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Research article

A STUDY OF ENTERIC PARASITIC INFECTIONS IN HIV/AIDS AND HIV SERO NEGATIVE INDIVIDUALS IN POPULATION OF KHAMMAM DISTRICT

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ABSTRACT

The aim of this study was to verify that the occurrence of intestinal parasitic infections in human immunodeficiency virus (HIV) /acquired immunodeficiency syndrome (AIDS) patients in comparison with non-HIV individuals in Mamata General Hospital, Khammam, and Andhra Pradesh. **Method**: A total of 125 cases in which Group A comprised of 55 male and 20 female HIV/AIDS positive individual patients of age between 15 to 59 and Group B comprised of the 34 male and 16 female HIV sero negative individuals of the same age group , stool were collected for parasitological examination from Jan 2009 to June 2009. **Results:** various enteric parasites detected in sero positive patients include *Cryptosporidium* (06), *Isospora* (01), *Entamoeba histolytic* (02), *Giardia intestinalis* (03) and *Ascaris lumbricoides* (01) and in sero negative individuals include *Entamoeba histolytic* (03), *Giardia intestinalis* (02) and *Ascaris lumbricoides* (01). **Conclusion:** The present results emphasize that detection of intestinal parasites were 17.3% in sero positive patients and 12% in sero negative individuals, in sero positive cases with diarrhea detection of intestinal parasites were 50% where as in sero negative cases without diarrhea it was only 7.01%. Coccidian parasites (cryptosporidium and Isospora) were detected only in sero positive cases with diarrhea and not detected in sero positive cases without diarrhea or HIV negative individuals.

Keywords: Study, opportunistic parasitic infections, HIV Sero positive & Negative individuals.

INTRODUCTION

A wide variety of gastrointestinal manifestations mainly opportunistic enteric parasitic infections are described in patients with HIV infection[1]. Identification of etiological agent of Diarrhoea in HIV patient is very important as it can help in institution of appropriate therapy and reduction of morbidity and mortality[2]. Reports indicate that diarrhoea occurs in 30-60% of AIDS patients in developed countries and in about 90% of AIDS patients in developing countries[3].

Diarrhoea is the presenting symptom of approximately a third of patients with HIV

infection. Chronic diarrhoea significantly reduces the quality of life in patients with HIV infection and is an independent predicator of mortality in AIDS. A variety of enteric pathogens have been isolated from AIDS patients with diarrhoea but it is not clear that these enteric infections are necessarily associated with the presence of diarrhoea[4]. The diarrhoea wasting syndrome in association with a positive HIV serology test is an AIDS-defining in World Health Organization (WHO)'s classification[5].

The etiologic spectrum of enteric pathogens causing diarrhoea includes bacteria, parasites, fungi and viruses[6]. The presence of opportunistic parasites *Cryptosporidium parvum, Cyclospora cayetanensis, Isospora belli* and *Microsporidia* are documented in patients with AIDS[7]. In immunocompromised patients, the intestinal opportunistic parasites probably play a major role in causing chronic diarrhoea accompanied by weight loss[8]. *C. Parvum, I. belli and E.histolytica* have been reported as the most frequently identified organisms in HIV infected individuals with diarrhoea from India and other parts of the world [9-16].

MATERIALS AND METHODS

The Present study was conducted from January 2009 to June 2009 at the Mamata General Hospital Khammam Andhra Pradesh. **Study sero group**: 75 HIV reactive (positive) (age15 to 59 years) & comprised of 55 males & 20 females HIV positive patients. **Control group:** comprised of 50 HIV non-reactive individuals (34 males+ 16 females) of the same age group. Stool samples were collected from these patients, after collecting relevant information such as age, sex, occupation, present complaint & treatment given etc. Both diarrheic & non diarrheic stool samples were collected, and examined for parasitological examination.

Examination of specimens: Every specimen was collected in 10% buffered formalin in a clean wide-mouthed plastic container and was subjected to concentration by a formalin-ethyl acetate concentration technique. Specimens were then examined as wet saline mounts and in iodine preparation for the detection of protozoan cysts or oocysts, helminth eggs and larvae. Also, a modified version of the Ziehl-Neelsen technique was used for the staining of Cryptosporidium and other coccidian parasites.

RESULTS

A total of 125 (75+50) stool samples were subjected to microscopic examination for the presence of any protozoal cyst or trophozoites, helminthic ova or larvae followed by special techniques to detect oocysts of coccidian parasites various enteric parasites detected in HIV positive and negative individuals are shown in table 01. Among 75 HIV positive patients, 18 patients presented with diarrhoea. Difference in isolation of enteric parasites in HIV-positive patients with or without diarrhoea is shown in table 02. Table 03 shows the comparative detection of enteric parasites in patients with/with out ART. Detection of enteric parasites, especially coccidian parasites was more in patients with out ART.

Table.1: Enteric parasites Detected from HIV positive patients and control group

Parasite species	HIV positive(N=75)	HIV Negative(N=50)
Cryptosporidium parvum	06(8%)	00
Isospora	01(1.33%)	00
Entamoeba histolytica	02(2.67%)	03(6%)
Giardia intestinalis	03(4)	02(4%)
Ascaris lumbricoides	01(1.33%)	01(2%)
Total	13(17.3%)	06(12%)

Table.2: Enteric parasites in HIV positive patients with or without diarrhoea and in HIV negative individuals

Parasite species	HIV positive with Diarrhoea (N=18)	HIV positive with out diarrhoea (N=57)	HIV negative individuals (N=50)
Cryptosporidium parvum	06	00	00
Isospora	01	00	00
Entamoeba histolytica	01	01	03
Giardia intestinalis	01	02	02
Ascaris lumbricoides	00	01	01
Total	09	04	06

Table.3: Association of enteric parasites and antiretroviral therapy (ART) of HIV Positive

Parasites	On ART	Without ART
Cryptosporidium parvum	02	04
Isospora	00	01
Entamoeba histolytica	01	01
Giardia intestinalis	02	01
Ascaris lumbricoides	01	00
Total	06	08

DISCUSSION

The pathogens causing gastrointestinal illness in HIV infected patients include a wide spectrum of opportunistic and non-opportunistic parasitic pathogens.[10] Diarrhoea is a common complication of HIV infection it may be acute or chronic, several of these parasitic infections were almost unknown cause of human disease. Amongst these enteric parasites, *Cryptosporidium spp* and *Isospora belli* have gained importance and are considered to cause AIDS defining illness.[12] Common parasites such as *Entamoeba histolytica* and *Giardia intestinalis* associated with diarrhoea in these patients.

The present study documented that infection with enteric parasites was common in HIV positive patients having diarrhoea. Out of 75 HIV-sero positive cases studied 18(24%) cases had diarrhoea. Detection of enteric parasites from HIV positive patients having diarrhoea was significantly higher (9/18, 50%) and statistically significant, compared to the patients without diarrhoea (7.01%) and HIV negative patients (12%). Isolation rates in this study of *Cryptosporidium* (8%), *Giardia* (4%) and *Isospora belli* (1.33%) from HIV positive patients

Actual rate of this infection in immunocompromised individuals and AIDS patients likely to be underestimated due to asymptomatic shedding of oocysts and treatment with trimethoprim sulphamethoxazole for other infections in AIDS patients (*Pneumocystis carinii* pneumonia) , which may confer some protection against this parasite.

CONCLUSION

In this study detection of intestinal parasites was 17.3% in HIV positive patients and 12% in HIV Negative individuals. HIV positive cases with diarrhoea were 50% whereas HIV negative cases without diarrhoea were 7.01%. Coccidian parasites, Cryptosporidium and Isospora were detected only in HIV positive cases with diarrhoea. They were not detected in HIV

positive cases without diarrhoea or HIV negative individuals.

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REFERENCES

1. Talib SH,Jeet Singh.A study of opportunistic enteric parasites in 80 HIV seropositive patients. Indian J. Pathol. Microbiol. 1998; 41(1):31-37
2. Kumar S S, Ananthan S, Saravanan P. Role of coccidian parasites in causation of diarrhoea in HIV infected patients in Chennai. Indian J Med Res 2002; 116:85-89.
3. Framm SR, Soave R. Agents of diarrhea. Med Clin North Am1997; 81: 427-47.
4. Mukhopadhya A, Rama Krishna BS, Kang G,Anna B. Enteric pathogens in southern Indian-infected patients with and without diarrhoea. Indian J.Med Res 1999; 109:85-89
5. Hailemariam G, Kassu A, Abebe G, Abate E et al.Intestinal parasitic infections in HIV /AIDS and HIV sero negative individuals in a Teaching Hospital, Ethiopia. Jpn .J.Infect.Dis.2004; 57:41-43.
6. Mitra AK, Hernandez CD, Hernandez CA, Siddiq Z.Management of diarrhea in HIV infected patients. Int J STD AIDS 2001; 12: 630-9.
7. Good game RW. Understanding intestinal spore forming protozoa: Cryptosporidia, Microsporidia, Isospora and Cyclospora. Ann Intern Med 1996: 124: 429-41.
8. Hammouda NA, Sadaka HA, EI-Gebaly WM, EI-Nassery SM. Opportunistic intestinal protozoa in chronic diarrheic immunosuppressed patients. J Egypt Soc Parasitol 1996; 26: 143-53.
9. Sapkota D, Grimier P, Manandhar S. Enteric parasitosis in patients with human immunodeficiency virus (HIV) Infection and acquired immunodeficiency syndrome (AIDS) in Nepal. J Nep Health Res Council 2004; 2: 9-13.
10. Gumbo Tawanda, Sarbah Steedman, Gangaidzo InnocentT, Ortega Ynes, Streling, Charles R, Carville Angela, et al. Intestinal parasites in patients with diarrhea and human immunodeficiency virus infection in Zimbabwe. AIDS 1999; 13: 819-21.
11. Prasad KN, Nag VL, Dhole TN, Ayyagari A. Identification of enteric pathogens in HIV-positive patients with diarrhea in northern India. J Health Popul Nutr 2000; 18: 23-6.
12. Mukhopadhyay A, Ramakrishna BS, Kang G, Pulimood AB,Mathan MM, Zacharian A, et al. Enteric pathogens in southern Indian HIV-infected patients with & without diarrhea. Indian J Med Res 1999; 109: 85-9.
13. Dwivedi KK, Prasad G, Saini S, Mahajan S, Lal S, Baveja UK. Enteric opportunistic parasites among HIV- infected individuals: associated risk factors and immune status. Jpn J Infect Dis 2007; 60: 76-81.
14. Mohandas, Sehgal R, Sud A, Malla N. Prevalence of intestinal parasitic pathogens in HIV-seropositive individuals in Northern India. Jpn J Infect Dis 2002, 55: 83-4.
15. Ramakrishna K, Shenbagarathai R, Uma A, Kavitha K, Rajemdran R, Thirumalai P. Prevalence of intestinal parasite infestation in HIV/AIDS patients with diarrhea in Madurai, South India. Jpn J Infect Dis 2007; 60: 209-10.
16. Anand L, Dhana chand C, Brajachand N. Prevalence & epidemiologic characteristics of opportunistic and non opportunistic intestinal parasitic infections in HIV positive Patients in Manipur. Natl Med J India 2002; 15: 72-4.