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Short Communication

Opportunistic Infections in HIV Seropositive Patients: A Study in a Tertiary Hospital in Assam, Northeast India

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Abstract: The present study was undertaken to know the prevalence of various opportunistic infections in HIV seropositive patients tested at the Integrated Counseling and Testing Centre (ICTC) of Assam Medical College and Hospital, Dibrugarh, Assam. Secondary data of 81 HIV seropositive patients registered during a period of 03 years (2008-2010) was included in the study. Data was entered and analyzed using SPSS 16.0. Tuberculosis (65.43%) was found to be the most frequent and highest opportunistic infection followed by dermatitis (39.50%), oral candidiasis (32.09%), chronic diarrhoea (29.62%) and scabies (9.87%). Since opportunistic infections are a major cause of mortality and morbidity in HIV seropositive patients, an early diagnosis and effective treatment are required to tackle them.
Keywords: HIV/AIDS, Opportunistic infections, Candidiasis, Tuberculosis, ICTC.

INTRODUCTION

Human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) continues to be the major global public health problem. Globally, 35.0 million people were living with HIV at the end of 2013 [1]. India has the 3rd highest number of HIV infected people in the world; an estimated 2.1 million people were living with HIV at the end of 2013 [2]. The spread of HIV/AIDS in India is primarily restricted to its southern and northeastern (NE) regions. People with HIV infection are vulnerable to a number of opportunistic infections (OIs) caused by bacterial, viral, fungal and parasitic agents because of a compromised or weakened immune system. The progressive destruction of immune system by chronic HIV infection leads to progressive fall in the level of CD4 cells (<200/µl to <50/µl), responsible for the occurrence of infections by a variety of opportunistic microorganisms [3]. Different OIs typically occur at different stages of HIV infection, some resulting in recurrent and prolonged morbidity and ultimately death of patients. Prevalence of different opportunistic infections has been found to vary in different geographical regions. The knowledge of the pattern of opportunistic infections often guides the therapy when resource limitations hamper the exact diagnosis of the etiological agent [4]. A good number of HIV related opportunistic infection studies have been conducted elsewhere in India [5-7]. The present study attempts to determine the various OIs prevalent in HIV seropositive patients tested at a tertiary care hospital in Dibrugarh, Assam.

MATERIAL AND METHODS

The data for the study is secondary in nature collected from the Integrated Counseling and Testing Centre (ICTC) records of Assam Medical College and Hospital in Dibrugarh, Assam. Data of 81 HIV positive people registered during 03 years (2008-2010) was included in the study. Socio-demographic profile of the patients, and information on mode of transmission and opportunistic infections were collected from the records. In view of the sensitivity and ethical perceptions of the study, anonymity and confidentiality were strictly followed. Data was entered and analyzed using SPSS 16.0. Descriptive analysis of frequencies and percentages were generated for the variables.

RESULTS AND DISCUSSION

Out of the 81 patients, 54 (66.7%) were male and 27 (33.3%) were females. Among them, the highest number of patients (67; 82.7%) belongs to the reproductive age group, e.g. 20-40 years. Rangnathan *et al*. reported 81% patients in the age group of 21–40 years in their study in South India [8].

The distribution of patients is less in the age groups of above 40 (12; 14.8%) and below 20 (2; 2.5%) years. The married patient's accounts for 74.1% (n=60) and the unmarried for 17.2% (n=14); whereas, 5 (6.2%) and 2 (2.5%) patients were found to be widowed and divorced respectively. The majority of the patients (48; 59.3%) had at least secondary level of education. Patients from rural areas (46; 56.8%) were found to be

in majority. Most of them work as daily laborers and manual workers in urban areas. Factors like staying away from their spouses for longer periods, lack of awareness, unsafe sexual practices, etc. aggravate the HIV transmission (Table 1).

Table 1: Socio-demographic characteristics of the HIV seropositive patients

Characteristics		N = 81 (%)
Gender	Male	54 (66.7)
	Female	27 (33.3)
Age (in years)	< 20	2 (2.5)
	20-40	67 (82.7)
	Above 40	12 (14.8)
Marital status	Unmarried	14 (17.2)
	Married	60 (74.1)
	Widowed	5 (6.2)
	Divorced	2 (2.5)
Educational status	Primary	14 (17.2)
	Secondary	48 (59.3)
	Graduate and above	19 (23.5)
Domicile	Urban	35 (43.2)
	Rural	46 (56.8)
Household Size/ No. of dependents	≤ 4	49 (60.5)
	5-8	26 (32.1)
	> 8	6 (7.4)

In the present study, the predominant mode of HIV transmission was found to be through heterosexual contact (78; 96.3%) with multiple partners, which correlates with the findings of Rangnathan *et al*. [8] (95%) and Patel *et al*. [9] (94%). 3 (3.7%) patients were reported to have HIV infection through homosexual contact. Pattern of the recorded OIs is given in Table 2. Tuberculosis (53; 65.43%) was found to be the most frequent and highest opportunistic infection followed by dermatitis (32; 39.50%), oral candidiasis (26; 32.09%), chronic diarrhoea (24; 29.62%) and scabies (8; 9.87%). Rests of the OIs were recorded in fewer numbers i.e. vaginal candidiasis and pelvic inflammatory disease (4; 4.93% each); herpes zoster (3; 3.70%) and esophageal candidiasis and genital ulcer (2; 2.46% each).

Table 2: Prevalence of opportunistic infections

Opportunistic infections	N = 81 (%); n (%)
Tuberculosis	53 (65.43)
Oral candidiasis	26 (32.09)
Vaginal candidiasis	4 (4.93)
Esophageal candidiasis	2 (2.46)
Scabies	8 (9.87)
Dermatitis	32 (39.50)
Herpes zoster	3 (3.70)
Genital ulcer	2 (2.46)
Chronic diarrhoea	24 (29.62)
Pelvic inflammatory disease	4 (4.93)

The present study indicates that tuberculosis (65.43%) is the most frequently occurring opportunistic infection among HIV seropositive patients. Similar prevalence is also reported in other relevant studies viz. Ayyagari *et al*. (36%) [5], Takalkar *et al*. (52.3%) [7], Sircar *et al*. (54.8%) [10] and Singh *et al*. (56.0%) [11]. In India, presently 40% of HIV infected people are co-infected with tuberculosis [12]. This is because tuberculosis is endemic in India and patients with HIV and TB rapidly downgrade with high mortality and multidrug resistance [7]. Hence, appropriate management of patients with HIV-TB requires not only treating the TB and HIV alone but a strengthened mechanism of cross reference between the Anti-retroviral treatment (ART) centre and Directly Observed Treatment, Short Course (DOTS) centre [13].

Dermatitis (39.50%) is also observed to occur at a considerably higher rate. Foroughi *et al*. in their study conducted in Tehran reported the prevalence of dermatitis as 22.3% [14]. The prevalence of oral candidiasis (32.09%) correlates well with the reports of Ayyagari *et al*. (27.8%) [5] and Takalkar *et al*. (39.0%) [7]. Oral and esophageal candidiasis (57.5%) is reported as the second most common opportunistic infection among HIV patients from India [15]. Diarrhoea occurs in 30-60% of AIDS patients in developed countries and in about 90% of AIDS patients in developing countries [16]. The incidence of diarrhoea (29.62%) in the present study is consistent with the findings of Takalkar *et al*. (30.1%) [7] and Singh *et al*. (43.0%) [11]. Factors like poor sanitary practices and non-availability of safe drinking water are likely responsible for the comparatively high incidence of oral candidiasis and chronic diarrhoea. Among other OIs recorded in the present study, the prevalence of scabies (9.87%) and herpes zoster (3.70%) are comparable with the findings of Chakravarty *et al*. (6.1%; 3.8%) [17].

CONCLUSION

It is concluded that tuberculosis, dermatitis, oral candidiasis and chronic diarrhoea are found to be the commonest opportunistic infections among the HIV seropositive patients in the present study. Improved hygienic practices, regular examination and appropriate medications can reduce the morbidity and mortality caused by opportunistic infections in HIV seropositive patients. Providing prevention and treatment of opportunistic infections not only helps HIV positive people to live longer, healthier lives, but can also help prevent tuberculosis and other transmissible opportunistic infections from spreading to others.

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