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RESEARCH ARTICLE

Spectrum of Skin Dermatoses among Patients of Substance Use Disorder: A Hospital-based Study

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ABSTRACT

Introduction: Various substances of abuse are known to cause specific cutaneous manifestations. Cutaneous manifestations are associated with the use of cocaine, methamphetamine, heroin, marijuana, alcohol, anabolic steroids, and general signs of drug abuse, including the stigmata of injection drug use, infectious complications, and vascular complications. However, the literature on the same is very limited from the Indian subcontinent. The purpose of the study is to find out various dermatoses in patients of substance use disorder.

Materials and Methods: In the present study, 46 Diagnosed cases of substance use disorder as per the Diagnostic and statistical manual of mental disorder-5 (DSM-5)1 and confirmed by a qualified psychiatrist, were taken. The cutaneous examination was performed accordingly. Laboratory investigations were done as per need.

Results: Mean age was 42.21 ± 16.64. The majority of the patients were illiterate (41.3%) and 26.1% were either graduate or postgraduate and 21.7% were high school pass and 6.5% were in middle school and the minority had primary school education (4.3%). The majority of the patients had complaints of raised lesions (56.5%) and followed by redness (23.9%), pain (19.6%), burning (13%) and oozing (13%) discomfort and flaking of skin (10.9%), rash (8.7%), light spots (6.5%) and fluid-filled lesions (4.3%).

Conclusion: Few substances were associated with specific dermatoses. However, there is very little data, so this study will add upon the minuscule literature on this topic.

Keywords: Dermatoses, Substance use disorder

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INTRODUCTION

The essential features of substance use disorder is the cluster ofcognitive, behavioral and physiological symptoms representing that anindividual continues to use substance despite significant substance-related problems.

Various substances of abuse are known to cause specific cutaneousmanifestations. Cutaneous manifestations associated with the us of cocaine, methamphetamine, heroin, marijuana, alcohol, and anabolicsteroids. Examples of the general signs of drug abuse, include thestigmata of injection drug use, infectious complications, and vascularcomplications. Most notorious sign of intra-venous drug abuse is the injection marks, also known as "track marks". The linear marks represent post- inflammatory hyper-pigmentation at the injection site resulting from the damage and subsequent sclerosis of underlying veins[2, 3]. The antecubitalfossa of the non-dominant arm is the most commonly affected site, as it is easily accessible and often disguisable with long sleeved clothing[4].

There are several dermatologic signs of heroin addiction-ill, defined areas ofinduration and thickening in areas of skin popping and multiple scattered atrophic scars, thrombosed, cord like superficial veins in the mainliner. Recently, it has been observed that ulcerating nodules is another. Complication seen in heroin addicts[5]. Cocaine affects the skin as well as another organ systems. It is related with infectious diseases, vasculitis and other skin conditions. The hallucination of insects under the skin, which further leads to delusional parasitosis, is also associated with cocaine use.

There are few studies emphasizing the cutaneous findings in patients of substance abuse. There is a dearth of recent literature from the Indian subcontinent; hence this study was, Whichever are available were done in 90's, there is no recent data on the same. Hence this study was planned to assess the spectrum of various skin dermatoses among patients of substance use disorder presenting in the dermatology or psychiatry departments of SRMSIMS, Bareilly.

MATERIALS AND METHODS

Study was conducted among patients attending Dermatology and Psychiatry outpatient clinic. A qualified psychiatrist diagnosed patients as per

the diagnostic and statistical manual of mental disorder-5 after taking written informed consent. The institutional ethics committee approved study 88% prevalence of cutaneous complications among IV drug abusers and 95% ofconfidence interval revealed a sample size of 41. Present study has 46 study subjects. Limitation of this study was a small sample size and a hospital-based study during COVID epidemic.

RESULTS

Majority of the patients (37%) were of elderly group (>50 years) and the minority were young patients (10.9%) of age group< 20 years), Mean age was 42.21 ± 16.64. The majority of the patients were illiterate (41.3%) and 26.1% were either graduate or postgraduate and 21.7% were high school passand 6.5% were middle school and the minority had primary school education (4.3%). Majority of patients were from middle class (30%) and lower class (30%) followed by lower middle class (26%) and upper middle (11%) and the minority were of upper class (2%).

Symptomatically, majority of the patients had complaints of raised lesions (56.5%) and itching (45.7%) followed by redness (23.9%), pain (19.6%), burning (13%) and oozing (13%) discomfort and flaking of skin (10.9%), rash (8.7%), light spots (6.5%) and fluid filled lesions (4.3%). Comparisonof the demographic parameters with complaints of patients revealed a significant association between flaking of skin in elderly individuals aged more than 50 (p=0.001). The complaints of rash and flakiness showed significant differences among the socio-economic categories with p-values 0.04 and 0.02, respectively with increased incidence among lower andlower middle class.

Table 1 describes the relationship between substance abuse andmorphological type of skin lesions.

Among study subjects, cannabis and opioid abuse was seen in 15.2%each, and hallucinogen abuse was noticed in 8.7, 4.3% of patients reported caffeine and inhalant abuse (spray paints). Tobacco abuse was seen in 50% of patients, and alcohol abuse in 56.5% of patients. Hallucinogens were significantly associated with drug rash compared to other skin dermatoses (p=0.002)

Legs and the trunk were most commonly involved sites (41.3%) followed by arms and buttocks (34.8%) followed by thigh and oral involvement (30.4%), face (28.3%), axilla (23.9%), dorsa of hands (21.7%), feet (19.6%), neck (17.4%), groin (15.2%), nails and genitalia (8.7%) scalp, web spaces and palms (6.5%) and least involved (soles-2.2%).

17% of patients had xerosis and seborrheic keratoses was present in 2% ofpatients, whereas idiopathic guttate hypomelanoses and dermatoses papulosa nigra was not found. Correlating these physiological changes withsubstance abuse revealed a significant association of xerosis amongalcoholics (p=0.04).

Cutaneous infections were seen in 35% of patients. Most of the patients (22%) had fungal infections. 9% had viral infections and 4% had parasites, whereas bacterial infections were not found in patients. Table 2 mentions correlation between substance abuse and cutaneous infections.

4% of patients had ridging(longitudinal and horizontal) and 2% of patients had pits, onychomycosis, subungual hyperkeratosis, onycholysis and melanonychia. For 65% of patients had black hair and 26% had white hair and 9% had grey hair. For 17% of the patients had teeth staining,11% had plaques(buccal mucosa, tongue). 4% had erosions(buccal mucosa, tongue,lips).

DISCUSSION

Drug abuse is one of the commonest problems among all culturesand youth, especially the developed societies, and despite the various

efforts being made to reduce it, it's still increasing. Statistical data indicates a significant increase in the number of cases of substance abuse of aberrant behavior of various kinds between young and old. Redhwan Riyadh Haidar Albattal *et al.*[5] stated that Drug abuse in 2017 amounted to about 271 million people, or 5.5% of the world's population, between the ages of

15 and 64, as these figures are 30% higher than the levels in 2009.

However, the report attributed this increase in part to the growth of the world's population by 10% in this age group. Dermatologic manifestations are the earliest changes to be observed among patients of substance abuse.

Findings of our study correlates with the previous study by Redhwan Riyadh Haidar Albattal *et al.*[5] in terms of range of age group to some extent. In contrast, Dorothy I vollum *et al.*[6] stated that patients in their study ranged from 16 to 52 years, but most were in their early 20s. Young individuals were also not very forthcoming with the skin problems in the presentstudy. When we compared the demographic parameters with complaints of patients, a significant association was found between flaking of skin in elderly individuals, which was not found in any of the previous studies. This couldbe due to xerosis and loss of elasticity of skin in elderly individuals.

In our study majority of patients were illiterate(41.3%). Similarly Rahime Inci *et al.*[7] did a study on 136 patients in 2016 who were consuming cannabinoids in the form of smoking and opiates and other substances andmajority

Table 1: Relationship of substance abuse with morphological skin lesions

Primary lesions/ substanceabuse	Alcohol		Caffeine		Cannabis		Hallucinogen		Opioids		Tobacco		Inhalants		
	Number	%	Number	%	Number	%	Number	%	Number	%	number	%	number	%	p-value
macule	3	12	0	0	1	14	2	50	3	43	3	13	0	0	0.027,0.04
papule	6	23	0	0	2	29	1	25	3	43	3	13	1	50	0.25
patch	0	00	1	50	0	0	0	0	0	0	1	4	0	0	0.00
plaque	14	54	2	100	6	86	2	50	3	43	14	61	1	50	0.23
nodule	2	8	0	0	3	43	0	0	1	14	2	9	0	0	0.010
vesicle	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0.38
pustule	2	8	0	0	2	29	1	25	1	14	4	17	0	0	.04
purpura	3	12	0	0	0	0	1	25	1	14	1	4	0	0	
scales	7	27	1	50	1	14	1	25	1	14	1	4	0	0	.015
Crust	3	12	0	0	1	50	0	0	1	14	3	13	0	0	.27
excoriation	4	15	0	0	1	14	0	0	1	14	1	4	1	50	.034
Ulcer	1	4	0	0	0	0	0	0	0	0	1	4	0	0	.38
erosion	3	12	0	0	0	0	0	0	0	0	1	4	0	0	.12
Scar	2	8	0	0	0	0	0	0	0	0	2	9	0	0	.45
lichenificatio n	1	4	0	0	1	14	1	25	1	14	0	0	0	0	.66
wheals	1	4	0	0	0	0	0	0	0	0	0	0	0	0	.00
Target lesion	0	0	0	0	1	14	1	25	0	0	1	4	0	0	.016,.015

Table 2: Correlation between substance abuse and various cutaneous infections

Substance abuse/ infections	*Viral infections*		*Fungal infections*		*Parasitic infections*		
	Number	%	Number	%	Number	%	p-value
Alcohol	3	12	4	16	2	8	0.2
Caffeine	0	0	2	100	0	0.00	.002
Cannabis	1	14	2	29	1	14	0.16
Hallucinogens	0	0	1	25	0	0.00	0.024
Opioids	0	0	1	14	1	14	0.16
Tobacco	1	4	5	22	1	4	0.28
Inhalants	0	0	0	0.00	1	50	.001
Stimulants	0	0.00	0	0.00	0	0.00	
P value	Caffeine with fungal infection			0.002 (significant)			
P value	Inhalants with parasitic infection			0.001 (significant)			

of them were low educated (either illiterate or primary school).

Sengotuven K L *et al.*[8] in 2016 has observed the relationship between alcohol abuse and cutaneous manifestations on 130 patients and the majority of them belonged to a low socio-economic status. This is similar to the findings in present study. Skin flakiness showed a significant difference between the upper and upper classes and the middle and upper classes. This might be due to lower hygienic conditions in lower socio-economic class, because of which cutaneous infections are more common in them.

In the present study majority of patients were unemployed. These findings are concurrent with the study done by Sengotuven K L *et al.*[8]. Significant association of light spots was seen with unemployed or

unskilled study subjects (p=0.014). There is no available literature to compare these findings.

Regarding substance abuse, the findings in the present study were similar to previous studies in terms of alcohol and tobacco use where alcohol is the most widely abused substance, followed by tobacco (Sengotuven KL *et al.*[8]). This could simply be explained by the availability of various substances in different geographical areas and the cheaper Options patients could get in the form of alcohol and tobacco as majority of patients Belonged to low socio-economic status.

Sengotuven[8] and Rahime *et al.*[7] reported high incidence of cutaneous fungal infections among substance abusers, which is similar to the present study. Further, our findings were similar to the previous study, among which fungal Infections were the most common with alcohol, followed by viral then parasitic infections (Sengotuven *et al.*[8]). However, bacterial infections were comparatively less common in our study due tothe lack of investigations like bacterial cultures.

As far as infections with individual substances are concerned, in present study few new findings were observed, i.e., occurrence of Fungal, viral as well as parasitic infections with various substances, individually example Tobacco, opiates, inhalants, and stimulants. A significant difference wasobserved between Caffeine consumption and the presence of fungal infections,

inhalant abuse with the occurrence of parasitic infection which was not found in previous studies.

Sengotuven *et al.*[8] reported psoriasis vulgaris in 17% of patients among alcoholics, followed by eczema and benign tumours of skin. Similarly in our study among Alcohol consumers psoriasis vulgaris anddrug Rash were most common (12%) followed by other diseases. This maybe due to exacerbation of psoriasis by alcohol. Further xerosis can occuras a part of various dermatoses and also as an individual physiological change. Larger sample size is needed to reach a logical conclusion.

Fourteen percent of cannabis abusers had leprosy in the present study which has not been reported in past. A small sample size prevents us from reaching any conclusion.

The findings in our study were similar to previous studies in terms of many things and contrasting in some others. For example, alcohol and tobacco use where tobacco is the most widely abused substance, followed by alcohol but in our study it was alcohol that was abused more than tobacco and it can be due to less number of patients and geographical differences whereas in few Studies it has been found that cannabis and cocaine addiction were the most common Ones. Polysubstance abuse was

missing in the present study. This could simply be explained by the availability of various substances in different geographical areas and the fact that patient could get the cheaper options in the form of alcohol and tobacco. Noteworthy, majority of patients belonged to low socio-economic status.

CONCLUSION

Few substances were significantly associated with specific dermatoses; example-Alcohol abuse was associated with psoriasis andfungal infections. Tobacco consumption was associated with oral lichen planus, carcinoma of the buccal mucosa. Cannabis abuse was associated with pellagroid dermatitis; Hallucinogen abuse was associated with drug Rash; Opioids abuse was associated with vascular lesions (leucocytoclastic vasculitis). This study will add upon the minuscule literature present on this topic.

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