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Frequency of cutaneous manifestations in drug abuse patients.

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ABSTRACT… Objective: Drug abuse and drug addiction cases have been increased immensely in last few decades in Pakistan. This study was conducted to assess the frequency of cutaneous manifestations in drug abuse patients. **Study Design:** Cross Sectional study. **Settings:** Dermatology Department of a DHQ Teaching Hospital/Sahiwal Medical College, Sahiwal and Central Jail Hospital, Sahiwal. **Period:** November 2019 to June 2020. **Material & Methods:** 50 patients with drug abuse irrespective of age and gender were selected. Skin manifestations based on history and examination recorded on predesigned proforma. Laboratory investigations and skin biopsies were performed to confirm diagnoses in doubtful cases. **Results:** A total of 50 male patients with age above 16 years were enrolled. Single drug addiction was noticed in 62% (n=31) and polydrug abuse was observed in 38% (n=19). Regarding mode of drug intake, single and multiple modes of drug administration were seen in equal number 50% (n=25) each. Major bulk of skin manifestations were chronic including skin scars 66% (n=33), xerosis 60% (n=30), hyperpigmentation 58% (n=29), oral mucosal changes 94% (n=47) and facial skin changes 60% (n=30). Acute along with chronic skin changes were observed in 30% (n=15) mainly including injection marks 30% (n=15), vascular changes 12% (n=6) and infections 8% (n=4). **Conclusion:** Skin scars, xerosis, hyperpigmentation and oral mucosal changes are the common skin changes observed among drug abusers. Thus, physicians need to be aware of skin signs of drug abuse for timely recognition of substance abuse disorders and effective management.

Key words: Cutaneous Manifestations, Chronic Skin Changes, Drug Abuse.

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INTRODUCTION

Skin is considered to be mirror image of the body; we can establish diagnosis of systemic diseases or disease involving any organ of the body by looking into skin and mucus membranes. This principle or assumption could be applied in suspected cases of drug abuse or drug addiction by cutaneous and mucosal findings. It is estimated that alcohol and illicit drug addiction contributes 1.5 % of global disease burden and it is higher (5%) in developed countries like in USA.[1] Worldwide, drug abuse is common among young people aged between 14-25 years +but in Pakistan peak age of drug abuse ranges from 25 to 39 years. Drug abuse number has increased in the last few decades and according to UNDCO survey report 2013 about 6% of the population use illicit drugs.[2]

Multiple factors including genetic, social, psychological and environmental have been postulated in the etiology of drug abuse.[3] Studies have shown that there may be gene inheritance which can be involved in susceptibility to drug abuse, but exact mechanism of gene regulating physical reaction to these addictive drugs is still unknown.[4] Different neurophysiological pathways have been implicated in multiple neuropsychiatric conditions including substance addiction.[5] Environmental factors such as history of sexual abuse during childhood, poor relationship with family especially with parents, peer pressure and poor social skills may considered as contributing factors for drug abuse. Other factors pertaining to community included poverty, poor living conditions, illiteracy, and lack of recreational facilities at home were identified.[6]

Different drugs used for addiction are opioids (heroin, opium), cannabis derivatives (hashish, marijuana), cocaine, alcohol, Amphetamine, Lysergic acid diethylamide acid (LSD), ecstasy, anabolic steroids and inhalants. Their numbers may vary in different regions of the world due to availability and demographic reasons.[7] Different modes of drug intake in drug abusers are ingestion, inhalation, injections, sniffing, snorting and transdermal.[8] As with standard dose, the use of any drug have psychological as well as systemic effects on body, so drug abuse may have more severe social and systemic effects affecting the different organs of body including the skin. Thus mucocutaneous findings may be helpful in diagnosing the suspected case of drug abuse.[9]

Physicians and dermatologists must know the important cutaneous signs of drug abuse so that before history taking they can have clues to establish diagnosis of cutaneous manifestations resulting from drug abuse. Moreover, its importance is due to fact that most of the addicts and their attendants hide information on first encounter with doctor due to social stigmata. It had been observed in the previous studies that majority of patients seeking treatment in medical clinic for drug addictions had skin manifestations due to drug abuse.[10] The rationale of carrying out this study was to identify cutaneous findings related to drug abuse especially in chronic skin lesions which may have severe implications on human body if not treated timely.

METERIAL & METHODS

This cross-sectional study was conducted in Department of Dermatology at DHQ/GHAQ Teaching Hospital /Sahiwal Medical College, Sahiwal and addiction unit, Central Jail Hospital, Sahiwal from November, 2019 to June, 2020 after approval from ethical review committee and Superintendent Central Jail, Sahiwal. A total of 50 drug abuse patients of either sex and age of more than 16 years were selected. An informed consent was taken from each patient. Demographic variables and clinical data were noted on predesigned proforma. After a detailed history, cutaneous and systemic examination was carried out. Routine laboratory tests and skin biopsy was conducted in suspicious cases. Data was analyzed by SPSS Version 25.

RESULTS

In this study, 50 male patients of drug abuse history were included. Majority of study patients 44% (n=22) belong to age group 25-35 years with mean age of 31 years. (Table-I) Duration of addiction and duration of cutaneous lesions was more than five years in most of study patients 68% (n=34) and 58% (n=29) respectively. (Table-II) Majority of study patients 62% (n=31) were married. In this study, laborers 24% (n=12), farmers 22% (n=11) employed 22% (n=11) were top three occupations among drug abusers followed by self-employed 16% (n=8) and drivers 16% (n=8).

The study result revealed that single drug addiction 62% (n=31) was more frequent than polydrug abusers 38% (n=19). Distribution of patient according to type of drug is shown in Table-III.

Single and multiple mode of drug administration were observed in equal number of patients 50% (n=25). Distribution of patient according to mode of drug intake is depicted in Table-IV. The commonest site for cutaneous manifestations were limbs (n=36) followed by face (n=32) and trunk (n=21).

Age (years)	No	Percentage
<25	13	26%
25-35	22	44%
>35	15	30%
Mean± SD		31.72±9.39

Table-I. Distribution of patients according to age (n=50)

	Duration (in years)	No of Patients	Percentage
Duration of Addiction	<2	2	4
	2-5	14	28
	>5	34	68
Duration of cutaneous lesions	<1	4	8
	1-2	7	14
	2-5	10	20
	>5	29	58

Table-II. Distribution of patients according to duration of addiction and cutaneous lesions(n=50)

Type of Drug Abuse	Name of Drug	No of Patients	Percentage
Opioids	Heroin	17	34
	Afeem	9	18
Cannabinoids	Charas	2	4
	Hashish	1	2
Alcohol		2	4
others		0	0
Multiple drug abuse	Charas & Herion	10	20
	Charas & Afeem	7	14
	Heroin & Hashish	1	2
	Charas, Afeem & Heroin	1	2
Total		50	100

Table-III. Distribution of patient according to type of drug

Skin changes resulting from drug abuse were categorized into acute and chronic manifestations. Among acute cutaneous changes of drug abuse, injection marks were seen in 30% (n=15), vascular complications in 16% (n=8), infections in 8% (n=4), vasculitis in 8% (n=4) of study subjects. Infection which were observed in the study included cellulitis, subcutaneous abscess and necrotizing ulcer. Different vascular complications recorded were thrombophlebitis 12% (n=6), cutaneous necrosis 2% (n=1) and gangrene 2% (n=1). Vasculitis was seen in study objects with most common form was pyoderma gangrenosum. Urticaria was observed only in one of the patient.

Mode of Drug Abuse	Mode of Drug Abuse	No of Patients	Percentage
Single mode	Inhalational	7	14
	Oral	6	12
	Smoking	4	8
	Intravenous	3	6
	Snuffing	3	6
	Drinking	2	4
Multiple mode	Inhalational, Smoking	12	24
	Inhalational, Smoking, Intravenous	5	10
	Intravenous, Inhalational	3	6
	Inhalational, Smoking, Oral	2	4
	Intravenous, Oral	2	4
	Intravenous, Smoking	1	2

Table-IV. Distribution of patient according to mode of drug intake

Current study result showed that skin scars, xerosis, hyperpigmentation and oral mucosal changes were major chronic cutaneous manifestations among drug abuse patients. Different variety of skin scars including atrophic scars 30% (n=15), post cigarette burns scars 6% (n=3), hypertrophic scars 2% (n=1) and keloid 2% (n=1) were found mainly on limbs and trunk in patients using smoking as mode of drug intake. Skin popping scars 26% (n=13), linear scars with woody fibrous tract along limb vessel 16% (n=8) were observed in intravenous drug abusers. Striae were observed in 20% (n=10) of patient with smoking and intravenous mode of drug intake mainly on lower abdomen and thigh.

Xerosis of skin including limbs and trunk were observed in 62% (n=31) of patients. Hyperpigmentation of body was found in 58% (n=29) of patients. Oral mucosal changes resulting from drug abuse were noted in 94% (n=47) of study patients. Lips changes included were lip discoloration/pigmentation 44% (n=22), cheilitis

8% (n=4) and actinic cheilitis 2% (n=1) mainly seen with smoking mode of drug abuse. Buccal mucosal changes observed were pigmentation 54% (n=27) and ulceration 24% (n=12) seen in inhalational, snuffing and smoking mode of drug administration. Teeth discoloration was noted in 30% (n=15) of patients.

Soft tissue lesions including subcutaneous nodules were found in 22% (n=11) of patients mainly intravenous drug abusers. Chronic venous insufficiency features with pseudoscleroderma were observed in 2% (n=1) of patients.Senile facial appearance was noted in half (50%) of the patients and facial flushing was observed in 4% (n=2) of total patients. Nasal erythema within nostril was noted in 36% (n=18) of patients.

Nail changes were also recorded with different types of drug abuse. Longitudinal ridging (28%) paronychia (14%) were commonly seen followed by yellow discoloration (10%), onychomycosis (6%), subungual hyperkeratosis (4%) and clubbing (2%). Premature greying of hair was noted in one patient.

Different skin disorders observed among drug addicts were dermatitis (4%), Lichen planus (4%) and acne vulgaris (4%). Kobnerization was also seen in few patients (4%). Skin drug reactions observed were acneiform eruption (2%).

DISCUSSION

Cutaneous changes resulting from drug abuse has been documented in various studies in different parts of the world. These skin manifestations had been found with single and multiple uses of drugs in both genders with variable proportions. Current study enrolled all male patients due to main reason that the study was conducted in drug addiction unit of Central Jail Hospital, Sahiwal where only males were admitted. Secondly very few female patients with drug abuse visit public hospitals in order to get treatment for their skin and other systemic complaints.

Recent study showed that majority of drug abuse patients were in age group 25 to 35 years. This was in concordance with the studies conducted previously.[11] Duration of drug abuse/addiction was more than 5 years in most of patients. In contrast, different findings regarding duration of drug abuse was demonstrated in studies performed in the past.

Polydrug addiction was more common than single drug abusers in the past studies.[12,13,14] In current study, single drug users (62%) were more than poly drug abusers. Similar findings regarding mono drug abusers (62%) were also observed in the study conducted by Faiza et al in Islamabad.[15]

Recognition of skin changes resulting from drug abuse is important in identifying early complications, thus saving life of these patients.[16] Acute manifestations of drug abuse in the current study were reported less than previous studies. Skin and soft tissue infections are the most common acute changes observed in drug abusers and considered to be main cause of admission among intravenous drug addicts.[10] Abscesses and cellulitis the most frequently noted skin and soft tissue infections in drug addicts. Skin pop induces trauma to skin and underlying soft tissue and use of unsterilized needles may help the pathogens like bacteria to enter the human body through skin resulting into cellulitis.[17] Other infections including subcutaneous abscess, necrotizing ulcer and necrotizing fasciitis were commonly observed in intravenous drug abusers and these may become fetal if not treated early. Extremity infections in intravenous drug abusers may lead to osteomyelitis, and septic arthritis which may cause disability. Thus infections have significant morbidity and mortality in IV drug abuse patients.[18,19] The low frequency of acute changes especially skin infections in present study were mainly due to selection of partial rehabilitated and treated cases of drug abuse patients in addiction unit of Central Jail Hospital.

Among vascular complications thrombophlebitis was commonly found in present study followed by cutaneous necrosis and gangrene. Necrosis of the extremities is another lethal complication seen in IV illicit drugs.[20] Vasculitis associated with cocaine reported in various studies are; urticarial vasculitis, retiform purpura, Henoch Schonlein purpura, Raynaud's phenomenon and

Churg-Strauss Vasculitis.[10,17,20,21,22] Urticaria is a common skin manifestation observed in heroin addicts in the past studies. It results from mast cell degranulation and mast cell release. Only one patient had urticarial in the present study.[17,21]

In intravenous drug abusers, injection marks or linear track marks develop from damage and sclerosis of the underlying veins. The antecubital fossa veins are most favorite site for IV drug abuse followed by other accessible sites like neck veins, legs (popliteal vein), (inguinal veins)groin, and dorsum of the feet.[17] Skin popping scars results from self-injections into the subcutaneous tissues and allows direct entry of bacteria and irritants into the skin. This method has the greatest risk factor for acquiring the skin infection among different routes of administration.[23,24] Roughly 66% of patients of present study presented with different variety of skin scars. These included atrophic scars, post cigarette burns scars, hypertrophic scars and keloid mainly on limbs and trunk of patients with smoking as mode of drug intake.[25] Skin popping scars, linear track scars were observed in intravenous drug abusers mainly on limbs.

Generalized xerosis and hyperpigmentation of skin was observed in more than half of the present study cases. Dryness of skin results from environmental or exogenous factors and endogenous factors. Among endogenous causes systemic diseases, chronic infections, endocrine disorders, drugs especially narcotics and heroin has been associated.[26] Generalized hyperpigmentation of body and at the site of injection has been noted in the literature.[10]

Oral mucosal changes are reported with different modes of drug administration; sniffing, ingesting with food, mucosal application, inhalation and intravenous injection.[27] Drugs including opiates, amphetamines, miscellaneous hallucinogens, marijuana, and alcohol may produce xerostomia and other changes on lips.[28] Current study showed lips changes including pigmentation and cheilitis observed among patients who took drugs through smoking and inhalational route. Shekarchizadeh H et al from Iran reported oral changes including dental caries, periodontal diseases, mucosal dysplasia, xerostomia, tooth loss among drug abusers.[29] Buccal mucosal changes including pigmentation and ulceration were noticed in the present study with inhalational, snuffing and smoking mode of drug intake. Leukoplakia and oral submucous fibrosis found with opioids use. Poor oral hygiene practices with chain smoking of tobacco are factors considered to be responsible for these changes seen in drug abuse patients.[30]

Subcutaneous nodules are seen at the site of injection in IV drug abuse. They have tendency to undergo granulamotous change and may result into ulceration. Due to intravenous injections damage occurs to both superficial and deep veins resulting into chronic venous insufficiency and ulceration with sclerosis of the surrounding skin.[10]

Senile facial appearance was observed in majority of study subjects. This finding is seen with use of amphetamine among drug addicts in previous studies.[22] Facial flushing was observed in patients with alcohol abuse. Cocaine may cause damage to nasal septum and resulting into nasal perforation.[17] Nasal erythema within nostril was noted in patients with inhalational mode of drug administration.

Eye skin changes may be seen in drug addicts. Cocaine may cause loss of lateral eyebrows (madarosis).[17,21] Heroine use may lead to periorbital hyperpigmentation. Hair loss and premature greying of hair is noticed in marijuana addicts.[17]

Different dermatoses observed in study patients were dermatitis, Lichen planus and acne vulgaris. Various skin conditions are associated with alcohol abuse include rosacea, psoriasis, seborrheic dermatitis and discoid eczema.[17] Pemphigus vegetans may occur with heroine abuse.[22]

Illicit drugs may lead to different drug eruptions. Fixed drug eruption, toxic epidermal necrolysis occurs with heroine. Lichenoid drug eruption

is seen among amphetamine users.[22] Stevens-Johnson syndrome may be observed with cocaine and anabolic steroids.[21,31]Acneiform eruption was observed in study patients. Similar eruptions have been found in the studies of the past.[21,22]

As number of illicit drug abuse patients is growing rapidly, this highlights the need of dermatologists to update the information regarding the already known skin lesions and new emerging skin changes resulting from drug abuse. Moreover, such patients hide information regarding the drug addiction in the history which leads to difficulty in establishing the diagnosis. Recognition of risk factors related with the skin infections of drug abuse is necessary to prevent fatal complications; thereby reducing morbidity among drug addicts.[32]

The major limitation of present study is that data do not represent the real population data or size as it included only few patients presented in OPD Dermatology and mostly consisted of drug abuse patient admitted in addiction unit of Jail Hospital. Secondly, no randomization for selection of patients was done in order to decrease selection bias. Thus variation existed in cutaneous manifestation of drug abuse in our study patients than real population of drug abuse. No female gender in study data is the third evident limitation of this research work.

Current study emphasized that physicians and dermatologists besides getting knowledge of cutaneous clues of drug abuse; they must learn how to motivate such patients to provide their drug related information in history taking so that early diagnosis and appropriate management of skin and systemic problems could be done.

CONCLUSION

Skin scars, xerosis, hyperpigmentation and oral mucosal changes are the common skin changes observed among drug abusers. Thus, physicians need to be aware of skin signs of drug abuse for timely recognition of substance abuse disorders and effective management.

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2	Syed Muntazir Mehdi	Introduction & review of literature.	
3	Urfa Shafi	Data analysis, Proof reading, References correction.	