

Dermatological manifestations in human immunodeficiency virus-infected patients at a tertiary care hospital at P.D.U. Medical College and Hospital, Rajkot, Gujarat

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Received: November 03, 2015; **Accepted:** November 24, 2015

ABSTRACT

Background: Human immunodeficiency virus (HIV) infection produces a panorama of mucocutaneous manifestations, which may be the presenting feature of the disease. Up to 90% individuals with HIV infection experience oral and or cutaneous complications during their illness. **Objectives:** Objectives of the study were to study the mucocutaneous manifestations profile of HIV-seropositive patients. **Materials and Methods:** A total of 500 HIV-seropositive patients attending skin OPD during November 2012-September 2014, a 2 years study, were assessed for various mucocutaneous manifestations. **Results:** Maximum number of patients 374 (74.80%) belonged to the age group (25-49 years) with males being more commonly affected M: F-1.6:1. Low socioeconomic class 477 (95.40%), illiterate 195 (39%), laborer 234 (46.80%), and married 468(93.60%) patients were the most commonly affected ones. Heterosexual 418 (83.60%) mode of transmission was the most common. Monogamic patients were maximum with 417 (83.40%) and 390 (78%) cases had seronegative partners. Among infections and infestation, the most common was dermatophytosis 132 (26.40%) followed by herpes simplex 53 (10.60%), multiple pyoderma in 46 (9.20%) cases, Scabies was seen in 15 (3%) patients with the most common oral lesion being candidiasis (35.71%). Pruritus was associated in 51 (10.20%) patients. CD4 count was more than 200 cells/mm³ in 375 (75.00%) patients. Among total 14 patients with oral mucosal involvement, the most common was oral candidiasis in 5 (35.71%) patients. Of the total 25 patients with cutaneous drug reactions, morbilliform rash was the most common in 11 (44%) patients. Maximum number of cases 4 (44%) had nevirapine as the culprit drug. **Conclusion:** Mucocutaneous manifestations of HIV help in early identification of HIV cases. Better implementation of current strategies is needed to increase awareness and safe sexual behavior of the population.


KEY WORDS: Human Immunodeficiency Virus Infections; Mucocutaneous Manifestations; Cutaneous Drug Reactions

INTRODUCTION

AIDS was first recognized in the United States in 1983, in India in 1986. In 1983, human immunodeficiency virus

(HIV) was isolated from a patient with lymphadenopathy, and by 1984 it was demonstrated clearly to be the causative agent of AIDS. In 1985, a sensitive enzyme-linked immunosorbent assay was developed, which led to an appreciation of the scope and evolution of the HIV epidemic.

HIV disease is characterized by gradual deterioration in the functioning of the immune system with consequent opportunistic infections and in some instances neoplasia. The most crucial defect is in T lymphocytes carrying the CD4 marker on the surface. During infection with HIV, the decline

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2017.1169024112015	

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of the CD4 T cells heralds the onset of various opportunistic infections and malignancies that typify AIDS.

HIV infection produces a panorama of mucocutaneous manifestations, which may be the presenting feature of the disease. The skin is frequently involved in the course of HIV infection. The skin is a good indicator of the function of immune system and may indicate underlying serious systemic infections. India is the third in the world in terms of greatest number of people living with HIV. Difference in the rate of development of AIDS may be due to host factors such as age, mode of transmission, nutritional and immune function status of the host, genetic factor, and due to agent factors including viral genetic strain, inoculation size and virulence of the virus.

Herpes simplex virus type 2 (HSV-2) is the cause of most genital herpes cases. Now, HSV-1 has become an important cause and represents even about 30% of genital herpes in some countries. Hence, study related to genital herpes should consider both HSV-1 and HSV-2.

Early diagnosis of these disorders is essential for the timely institution of antiretroviral therapy, prophylaxis for opportunistic infections, prevention of further transmission and counseling. The aim of this study was to check the profile of HIV seroreactive patients showing mucocutaneous manifestations.

MATERIALS AND METHODS

This study was conducted in the Department of D.V.L. (SKIN), P.D.U. Government Medical College and Hospital, Rajkot, during November 2012-September 2014. Human Research Ethical Committee permission was taken before starting of the study. The study population consists of 500 HIV seroreactive patients with mucocutaneous manifestations enrolled during this period.

The demographic data age, sex, occupation, marital status, and address were noted of all patients. Chief complaints related to skin and associated complications, sexual history, blood transfusion history, and history of major surgical procedure. History of tuberculosis, family history, treatment history was also noted. Investigations such as routine hemogram, renal function test, liver function test, hepatitis B surface antigen, CD4 count, gram staining, tzanck smear, skin biopsy, potassium hydroxide smear, urine routine micro, chest X-ray, abdomen sonography, S. protein, rapid plasma reagin, montoux test, and hepatitis B&C virus were done according to need.

In this study, all age group patients who were HIV seroreactive were included and patients excluded were with known cause of immunosuppression other than HIV, like malignancy other

than those occurred due to HIV-induced immunosuppression, immunosuppressant drugs (steroids, antineoplastic drugs), malnutrition, aging and chronic illnesses.

RESULTS

During the study period of 2 years, a total of 500 HIV-infected patients were enrolled in this study, and following observations were made. Demographic profile of participants (Table 1)

Table 1: Demographic parameters of HIV-infected patients

Demographic parameters	Number of patients (%)
Age in years	
0-5	3 (0.6)
6-14	19 (3.8)
15-24	30 (6)
25-49	374 (74.8)
>50	74 (14.8)
Grand total	500 (100)
Sex wise distribution	
Male	193 (61.2)
Female	307 (31.8)
Grand total	500 (100)
Occupation	
Laborer	234 (46.80)
Housewife	126 (25.20)
Service	21 (4.20)
Driver	35 (7)
Farmer	41 (8.20)
Student	21 (4.20)
Unemployed	22 (4.40)
Grand total	500 (100)
Socioeconomic status	
Low	477 (95.4)
Middle	23 (4.6)
Higher	0 (0)
Grand total	500 (100)
Education	
Illiterate	195 (39)
Primary	151 (30.20)
Secondary and higher-secondary	145 (29)
Graduate	9 (1.80)
Grand total	500 (100)
Marital status	
Married	468 (93.60)
Unmarried	27 (5.40)
Divorced	2 (0.40)
Widowed	3 (0.60)
Grand total	500 (100)

HIV: Human immunodeficiency virus

shows maximally affected age group was 25-49 years with 374 (74.80%) patients. Gender wise distribution shows Male: Female ratio was 1.6:1. Out of the total 500 participants, the majority were laborer 234 (46.80%). People belonging to lower socioeconomic class were maximally affected with 477 (95.40%) patients. Literacy level shows that 195 (39%) patients were illiterate. Out of 500 patients, 468 (93.60%) patients were married.

The most common mode of transmission was heterosexual mode 418 (83.60%) followed by blood transfusion 44 (8.8%) as seen in Figure 1. The other common modes of transmission were homosexual activity [7 (1.8%)], bisexual activity [1 (0.2%)], vertical transmission [2 (0.4%)], and cases with unknown mode of transmission [28 (5.6%)]. As seen in Table 2, monogamic patients were maximum of the total patients with 417 (83.40%). However, 71 (14.20%) participants were polygamic. Among the HIV status of partners, 390 (78%) cases had seronegative partners and 98 (19.60%) patients had seropositive partners.

Table 3 shows mucocutaneous manifestations. Dermatophyte infection was the most common and was seen in 132 (26.40%) patients. Among viral infections, 53 (10.60%) patients had HSV infection. For bacterial skin infection, the most common infection was Multiple Pyoderma in 46 (9.20%) cases. Among parasitic infestation, Scabies was seen in 15 (3%) patients. Pruritus was associated in 51 (10.20%) patients followed by Pruritic papular eruptions in 34 (6.80%) patients. According to Table 4 among total 14 patients with oral mucosal involvement, oral candidiasis was observed in 5 (35.71%) patients and it was the most common manifestation. Out of the total 14 patients with oral manifestations, 5 patients had oral candidiasis. As seen in chart, Tinea cruris was maximum with total 56 (11.2%) patients followed by herpes genitalis 37 (7.4%) patients. There were 5 (1%) cases of mixed sexually transmitted diseases (STDs), among which combination of herpes genitalis and genital warts was the most common in 3 cases (Figure 2). Out of those 5, 4 (28.57%) patients had CD4 cell count <200 cells/mm³ and 1 (7.14%) had CD4 cell count >200 cells/mm³.

Out of total 25 patients with cutaneous drug reactions, morbilliform rash was the most common (Figure 3). 11 (44%) patients had reported with the same. The drug responsible most commonly for the cutaneous drug reaction was nevirapine (4) causing morbilliform rash and urticaria/angioedema. All had low CD4 count (Table 5).

CD4 cell count was <200 cells/mm³ in 36 (7.2%) of patients having dermatophyte infection and CD4 cell count >200 cells/mm³ in 96 (19.2%) of patients. Out of the total 500 patients, 63.60% patients had CD4 cell count more than 200 cells/mm³. This suggests that symptoms of immune reconstitution inflammatory syndrome (IRIS) may have resembled a flare up of an opportunistic infection.

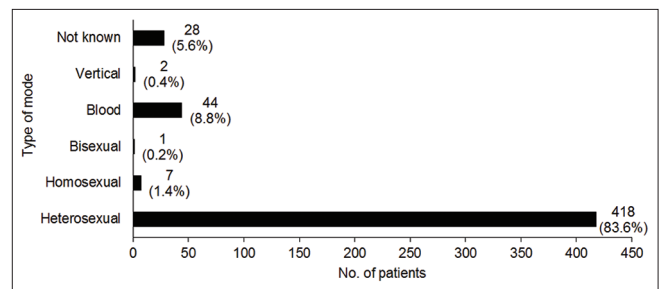


Figure 1: Mode of transmission of human immunodeficiency virus in the patients

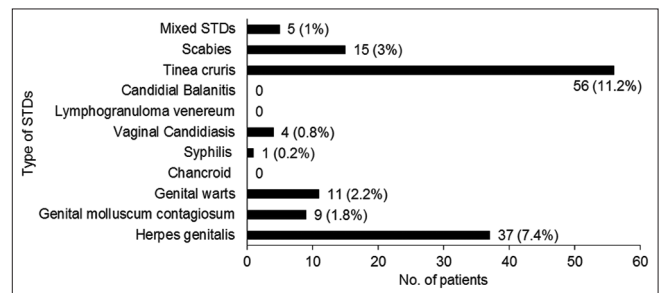


Figure 2: Sexually transmitted diseases in the patients

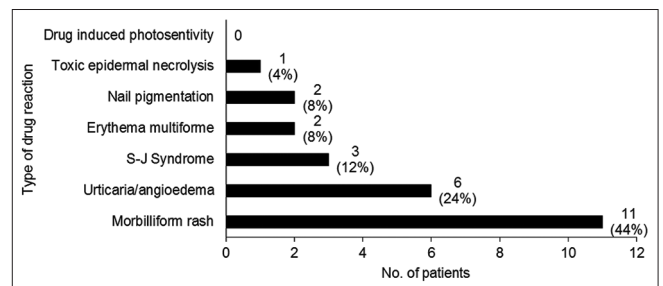


Figure 3: Drug reactions seen in human immunodeficiency virus-positive patients

Table 2: Status of sexual partners of the patients

Parameters	Number of patients (%)
Number of sexual partners	
Monogamic	417 (83.40)
Polygamic	71 (14.20)
Not applicable	12 (2.40)
Grand total	500 (100)
HIV status of partners	
Positive	98 (19.60)
Negative	390 (78.00)
Unknown	00 (0)
No partners	12 (2.40)
Grand total	500 (100)

HIV: Human immunodeficiency virus

DISCUSSION

In this study, maximum number of patients 74.80% belonged to the age group 25-49 years, which is comparable to 77.67% and 56.19% maximum number of patients in the

Table 3: Mucocutaneous manifestations and relation with CD4 count in the patients

Mucocutaneous manifestations	Number of patients (%)	% of patients with CD4 cell count	
		<200/mm ³	>200/mm ³
Infection and infestations			
Fungal			
Candidiasis	29 (5.80)	1.20	3.60
Dermatophytosis	132 (26.40)	7.20	19.20
Pityrosporum infection	8 (1.60)	0.40	1.20
Viral			
Herpes simplex infection	53 (10.60)	2.20	8.40
Herpes zoster	26 (5.20)	0.80	4.40
Varicella-zoster virus infection	26 (5.20)	0.60	4.60
Molluscum contagiosum infection	14 (2.80)	0	2.80
Human papillomavirus infection	11 (2.20)	0.40	1.80
Bacterial			
Pyoderma	36 (7.20)	1.00	6.20
Syphilis	1 (0.20)	0	0.20
Folliculitis	10 (2.00)	0.20	1.80
Leprosy	1 (0.20)	0	0.20
Parasitic infestations			
Scabies	15 (3.00)	0.40	2.60
Inflammatory disorders			
Seborrheic dermatitis	10 (2.00)	0.20	1.80
Psoriasis	3 (0.60)	0	0.60
Ichthyosiform dermatoses	14 (2.80)	0.20	2.60
Pruritus associated with HIV	51 (10.20)	5.60	5.60
Pruritic papular eruptions	34 (6.80)	2.20	4.60
Adverse cutaneous drug reactions	25 (5.00)	0.80	4.20
Miscellaneous disorders			
Xerosis	1 (0.20)	0	0.20
Miscellaneous skin findings	25 (5.00)	0.40	4.60
Hair alterations	3 (0.60)	0	0.60
Nail changes	48 (9.60)	2.20	7.40

Table 4: Oral lesions and comparison with CD4 count

Oral lesions	Number of patients (%)	% of patients with CD4 cell count	
		<200/mm ³	>200/mm ³
Candidiasis	5 (35.71)	28.57	7.14
Angular cheilitis	1 (7.14)	7.14	0
Herpes simplex	4 (28.57)	7.14	21.42
Aphthous ulcer	1 (7.14)	7.14	0
Oral hairy leukoplakia	0 (0)	0	0
Stomatitis	0 (0)	0	0
Necrotizing periodontitis	0 (0)	0	0
Necrotizing gingivitis	0 (0)	0	0
Erosion	3 (21.42)	7.14	14.28
Total	13 (100)	57.14	42.86

age group 25-49 years in the Toshniwal et al.^[1] and Singh and Singh^[2] studies, respectively; which is the most sexually active group. Males were more commonly affected 61.20% than Females 31.80%, with male to female ratio of 1.6:1; which is comparable to study of Kore et al.^[3] and Singh and Singh^[2] in which males were more commonly affected with male to female ratio of 2:1 and 1.5:1, respectively. Fewer females attend the HIV clinics because of financial constraints, gender bias, lack of decision making power, and social stigma attached with the disease. Low socioeconomic class was the most commonly affected group with 95.40% people of HIV which was comparable to studies done by Singh and Singh^[2] and Joge^[4] This indicates that knowledge of the modes by which HIV spreads was deficient. Laborers were most commonly affected with 46.80%, opposed to 32.20% driver were highest in the study of Singh and

Table 5: Relation of drug, drug reactions and their CD4 count

Drug reaction	Name of drug	Number of patients (%)	% of patients with CD4 cell count	
			<200/mm ³	>200/mm ³
Morbilloform rash	Nevirapine	3 (44.00)	0	20
Erythema multiforme	Nevirapine	1 (4.00)	0	6.67
	Cotrimoxazole	1 (4.00)	0	6.67
Urticaria/angioedema	Nevirapine	2 (8.00)	0	13.33
	Tenofovir	1 (4.00)	6.67	0
	Cotrimoxazole	1 (4.00)	6.67	0
	Chloroquine	2 (8.00)	6.67	6.67
S-J Syndrome	Nevirapine	1 (12.00)	0	6.67
	Fluconazole	1 (4.00)	0	6.67
Nail pigmentation	Zidovudine	2 (8.00)	6.67	6.67
Total		15 (100)	26.68	73.32

Singh^[2] and 28.10% doing service in Toshniwal et al.^[11] study. Construction laborers stay away from their families for a long period and get involved in promiscuous behavior. This implies that the laborers are working as a link population and spreading the disease to general population. The second most common were housewives with 25.20%. In females, who are at mercy of their counterpart and are silent sufferers. They do not have the right to ask for contraception and suffer from deadly disease just because of their partners. Illiterate 39.00% of patients were the most commonly affected as opposed to studies done by Singh and Singh^[2] and Joge^[4] in which maximum number of people had the primary level and secondary level of education with 35.50% and 41.20%, respectively. Socially and economically backward groups with low literacy levels had low awareness of AIDS and knowledge of ways to avoid getting the disease. Poor educational background has been often reported to be linked to higher risk of STD and HIV acquisition. Higher educational levels offered some protection against HIV. Married people were highest with 93.60% of HIV cases than unmarried ones which were same as in studies by Kore et al.^[3] and Joge^[4] with 92.30% and 70.53%, respectively. This indicates high-risk behavior of person in the community, and they should be attended as they can transmit infection to their spouse.

Patients who were monogamic were more affected with 83.40% as compared to the study of Mohsin^[5] with 62% people being monogamic. Hence, people should be made aware for need of early diagnosis of primary HIV infection to prevent transmission to others especially women who are innocent and mostly acquired infection by this route through their infected husbands. Partner with HIV status negative was seen in 78.00% of patients as opposed to other studies of Kore et al.^[3] and Toshniwal et al.^[11] were positive status and unknown status were more common, respectively, which can be because of false history given by the patients. Heterosexual mode of transmission was the highest with 83.60% patients which are comparable to other two studies. The majority of

HIV transmission is due to heterosexual route mainly due to interactions of sex workers and their clients who are considered most-at-risk population and to others through them. These clients of sex workers are acting as a “bridge population” between high- and low-risk groups. The clients of sex workers are mainly married men, and among these married men some of them are having sex with men, drug users, long distance truckers, and seasonal male migrants.^[6] Heterosexual route is still so high and it underlines the importance of contact tracing, counseling and prompt management of the partners.

Dermatophyte infection in 26.40% of patients was more common, which was opposed to study done by Kore et al.^[3] and Singh and Singh^[2] with 16.19% of candidiasis and 64.96% of seborrheic dermatitis were highest respectively. Dermatophytosis might be considered as a marker of disease in HIV-infected patients. The common oral lesion seen was Candidiasis in 35.71% of patients while in other studies by Shobhana et al.^[7] and Shrimali^[8] with 36.00% and 58.07% patients, respectively, it was the most common disease. Oral candidiasis occurs most commonly with falling CD4+ T-cell count in middle and late stages of HIV disease, indicating its occurrence with severe immunosuppression. Oral candidiasis was the most common in 36.40% patients with CD4 count <200 in our study which is similar to the other study done by Sontakke et al.^[9] Oral lesions suggest decline in the immunity. Tinea cruris was more common in 11.20% of patients opposed to 8.00% of patients with herpes genitalis in the study done by Shobhana et al.^[7] and bacterial sexually transmitted infections (STIs) such as lymphogranuloma venereum and chancroid were the more common with 30.30% and 19.50%, respectively, in the study done by Sayal et al.^[10] Herpes genitalis was the second most common with 7.40% of patients. Because of recurrent and unremitting symptoms of viral STIs which prompt these patients to report to a higher center. The use of higher antibiotics and syndromic management has declined the incidence of bacterial STIs. Mixed STDs were seen in 5 patients, in which combination

of herpes genitalis and genital warts was the most common in 3. Among the patients with CD4 count <200 cells/mm³, maximum number of patients are having dermatophytosis with 7.00% followed by herpes simplex and pruritic papular eruptions in 2.20% each. Total 63.60% patients were having CD4 cell count more than 200 cells/mm³. This suggests that symptoms of IRIS may resemble a flare up of an opportunistic infection. Morbilliform rash due to Nevirapine was more common drug reaction with 44.00% patients followed by S-J Syndrome due to Nevirapine with 12.00%. Nevirapine is the most common drug for the cause of cutaneous rashes as in the study done by Sharma *et al.*^[11]

Out of total 25 patients with drug reactions, morbilliform rash with 44.00% was maximum like in Reddy^[12] with morbilliform rash 72.97% being highest and opposed to study done by Sharma *et al.*^[11] with maximum of nail pigmentation in 38.24% of patients.

CONCLUSION

Mucocutaneous manifestations of HIV are not the only cause of morbidity and serious concern to the patient but are of great help in early identification of cases of HIV patients. Many such manifestations are marker of AIDS. The most common mode of transmission of HIV was heterosexual contact, and critical factor facilitating infections was illiteracy/lack of knowledge and information regarding modes of spread of HIV. Voluntary testing for HIV should be encouraged in all age group especially in adolescent age group. Attention should also be given to better implementation of current strategies to increase awareness and safe sexual behavior of the population.

ACKNOWLEDGMENTS

The authors would like to thank Mr. Sanjay Ramani, STI Councillor, Skin Department, P.D.U. Government Medical College and Hospital Rajkot, for all his help and support.

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How to cite this article: Patel S, Shah B, Bhuptani N. Dermatological manifestations in human immunodeficiency virus-infected patients at a tertiary care hospital at P.D.U. Medical College and Hospital, Rajkot, Gujarat. *Int J Med Sci Public Health* 2017;6(7):1190-1195.

Source of Support: Nil, **Conflict of Interest:** None declared.