



INTESTINAL PARASITIC INFECTION IN HIV INFECTED PATIENTS, AHMEDABAD

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ABSTRACT

Opportunistic infections of the gastrointestinal tract have played a critical role in determining symptomatic illness in immuno compromised individuals. In recent years intestinal infections such as Cryptosporidium, Cyclospora and Isospora are becoming more prevalent in acquired immuno deficiency syndrome. Strongyloides stercoralis infections can lead to hyper infection syndrome and found to be lethal in immuno compromised patients the present study was under taken to determine the prevalence of intestinal parasites in HIV sero positive patients. Stool samples from 166 HIV infected patients with diarrhoea and 123 HIV infected patients without diarrhoea were examined for intestinal parasites by microscopy. Intestinal parasites were seen in 69.2% HIV patients with diarrhoea as compare to their presence in 30.08% HIV patients without diarrhoea.

KEY WORDS Human Immuno Deficiency virus, Intestinal parasites Ahmedabad.

INTRODUCTION

Parasitic infections of gastrointestinal tract are a major cause of morbidity in developing countries and are increasingly important in certain populations from developed countries, particularly in patients with the acquired immunodeficiency syndrome.¹ Despite the wide spread HIV awareness programmes which are going on at present, a large number of patients either go undiagnosed or present late with multiple infections.² Diarrhoea is a common complication of infection with HIV, leading to weight loss and cachexia. it occurs in almost 90% of the HIV patients.³ Chronic diarrhoea significantly reduces the quality of life in patients with HIV infection and is an independent predictor of mortality in AIDS.⁴ The most commonly reported parasites include Giardia Lamblia, Entamoeba, Histolytica, Cryptosporidium parvum, Isosporabely and Cyclospora species, besides these the nematode, strongyloides stercoralis can cause an over whelming infestation in patients with such immunosuppressive disorder.^{2,5} The detection of these parasites will help in the proper management of these patients as drugs are available for the treatment of most of the infections.⁶

MATERIAL AND METHODS

A retrospective study was carried out in department of microbiology Kesar Sal Medical College and Research centre, Ahmedabad for a period of three years (December 2008 to November 2011)

A total of 289 HIV sero positive patients were included in the study. The HIV sero positive patients were defined as those who had been tested positive for HIV antibodies by any of two tests i.e. ELISA /Rapid/simples as per the recommendations given by WHO.⁷

Stool Examination:

A total of 3 freshly voided stool samples were obtained in sterile plastic container from all the subjects who were enrolled in the study. The stool samples were macro scopically examined for consistency, colour and presence of blood and mucus, adult intestinal helminths and segments of tapeworm. Saline and Iodine preparation 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 parasites by direct microscopy. The modified Ziehl Neelsen staining method was used for the detection of coccidian parasite.⁸

RESULTS

Highest Incidence of diarrhoea which was associated with HIV infection was seen in the age group of 31-40 years followed by the age group of 21 – 30 years (Table I). The percentage of HIV infected females presenting with diarrhoea (70.1%) was more than that of males (51.9%) (Table II). Out of 289 stool samples which were screened 152 revealed intestinal parasites, 115 in HIV positive patients with diarrhoea 37 in HIV positive patients without diarrhoea (table IV). Initially 133 parasites were seen by direct microscopy and an additional 19 parasites were seen after the formalin ether concentration technique (Table III) out of 166 HIV sero positive patients with diarrhoea 73 (43.97%) patients had episodes of acute diarrhoea (<2 weeks) while 93 (56.03%) had chronic diarrhoea (>4 weeks) in 73 patients who presented with acute diarrhoea 59 (80.8%) stool samples revealed intestinal parasites, while in stool samples from 93 patients with chronic

diarrhoea 55(59.13%) showed the presence of intestinal parasites.

Giardia Lamblia (27.1%) was the commonest parasite in patients with diarrhoea followed by Cryptosporidium parvum (9.6%). The prevalence of Entamoeba Histolytica (12.19%) was more in patients without diarrhoea as compared to the prevalence of Giardia Lamblia. Among the intestinal helminthes, Ankylostoma duodenale (9.3%) was the commonest helminth which was detected followed by Ascaris Lumbricoides (3.6%), Hymenolepis nana (3.01%), Taenia species (1.8%) and Storngyloides stercoralis (0.6%) (Table IV). The incidence of isospora belli was (5.42%). In case of Taenia species, Hymenolepis nana, Ankylostoma duodenale and Ascaris Lumbricoides there was no significant difference in the diarrhoea and non diarrhoea groups. It indicates that in these parasitic infections diarrhoea was not a common symptom or they are a symptomatic infections (Table IV).

Table I : Age and diarrhoea wise distribution of HIV positive Patients

Age Groups in years	With diarrhoea %	Without diarrhoea %	Total
0 – 10	07 (58.3)	05 (41.6)	12
11 – 20	13 (39.3)	20 (60.6)	33
21 – 30	42 (52.5)	38 (47.5)	80
31 – 40	69(65.7)	36 (34.2)	105
41 – 50	23 (57.5)	17 (42.5)	40
>50	12 (63.1)	07 (36.8)	19
Total	166 (57.4)	123 (42.5)	289

Table II : Sex and diarrhoea wise distribution of HIV positive patients.

Sex	With diarrhoea %	Without diarrhoea %	Total
Male	105 (51.5)	97 (48.0)	202
Female	61 (70.1)	26 (29.8)	87
Total	166 (57.4)	123 (42.5)	289

Table III : comparison between direct microscopy and concentration method.

Total parasites observed	Positive by direct microscopy (wet mount)	Positive after formalin ether concentration
152	133	19

Table IV: Diarrhoea wise distribution of parasites detected.

Parasites detected	No. of parasite in patients with diarrhoea % (n=166)	No. of parasite in patients without diarrhoea (n=123)
Entamoeba histolytica	11 (6.6%)	15 (12.19%)
Giardia lamblia	45 (27.1%)	09 (07.3%)
Balantidium coli	04 (2.4%)	01 (0.8%)
Cryptosporidium parvum	16 (9.6%)	01 (0.8%)
Isospora belli	09 (5.4%)	--
Taenia species	03 (1.8%)	01 (0.8%)
Hymenolepis nana	05 (3.01%)	03 (2.4%)
Ankylostoma duodenale	15 (9.3%)	06 (4.8%)
Ascaris lumbricoides	06 (3.6%)	01 (0.8%)
Strongyloides stercoralis	01 (0.6%)	--
Total	115 (69.2%)	37 (30.08%)

DISCUSSION

Among the opportunistic infections, intestinal parasitic disease is the commonest and is the major cause of morbidity and mortality in HIV positive individuals worldwide.⁹ These organisms usually cause a self limiting illness in immuno competent individuals, but in the case of immuno compromise patients they can cause life threatening profuse watery diarrhoea.¹⁰ Giardia Lamblia was the most common parasites which was detected in patients with diarrhoea (27.1%) which is comparable to the study of Sethi et al.¹¹ Where as Mukhopadhy et al reported Giardia Lamblia predominantly in non diarrhoeal patients.¹² In our study cryptosporidium parvum was the most common coccidian parasites which was associated with HIV patients both with diarrhoea and without diarrhoea, this was correlated with the study of Tulli et al,¹³ Sadrai et al,¹⁴ Mohandas et al.¹⁵ While Gupta et al² and Mukhopadhy et al¹² reported low prevalence of cryptosporidium parvum as compared to isospora belli. Among intestinal helminthes Ankylostoma duodenale was reported to be the commonest parasite which was comparable to that which was reported by Sethi et al.¹¹ The major parasite which was detected in HIV positive patients without diarrhoea was Entamoeba histolytica. The trophozoites of Entamoeba histolytica were identified, but cysts of Entamoeba histolytica and E. dispar are

morphologically identical and therefore they can not be differentiated microscopically. The cysts were presumed to be that of *Entamoeba histolytica* as *E. dispar* in non invasive and non pathogenic species.² The cysts of *E. histolytica* were considered in asymptomatic patients because asymptomatic non invasive intestinal infections by *E. histolytica* are the most common events and excretion of *Entamoeba* cysts characterise them. The facility for the iso enzyme electrophoresis technique was not available in our setup.

CONCLUSION

Screening of the coccidian parasite is still not done as routine test in HIV positive patients in most of microbiology laboratories but a good number of HIV patients suffer from diarrhoea due to coccidian intestinal parasites. A high prevalence of intestinal parasite infections in HIV positive individuals may be due to poor water supply and lack of personal hygiene. Authors suggest that along with the diagnosis and treatment steps should be taken to improve the water supply and sanitation to prevent morbidity and mortality which are associated with HIV infections.

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