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Opportunistic Manifestations among HIV Patients

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Abstract: *Due to profound decline in cellular immunity, patients develop various opportunistic infections and neoplasms. The opportunistic infections of HIV / AIDS depend upon the organisms and parasites endemic in that country. The aim of the present study is to know the opportunistic infections in HIV patients and its correlation with CD4 count. All HIV patients who are under ART were regularly followed by CD4 evaluation at VCTC centre were included. Details pertaining to patient's history taken and Systemic examination was done to all patients and advised to undergo further investigations. Based on investigations, patients were diagnosed with opportunistic manifestations. Predominantly HIV patients had Candidal infections and Pulmonary TB infections followed by Extrapulmonary TB manifestations. 20% of candidal infection observed in patients with CD4 count 101-500 cells/mm3, 18% of infections were with CD4 count 51-100 cells/mm3 and 151-200 cells/mm3 and 8% in patients with <50 CD4 cells /mm3. 16% of Pulmonary TB observed in patients with CD4 count 51-100 cells/mm3 and 101-500 cells/mm3, 6% of infections were with CD4 count <50 cells/mm3 and 2% in patients with 151-200 CD4 cells /mm3. Early recognition of opportunistic infections is more helpful to treat the patients appropriately and increase the survival rate.*

Keywords: *CD4 count, HIV, Opportunistic infections*

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I. Introduction

HIV/AIDS is a worldwide burning problem with broad social, cultural, economic, political, ethical and legal implications because of its long duration of illness and increased mortality of reproductive age (15-40) years groups which in turn leads to more wasteful expenditure undermining the economic and social development.After the discovery of modern HIV infection in a homosexual male suffering from pneumocystis Carinii pneumonia (PCP) in Losangels of USA, in 1983 by Luc. Mantagnair, the virus is called as ''Lymphadenopathy Associated Virus'' (LAV), and in 1984 it was also named as human T Lymphotrophic Virus – III (HTLV-III) by Dr. Robert Gallo of National cancer institute of America. In the year 1986, the virus worldwide commonly renamed as HUMAN IMMUNODEFICIENCY VIRUS (HIV) by international committee on viral taxonomy [1]. Sooner two different sets were discovered and hence were subsequently classified- 1 and HIV-2. HIV -1 is more virulent than HIV-2.Due to profound decline in cellular immunity, patients develop various opportunistic infections and neoplasms. The opportunistic infections of HIV / AIDS depends upon the organisms and parasites endemic in that country [2,3] .The aim of the present study is to know the opportunistic infections in HIV patients and its correlation with CD4 count.

II. Materials And Methods

A prospective study was undertaken for six months (March 2016 to August 2016) at Department of DVL, Rajiv Gandhi Institute of Medical Sciences, Ongole. It is a observational cross sectional study conducted on terminal stage HIV patients who underwent CD4 evaluation. Details of Population studied in this research work were kept unlinked anonymously.Total Number of patients included in this study was 50. Informed consent was taken from all the patients before doing the study. Patients were already diagnosed as HIV Reactive and were in terminal stage of illness. All HIV patients who are under ART were regularly followed by CD4 evaluation at VCTC centre. Details pertaining to patient's history including age, sex, address, occupation, education, marital status, number of partners, route of transmission of HIV, presenting complaints, significant past and personal history. Systemic examination was done to all patients and advised to undergo further investigations. Based on investigations, patients were diagnosed with opportunistic manifestations. All the data entered into spread excel sheet. Opportunistic manifestations prevalence was evaluated and their correlation with CD4 count estimated.

III. Results

Out of 50 HIV patients with opportunistic infections, 38 were males and remaining 12 were females.. Most of them were belongs to lower socioeconomic status and illiterates.

Table 1: HIV with opportunistic infections among males and females

S.No.	Sex	Number	Percentage
1	Male	38	76
2	Female	12	24
	Total	50	100

Majority were in the age group of 26 to 40 years. Male predominance was noticed in the age group of 31-35 years (28.9%) followed by 26-30 years (23.6%)(Table 2).

Table 2: Age and sex distribution of HIV patients with opportunistic infections

S.No.	Age in year	Male	Percent (%)	Female	Percent	Total	Percent (%)
1	20-25	-	-	3	25.0	3	6
2	26-30	9	23.6	1	8.3	10	20
3	31-35	11	28.9	4	33.3	15	30
4	36-40	8	21.0	3	25.0	11	22
5	41-45	7	18.4	-	-	7	14
6	46-50	2	5.2	-	-	2	4
7	50-60	-	-	1	8.3	1	2
8	>60	1	2.6	-	-	1	2

Heterosexual transmission was the main mode of transmission (92%), followed by homosexual transmission (4%), unchecked blood transfusion (2%) and contaminated needles (2%) (Fig1).

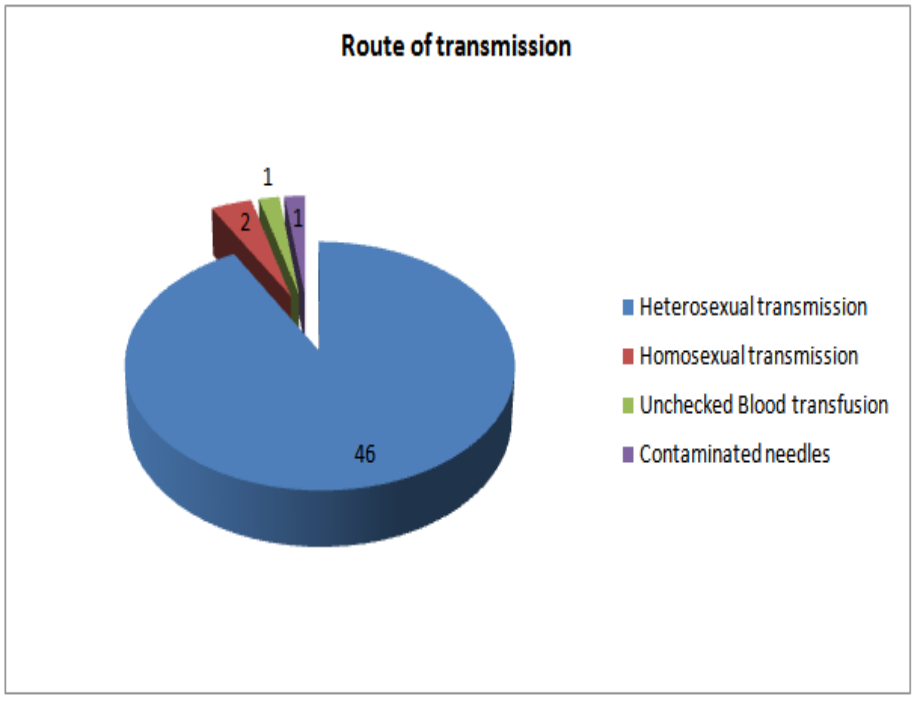

Fig 1: Route of transmission of HIV infection

Irrespective of CD4 cell count all HIV patients predominantly hadCandidal infections and Pulmonary TB infections followed by Extrapulmonary TB manifestations. 20% of candidal infection observed in patients with CD4 count 101-500 cells/mm3, 18% of infections were with CD4 count 51-100 cells/mm3 and 151-200 cells/mm3 and 8% in patients with <50 CD4 cells /mm3. 16% of Pulmonary TB observed in patients with CD4 count 51-100 cells/mm3 and 101-500 cells/mm3, 6% of infections were with CD4 count <50 cells/mm3 and 2% in patients with 151-200 CD4 cells /mm3.

TB abdomen(2%) was observed in patients with CD4 count <50 cells/mm3, TB lymphadenitis(2%), TB meningitis (2%), Cardiomyopathy with TB (2%), TB skin (2%) noticed in 51-100 cells/mm3 patients and TB lymphadenitis (4%) observed in patients with 101-150 cells/mm3.

Table 3: Opportunistic infections prevalence among HIV patients

CD 4 Cell count cells/mm3	Disease	Total No.
<50	CMV Retinitis	2
	TB Granuloma of Brain	1
	Pulmonary TB	3
	TB Abdomen	1
	Candidal infection (Oral + Vulvoaginal)	4
	Cryptosporidial Diarrhoea	1
51-100	Candidal infection (Oral+Vulvovaginal)	9
	Pulmoary TB	8
	TB lymphadenitis	1
	TB meningitis	1
	Cardiomyopathy with TB Pericardial effusion	1
	TB skin (Scrofuloderma)	1
	Cryptosporidial diarrhoea	3
	Cryptococcal meningitis	2
	Herpes genitalis	1
	Chronic Renal failure	1
	Lymphoma	1
	PGL	1
	Toxoplasma of brain	1
	Hepatitis B	1
101-150	Candidal Infection (oral + vulvovaginitis)	10
	Pulmonary TB	8
	TB lymphadenitis	2
	PCP	2
	Diarrhoea – Cryptosporidial	2
	-Entamoebahistolytica	2
	Ascitis with HCF	1
	Dermatophytosis	2
	Herpes zoster	2
	Perianal warts	1
	Molluscumcontagiosum	1
	Secondary syphilis (condylomata)	1
	Depressive psychosis	1
	AIDS nephropathy	1
151-200	Candidal infection (Oral+Vulvovaginal)	9
	Pulmonary TB	1
	Herpes genitalis	3
	Diarrhoea – Cryptosporidium	3
	Lymphoma	1
	Dermatophytosis	1
	Depressive psychosis	1
	Cerebral malaria	1
	Bacterial pneumonia	1
	PGL with splenomegaly	1
	Total number of patients (38+12)	50

IV. Discussion

Out of 50 HIV patients with opportunistic infections, 38 (76%) were males and remaining 12 (24%) were females. SeadAhmetagic et al [4] reported among a total of 28 HIV-infected persons, 23 (82.14%) were males and 5 (17.86%) were females, with the male: female ratio of 4,6:1.Heterosexual transmission was the main mode of transmission (92%), followed by homosexual transmission (4%), unchecked blood transfusion (2%) and contaminated needles (2%). SeadAhmetagic et al [4] documented that in terms of the transmission route, a large proportion of cases were infected through heterosexual contact 19 (67.86%).The main transmission routes of HIV infection are through sexual contact, syringes, blood products, and vertical transmission. In the Korea, the main transmission route is heterosexual contact (52.3%), followed by homosexual contact (23.9%), transfusion/blood products (2.3%) intravenous drug use (1.1%) and other routes (20.5%) [5]. In Germany, the main transmission is also through homosexual contact (64.6%), followed by intravenous drug use (14.9%), and heterosexual contact (8.8%) [6]. In Sub-Saharan Africa, the transmission of HIV is mostly through heterosexual contact [7]. In Croatia, HIV/AIDS is registered almost exclusively among

high risk population, with homosexual route being the most dominant route of transmission [8]. Intravenous drug use is the main transmission route in Eastern Europe [9].Confirmed by many studies that baseline CD4 T-lymphocyte (CD4) cell count is the strongest predictor of short-term disease progression in the Asian population with overall response to antiretroviral therapy similar to that seen in Western countries [10,11].In the present study, irrespective of CD4 cell count all HIV patients predominantly had Candidal infections and Pulmonary TB infections followed by Extrapulmonary TB manifestations. 20% of candidal infection observed in patients with CD4 count 101-500 cells/mm3, 18% of infections were with CD4 count 51-100 cells/mm3 and 151-200 cells/mm3 and 8% in patients with <50 CD4 cells /mm3. 16% of Pulmonary TB observed in patients with CD4 count 51-100 cells/mm3 and 101-500 cells/mm3, 6% of infections were with CD4 count <50 cells/mm3 and 2% in patients with 151-200 CD4 cells /mm3. TB abdomen(2%) was observed in patients with CD4 count <50 cells/mm3, TB lymphadenitis(2%), TB meningitis (2%), Cardiomyopathy with TB (2%), TB skin (2%) noticed in 51-100 cells/mm3 patients and TB lymphadenitis (4%) observed in patients with 101-150 cells/mm3.4% Pneumocystis carinii pneumonia, Depressive psychosis, herpes zoster each observed in patients with CD4 count 101-200 cells/mm3. A study in the US in 1999 reported that most prevalent opportunistic disease was P. Carinii pneumonia (53.0%) and this was followed by atypical mycobacterium infection (30.0%), esophageal candidiasis (24.4%), Kaposis sarcoma (22.6%), HIV wasting syndrome (20.8%) and CMV retinitis (20.6%) [12].In study in the Nepal in 2009 high prevalence high prevalence of opportunistic infections as pneumonia (52.8%), oral thrush (33.9%) and esophageal candidiasis (24.5%) [13]. In the northern European countries, the major opportunistic diseases are P. Carinii pneumonia, and in southwestern European countries, extra pulmonary tuberculosis [14].Tuberculosis (31-61%) is the most frequent opportunistic disease in many reports around the world: Thailand, India, Zaire and other Southeast Asian countries [12,15].Candidiasis is often registered in HIV infected patients as shown in numerous of reports from many other countries [5,7]. Opportunistic diseases, which are not AIDS-defining diseases, also differ according to the region, country, and race [16,17]Most of the known common HIV related opportunistic infections were less frequent than expected in this population despite many patients having CD4 cell counts less than 200 cell per mm3 [16]. It is well established that patients at this level of CD4 + cell counts have high risk of AIDS opportunistic infections and AIDS related cancers [17].

V. Conclusion

Most of the opportunistic infections are associated with CD4 cell count of less than 200 cells/mm3. Tuberculosis and candida infection are the most common opportunistic infections among HIV patients. Survival rate is increasing among HIV patients due to early start of ART, follow up of patients by regular monitoring of CD4 count. Early recognition of opportunistic infections is more helpful to treat the patients appropriately and increase the survival rate.

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