis has disappeared, but in some parts of the world people do not consume alcohol or provide a true history of alcohol consumption for social and religious reasons<sup>12</sup>. Therefore, we were able to find only three patients with a history of alcohol consumption and could not assess the relationship with the severity of the disease.

Psoriasis appears to be a multifactorial disease, which is why many studies and studies have been conducted to identify other relationships between diseases in psoriasis as a way to better understand the pathogenesis of diseases<sup>13</sup>. Ayala and Ayala in Italy have supported the association of psoriasis with various disorders such as Crohn's disease, anxiety, depression, abdominal obesity, hypertension, diabetes, cardiovascular disease and stroke. Psoriasis is associated with chronic obstructive pulmonary disease in some other studies. Al Mutairi *et al*<sup>14</sup>.has supported the occurrence of inflammatory arthritis, coronary heart disease, obesity, diabetes, hypertension, metabolic syndrome, chronic

obstructive pulmonary disease and cancer in patients with moderate to severe psoriasis. Inflammation is a risk factor for high blood pressure and may also contribute to insulin resistance, a stage of diabetes in which the body does not respond to the hormone that regulates blood glucose. Statistical data show that genetic predisposition is associated with psoriasis for the development of diabetes and obesity<sup>15</sup>. Psoriasis and its concomitant diseases have a common etiological relationship; Dyslipidemia of proinflammatory cytokines, atherosclerosis, peripheral insulin resistance, type II diabetes, hypertension, etc. Many researchers have reported a strong association between psoriasis and diabetes, hypertension and hyperlipidemia.

This study shows a possible relationship between hypertension, diabetes and psoriasis. However, the association of patients with hepatitis C and psoriasis is insignificant due to the high incidence (3.0%) in Pakistan.

#### CONCLUSION:

Smoking appears to be related to the severity of the disease, and average PASI scores are directly related to the number of number of pack years. Psoriasis appears to be associated with diabetes and hypertension.

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