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Original Research Article

Cutaneous manifestations of chronic alcoholism: a cross sectional study in a tertiary care centre in South India

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ABSTRACT

Background: Alcoholism is a chronic fatal disease of worldwide concern. Alcohol abuse can present in a variety of ways, and dermatological disease is emerging as an important marker of alcohol misuse. The aim is to find out the various skin manifestations associated in chronic alcoholics, to find out the most common skin manifestations among chronic alcoholics and to identify the early skin changes in chronic alcoholics.
Methods: A cross sectional study conducted in patients attending medicine, psychiatry and dermatology clinics at a tertiary care centre, Puducherry. Inclusion criteria were patients with history of chronic alcoholism, aged above 18 years. After obtaining history, cutaneous examination was done including skin, mucosa, hairs, and nails. Alcohol dependency pattern was calculated using short alcohol dependency score (SADD).
Results: A total of 130 patients were included. All were male and 59.2% of them belonged to high dependency pattern. About 128 of them had dermatological manifestations pityriasis versicolor was the most common dermatoses followed by psoriasis. Alcohol specific dermatoses were not seen in our study.
Conclusions: In our study, 98.4% of alcoholics had skin manifestations, of which cutaneous infections were the most common.

Keywords: Alcohol, Skin manifestations, Pityriasis versicolor, Psoriasis

INTRODUCTION

Alcoholism is a chronic, progressive and potentially fatal disease characterized by tolerance and physical dependency or pathologic organ changes or both, all of which are the direct or indirect consequences of the alcohol ingested.[1]

Alcoholics are more prone for developing various diseases because of the direct toxic effects and indirectly by various factors like malnutrition, neglect and others. Though initially it was the pathology in the liver which was primarily highlighted, the various physiological processes affected by alcohol such as immune and endocrine system is well documented.

Thus alcohol can affect almost all the organs and skin is no exception. Alcohol abuse can present in a variety of ways, and dermatological disease is emerging as an important marker of alcohol misuse.

Even early abuse would produce significant skin changes, which on early identification will greatly help in the treatment process. Dermatological manifestations have also been found to be a marker of alcohol misuse.[2]

Only few authors have studied the pattern of skin diseases in chronic alcoholics. The present study is being conducted to find out the dermatological manifestations occurring in chronic alcoholics.

METHODS

Our study was a cross sectional study wherein cases were chosen from medicine, psychiatry and dermatology departments.

Inclusion criteria included all subjects with history of chronic alcoholism, more than 18 years of age including females.

Prior to inclusion into the study, patients were asked to complete the consent form. Following which, cases were interviewed and the proforma was filled up mentioning alcohol habits, skin changes with details if any, and personal or family history of skin disorders. Following this, a detailed dermatological examination was carried out, including mucosal surfaces, hair and nails. Alcohol dependency pattern was differentiated based on SADD (short alcohol dependency data) score.[3]

The sample size was calculated considering an Absolute precision of 5%, Prevalence as 91%, and alpha risk 5%. The desired sample was 126.

RESULTS

In our study, a total of 130 cases with alcohol dependance and dermatological diseases were enrolled. All of them were male patients ranging from 19 to 65 years of age. Majority of them were manual labourers, and few were unemployed, belonging to a low socioeconomic status. Out of the 130 cases, 77 of them were listed under high alcohol dependence category judged by the SADD as given in Figure 1. The various dermatoses observed are listed in Table 1. Cutaneous infections constituted the majority of dermatoses (total of 45 out of 130). Out of infective dermatoses, fungal infections were the most common (35 out of the total 45). Among the fungal infections, pityriasis versicolor was the most common as given in Table 2. The next common dermatosis was psoriasis (22 of the total 130). This was followed by eczema and other benign tumours of the skin. Among alcohol specific dermatoses, pellagra was the only condition observed (3 of the total).

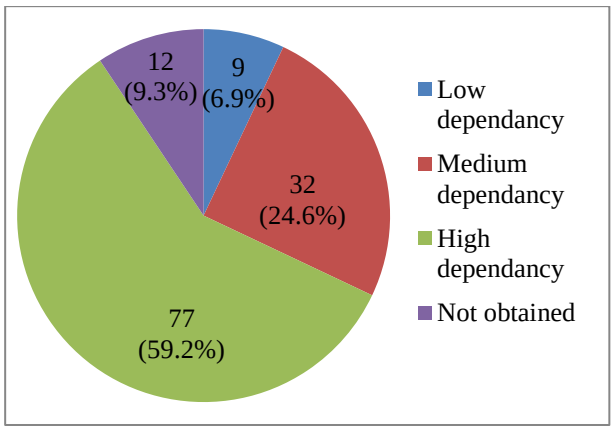

Figure 1: SADD scoring.

Table 1: List of various dermatoses observed.

Type of dermatosis	No.
Cutaneous infections	45
Papulosquamous disorders	22
Eczematous dermatosis	11
Benign tumours	11
Urticaria	8
Pigmented disorders	7
Nail disorders	6
Hair disorders	5
Pellagra	3
Miscellaneous	33

Table 2: Pattern of fungal infections.

Type	No.
Tinea versicolor	33 (94.2)
Dermatophytosis	1 (2.9)
Onychomycosis	1 (2.9)
Total	35 (100)

Table 3: Skin diseases related to alcohol abuse.

Diseases that may be exacerbated by alcohol	Diseases that may be caused by alcohol
Psoriasis	Porphyria cutanea tarda
Rosacea	Delusional infestation
Atopic and other eczemas (especially seborrhoeic dermatitis)	Chronic skin picking disorder
Pruritus (most causes)	
Chronic spontaneous urticaria	
Other inflammatory skin disease	
Nodular prurigo	
Skin disease associated with metabolic disease (e.g. skin manifestations of diabetes and thyroid dysfunction)	

Figure 2: Periorbital melanosis in an alcoholic.

Figure 3: Pellagroid dermatitis in a chronic alcoholic.

Figure 4: Verruca vulgaris in a chronic alcoholic.

Figure 5: Nail psoriasis in an alcoholic.

Figure 6: Psoriasis in a chronic alcoholic.

DISCUSSION

Alcoholism is a chronic, progressive and potentially lethal disease characterized by alcohol (ethanol) dependence and multiorgan dysfunction, with genetic, environmental and psychosocial factors playing the main role in its development.[1] Alcohol is an important cause of addiction worldwide and India is no exception. Alcoholism is a disease with wide social and cultural ramification. Our attempt to study the cutaneous disorders in patients with alcohol dependence revealed many interesting features. All our patients were male which reflects the fact that consumption of alcohol among women is not as common as in the western countries. Majority of the patients belonged to the low socioeconomic status which in turn reflects the importance of poverty and ignorance about the ill effects of alcohol. None of the patients belonged to the high socioeconomic status. The reason for that may be the fact, majority of the native population living in and around our area belong to low socioeconomic status, were the primary occupation was farming. It may also be due to the stigma related to alcoholism, so that patients belonging to high socioeconomic status can afford to seek private care without exposing himself to the society or in demands by his relatives.

Cutaneous findings reported with alcohol abuse are acne rosacea, acne vulgaris, acquired zinc deficiency, contact dermatitis, dermatophytosis, drug eruption, dyshidrotic eczema, fire ant stings, generalized pruritus, gynecomastia, icthyosis, impetigo, intertriginous eczema, neurodermatitis, onychomycosis, pellagra, peripheral neuropathy, pigmentation (dirty-gray), porphyria cutanea tarda, pseudopellagra, psoriasis,scabies, seborrhea capitis, seborrheic dermatitis, spider nevi, stevens-johnson syndrome.[1,4]

In our study, 77 (59.2%) patients had a short alcohol dependence score of greater than 20 (high dependence). They were chronic alcoholics who consumed greater than 400 ml of alcohol daily. Associated habits of smoking showed that these alcoholics have other addictions too. This also reflects prevalence of alcoholism in our area and also about the mental and physical dependence which alcohol can produce. Many of them with high dependency status were admitted in psychiatry ward and had withdrawal symptoms like disorientation and tremors. Two alcohol induced psychotic patients were also recorded in this study.

In our study, out of 130 patients recruited, 45 patients had features of cutaneous infections. Out of which pityriasis versicolor was the most common, constituting a total of 33 patients. Significantly, many of them had extensive type pityriasis versicolor. This may be due to the suppressive effect of alcohol on the immune system, which favours for the transformation of yeast, which is a normal commensal in humans to the pathogenic mycelia forms.[5] It may also be due to the poor hygienic status of

the patient. In a case control study done by Rao et al in 2004, it was seen that 28 patients had pityriasis versicolor, out of the total 200 patients examined, which was statistically significant in their study.[1] Among the bacterial infections, two of them had folliculitis, one had furunculosis, and one had latent syphilis with 1:8 VDRL titre. Among the viral infections, four patients had verruca vulgaris, out of which one of them had extensive lesions. Among the parasitic infections, two patients had scabies, out of which one of them had crusted scabies. None of the patients in our study had HIV infection, including the patient with crusted scabies.

The next most common dermatosis in our study was papulosquamous disorders. Among papulosquamous disorders, psoriasis was the only disorder observed. This probably reflects the close association between psoriasis and alcoholism.[6] It is a well-known fact that alcohol aggravates psoriasis and also that many of the psoriatic patients fall a prey to alcohol abuse because of depression related to the disease per se.[6] Further, associated alcoholism leads to decreased response to treatment in men with psoriasis.[7] Various studies have clearly demonstrated a higher than expected mortality in alcoholics with psoriasis, with the increased mortality directly related to the alcohol related morbidities.[7] Stress associated with psoriasis may lead to relief drinking, and drinking may further exacerbate existing psoriasis, leading to a vicious cycle. Though the lesions are said to be more erythematous and hyperkeratotic in alcoholics, no significant change in the morphology of the lesions were observed in our study.[5] Out of the 22 psoriatic patients recorded, 13 had plaque type psoriasis and the rest nine of them had palmo-plantar type of psoriasis. Acral accentuation of the disease in alcoholics is a well known fact.[8] Our findings did not correlate with the findings observed by Rao et al, in which none of the patients had psoriasis.[1] The proposed mechanism by which alcohol aggravates psoriasis is that, ethanol can inhibit or enhance protein kinase C isoenzyme which is essential for maintaining the cell cycle, proliferation, differentiation, cytokine production and adhesion molecule expression. Ethanol also increases the activity of transcription factors alpha 5 integrin, keratinocyte growth factor receptor and cyclin D1. Some authors have proposed that increased proliferation of cyclin D1 in non lesional skin have induced hyperproliferation, thus accounting for the pathogenesis of alcohol induced hyperproliferation.[6] Also, majority of the psoriatic patients (54.6%) belonged to high dependency status. Interestingly these patients had severe resistant psoriasis with higher PASI score. This would probably suggest the fact the amount of alcohol is directly related to the severity of the psoriasis.[5] The fact that 16.3% percentage of patients had psoriasis in our study which is very high probably reflects the role of type of alcohol consumed and also the genetic factors.

Among the eczematous dermatoses, seborrheic dermatitis was the most common (5 out of 11 patients observed). It is well known fact that alcohol will aggravate seborrheic dermatitis, especially who are deficient in nutrition and who have liver disease.[8] However, in our study none of these patients had liver disease. Our findings correlated with Rao et al, in which 11.5% of alcoholics had seborrheic dermatitis and seborrhea capitis, which was statistically significant in their study.[1] This fact is interesting for Rao et al did not observe a single case of psoriasis but had significant cases of seborrheic dermatitis. In contrast, our study had significant amount of psoriasis patients and fewer seborrheic dermatitis patients. Among the alcohol specific eczematous dermatoses, only one patient had nummular eczema. The others included parthenium dermatitis (2), lichen simplex (1), scrotal eczema (1) and irritant dermatitis (1).

Among the benign tumours, seborrheic keratosis was the most common (5 out of 13 patients) followed by achrochordons (4), cherry angiomas (3) and fibromas (1). These may not be directly related to alcohol, but rather are age related conditions.

In our study, eight patients had urticaria, out of which three had acute urticaria and four had chronic urticaria. Patients did not reveal any direst association of urticaria with alcohol intake. However, the additive such as colouring agents and salicylates added to it may aggravate urticaria.

About six of our patients had facial scars for which they wanted treatment. This is an interesting finding and probably reflects the higher incidence of violence among alcoholics-resulting in brawls. This may result in injury and resultant scarring.

In our study pigmentary disorders observed were non specific and may not be related to alcohol: idiopathic guttate hypomelanosis (1), post inflammatory de-pigmentation (1), post inflammatory hyperpigmentation (1), mucosal vitiligo (1), seborrheic melanosis (1), peri-orbital melanosis (1) and melasma (1).

Among the nail changes, 2 patients had clubbing which may be directly related to alcohol. Alcohol may cause overgrowth of the connective tissue, which may lead to clubbing.[5] However none of these patients had features suggestive of liver failure. The other nail changes observed were onycholysis (2), and Beau's lines (1). These may be related to trauma or occupational changes and may not be related to alcohol.

Alcohol specific dermatoses were not commonly seen in our study. Only 3 patients had pellagra as shown in Figure 4. All of them had eczematous dermatitis predominantly in the sun exposed regions of face, extensor forearms and dorsal hands, sparing the covered regions. However, the classical picture of Casal's necklace and Gauntlet was not present in any of them. Other features of pellagra like diarrhoea and central nervous system involvement were also not seen in any of them. These patients were more

than 60 years old, farmers and were chronic alcoholics, who consumed more than 500 ml of alcohol for more than 10 years. In the study done by Rao et al, none of the alcoholics had features of pellagra.[2]

Among the hair disorders, 3 patients had premature canitis, which may be due to relative nutritional deficiency caused by alcohol, and 2 had androgenetic alopecia. Thus, the most interesting findings were the association of psoriasis and alcoholism. The severity co-relating with a higher SADD score. However in our study, none of the early skin changes that can occur due to alcohol abuse were observed.

Psoriasis can be precipitated by stress and psoriasis may be associated with anxiety and low self-esteem. Drinking is a recognised stress response and it has been argued that alcohol misuse is a consequence of the stress, rather than being causally related.[9,10] Examination of the temporal relationship between alcohol misuse and the onset of disorder, shows that it is alcohol which provokes psoriasis. Abstinence has been observed to produce clinical improvement.[9]

Thus, to conclude, alcoholism is a social disease with wide ramifications. The dermatoses in alcohol dependant patients are varied. In our study the definite association of psoriasis and alcoholism was significant and requires further elaborate studies.

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APPENDIX

The severity of alcohol dependence questionnaire.

1: The day after drinking alcohol, do you wake up feeling sweaty?

- **Almost never**
- **Sometimes**
- **Often**
- **Nearly always**

2: The day after drinking alcohol, do your hands shake first thing in the morning?

- **Almost never**
- **Sometimes**
- **Often**
- **Nearly always**

3: The day after drinking alcohol, does your body shake violently first thing in the morning if you don't have a drink?

- **Almost never**
- **Sometimes**
- **Often**
- **Nearly always**

4: The day after drinking alcohol, do you wake up drenched in sweat?

- **Almost never**
- **Sometimes**
- **Often**
- **Nearly always**

5: The day after drinking alcohol, do you dread waking up?

- **Almost never**
- **Sometimes**
- **Often**
- **Nearly always**

6: The day after drinking alcohol, are you frightened of meeting people first thing in the morning?

- **Almost never**
- **Sometimes**
- **Often**
- **Nearly always**

7: The day after drinking alcohol, do you feel at the edge of despair when you wake up?

- **Almost never**
- **Sometimes**

Often

Nearly always

8: The day after drinking alcohol, do you feel frightened when you wake up?

Almost never

Sometimes

Often

Nearly always

9: The day after drinking alcohol, do you like a drink in the morning?

Almost never

Sometimes

Often

Nearly always

10: The day after drinking alcohol, do you gulp your first few drinks down as fast as possible?

Almost never

Sometimes

Often

Nearly always

11: The day after drinking alcohol, do you drink to get rid of the shakes?

Almost never

Sometimes

Often

Nearly always

12: The day after drinking alcohol, do you have a strong craving for drink when you wake up?

Almost never

Sometimes

Often

Nearly always

13: During a heavy drinking period, do you drink more than 1/4 bottle of spirits (or 1 bottle of wine, or 4 pints of beer) each day.

Almost never

Sometimes

Often

Nearly always

14: During a heavy drinking period, do you drink more than half a bottle of spirits per day (8 pints of beer, 2 bottles of wine).

Almost never

Sometimes

Often

Nearly always

15: During a heavy drinking period, do you drink more than a bottle of spirits per day (3 bottles of wine, 5 litres of cider or 10 pints of lager)

Almost never

Sometimes

Often

Nearly always

16: During a heavy drinking period, do you drink more than 2 bottles of spirits per day (7 bottles of wine, 9 litres of cider, 20 pints of beer).

Almost never

Sometimes

Often

Nearly always

For the next 4 questions:
Imagine you have been abstinent for a few weeks, then drink heavily for a couple of days.

17: The morning after would you start to sweat?

Not at all

Slightly

Moderately

Nearly always

I haven't been abstinent for that long, so it's hard to say

18: ...would your hands shake?

Not at all

Slightly

Moderately

Nearly always

I haven't been abstinent for that long, so it's hard to say

19: ...would your body shake?

Not at all

Slightly

Moderately

Nearly always

I haven't been abstinent for that long, so it's hard to say

20: ...would you be craving for a drink?

Not at all

Slightly

Moderately **Nearly always** **I haven't been abstinent for that long, so it's hard to say**
Interpretation:
A score of less than 3 indicates no alcohol dependence A score between 4 and 20 indicates mild dependence A score between 20 and 30 indicates moderate dependence A score of over 30 indicates severe dependence