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Study of Opportunistic Infections in HIV Seropositive Patients in Tertiary Care Hospital, Maharashtra, India

Virendra S. Kolhe[1]* and Sanjay R. More[2]

[1]Department of Microbiology, GMC, Chandrapur, India
[2]Department of Microbiology, SRTM Medical College, Ambejogai, India
**Corresponding author*

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A B S T R A C T

Human Immunodeficiency Virus (HIV) is the most significant emerging infectious pathogen of the 20th Century. The progressive destruction of the immune system by chronic HIV infection leading to progressive fall in level of CD_4 cells is responsible for the occurrence of infections by opportunistic micro-organisms. The pattern of Opportunistic infection in people living with HIV/AIDS attending CC was studied. Detailed history taking, clinical examination and laboratory tests were carried out in 480 patients, Male-162 (51.60%) and Female 152 (48.40%). Out of 480 patients 314 (65.41%) were affected by opportunistic infections and commonly observed were diarrhea (22.92%), acute respiratory infections (22.61%), candidiasis (19.10%), pulmonary tuberculosis (18.47%), pyoderma (3.18%), penicilliosis (0.6%) and herpes zoster (0.6%). Finding points to be importance of early diagnosis and treatment of opportunistic infections in order to improve quality and expectations of life.

Introduction

HIV is the initial causative agent in AIDS, most of morbidity and mortality seen in immunocompromised patient results from opportunistic infections that take advantage of lowered cellular and humoral defences of the patients (Chakraborty *et al*., 2008). India is the country with second largest population of HIV infected individuals. The emergence of pandemic spread of AIDS constitute the greatest challenge to public health in modern time, with changing scenario of AIDS epidemic a host of opportunistic infections add to the present epidemic state of some existing infections like tuberculosis (Dabla *et al*., 2015). Opportunistic infections remain frequent in the ART era even in populations where access to medical care in considered satisfactory, these diseases can arises with any level of viral load and CD_4+ T cell count (Galisteu *et al*., 2015). Indian guidelines and western country guidelines have certain differences; wherever possible, that gap should be bridged. Developed countries initiate ART at higher CD_4 count (Bhuvana *et al*., 2015). There are a lot of Viral, Bacterial, Fungal and Protozoan pathogens associated with AIDS, changing symptomatology and pathology of disease HIV prepares ground for successful invasion by opportunistic infections that are etiological killer of patients

in the absence of formal functioning immune system (Sandhu *et al*., 2013).

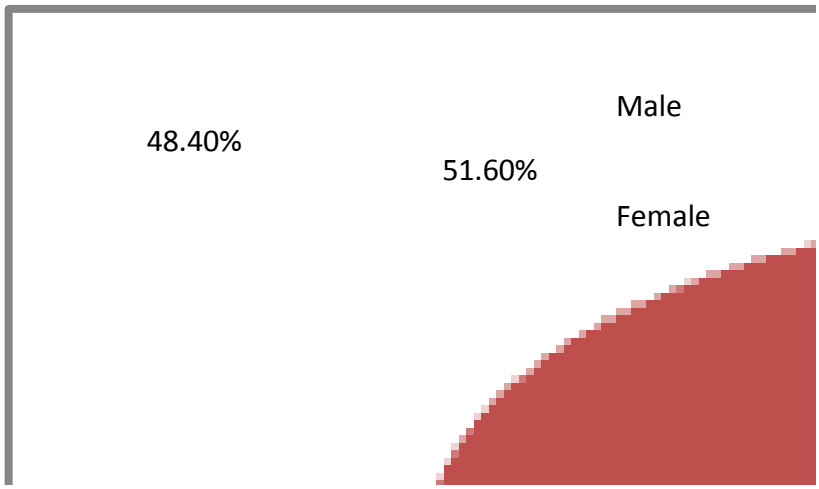
Materials and Methods

The pattern of Opportunistic infections in patients was already diagnosed HIV positive, attending CC was studied. Detailed history taking, clinical examinations, and laboratory test were carried out for diagnosis of Opportunistic infections. These Opportunistic infections was diagnosed on the basis of standard clinical definition and laboratory procedures. These Opportunistic infections co-related according to level of CD_4 cell count.

Results and Discussion

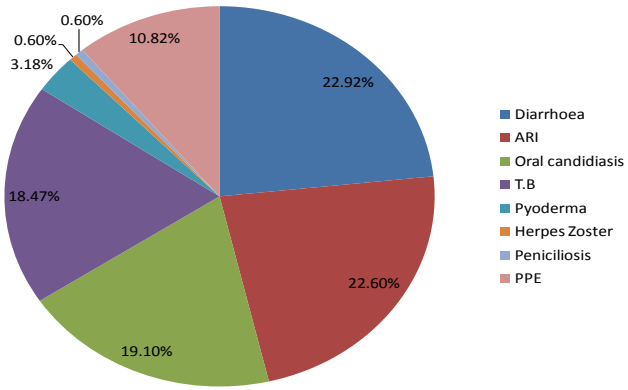
A total number of 480 patients were examined those attending CC. Out of which 314 (65.41%) patients were affected by opportunistic infections. In these out of 314 patients, 162 (51.60%) males and 152 (48.40%) females were affected by Opportunistic infections.

Distribution of sex among opportunistic infections in seropositive patients



In these out of 314 patients, 162 (51.60%) males and 152 (48.40%) females were affected by opportunistic infections.

Distribution of opportunistic infections among seropositive patients



In Opportunistic infections 72 (22.92%) patients had diarrhea by most of coccidian parasites such as *Cryptosporidium*, *Isospora* and *Cyclospora* was observed followed by Oral Candidiasis 19.10%, Tuberculosis 18.47%, Pyoderma 3.18%, Penicilliosis 0.6% and Herpes Zoster 0.6%.

Categorization of opportunistic infections according to level of CD_4 cell counts

CD_4 Count	Diarrhea	Oral Candidiasis	T.B	Pyoderma	Peniciliosis	Herpes Zoster
≤ 200	60	32	36	07	02	01
200-399	08	23	18	01	--	--
≥400	04	05	04	02	--	01
Total %	72 (22.92%)	60 (19,10%)	58 (18.47%)	10 (3.18%)	02 (0.6%)	02 (0.6%)

It is found that the patients with CD_4 Cell count ≤ 200 cell/µl were affected more by opportunistic infections rather than CD_4 Cell count in between 200-399 and ≥ 400 cell /µl.

In the present study out of 480 patients 314 patients (65.41%) were affected by one or more opportunistic infections 61.7% in HIV seropositive patients (Saidu *et al*., 2009). Prevalence of opportunistic infections was found 50.63% in a study of Bhuvana *et al*., (2014). In our study found males 162 (51.62%) and Females 152 (48.40%) were affected. In different studies the percentage of males and females vary for opportunistic infections. Takalkar *et al*., (2012) was found that 60.9% males and 39.1% females were affected, and Agarwal *et al.*, (2015). Among the opportunistic infections Diarrhea was found in 72(22.92%) patients. Prevalence of diarrhea in HIV positive patient was 41.7% by Takalkar *et al.*, (2012) 35% by Kulkarni *et al.*, (2009) 55.8% by Basak *et al.*, (2010) and 49% by Rajeshwari Rao *et al*., (2016). The prevalence of Oral Candidiasis is 19.1% in our study. Prevalence of Oral candidiasis 14.2% was found by Bhaumik *et al.*, (2013) and 11.8% by Moges *et al.*, (2014) in their studies. Prevalence of Tuberculosis in our study is 18.47% among the opportunistic infections. It is found close with study 17.1% by Bhaumik *et al.*, (2013) But 33 % by Sandhu and 57% by Chakrabarty. In our study pyoderma is found in 3.18% patients, which is found close to the study 3.2% by P Bhaumik *et al.*, (2013). The percentage of penicilliosis and herpes zoster is 0.6% in our study. It is found that the percentage of opportunistic infections is more in patients whose CD_4 count below 200 compare to cell/ul as compare to CD_4 ≥ 400 cell/ul. This is found same with study by Agarwal. The pattern of Opportunistic infections in a particular area helps the attending physician to be on the lookout for them take prompt therapeutic measures.

In conclusion, significant risk factors for opportunistic infections in seropositive patients are mostly associated with CD_4 Cell count level. CD_4 Cell count and start of ART reflects the prevalence of opportunistic infections high in most of studies, but finding point to the importance of early diagnosis and treatment of opportunistic infections in order to improve quality and expectancy of life.

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