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SPECTRUM OF OPPORTUNISTIC INFECTIONS IN HUMAN IMMUNODEFICIENCY VIRUS SEROPOSITIVE PATIENTS: A HOSPITAL BASED STUDY

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ABSTRACT

AIDS is characterized by a number of opportunistic infections which are responsible for mortality and morbidity. The spectrum of opportunistic infections is ever-expanding with atypical manifestations becoming increasingly common. The present hospital based study was undertaken to describe the clinical spectrum of opportunistic infections both systemic and cutaneous in HIV infected patients. **Aim:** To study the spectrum of opportunistic infections in Human Immunodeficiency virus infection. **Settings and design:** Prospective study. **Materials and methods:** A prospective study was conducted on 40 symptomatic HIV infected patients admitted in Medicine in patient department at Indira Gandhi Medical College (IGMC) Shimla over a period of one year from August 2004 to July 2005. The patients were screened for opportunistic infections and laboratory investigations were done accordingly. **Result:** Of the 40 symptomatic HIV infected patients, the commonest opportunistic infection found was tuberculosis (50%) followed by oral candidiasis (30%), herpes zoster (5%), oral hairy leukoplekia (2.5%) and cryptosporodium toxoplasma (2.5%). The maximum numbers of patients were in the age group of 31-40 years (47.5%). The Male to female ratio was 3:1. Mean age of the study group was 33.47 (SD 9.577) years. Maximum numbers of male patients were drivers by profession. The most common mode of transmission was heterosexual transmission. **Conclusion:** The study demonstrates that tuberculosis was the most common opportunistic infection in HIV patients and screening for the tuberculosis should be a norm in the developing nations.

KEYWORDS: Opportunistic infections, Tuberculosis, Human immunedeficiency virus.

INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) is a disease caused by infection with a group of retroviruses called as Human immunodeficiency viruses, which results in immunodeficiency, making the infected individual vulnerable to opportunistic infections and HIV related malignant neoplasm. An estimated 95% of people living with HIV/AIDS reside in low and middle income countries. At the end of 2013, an estimated 35 million individuals were living with HIV infection. In 2015, HIV prevalence in India was an estimated 0.26%.[1] although this figure is small compared to most other middle income countries but because of India's huge population (1.2 billion) this equates to 2.1 million people living with HIV. India has the third largest HIV epidemic in the world. The HIV epidemic in India is mainly by heterosexual contact, which amounts to 87% of new infections in 2015. NACO also categorises truck drivers as a bridge population because truck drivers often have unprotected sex with high-risk groups such as female sex workers as well as their regular partners.

HIV infection leads to profound immunodeficiency resulting primarily from progressive quantitative and qualitative deficiencies of the subset of T-lymphocytes referred to as helper T cells (CD4). In the untreated patient, the CD 4+ T cells count falls rapidly and the patient becomes highly susceptible to opportunistic infections like tuberculosis, candidiasis, pneumocystis carini pneumonia (PCP), cryptococcal meningitis, parasitic diarrhoea, hepatitis, herpes zoster, UTI, etc. The main cause of death in HIV infection is due to opportunistic infections. Pulmonary disease is one of the most frequent complications of HIV infection and worldwide approximately 1/3rd of all AIDS related deaths are associated with tuberculosis with varied prevalence from one geographical area to another. The depletion of Tlymphocytes which result from the proliferation of HIV causes the immune system to become severely compromised and the usually benign infectious agents become pathogenic. Global evidence suggests that the overall incidence of opportunistic diseases increases with the degree of immune suppression resulting from HIV disease progression.[2]

The first case of HIV infection in India was reported in 1986 from Chennai[3] and Antiretroviral Therapy (ART) started in the mid 1990s was instrumental in reducing the mortality related to HIV infection. ART not only reduces the incidence of opportunistic Infections but also improves survival rate of patients living with HIV. In India, treatment of opportunistic Infections (OI) is one of the main goals of comprehensive management to people living with HIV/AIDS, served through Care, Support and Treatment.

MATERIALS AND METHODS

Study design and Subjects

The prospective study was conducted in the inpatient department of Medicine over a period of one year at Indira Gandhi Medical College Shimla from August 2004 to July 2005.

The symptomatic HIV infected patients admitted in the medicine wards were included in the study. The diagnosis of HIV infection was made as per the National Guidelines for HIV screening and testing based on Elisa, Rapid and Simple (ERS) approach along with pre and post test counselling. All the routine laboratory investigations with chest radiograph were done in each patient. Various other specimens were collected as per clinical presentation and were processed for various pathogens as indicated using universal precautions. The blood, urine, sputum, stool, CSF and lymph node aspirate were collected as per clinical presentations. The sputum smears were prepared and stained by Gram staining, Zeihl Neelson staining, 1% Nigrosine and Geimsa staining and stained smears were examined for bacteria, acid fast bacilli and fungus. Fecal smears were fixed in Schaudinn,s fluid and screened for pseudohypae, cryptospordia, microspordia, isospora belli and stool culture was done for fungus. The cerebrospinal fluid (CSF) was screened for bacteria, acid fast bacilli and fungus. All patients showing skin and mucus membrane involvement were screened for budding yeast cells. The CT scan head was done of patients with neurological symptoms. The CD4 T cell count estimation was carried out in all the patients by Fluorescent Activated Cell Sorter System.

RESULTS

The data was collected from 40 HIV infected admitted patients and analyzed for the opportunistic infections. The age and sex distribution is shown in the (Table 1). The majority of the patients were in the age group of 31-40 years (47.5%), followed by less than 30 years (32.5%). The majority of patients were male 30(75%) and 10(25%) were females in the study. The most of the patients were male heterosexual (90%) and 10% of patients were male homosexual. The promiscuous behaviour was observed to be the single most important factor. The 97.5% of patients were from rural background and 73.3% of patients were drivers by profession.

Table 1: Age and sex distribution

S.No	Age (years)	Male	%age	Female	%age
1	<30	7	17.5	6	15
2	31-40	17	42.5	2	5
3	41-50	5	12.5	2	5
4	>50	1	2.5	0	0
5	Total	30	75	10	25

All of the patients were presented with more than one symptom. Various symptoms presented by these patients were fever (90%), weight loss (75%), loss of appetite (75%), generalised weakness (90%), cough with expectoration, chronic diarrhea (30%).

In the present study total 44 events of opportunistic infections were found comprising of bacterial, fungal and parasitic infections. A total of 20(50%) patients were having tuberculosis and pulmonary tuberculosis was found in twelve, Tubercular lymphadenopathy was found in six patients and Tubercular meningitis was found in two patients (Table 2).

Table 2: Distribution of opportunistic infections

S. No.	Opportunistic infections	No. of patients
1	Tuberculosis	20
2	Candidiasis	12
3	Herpes zoster	2
4	Oral Hairy Leukoplekia	1
5	AIDS dementia complex	2
6	Seborrheic dermatitis	1
7	Cryptococcus	1
8	Cryptosporodium	1
9	Toxoplasma	1
10	Multiple focal leukoencephalopathy	1

11	**Molluscum contagiosum**	**1**
12	**Kaposis sarcoma**	**1**

DISCUSSION

The most common cause of the morbidity and mortality seen in the HIV infected patient results from the opportunistic infections, which occur due to the decreased cellular immune functions of the patient. The infections encountered in the AIDS patients are of wide variety including bacteria, fungi, viruses and protozoa. Tuberculosis (TB) is the most common life-threatening opportunistic infection affecting people living with HIV/AIDS.

In our study most common age group in admitted HIV infected patients was 31-40 years was similar to the study conducted by EO. Idigbe et al[4] in 1994 with 50% of patients infected with HIV was in the age group of 30-39 years, whereas in the females the most common age group affected was 20-30 years was comparable to the study conducted by Kumarsami et al.[5]

People in certain professions have been found to be more susceptible to infection with HIV as were associated with high risk behaviour like drivers, drugs addicts, health care workers, commercial sex workers, alcoholics. In our study the 73.3% of male patients infected with HIV were drivers. In the study conducted by Vishwanath BM et al[6] drivers and businessman together constituted 77.7% of all HIV infected patients.

In our study 97.5% subjects were from rural areas mostly staying away from their respective families because of the nature of their job. Of the 10 females, 5 had their husband working as truck drivers, thus staying away from the home for long periods. The unprotected multiple heterosexual contacts with professional sex workers has been demonstrated as predominant mode of HIV transmission, accounting for 70-96%. In our study heterosexual mode of transmission was found in 95%.

In this study most common opportunistic infection was tuberculosis (50%). This observation is comparable to the studies done by Sincar et al[7] (54.8%), Kumarsamy N et al[5] (61%), Kothari D et al[8] (64%). The deficiency of cell mediated immunity is the common denominator for both tuberculosis and HIV diseases. Both diseases have a long latency and together form a lethal duo, particularly in developing countries.[9] Oral candidiasis (30%) was the second most common opportunistic infection in our study was similar to Shobhana et al (36%).[10] Herpes Zoster was found in 5% of patients in our study which was comparable to the study done by Jing W et al.4.3%.[11]

CONCLUSION

There is a male preponderance over female, with maximum patients from sexually active age group (18-35years). Hence one should focus on the sexually active age group for the prevention of high rate of HIV transmission. Tuberculosis is the most common opportunistic infection.

With the better knowledge and diagnosis of opportunistic infections in HIV patients, clinicians and health planners can handle the health epidemic in a more effective manner. Specific antimicrobial prophylaxis by itself or in conjunction with antiretroviral therapy can reduce the substantial mortality and morbidity caused by opportunistic infections in HIV patients.

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