



EVALUATION OF PRURITUS AMONG ALCOHOL USE DISORDER PATIENTS: A CROSS-SECTIONAL STUDY

Dermatology

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ABSTRACT

Background: Skin manifestations are common in individuals with Alcohol Use Disorder (AUD). The relationship between alcohol consumption patterns and dermatologic conditions, particularly pruritus, remains underexplored in the Indian population. **Objective:** To evaluate the prevalence of pruritus among patients with AUD and association with the amount and duration of alcohol consumption and severity of alcohol dependence. **Methods:** A hospital-based cross-sectional study was conducted in outpatient department of Dermatology, Venereology, and leprosy in a tertiary care hospital at Bengaluru. One hundred and ten adult patients diagnosed with AUD were assigned for the study data were collected on alcohol intake (duration and quantity), dermatological conditions, and severity of dependency using the Severity of Alcohol Dependence Questionnaire (SADQ) over a period of 18months. **Results:** Pruritus was observed in 41.8% of patients. While pruritus prevalence was 48% in severe dependency and 33% in moderate dependency cases and none in mild dependent case the association was statistically significant ($p=0.0156$). Patients with pruritus had a higher average alcohol consumption (60.8 units/week) and longer duration (15.5 years) compared to those without pruritus. **Conclusion:** Pruritus is a common dermatological manifestation in AUD patients. There is a trend toward higher prevalence in severe AUD cases. Further studies are needed to explore other contributing factors like liver dysfunction, hygiene, and socioeconomic status.

KEYWORDS

Alcohol use disorder, pruritus, pruritogenic substances, liver function.

INTRODUCTION

The skin, the body's largest organ, serves as a barrier and a mirror to internal health. Alcohol Use Disorder (AUD) has well-documented systemic effects, and its cutaneous manifestations are often presents as an early indicators of systemic disease.

Cutaneous manifestations include pruritus, pellagra, rosacea, psoriasis, eczema, infections, and hepatic skin changes such as jaundice, spider angiomas, and palmar erythema.

Chronic alcohol use disrupts immune function, impairs hepatic detoxification, and leads to malnutrition which impact skin health. Pruritus, in particular, may result from hepatic dysfunction and the accumulation of pruritogenic substances such as bile acids, endogenous opioids, and inflammatory cytokines.^{9,10}

Although the dermatologic effects of AUD have been described in global literature, limited data exists correlating dermatologic manifestations, specifically pruritus, with clinical indices of alcohol consumption such as quantity, duration, and dependency severity, particularly in the Indian population.

Aims And Objectives

To estimate the prevalence of pruritus in patients with Alcohol Use Disorder. To analyse the correlation of pruritus with, Duration of alcohol consumption, Amount of alcohol consumed, Severity of alcohol dependence

METHODS

This was a hospital-based Cross-sectional observational study conducted in the Department of Dermatology, Venereology and Leprosy in a tertiary care hospital at Bangalore, India, between June 2023 to December 2024. The study was approved by the Institutional Ethics Committee, All patients Age > 18 years Diagnosed with Alcohol Use Disorder (DSM criteria) Willing to provide informed consent with dermatological complaints were included in the study.

Exclusion Criteria was occasional drinkers, Non-consenting individuals, Patients with non-alcoholic chronic liver disease.

At 99% Confidence interval and 10% absolute error and considering a non-compliance of 10%, a sample size of minimum of 110 subjects with Alcohol use disorder was included in the study, estimated based on a major outcome according to a study by Sharma Yk²

Informed consent taken from eligible patients. Alcohol use disorder diagnostic criteria was used to diagnose patient with AUD, Detailed history including alcohol consumption (duration and units/week) was taken. Clinical examination was done for dermatological conditions.

Patients were subjected to Severity of alcohol dependency questionnaire (SADQ) for dependency severity and relevant Laboratory investigations including LFT was done when required

Statistical Analysis: The data was entered in excel sheet and SPSS version – 26 was used for statistical analysis.

The data was expressed in the form of frequencies, percentage and graphs. Chi square test was expressed in the form of mean, Standard deviation, and groups T-test was used to find out mean difference between the 2 groups or variables. P-value ≤ 0.05 was considered as statistically significant

RESULTS

Demographics and Alcohol Use Mean duration of alcohol use was 13.9 years (range: 2–60), Mean consumption: 55.9 units/week

The association between the severity of alcohol dependence and the presence of pruritus Among patients with mild alcohol dependence, none reported pruritus (0%, 0/4); in those with moderate dependence, 33% (11 out of 33) experienced pruritus; and in the severe dependence group, 48% (35 out of 73) reported pruritus.

Total cases without pruritus: 64/110 (66.4%) A Chi-square test was conducted. The association was found to be statistically significant ($\chi^2 = 8.34$, $p = 0.0156$), indicating that increasing severity of alcohol dependence is associated with a higher prevalence of pruritus. Patients with pruritus had higher average alcohol consumption of 60.8 units/week and for longer duration of 15.5 years than those without, where average alcohol consumption is 52.3units/week and duration is 12.7years. Other dermatological findings include Xerosis, Pigmentary changes, Nutritional dermatoses, infections due to hygiene and socioeconomic factors.

Table 1: Severity Of Alcohol Dependency And Pruritus

Pruritus	Without pruitus	With pruritus	
Mild dependence	4	0	0%
Moderate dependence	22	11	33%
Severe dependence	38	35	48%

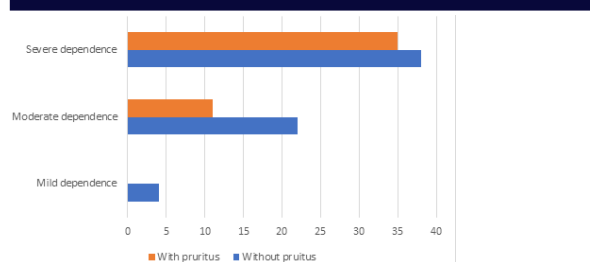


Fig 1: Graphical representation of Severity of alcohol dependency and pruritus

Table 2: Average Consumption And Duration:

Pruritus	Without pruritus	With pruritus
Avg consumption (units/week)	52.3	60.8
Avg duration of consumption (in years)	12.7	15.5

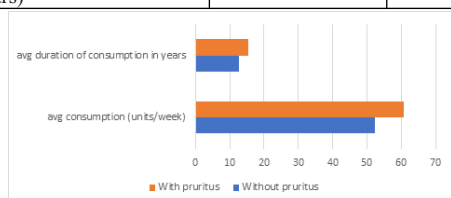


Fig 2 Average Consumption, Duration and pruritus

DISCUSSION

According to a recent general population-based study, the 12-month cumulative incidence of chronic pruritus in the general population may be as high as 7%, point prevalence was 15.4%, the 12-month prevalence 18.2%, and the lifetime prevalence 25.5%.¹⁵ The findings in our study suggest that pruritus is more prevalent among patients with alcohol use disorder (AUD), 41.8% of patients had pruritus. Previous studies have identified similar associations studies by Sharma YK et al² and Rao SK et al¹. On chronic alcoholic patients showed prevalence of 68.7% and 66.9% respectively prevalence in our study was slightly lower. The pruritus is likely due to cumulative liver damage, metabolic disturbances, and immune dysregulation associated with chronic and heavy alcohol consumption Singal et al. reported that patients with alcoholic liver disease frequently present with dermatological symptoms including pruritus, primarily due to cholestasis and systemic inflammation. Similarly, Kumar et al. found that pruritus was significantly associated with elevated bilirubin and alkaline phosphatase levels which are common in advanced stages of AUD.⁸

The observed pattern supports the hypothesis that pruritus may act as a clinical marker of progressive liver dysfunction or systemic toxicity in alcohol-dependent individuals. The absence of pruritus in patients with mild dependence could reflect limited physiological damage or shorter exposure duration to hepatotoxic effects. However, the 33% prevalence in moderate and 48% in severe categories highlights the importance of dermatological surveillance in AUD populations, particularly those with severe dependency who may not report systemic symptoms.

Pruritus in AUD patients is usually due to liver dysfunction and cholestasis results in several pruritogenic pathways:

Cholestasis and Bile Acid Accumulation: Liver dysfunction from AUD can lead to cholestasis, which causes bile acids to accumulate in the bloodstream and skin. Bile acids, such as Tauro- and glyco-conjugates, act as pruritogens by stimulating skin sensory nerves, inducing itching. Kremer et al. highlighted that bile acids can accumulate due to impaired bile excretion, triggers the itching when they interact with receptors in the skin.^{4,6}

Lysophosphatidic Acid (LPA) and Itch Receptors: In cholestatic conditions, LPA is elevated in plasma and enhances the itch sensation by binding to LPA receptor 5 (LPA5) in the skin.^{3,11}

Endogenous Opioids: Due to impaired liver clearance, Opioids can exacerbate pruritus by acting on mu-opioid receptors in the skin, increasing the sensation of itch.^{4,11}

Cytokine-Mediated Inflammation: Chronic liver damage in AUD

leads to systemic inflammation, with elevated levels of cytokines such as IL-6 and TNF- α . These cytokines can modulate pruritus by sensitizing nerve endings.^{5,12}

The mean duration of alcohol use was comparable to Rao SK et al. findings (13.9 years vs 20–30 years in majority). Similarly, the mean alcohol intake (55.9 units/week) aligned with other Indian studies (41–50 units/week)¹. These results underscore the need for early dermatological assessment in patients with escalating alcohol use, as pruritus may precede more severe hepatic or systemic manifestations and could be a valuable early clinical sign prompting further hepatological evaluation.^{8,13}

CONCLUSION

The present study demonstrates a significant association between the severity of alcohol dependence and the prevalence of pruritus, with higher rates observed in individuals with severe dependence. These findings underscore the importance of recognizing pruritus as a potential clinical indicator of advanced alcohol-related systemic involvement, particularly hepatic dysfunction. Factors such as inflammatory mediators, and socioeconomic conditions may also influence the development of pruritus so further long term longitudinal studies are needed to better understand the pathophysiology and predictors of dermatological manifestations in AUD.

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