Print ISSN: 2321-6379
Online ISSN: 2321-595X

Original Article

Dermatological Manifestations of HIV Patients on Antiretroviral Therapy in a Tertiary Care Hospital

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Abstract

Background: Mucocutaneous diseases are among the first recognized clinical manifestation of acquired immunodeficiency syndrome. They function as visual markers in assessing the progression of HIV infection given the ease of skin examination. It remains the important tool in the diagnosis of HIV infection.

Aim: This study aims to determine the pattern of dermatological manifestations in HIV patients on antiretroviral therapy and to correlate their presence with CD_4 count.

Materials and Methods: We conducted single-center study of 100 human immunodeficiency virus-infected patients attending outpatient department for various dermatological problems over a period of 1 year. They were screened by dermatologists and data were analyzed for correlation between CD_4 count and various dermatological disorders.

Results: Infective diseases were more than non-infective dermatoses in HIV-positive patients with CD4 count <200 and between 200 and 350, whereas both were almost equal when CD4 count > 350. The most prevalent infections were staphylococcal infections (12), dermatophytoses (11), herpes simplex infection (4), herpes zoster (5), scabies (4), Hansen (2), Wart (2), and molluscum contagiosum (2). The non-infectious dermatoses noted were eczema, pruritus, insect bite allergy, drug eruption, psoriasis, miliaria rubra, etc.

Conclusion: Our study suggests that dermatological findings occur throughout the course of HIV infection. Surely the effective and early initiation of antiretroviral therapy (ART) has decreased the dermatological manifestations in such a way that it is no longer different from non-HIV patients.

Key words: Acquired Immunodeficiency Syndrome, Human Immunodeficiency Virus, CD4 count, Antiretroviral Therapy

INTRODUCTION

Dermatological manifestations of HIV/AIDS constitute a major health problem worldwide. There were around 36.9 millions of people living globally with HIV in 2017. As per HIV estimates 2017, there were an estimated 2.14 million people living with HIV/AIDS in India with adult HIV prevalence of 0.22%.[1] This raised to 38 million people (adults – 36.2 and children – 1.8) in 2019.

Dermatological manifestations during HIV infection are numerous. They may be the initial sign of immunosuppression or reflection of the progress of HIV infection. Evaluation of skin remains an important tool in the diagnosis of HIV infection. This study was conducted to determine the pattern of dermatological manifestations in HIV-positive patients on ART and to correlate their presence with CD4 cell counts.

Access this article online

www.ijss-sn.com

Month of Submission : 08-2020
Month of Peer Review : 09-2020
Month of Acceptance : 09-2020
Month of Publishing : 10-2020

MATERIALS AND METHODS

This study was conducted in Govt. Theni Medical College, Tamil Nadu, over a period of 1 year. There were no specific eligibility criteria.

One hundred HIV-positive patients who attended our skin OPD for various dermatological problems were included in the study. Information regarding age, sex, occupation, mode of transmission, duration of disease, ART status, and CD4 count were noted. A complete medical history and physical examination of patients were done by dermatologists.

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The clinical diagnosis was confirmed with laboratory procedures such as microscopy (KOH, Tzanck Smear) and histopathological evaluation where ever necessary. Data were analyzed for establishing correlation between CD4 cell count and various dermatological disorders.

RESULTS

A total of 100 HIV-infected patients were enrolled in the study and the following observations were made.

Among 100 patients, 52 were male and 48 were female. Of these, most patients were in 21–40 years age group 44% (19 males and 25 females) while male prevalence was highest in the age group of 41–60 years (23 males and 16 females) [Figure 1].

Regarding the occupation of the patients, the largest group was constituted by labourers (39), followed by farmers (16), students (15), housewives (11), business people (9), and drivers (6) [Table 1].

The predominant mode of transmission was heterosexual contact (85), 12 patients acquired the infection through vertical (mother to child transmission), 1 patient through homosexual practice, and 2 patients through bisexual contact. There was no history of acquisition of infection through blood transfusion or needle prick injury [Figure 2].

Table 1: Occupation-wise distribution of patients

Occupation	Male	Female
Government servants	1	1
Housewives	-	11
Farmers	7	9
Business people	6	3
Drivers	6	-
Student	9	6
Labourers	24	15

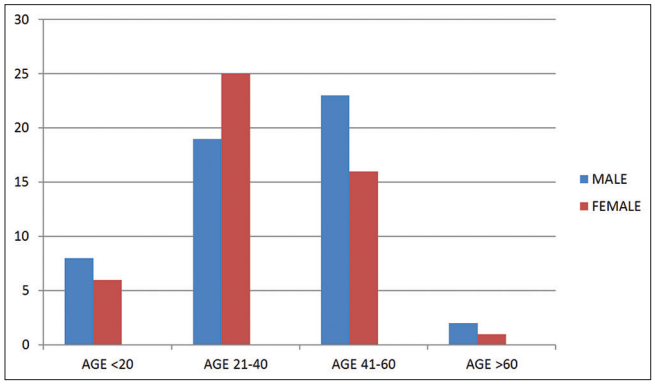

Figure 1: Age and sex distribution of patients

The duration since disease identification in 54 patients was < 5 years, 6–10 years in 37 patients, 11–15 years in 6 patients, and >15 years in 3 patients [Figure 3].

Out of 100 patients, 20 had their CD4 count less than 200/µl, between 200 and 350/µl in 24 patients and in 53 patients, CD4 count valve was more than 350/ µl, CD4 count report was not known in 3 patients [Figure 4].

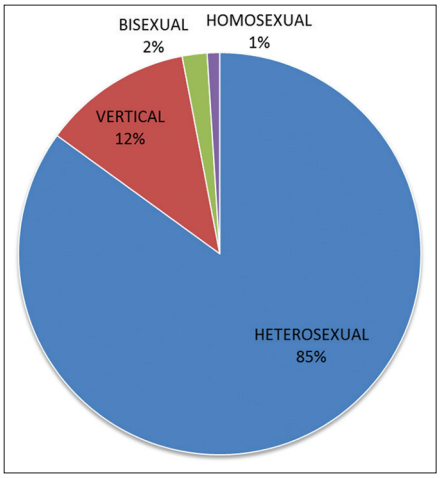

Figure 2: Mode of transmission

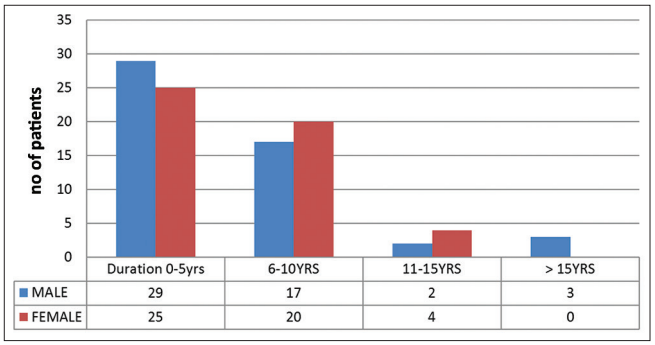

Figure 3: Duration of disease

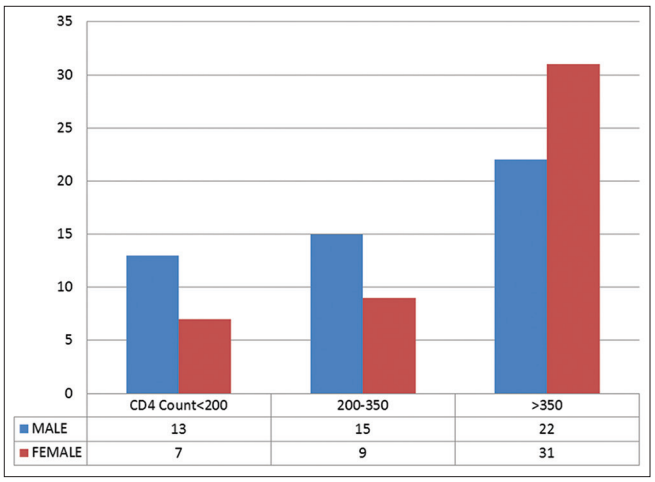

Figure 4: CD4 count of patients

Regarding antiretroviral therapy (ART), 80 out of 100 patients were already on ART, 14 patients were not on ART, and 6 patients were under investigation to be started on ART.

The common infection noted in the study was staphylococcal infection (impetigo, folliculitis, and furunculosis) (12), followed by dermatophytosis (11) [Picture 1], tinea versicolor (2), oral and vulval candidiasis (6), herpes labialis (4), herpes zoster (6), verrucae vulgaris (1), scabies (4), pediculosis capitis (1), and borderline tuberculoid Hansen's disease (2).

Among the sexually transmitted infection, herpes genitalis (5) was the most common manifestation. Other STIs noted were genital wart (1), genital molluscum contagiosum (1), latent syphilis (1), scrotal swelling (1), and genital ulcer (1).

Eczema was the most common non-infective dermatoses which was present in 16 patients (out of which 8 patients had photosensitive eczema). Others were insect bite allergy (9), miliaria rubra (5), adverse drug eruption (3) [Picture 2,2a], pruritus (3), and psoriasis (2). Xerosis (2), prurigo nodularis, seborrheic dermatitis, actinic cheilitis, cutaneous amyloidosis, systemic lupus erythematosus, and pemphigus vulgaris one patient each pemphigus vulgaris.

Hyperpigmentation in oral mucosa was noted in 12 patients, oral ulcer in 2 patients, longitudinal melanonychia in 15 patients, subungual hyperkeratosis, onycholysis, and nail dystrophy in 1 patient each. Diffuse hair loss was seen in 1 patient [Table 2].

NK-CD4 COUNT NOT KNOWN

Dermatological manifestations	CD4 correlation		
	<200	200–350	>350
Non-infectious conditions			
Insect bite allergy	3	2	4
Psoriasis	-	-	2
Eczema	-	2	6
Photosensitive eruption	-	3	5
Prurigo nodularis	-	-	1
Miliaria rubra	1	1	3
Seborrheic dermatitis	-	1	-
Xerosis	-	-	2
Pruritis	1	-	2
Actinic cheilitis	-	-	1
Systemic lupus erythematosus	1	-	-
Pemphigus vulgaris	-	-	1
Fixed drug eruption	-	1	-
Stevens–Johnson syndrome	1	-	-
Maculopapular drug eruption	-	-	1
Cutaneous amyloidosis	-	-	1
Mucosa			
Oral pigmentation	3	4	5
Nails			
Nail pigmentation	5	4	6
Nail dystrophy	-	-	1

DISCUSSION

During this study period, 100 patients were seen. The male-to-female ratio is 1:0.8. This is consistent with

Picture 1: Dermatophytosis

Table 2: Dermatological manifestation and CD4 correlation

Dermatological manifestations	CD4 correlation		
	<200	200–350	>350
Bacterial	Infectious	Conditions	
Furunculosis	--	4	4 NK-1
Folliculitis	-	-	1
Impetigo	-	1	1
Fungal			
Dermatophytosis	2	2	7
Taenia versicolor	-	-	2
Candidiasis			
Oral	2	-	2
Vulval	-	1	1
Viral			
Herpes labialis	1	1	2
Herpes genitalis	-	2	2 NK-1
Herpes zoster	3	1	2
Common wart	-	-	1
Genital wart	1	-	-
Molluscum contagiosum	-	1	-
Viral exanthem	1	-	-
Parasites			
Scabies	2	1	1
Pediculosis capitis	-	-	1
STD			
Latent syphilis	1	-	-
Scrotal swelling	1	-	-
Genital ulcer	-	1	-
Leprosy			
Borderline tuberculoid	-	-	1 NK-1

Picture 2: Stevens–Johnson syndrome (Adverse Drug Reaction)

Picture 2a: Stevens–Johnson syndrome (Adverse Drug Reaction)

NACO–HIV Sentinel Surveillance and HIV estimation 2006.[2] Increase trend in females is due to less educated, financially dependent on men, fail to use protective measures, and also due to effective partner and children screening.

The predominant mode of transmission was heterosexual contact (85%) unlike the results of Spira *et al*.[3] where it was of 35.3% by homosexual, 27.8% by intravenous drug use, and 24.4% by heterosexual.

In our study also, infectious diseases constitute the largest category consistent with the previous studies,[4-7] the majority being bacterial, fungal, and viral. Staphylococcal infection is the single most common bacterial infections.[8] The prevalence of dermatophytosis in our study was similar to that reported previously by Kumarasamy *et al*.[5] The most common viral infection is herpes zoster, consistent with the previous study by Mignard *et al*.[3] Decrease prevalence of candidiasis in our study is in consistent with the study by Hengge in which the prevalence decreases after ART administration.[9] Most of these opportunistic infections of the skin and mucosa occurring in HIV patients represent overgrowth of resident flora, extend beyond sites of colonization, reactivation of latent infection, and transformation of subclinical infection.[10]

Herpes genitalis being the most common STI seen in 5% in contrast to 18% in the study by Sarna *et al*.[11] The lower incidence of chancroid and syphilis could be due to the fact that most of the patients referred to us had already been given multiple course of antibiotics which taken care of bacterial STIs.

Photosensitivity eruption is seen in eight patients in our study which correlates well with the study by James *et al*.[12]

Exaggerated response to mosquito bite has been reported in HIV infection[13] which is also noted in our study. This could be due to the result of reactivation to antigens to which they were earlier desensitized (by repeated insect bites).

The prevalence of pigmentary disorder in our study was 15%. An increased pigmentation was noted in oral mucosa and nails. Some cases were related to zidovudine therapy. Others were due to increased pigment production by melanocytes and increased levels of melanocyte-stimulating hormone in HIV patients. The most common pattern of nail discoloration was longitudinal melanonychia.

Coexistence of psoriasis in HIV infection in our study may be by chance.[14] Seborrheic dermatitis prevalence was low similar to the study by Sharma *et al*.[15]

The prevalence of xerosis in this study was 2% in contrast with high report by smith *et al*.[16]

Adverse drug reactions were seen only in three patients in contrast to the report by Dover[17] in which the incidence of drug reaction is high. We did not notice any case of Kaposi sarcoma in our study.[18]

Infectious diseases were common when CD4 count <200 and 200–350, whereas non-infectious dermatoses were high when CD count > 350. Meanwhile, even patients with high CD4 count are not free from infection. Hence, there was no significant correlation between CD4 count and dermatological manifestations in HIV patients in our study.

Most of our patients nearly 80% were on ART at the time of presentation to our department. This may be the reason why cutaneous manifestations were not different in both HIV and non-HIV patients.

CONCLUSION

Result of our study suggests that dermatological manifestations occur throughout the course of HIV infection. There is no significant correlation between CD4 count and cutaneous manifestation in HIV patients on ART. Definitely early initiation of ART has decreased the dermatological manifestations in such a way that it is no longer different from non-HIV patients.

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How to cite this article: Alagarsamy S, Selvaraj U. Dermatological Manifestations of HIV Patients on Antiretroviral Therapy in a Tertiary Care Hospital. Int J Sci Stud 2020;8(7):26-30.

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