

Intestinal Parasitic Infections among HIV/AIDS Patients with Diarrhoea at Rural Tertiary Care Teaching Hospital Of Maharashtra

Dr. Jaishree S. Puri*, Dr. S. L. Nilekar**

*Assistant Professor, Department of Microbiology MIMER Medical College, TalegaonDabhade, Pune Maharashtra.

** Associate Professor, Department of Microbiology, Swami RamanandTeerth Medical College, Ambajogai, Maharashtra.

Abstracts: Background and Objective: Opportunistic intestinal parasites usually cause mild and self-limiting infections in immunocompetent individuals but in the case of people living with HIV/AIDS (PLHA) they cause severe, chronic or frequent gastrointestinal disease. The spectrum of intestinal parasites causing infections in PLHA varies from country to country and region to region within the country. Therefore it is very necessary to know the relative frequencies of specific intestinal parasites causing diarrhoea in PLHA in different regions of the country to devise appropriate management strategies. The present study was conducted with an aim to document the prevalence pattern of various intestinal parasites in PLHA in rural tertiary care teaching hospital of Maharashtra. **Methods:** Stool samples collected from HIV infected individuals with diarrhoea were screened for the presence of intestinal parasites by standard parasitological protocol. **Results and Interpretation:** The incidence of HIV infection was high in age group 26-35 years followed by 16-25 years age group. The incidence of HIV infection was high in males as compared to females. Out of 124 stool samples screened, 44 (35.48%) showed presence of intestinal parasites. *Cryptosporidium parvum* followed by *Entamoebahistoltyca* and *Isospora belli* were the most common intestinal parasite. **Conclusion:** Opportunistic intestinal parasitic infections still pose as a problem in rural parts of India. This underscores the importance of screening of stool samples of PLHA. It can be also suggested that along with prompt diagnosis and treatment of opportunistic infection, clean potable water supply, improved sanitation and health education is necessary for preventing opportunistic infection in PLHA. [Puri j NJIRM 2014; 5(5):35-37]

Key Words: Coccidian parasites, *Cryptosporidium parvum*, *Entamoebahistoltyca*, intestinal parasitic infection, stool examination.

Author for correspondence: Dr. Jaishree S. Puri, Assistant Professor, Department of Microbiology, MIMER Medical College, Talegaon Dabhade, Pune, Maharashtra; **Email:** jaishreepuri1981@gmail.com

Introduction: The emergence of HIV/AIDS has changed the nature of infectious diseases. Organisms previously considered as non-pathogenic or less virulent have emerged as potent pathogens. Diarrhoea is one of the most common presenting complaints in persons living with HIV/AIDS (PLHA).¹ The World Health Organisation (WHO) defines diarrhoea wasting syndrome along with a positive HIV serology tests to be an AIDS-defining illness.²

The etiological agents for diarrhoea in PLHA include both opportunistic and non-opportunistic pathogens. The most commonly reported an opportunistic intestinal parasite includes *Cryptosporidium parvum*, *Isospora belli*, *Cyclospora* species, *Microsporidium* species, *Giardia intestinalis*, *Entamoebahistoltyca* and *Strongyloidesstercoralis*.³

Opportunistic intestinal parasites usually cause mild and self-limiting infections in immunocompetent individuals but in the case of

immunosuppressed individuals they cause severe, chronic or frequent gastrointestinal disease.^{3,4} Opportunistic parasitic infections cause substantial morbidity and hospitalisation, necessitate toxic and expensive therapies and shorten the survival of PLHA.⁵ It also has negative impact on quality of life of PLHA.

The spectrum of intestinal parasites causing infections in PLHA varies from country to country and region to region within the country.³ Therefore it is very necessary to know the relative frequencies of specific intestinal parasites causing diarrhoea in PLHA in different regions of the country to devise appropriate management strategies. Though there are well documented studies from developed countries, the numbers of studies from rural parts of India on this aspect are comparatively less. Therefore the present study was conducted with an aim to document the prevalence pattern of various intestinal parasites in PLHA in rural tertiary care teaching hospital of Maharashtra.

Material and Methods: The present study was conducted in Department of Microbiology, Swami Ramanand Teerth Medical College and Rural Hospital, Ambajogai, Maharashtra. A total of 124 HIV seropositive patients attending out-patients department or admitted in wards, who presented with diarrhoea were included in the study. The HIV seropositive patients were defined as those who had been tested positive for HIV antibodies by any of the two tests i.e. ELISA/ Rapid/ Simple as the recommendation of WHO.⁶ Diarrhoea is defined as passage of abnormal liquid or unformed stool at an increased frequency.⁴

A total of 3 freshly voided stool samples were obtained from these subjects in sterile, screw capped, disposable plastic containers. The samples were immediately transported to Department of Microbiology for further parasitological study.

All stool samples were macroscopically observed for consistency, colour, presence of mucus and blood, adult intestinal helminths and segment of tapeworm. Microscopic examination of stool samples was done using direct preparation (saline and iodine wet mount) and after formal ether concentration technique. The wet mounts were observed under low power (10X) and high power (40X) for detection of trophozoites and cysts of intestinal protozoa and ova of helminths.

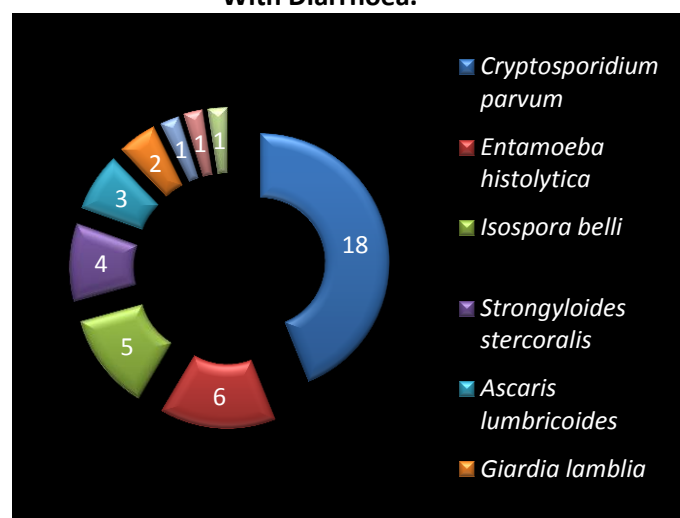
Modified ZiehlNeelsen staining was done on smears prepared from fresh stool samples after methanol fixation.⁷ The smears were screened under low power (10X), high power (40X) and oil immersion (100X) objectives of light microscope for detection of oocysts of coccidian parasites like *Cryptosporidium*, *Cyclospora* and *Isospora*.

Results: Out of 124 HIV infected patients included in the study, 90 (72.58%) were males and 34 were females (27.42%). Male predominance was noted in our study. A total 66 patients (53.23%) belonged to age group 26-35 years, 45 (36.29%) were males and 21 (16.94%) were females. 32 (25.81%) patients were in 16-25 years age group, 25 (20.16%) were males and 7 (5.65%) were females. Therefore in this investigation the incidence of HIV infection was high in age group 26-35 years followed by 16-25 years age group. From the pediatric age group

of 6-15 years, a total of 4 (3.23%) patients were seen, 3 (2.42%) were males and 1 (0.81%) was female. Lowest number of patients was seen in age group of above 55 years and 0-5 years i.e. 3 (2.42%) each.

Out of 124 stool samples screened, 44 (35.48%) showed presence of intestinal parasites. Figure 1 shows the details of intestinal parasites recovered from stool samples collected from HIV infected patients with diarrhoea. *Cryptosporidium parvum* followed by *Entamoebahistolytica* and *Isospora belli* were the most common intestinal parasite. Therefore the predominance of coccidian parasites (*Cryptosporidium parvum* and *Isospora belli*) was noted in our study. Among helminthes *Ascarislumbricoides* was the most common.

Figure 1: Intestinal Parasite Recovered From Stool Samples Collected From HIV Infected Patients With Diarrhoea.



Discussion: Opportunistic intestinal parasitic infections are the major cause of morbidity and mortality in PLHA worldwide.⁸ Therefore early and accurate detection of these parasites is extremely important for implementing timely and most appropriate therapy. In the present study, the incidence of HIV was more common in age group 26-35 years. Our observation is in accordance to that of Deorukhkaret *al.*⁴ This age group being most active and productive age group, the high incidence of HIV infection in this group increases the economic burden of the country.

The number of males presenting with diarrhoea as chief complaint was more as compared to females in our study which is in contrast to that of Deorukhkaret *al.*⁴

In the present study intestinal parasites were recovered in 35.48% of HIV patients which is similar to the observation of Gupta *et al.*¹ In our study, coccidian parasites like *Cryptosporidium parvum* and *Isospora belli* were the most common intestinal parasites found to be associated with diarrhoea in PLHA. Predominance of coccidian parasites was also noted in the study of Deorukhkaret *al.*⁴ and Basaket *al.*⁹ Coccidian parasites usually cause a self-limiting illness in immunocompetent individuals but as the immune status of the patients' falls they are known to cause life-threatening profuse watery diarrhoea.¹

In the present study *Entamoebahistolytica* was the most common intestinal protozoa recovered from the stool of HIV infected individuals. This finding is consistent to that of Deorukhkaret *al.*⁴ and is in contrast to Sethiet *al.*¹⁰ The trophozoites containing ingested erythrocytes were identified as *E. histolytica*, but the cysts of *E. histolytica* and *E. dispar* are morphologically similar and therefore can't be differentiated microscopically.⁴ The cysts were presumed to be that of *E. histolytica*, as *E. dispar* is non-pathogenic and non-invasive.

Due to the easy availability of HAART in developed nations, the prevalence of opportunistic parasitic infections has reduced in PLHA.¹ But in rural and resource poor setups like ours, patients usually remain undiagnosed for longer period of time and present late in the course of the disease. In our study, the high prevalence of intestinal parasitic infections in PLHA may be due to poor water supply and lack of personal hygiene which is common in rural areas.

Conclusion: From our study it can be concluded that opportunistic intestinal parasitic infections still pose as a problem in rural parts of India. This underscores the importance of screening of stool samples of PLHA. It can be also suggested that along with prompt diagnosis and treatment of opportunistic infection, clean potable water supply, improved sanitation and health education

is necessary for preventing opportunistic infection in PLHA.

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