DOI: 10.14260/jemds/2015/1758

ORIGINAL ARTICLE

ENTERIC PARASITES IN PATIENTS LIVING WITH HIV & AIDS

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HOW TO CITE THIS ARTICLE:
Ashwini Waghmare, Kiran Sagar, Santosh Mangalkar, Poonam Sayare. "Enteric Parasites in Patients Living with HIV & Aids". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 70, August 31; Page: 12190-12194, DOI: 10.14260/jemds/2015/1758

ABSTRACT: INTRODUCTION: CONTEXT: HIV is a major global public health issue. Most of the patients with HIV disease die of infections other than HIV. Gastrointestinal infections are very common in patients with HIV infection or AIDS. **AIMS:** To detect opportunistic intestinal parasites in patients living with HIV & AIDS and relate it with CD4 count. **SETTINGS AND DESIGN:** A single stool sample was obtained in sterile plastic containers from the patients attending pre ART. The stool samples were examined macroscopically and microscopically. Formalin ether concentration method was used. The modified Ziehl Neelsen staining method was used for the detection of the oocyst of coccidian parasites. CD4 count was measured on partec flow cytometry. **RESULTS:** Out of the 53 patients, 33(62.26%) were males and 20(37.73%) were females with age between 25-65 years. The study population consist of 4 patients with CD4 count >500 cells/µl, 22 patients with CD4 count 200-499 cells/µl and 27 patients with CD4 count <200 cells/µl. Enteric parasites were detected by microscopy in 21(39.62%) stool samples. Number of samples showing parasites were Cryptospridium 11(20.75%), Strongyloides stercoralis 3(5.6%), Cyclospora 1(1.8%). Ascaris lumbricoides 3(5.6%), Ancylostoma duodenale 1(1.8%) and Tenia eggs 2(3.7%). Overall, Cryptosporidium 11 (20.75%) was the most frequently encountered pathogen in the study population. **CONCLUSIONS:** The results of our study highlight the importance of evaluation of HIV infected individuals with diarrhoea for intestinal parasitic infections which may help in better management of these patients.

KEYWORDS: Opportunistic Enteric parasites, Cryptosporidium, HIV infection.

KEYMESSAGES: Every patient of HIV infection presenting with diarrhoea should be undergone stool examination for proper management.

INTRODUCTION: Since scientists identified the human immunodeficiency virus (HIV) as the cause of acquired immunodeficiency syndrome (AIDS) in 1983, it has spread relentlessly, and causing one of the most devastating pandemics ever recorded in human history.[1] HIV continues to be a major global public health issue, having claimed more than 25 million lives over the past three decades. There were approximately 34[31.4–35.9] million people living with HIV in 2011.[2]

Most of the patients with HIV disease die of infections other than HIV. Because of a progressive decline in their immunological responses, patients with HIV infection are extremely susceptible to a variety of common as well as opportunistic infections.[3]

Gastrointestinal infections are very common in patients with HIV infection or AIDS.[4] Diarrhoea is a common clinical presentation of these infections. Reports indicate that diarrhoea occurs in 30-60 per cent of AIDS patients in developed countries and in about 90 per cent of AIDS patients in developing countries.[5] The present study was undertaken to study the prevalence of enteric parasites causing diarrhoea and their association with immune status in HIV infected patient in our region.

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SUBJECTS AND METHODS: The study was carried out at tertiary care hospital during period of January 2013 to July 2013. A single stool sample was obtained in sterile plastic container from the patients who were attending pre ART. The stool samples were macroscopically examined for consistency, colour, the presence of blood and mucus, adult intestinal helminths and segments of tapeworm. Saline and iodine preparations were examined microscopically for the ova of helminths, as well as for the cysts and the trophozoites of protozoa. Formalin ether concentration was done when the stool did not reveal any parasite by direct microscopy.[6] the modified Ziehl Neelsen staining method was used for the detection of the oocyst of coccidian parasites.[7] CD4 count was measured on Partec flowcytometry.

RESULTS: A total 53 HIV positive patients were evaluated from January 2013 to July 2013 for intestinal parasites. Out of the 53 patients, 33(62.26%) were males and 20(37.73%) were females with age between 25-65 years. The study population consist of 4 patients with CD4 count >500 cells/µl, 22 patients with CD4 count 200-499 cells/µl and 27 patients with CD4 count < 200 cells/µl.

Enteric parasites were detected by microscopy in 21(39.62%) stool samples while 32(60.37%) samples were not having parasite, Number of samples showing parasites were Cryptospridium 11(20.75%), Strongyloides stercoralis 3(5.6%), Cyclospora 1(1.8%). Ascaris lumbricoides 3(5.6%), Ancylostoma duodenale 1(1.8%) and Tenia eggs 2(3.7%). [Table 2]

Overall, Cryptosporidium 11(20.75%) was the most frequently encountered pathogen in the study population. Among 21 samples 15(71.42%) were opportunistic parasites (Cryptosporidium, strongyloides, cyclospora) and 6(28.57%) were non-opportunistic parasites (Ascaris lumbricoides, Ancylostoma duodenale, Taenia). [Table 1]

Out of 27 with CD4 count <200cells/ul, 15 (68.18%) patients showed parasites (12 opportunistic & 3 non-opportunistic), out of 22 patients with CD4 count 200-499 cells/ul.

6(27.27%) patients showed enteric parasites (3 opportunistic & 3 non-opportunistic) and none out of 4 with >500 cells/ul showed enteric parasite. [Table 3]

DISCUSSION: In our study most of patients were of age group 25-65 years which is similar to other studies.[7] In present study Enteric parasites were detected by microscopy in 21(39.62%) stool samples while 32(60.37%) samples were not having parasite, Number of samples showing parasites were Cryptospridium 11(20.75%), Strongyloides stercoralis 3(5.6%), Cyclospora 1(1.8%). Ascaris lumbricoides 3 (5.6%), Ancylostoma duodenale 1 (1.8%) and Taenia eggs 2(3.7%).

Overall, Cryptosporidium 11(20.75%) was the most frequently encountered pathogen in the study population. Among 21 samples 15(71.42%) were opportunistic parasites (Cryptosporidium, strongyloides, cyclospora) and 6(28.57%) were non-opportunistic parasites (Ascaris lumbricoides, Ancylostoma duodenale, Tenia). In our study most of patient was having CD4 count <200 cells/ul which is well documented finding this is in correlation with study by Gupta S et al.[8]

Numerous opportunistic infections occur in HIV infected patients, due to down regulation of the immune system. Gastrointestinal parasiticinfection is a universally recognized problem in these patients. These infections largely present with diarrhoea leading to life threatening complications.[9]

Among Opportunistic Infections Cryptosporidium was most common parasite found which correlates with study of Jaylakshmi et al.[10] & Kulkarni et al.[11] The prevalence is high due to fact that this study was conducted at major tertiary care centre where patients seeking care are mostly referred from peripheral health care centre.

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Among the non-opportunistic pathogens Ascaris lumbricoides, Ancylostoma duodenale, Taenia seemed to contribute significantly.

CONCLUSIONS: Intestinal parasitic infection caused diarrhoea in 39 percent of the study subjects. Most of the infections in patients with CD4 count <200 cells/µl were due to opportunistic pathogens. The results of our study highlight the importance of evaluation of HIV infected individuals with diarrhoea for intestinal parasitic infections which may help in better management of these patients.

A)Enteric parasite found	21
Opportunistic Enteric parasites (15)	
Non-opportunistic Enteric parasites(06)	
B)No. parasite found	32
Total sample studied	53

Table 1: Stool Examination Findings

Name of Parasite	No. of Samples	Percentage
Cryptosporidium species	11	20.75 %
Strongyloides stercoralis	3	5.6%
Ascaris lumbricoides	3	5.6%
Tenia species	2	3.7%
Cyclospora species	1	1.8%
Ancylostoma duodenalae	1	1.8%

Table 2: Different Parasites Found

CD4 Count	Total patients	Enteric parasite positive
<200 cells/ul	27	15
200-499 cells/ul	22	6
>500 cells/ul	4	0

Table 3: Relation with CD4 Count

CD4count	Opportunistic infections	Non Opportunistic Infections
<200 cells/ul	12	03
200-500 cells/ul	03	03
>500 cells/ul	00	00

Table 4: Relation with CD4 Count with Oppertunistic Infections

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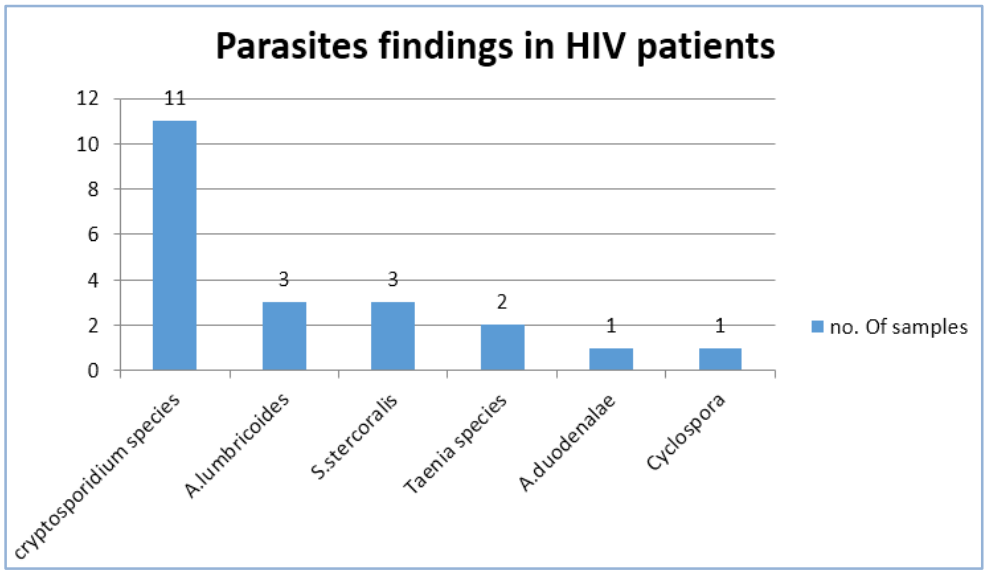

Figure 1

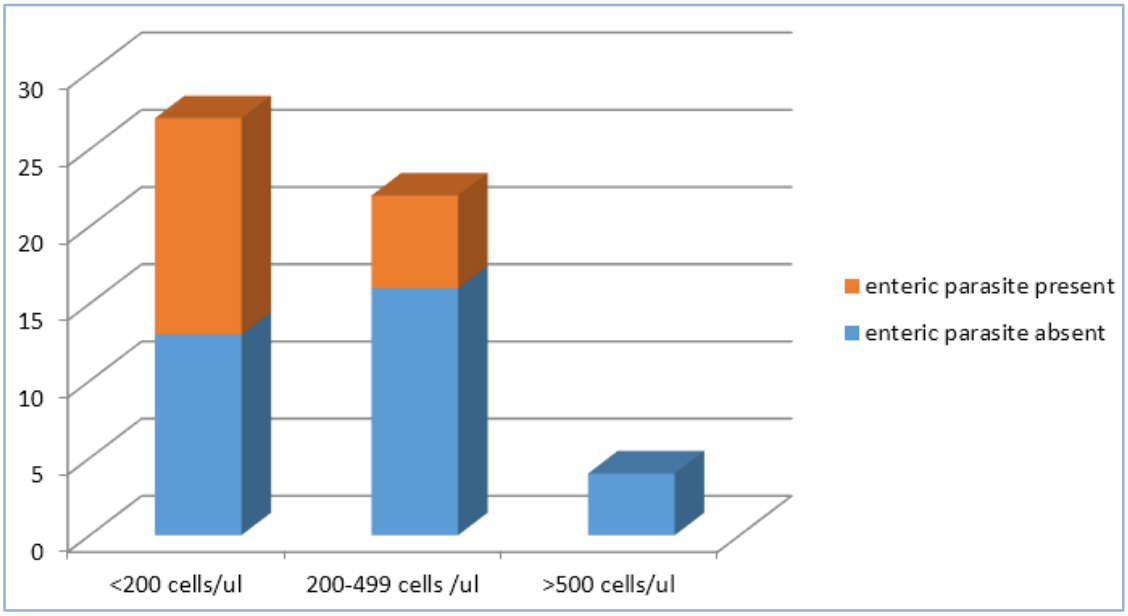

Figure 2

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FINANCIAL OR OTHER COMPETING INTERESTS: None

Date of Submission: 24/08/2015.
Date of Peer Review: 25/08/2015.
Date of Acceptance: 27/08/2015.
Date of Publishing: 29/08/2015.