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Original Article

Microbiology Section

Skin and Mucocutaneous Manifestations: Useful Clinical Predictors of HIV/AIDS

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ABSTRACT

Background and Aims: The HIV infection is associated with several dermatological conditions which may be the first pointer towards the existence of HIV. These may present with unusual and atypical manifestations in the course of the HIV infection. Keeping this in mind, the seroprevalence of HIV in these persons and the spectrum of the skin and the mucocutaneous lesions in the HIV positive patients was studied.

Methods: The current prospective study was conducted over a period of 3 years (2006-2008). A total of 604 persons who had any kind of skin and mucocutaneous infections were screened for the HIV infection as per the NACO guidelines after recording their clinical and epidemiological profiles.

Results: Out of the 604 patients who were screened, 90(14.90%) were seropositive for the HIV-I antibodies and none was positive for the HIV-2 antibodies. Seventy three point thirty three percent 73.33 of the seropositive patients were in the age group of 15-40 years, with a male-female ratio of 1:1.05. The heterosexual route was the most common mode of transmission (86.6%).A wide range of infectious and noninfectious lesions were observed. In the HIV seropositive patients, oral candidiasis (32.22%) was the most common infectious disease which was observed, followed by herpes zoster (13.33%), genital warts (7.77%) and genital herpes (6.66%). The most common noninfectious manifestation was seborrhoic dermatitis (8.88%), followed by pruritic papular eruptions (7.77%).

Conclusion: As there is a high prevalence of the HIV infection in patients who have skin and mucocutaneous disorders, the doctors, during the investigation of these patients, must have a high level of suspicion for the HIV infection in their mind. An early detection of HIV optimizes the chemoprophylaxis for many opportunistic mucocutaneous disorders.

Key Words: Skin and mucocutaneous lesions, HIV, Heterosexual route

INTRODUCTION

Ever since its recognition in 1981, each year, around 2.7 million people become infected with HIV and 2 million die of AIDS in the world [1]. As per the NACO guidelines, the number of people who live with HIV/AIDS in India are 2.31 million [2]. The HIV infection is associated with several dermatological conditions which may be the first pointer towards the existence of HIV [3]. A wide range of infectious and noninfectious skin lesions develop during the course of the disease and their frequency patterns and the associated factors have been shown to vary from region to region [4]. In the developing countries, the CD4 count, the viral load, etc., are used for the assessment of the HIV disease. A lack of these facilities or their high costs necessitate a greater dependence on clinical markers. The cutaneous manifestations can serve as a dependable marker of the HIV disease. The present study was undertaken to determine the seroprevalence of HIV and the spectrum of the skin and the mucocutaneous lesions in HIV positive patients.

MATERIALS AND METHODS

A total of 604 blood samples were collected over a period of 3years (2006-2008) at the Integrated Counseling and Testing Centre (ICTC) which is attached to the Department of Microbiology, from patients who had cutaneous and mucocutaneous manifestations, who were referred from the Skin and STD Department of Guru Nanak Dev Hospital which is attached to the Government Medical College, Amritsar, Punjab, India. The patients' complete history which included the presenting complaints, the clinical diagnosis, the demographic characters and the risk behaviour for the HIV infection, were recorded. A pretest counseling was given and an informed consent was taken before the testing. The fresh sera were subjected to the Enzyme Linked Immuno Sorbent Assay (ELISA) test (J Mitra and Co. Pvt. Ltd.) for the detection of the HIV-I and the HIV-2 antibodies. The ELISA positive sera were then subjected to another 2 E/R/S [Retroquic(Qualpro diagnostic) and Tridot (J. Mitra and Co. Pvt. Ltd.)] test according to the manufacturer's instructions and the NACO guidelines [5]. A post test counseling was given. The clinical diagnosis was supplemented with laboratory procedures like microscopy (the KOH preparation) and the Venereal Disease Research Laboratory test (VDRL) wherever they were applicable.

The study protocol was approved by the institutional ethical committee prior to the investigation.

OBSERVATIONS

Out of the 604 patients who were screened, 90(14.90%) were seropositive for the HIV-I antibodies and none was positive for the HIV-2 antibodies. The age and the sex wise distribution, along with their sociodemographic profile, is shown in [Table/Fig-1]. The male:female ratio was 1:1.05. The most common infectious mucocutaneous lesions in the HIV/AIDS patients were oral candidiasis (32.22%), Herpes zooster (13.33%), genital warts (7.77%) and

Variables		No. of positive	Percentage
Age in years	0-14	4	4.45
Typhi	15-20	3	3.33
	21-40	63	70
	>40	20	22.22
Sex	Males	44	48.89
	Females	46	51.11
Geographical distribution	Rural	63	70
	Urban	27	30
Educational status	Illiterate	55	61.11
	Up to 8th standard	20	22.22
	10th standard above	15	16.67
Occupation	Housewives	46	51.11
	Unskilled workers	29	32.22
	Truck drivers	9	10
	Students	6	6.67
Marital status	Married	73	81.12
	Unmarried	8	8.88
	Widow/separated	9	10
Probable mode of transmission	Heterosexual	78	86.67
	Perinatal	5	5.56
	Blood and blood products	4	4.44
	Not specified	3	3.33

[Table/Fig-1]: Sociodemographic profile in seroreactive persons

Infectious disorders	No.positive (%)	Non infectious disorders	No.positive (%)
Oral Candidiasis	29 (32.22)	Seborrhoeic dermatitis	8 (8.88)
Herpes zoaster	12 (13.33)	Pruritic papular eruptions	7 (7.77)
Genital warts	07 (7.77)	Drug rash	2 (2.22)
Genital Herpes	6 (6.66)	Generalized pigmentation	2 (2.22)
Gingivitis	05 (5.55)		
Apathus stomatitis	4 (4.44)		
Leucorrhoea (T. vaginalis infection)	4 (4.44)		
Oral Herpes simplex type –I infection	3 (3.33)		
GDD in males	3 (3.33)		
Dermatophytosis	3 (3.33)		
Scabies	3 (3.33)		
Primary Chancre	2 (2.22)		
Staphylococcal infection	2 (2.22)		

[Table/Fig-2]: Common Skin and Mucocutaneous manifestations in HIV seroreactive persons

genital herpes (6.66%). The most common noninfectious manifestation was seborrhoic dermatitis (8.88%), followed by pruritic papular eruptions (7.77%) [Table/Fig-2]. In 10% of the HIV seropositive persons, more than one lesion was present. In the HIV seronegative patients, the signs and the symptoms of the infectious and the noninfectious skin and mucocutaneous lesions were less severe and only one type of lesion was present.

DISCUSSION

In the present study, 90 patients (14.90%) were seropositive for the HIV antibodies. The seropositivity was reported to be 3.24% in another study which was done in the same institution [6] ($p<0.01$), but in another institution, it was reported to be 44.55% [7]. The higher prevalence of the HIV infection could be because the HIV seropositivity as a whole, had gone up and because the skin manifestations were the most common presentations in the HIV-I infection [8]. They also varied from region to region. In the current study, 73.33% patients were in the reproductive age group (15-40 years), whereas 88.55% patients were documented by NACO [9]. The recent reports about HIV/AIDS in India, mention that most of the infections were seen in the age of 15-44 years, as this was the sexually active age group [10]. In the current study, the male-female ratio was 1:1.05, which showed a slight preponderance of females over males, whereas other workers had observed a 2.2:1 male –female ratio [11]. This shows that the epidemic is increasing steadily among women and among the rural young housewives with a low level of education .In the present study, the major mode of the infection was the heterosexual route (86.6%), which almost collaborated with the data from another study (88.7%) [11].

Due to immunosuppression, the HIV seropositive persons have multiple and widespread cutaneous and mucocutaneous lesions, whereas in immunocompetent patients, the lesions are localized and are mostly of the single type. The co-infection of HIV with Candida may be an important exogenous factor that may influence the severity and the rate of the disease progression in HIV infected individuals [12]. In the present study, oral candidiasis (32.22%) was the most common mucocutaneous manifestation which was seen in the HIV positive persons, which collaborated with the findings of other workers (35.33%) [13]. It was reported to be 61% in another study which was done in the same institution [14] ($p<0.001$), whereas other workers had reported it to be 45% and 11.50% respectively [15,11]. Oropharyngeal candidosis has been reported to occur in from 50-95% of all the HIV positive persons at some point during their progression to full-blown AIDS [16]. A comparative study on the carrier state of Candida and its speciation in the oral flora among healthy individuals, in persons with Diabetes mellitus and in HIV positive individuals was done by other workers and they found a higher carriage rate(54%) in the HIV individuals as compared to that in the other two groups [17]. The ulcerative and the non ulcerative genital diseases in HIV hold importance, as they share a common mode of transmission with HIV. In the current study, the incidence of genital herpes was 6.66%, whereas other workers reported it to be 5.5% [18]. In the present study, the other various genital lesions were leucorrhoea which was caused by the T. vaginalis infection (4. 44%), the Genital Discharge Disease (GDD) in males (3.33%) and primary chancre (2.22%), whereas other workers reported them to be 4% (leucorrhoea)3, 2% (GDD)3 and 7.17% (primary chancre) [19]. respectively. Several studies have shown that the T. vaginalis infection was associated with an increased risk of the HIV infectivity and transmission. T. vaginalis may amplify the HIV-1 transmission by increasing both the susceptibility in an HIV-1 negative person and the infectiousness in an HIV-1 positive patient [20]. Syphilis afflicts up to 25% of the HIV-positive individuals, and it can pres-

ent in the primary stage as a chancre, in the secondary stage with mucocutaneous features and in the tertiary stage with neurologic and cardiac involvement [21]. In this study, genital warts were present in 7.7% patients, which corroborated with the findings of other workers (7.1%) [22], where as other workers reported them to be present in 6%. patients [23]. However, we did not come across any abnormal clinical presentations of these STDs or any other mucocutaneous disorders in these HIV infected cases. The incidences of these mucocutaneous disorders were quite high among our HIV positive patients as compared to that in the HIV negative patients. In the current study,13.33% had a recurrent Herpes zoster infection with narcotizing ulcers in a multidermatomal involvement, which was similar to the findings of the studies of other workers (19.44%) [16]. Herpes zooster can occur early in the course of the HIV disease and it generally precedes the other skin manifestations of the HIV disease. In the patients with HIV, it can present with necrotizing ulcers in a multidermatomal pattern, it can last longer than the usual 2-3 weeks, and it can heal, leaving prominent scars [21]. The next manifestation in the present study was seborrheic dermatitis(8.88%). Almost similar findings were reported by other workers(8.5%) [11]. Seborrhoic dermatitis is one of the common noninfectious skin conditions in India, with a prevalence rate of 8% to 21% in HIV positive patients [8]. This is an entity which is characterized by erythema and scaling of the central part of the face, which involves the nasolabial folds and the eyebrows, as well as the scalp [24].

It is found in up to 40% of the seropositive patients 24 and in up to 80% of the patients with AIDS as compared to its incidence in 3% of the seronegative population [25].

In the present study, the incidence of the pruritic papular eruptions was 7.77%,whereas other workers reported it to be 32.23% [26]. A papular pruritic eruption is a unique dermatosis which is associated with the advanced HIV infection, which is characterized by sterile papules, nodules, or pustules with a hyperpigmented, urticarial appearance and pruritis [27]. The next common manifestations were gingivitis and apathus stomatitis (4.44%) each, whereas other workers reported it to be 82.9%, 17.33% and 3% respectively [22,13,3]. Severe periodontal diseases have been associated with the alterations in the host immune system, which can predispose to gingivitis and the development of periodontitis. Moreover, the relevance of the immune system in the protection of the periodontal tissues has been documented and the impairment of this system could aggravate the periodontal status [28] Previous studies have shown that the microbiology of gingivitis and periodontitis in the HIV patients may differ significantly in comparison to these periodontal pathologies in immunecompetent individuals [29,30].

The incidences of the oral Herpes simplex type-I infection, dermatophytosis and scabies were 3.33% each in our study, whereas they were reported to be 5.7% (oral Herpes simplex type-I infection) [21], 8% (dermatophytosis)15 and 4% (scabies) [23] by other workers. Two patients of scabies had a severe crusted form of scabies on the palms and soles, along with dystrophy of the nail plates of the toes. The crusted scabies could be considered as an opportunistic infection of AIDS, as it was related to the cutaneous immune response,6 while in immunocompetent patients, this form of scabies was not normally seen.

In our study, we observed a generalized pigmentation, a drug rash and a Staphylococcal skin infection (a 2.22% incidence for each), whereas other workers reported the incidences to be 35.9% (generalized pigmentation) [21,17]. 70% (drug rash)26 and 1.3% (Staphylococcal skin infection) [15]. The Staphylococcal skin infection was the most common cutaneous bacterial infection in the HIV patients. This infection could also present in other disorders also, like in diabetic patients. Severe cutaneous disorders occur frequently as the HIV infection advances and the immune function deteriorates. They affect between 80 and 90% of the HIV-infected patients and they occur at any time during the course of the infection [21]. The skin lesions or the combinations of the skin conditions are so unique that the diagnosis of the HIV infection or AIDS can often be suspected from the skin examination alone [31].

CONCLUSION

It can be concluded that the skin and the mucocutaneous manifestations are useful clinical predictors of the HIV infection. These may present with unusual and atypical manifestations in the course of the HIV infection. So, a high level of suspicion for the HIV infection has to be kept in mind by the doctors during the investigations. An early detection of HIV optimizes the chemoprophylaxis for many opportunistic mucocutaneous infections.

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