

Association of Alcoholism Among Adult Male Psoriasis Patients-A Cross-Sectional Study in A Tertiary Care Hospital

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ABSTRACT

Psoriasis is a chronic inflammatory papulo-squamous disorder of the skin associated with systemic manifestations. It has been estimated that the disease affects approximately 2-3% of total population. Plaque psoriasis is the most common type and accounts for almost 90% of all psoriasis. Clinically, it is characterized by sharply demarcated erythematous plaques with silvery white scales on scalp, lumbosacral region and extensor aspect of extremities. Psoriasis is classified into three types based on Psoriasis Area and Severity Index mild (PASI < 7), moderate (PASI 7-12) and severe (PASI > 12). Psoriasis and alcohol share a bidirectional relation. Alcohol is known to be an exacerbating factor for psoriasis and vice versa. Alcohol consumption exacerbates psoriasis by the production of inflammatory cytokines namely cyclin D1 and keratinocyte growth factor, immune dysfunction, increased sensitivity to trauma and infections. Alcohol consumption is classified on the basis of Alcohol Use Disorders Identification Test (AUDIT). AUDIT score of less than 8 is classified as hazardous drinking, AUDIT score between 8 and 20 as harmful use of alcohol and AUDIT score of more than 20 as alcohol dependence syndrome. It is a descriptive cross-sectional study including all male psoriasis patients aged more than 21 years attending Dermatology and Psychiatry OPD within the study period from October 2017 to June 2019. There was no significant association between severity of psoriasis and alcohol consumption. The association between severity of psoriasis with alcohol consumption need to be confirmed with further studies and with larger sample size.

Keywords:Psoriasis, Alcohol, PASI, AUDIT

INTRODUCTION

Psoriasis is a chronic inflammatory papulo-squamous disorder of the skin which affects 2-3% of patients worldwide.^{1,2} In Indian population, prevalence of psoriasis varies between 0.44 to 2.8%.³ Males and females are affected equally with bimodal age distribution of 15- 20 years and 55- 60 years.² Psoriasis has a broad spectrum of presentations within which plaque psoriasis accounts for about 90% of all types. Clinically, it is characterized by well-defined erythematous plaques with silvery white scales on scalp, lumbosacral region and extensor aspect of extremities. Severity of psoriasis is determined on the basis of Body Surface Area (BSA) and Psoriasis Area and Severity Index (PASI).²

As per the International Classification of Disease (ICD) 10 criteria, alcohol use is classified into three types viz hazardous drinking, harmful alcohol use and alcohol dependence syndrome. Hazardous drinking pattern increases the harmful consequences for both users and for others. Psychoactive substance use causing damage to both mental and physical health is defined as harmful alcohol use. Alcohol dependence syndrome is a desire of compulsion to consume alcohol, loss of control of use, a physiological withdrawal state when substance use has been reduced or ceased, development of tolerance, inability to experience the pleasurable activity, persistent consumption of alcohol despite clear evidence of overtly harmful consequences like cirrhosis of liver, pancreatitis, depression and impairment of cognition. Alcohol consumption is classified on the basis of Alcohol Use Disorders Identification Test (AUDIT).^{4,5}

Alcohol is known to be an exacerbating factor for psoriasis and vice versa. Alcohol consumption exacerbates psoriasis by production of inflammatory cytokines (cyclin D1 and keratinocyte growth factor), immune dysfunction, increased sensitivity to trauma and infections.⁶ Many studies have showed positive correlation between alcohol use and psoriasis.^{4,7-11} However some studies failed to show any significant association between alcohol consumption and psoriasis.^{12,13-15} Therefore the association of alcohol usage and severity of psoriasis remains controversial and exploring the same is justifiable. Hence we did a cross sectional study to analyse the association between severity of psoriasis and alcohol consumption.

METHODS:

We did a cross-sectional study involving 90 participants who were diagnosed as psoriasis. It was conducted at the Pondicherry Institute of Medical Sciences from October 2017 to June 2019. All male psoriasis patients aged more than 21 years attending Dermatology and Psychiatry OPD within the study period were included. Alcoholic participants with severe cognitive impairment (assessed by MMSE), hearing impairment and visual impairment were excluded from the study.

PARAMETERS STUDIED: PASI and AUDIT scores were calculated.

After obtaining an informed written consent, a complete clinical history was taken and examination was done and findings were documented for all participants. The severity of psoriasis was graded based on PASI score (Based on a study by Schmitt et al, Psoriasis is classified into 3 types mild (PASI<10), moderate (PASI 10-12) and severe (PASI>12)).

Alcoholic participants were classified into three groups namely hazardous drinking, harmful use of alcohol and alcohol dependence syndrome based on AUDIT scores. AUDIT scores range from 0 to 40 and it was calculated with the help of a 10-point questionnaire. A score of less than 8 was considered as hazardous drinking, 8-20 was classified as harmful alcohol use and more than 20 as ADS. The instrument was found to be valid and reliable. Appropriate treatment and counseling were given to the participants for psoriasis and alcohol use as required.

Data was analyzed using SPSS 20.0 and it was summarized using proportions and mean. Chi square test was used to calculate statistical significance. The p value less than 0.05 was considered as statistically significant value.

RESULTS:

Among the study population, most of the patients belonged to the age group between 41-50 years. The average distribution of age of the patients were 48.74 ± 13.83 years. Majority of the patients had disease duration of about 1-5 years with mean duration of 5.1 ± 1.08 years. The mean PASI score was 12.01 and mean AUDIT score was 20.43. 41 patients were alcoholic and 34 patients were smokers. Out of 90 patients in the study population, 24 patients had diabetes mellitus (26.7%) and 6 patients had systemic hypertension (6.7%) (Table.1).

Among the study population, in addition to plaque psoriasis, 9 patients had pustular psoriasis (10%), 6 had guttate psoriasis (6.7%), 8 had palmoplantar psoriasis (8.9%), 18 had psoriatic arthritis (20%) and 60 had nail psoriasis (66.7%) (Image 1,2,3).

Among the study population, 34.4 % had mild psoriasis, 27.8% had moderate psoriasis and 37.8% had severe psoriasis (Image.4). Among the study population, 56.7 % of patients had mild psoriasis (PASI<10) and remaining 43.3 % had moderate to severe psoriasis (PASI>10).

In this study, 45.6 % were alcoholic and remaining 54.4 % were nonalcoholic. In the alcoholic group, alcohol dependence (23.4 %) was the most common pattern followed by harmful alcohol use (13.3 %) and hazardous drinking (8.9 %) (Image 5).

Out of 90 patients, severe psoriasis (18) was most common in alcoholic group whereas in nonalcoholic group there was no significant difference with severity of psoriasis. The association between severity of psoriasis and alcohol use was not statistically significant (p- Value 0.259)(Table.2).

In this study, severe psoriasis was most commonly associated with alcohol dependence syndrome. However, there was no statistically significant association between alcohol consumption and severity of psoriasis (p-Value 0.451)(Table.3).

Image1: Distribution of various morphology of psoriasis

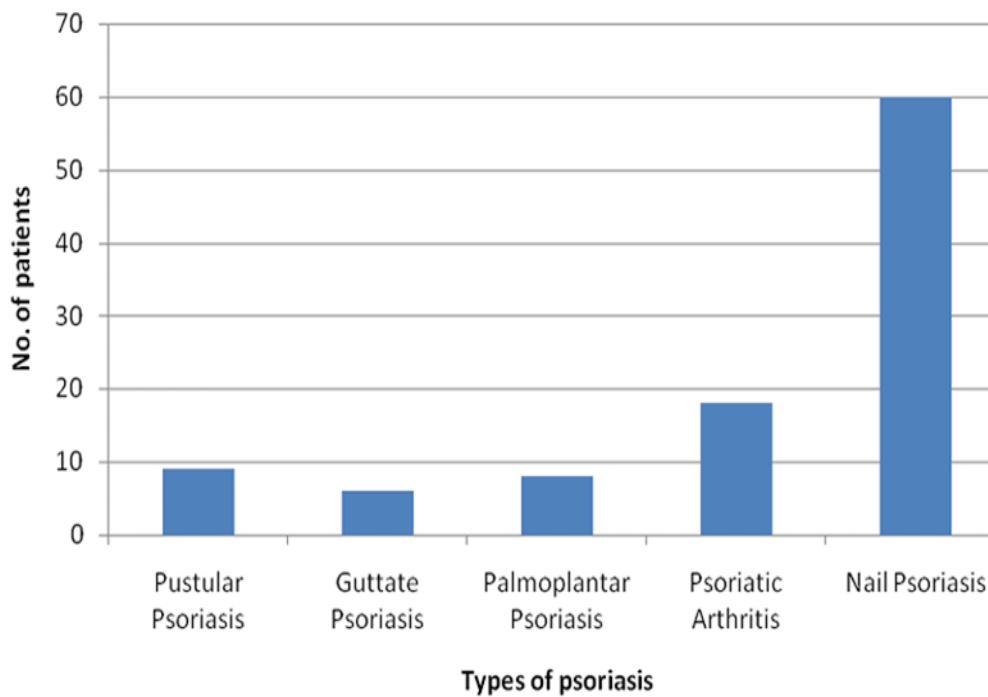


Image 2: Bilaterally symmetrical sharply demarcated erythematous scaly plaques over both knees and shin



Image 3: Distribution of psoriasis based on PASI score

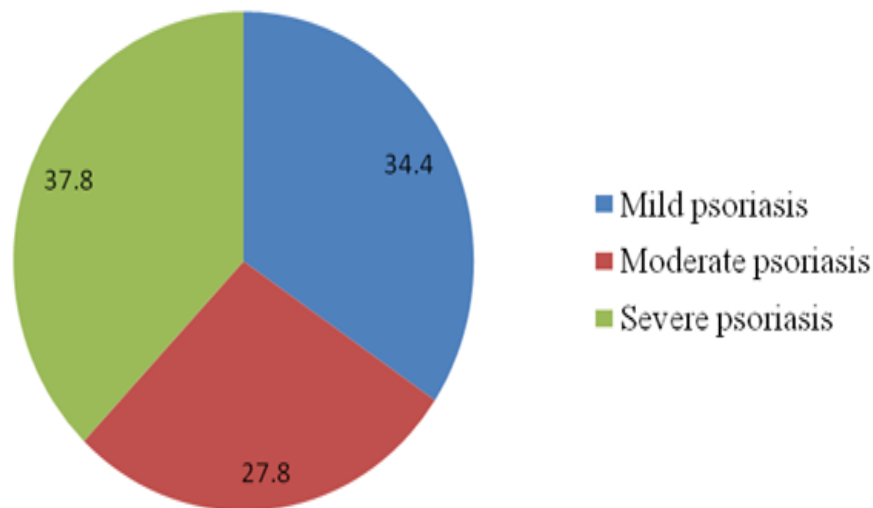


Image 4: Distribution of patients according to alcohol use

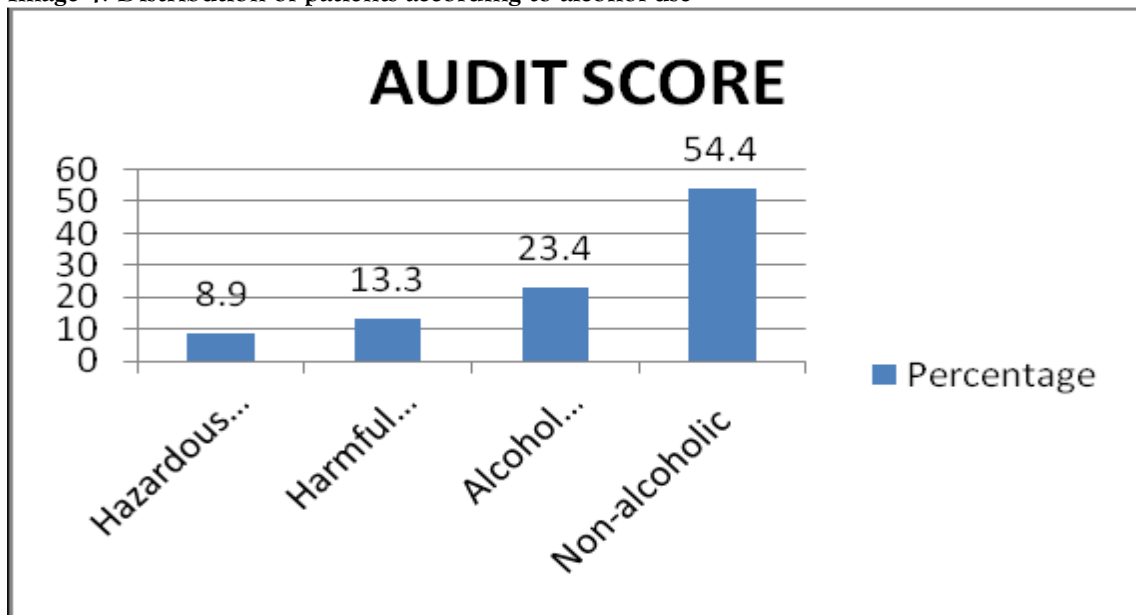


Table 1: Demographic details of study population

S. No	Feature	Results
1	Mean age	48.74 ± 13.83 years
2	Mean duration of disease	5.1 ± 1.08 years
3	Mean PASI score	12.01
4	Mean AUDIT score	20.43
5	Alcoholic	45.56%
6	Smokers	37.78%
7	Diabetes	26.7%
8	Hypertension	6.7%

Table.2: Comparison of PASI with alcohol use

Severity of psoriasis	Alcoholic	Non Alcoholic	Total
Mild Psoriasis	15	16	31
Moderate Psoriasis	8	17	25
Severe Psoriasis	18	16	34
Total	41	49	90

Table 3: Association between severity of psoriasis and alcohol consumption

Severity of psoriasis	Hazardous drinking	Harmful alcohol use	Alcohol dependence syndrome	Total
Mild psoriasis	5	5	5	15
Moderate psoriasis	1	2	5	5
Severe psoriasis	2	5	11	11
Total	8	12	21	21

Table.4: Study Association between alcohol consumption and severity of psoriasis

Sl.No	Study	Association between alcohol consumption and severity of psoriasis
1	Asokan et al ¹²	No
2	Dediol et al ⁷	Yes
3	Kirby et al ¹⁰	Yes
4	Qureshi et al ⁸	Yes
5	Poikolainen et al ¹¹	Yes
6	Lunawat et al ¹⁴	No
7	Adisen et al ¹³	No
8	Brenaut et al ⁹	Yes
9	Huerta et al ¹⁵	No

DISCUSSION:

Psoriasis is a T cell mediated chronic autoimmune disease of the skin which can also have systemic involvement. The etiology is usually multifactorial involving environmental, immunological and genetic factors leading to Th1, Th17 and Th22 mediated cytokine release (IL-17, IL-22, IL-8, IFN- γ , TNF- α , CCL20 and CCL2) which results in increased keratinocyte proliferation and turnover rate.³ There are various trigger factors of psoriasis such as stress, trauma, infections, dietary (alcohol and smoking), metabolic factors and drug intake. The notorious among them are alcohol and smoking which is bidirectionally involved with psoriasis.

Alcohol consumption varies significantly across the world. It was estimated that 30 percent of the population consumes alcohol regularly in India. Psoriasis can be either initiated or aggravated by alcohol consumption through immune dysfunctions, production of inflammatory cytokines (cyclin D1 and keratinocyte growth factor), increased sensitivity to trauma and superficial infections.⁴ The pathogenesis of alcohol induced psoriasis is as follows. The oxidative metabolite of ethanol is acetone, it increases the mRNA levels of α 5 integrin, Keratinocyte growth factor receptor (KGFR) and cyclin D1 which further induces interleukin (IL)-6 and Transforming growth factor (TGF) which then finally results in hyperproliferation of keratinocytes. Ethanol also directly influences IFN- γ causing keratinocyte proliferation. Further high ethanol levels can directly increase TNF- α converting enzyme (TACE) expression resulting in enhanced TNF- α production.¹⁶ Proliferation of keratinocytes and increased permeability results in defective skin barrier. Alcohol also damages normal lipid composition of skin which adds to the damage leading to inflammatory mediators.⁶

In this study, mean age of participants were 48.74 ± 13.83 years, with majority belonging to 41-50 years. Asokan et al, Lunawat et al, Surjith Singh et al and Gangaiah et al from various parts of India have shown similar results.^{12,14,17,18} Adisen et al, Springate et al and Shah et al from abroad also had comparable results.^{13,19,20} Another study done by Rakesh et al from Pondicherry reported the mean age of the patient was 40.52 ± 12.02 years.²¹ Few studies did not concur with our study.

In our study, 40% of the patients had disease duration of 1-5 years with mean duration of 5.1 years. Around 90% of the patients had disease duration of less than 10 years. Poikolainen et al from Finland also showed the disease duration of 5.5 years.¹¹ Few Indian studies have shown the similar results. Aruna et al from Andhra Pradesh and Praveen Kumar et al from Pondicherry showed disease duration of 5.4

years and 5±1 years respectively.^{22,23} Surjith Singh et al, Gangaiah et al and Girisha et al from various parts of India had disease duration of more than 5 years.^{17,18,24} A study conducted by Adisen et al from Turkey concluded the mean duration of psoriasis was 10.2±11.1 years.¹³

In this study, 34.4 % had mild psoriasis, 27.8% had moderate psoriasis and 37.8% had severe psoriasis. 45.6 % were alcoholic and remaining 54.4 % were nonalcoholic. Among alcoholic participants, alcohol dependence syndrome (23.4 %) was the most common pattern followed by harmful alcohol use (13.3 %) and hazardous drinking (8.9 %). Severe psoriasis was most common in alcoholic group whereas in nonalcoholic group there was no significant difference in severity of psoriasis. In this study, severe psoriasis was most commonly associated with alcohol dependence syndrome. However, there was no significant association between psoriasis and alcohol consumption.

There were many similar studies with varying results, which are compiled as below (Table.4). Asokan et al from Kerala conducted a study which showed nil association between alcohol consumption and psoriasis. However, significant association between nicotine dependence and psoriasis was documented with severe form of psoriasis seen commonly among smokers.¹² In Poikolainen et al study, the mean level of alcohol intake before the onset of disease was 42.9 g/day and mean annual intake of alcohol was 61.6 among psoriasis patients. Whereas control group had 21.0 g/day levels prior to onset of psoriasis and mean annual alcohol intake was 42.6.¹¹ Qureshi et al conducted a prospective study involving 82,869 female nurses in US and were followed up for 14 years. It showed that the multivariate relative risk of psoriasis was 1.72 in drinkers than who did not consume alcohol.⁸ In a study by Kirby et al from UK, a minor association between weekly alcohol consumption and psoriasis was reported.¹⁰

Out of 90 patients, 34 patients were smokers and remaining 56 were non-smokers. Smokers were most commonly associated with mild and severe psoriasis whereas in non smoker group, there was no difference in the severity of psoriasis. However it was not statistically significant. Asokan et al from Kerala showed positive correlation between nicotine dependence and psoriasis.¹² Lunawat et al from a tertiary health care center from Tamil Nadu revealed smoking and alcohol consumption were two factors that play an important role in linking metabolic syndrome with psoriasis.¹⁴

CONCLUSION:

There was no significant association between severity of psoriasis and alcohol consumption in this study. The association of severity of psoriasis with alcohol consumption need to be confirmed with further studies with large sample size. In our study, there was no association between severity of psoriasis and smoking habit. Out of 90 patients in the study population, 24 patients had diabetes mellitus and 6 patients had systemic hypertension showing the association of psoriasis with metabolic syndrome.

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