Enteric Parasites in Patients with Diarrhoea Presenting to a Tertiary Care Hospital: Comparison of Human Immunodeficiency Virus Infected and Uninfected Individuals

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In resource limited countries such as India, parasitic enteric infections remain common in the general population and in the HIV infected, with geographic differences in the reported prevalence of individual pathogens reflecting differences in pathogen prevalence, standards of hygiene and diagnostic methods used.1 In this study, we report the prevalence of enteric parasites in HIV positive and HIV negative individuals with diarrhoea over a five year period from January 1998 to December 2002.

The study was carried out in the Christian Medical College, Vellore, in patients presenting to the Infectious Disease Clinic or the Gastroenterology department with a history of diarrhoea. Specimens were received from 258 HIV infected and 4103 non-infected individuals, and processed by standard methods for parasite identification.1 The data were entered in Excel and analysed using SPSS v.9. Fisher’s exact test was applied to determine differences in the two groups in each year. Student’s t-test was used to assess differences in proportion of infections due to each individual parasite.

Enteric parasites were identified in 57.3% of 258 samples from HIV infected individuals, with multiple pathogens identified in 6.6%. Protozoan parasites were common, with Isospora belli (19.7%), Cryptosporidium (15.5%), Giardia lamblia (6.0%) and Cyclospora cayatensis (3.8%). Microsporidia were seen in 4.6%. The helminths identified were Strongyloides stercoralis larvae (8.5%), Ascaris lumbricoides ova (2.3%) and hookworm ova (4.3%). During the same period, 4103 samples from control patients with diarrhoea were examined. Enteric parasites were identified in 5.8% of samples. Giardia lamblia was the commonest identified pathogen, seen in 2.61%, with Isospora in 0.51%, Cryptosporidium in 0.37% and Cyclospora in 0.15%. The helminths identified were Strongyloides in 0.95%, hookworm in 0.80% and Ascaris in 0.39%. Multiple parasites were not noted. The difference in identification of parasites between the two groups of HIV infected and uninfected are statistically significant in each year (Fisher’s exact test, p < 0.00). The relative distribution of Isospora belli, Cryptosporidium parvum and microsporidia was significantly more prevalent in HIV infected individuals (p<0.00 for all three parasites, Student’s t-test), while the difference in proportion of infections due to Strongyloides stercoralis was not statistically significant. The overall frequency distribution of the different types of parasites among the parasitic infections was significantly different between the two groups (Chi square p<0.00).

This five year study showed that parasitic diarrhoea is 10 times more common in HIV positive patients than in HIV-negative patients (57.3% versus 5.8%, p<0.00). Protozoal pathogens that cause opportunistic infections of the gut are Cryptosporidium parvum, Isospora belli and microsporidia and these were seen in 40% of all HIV positive patients with diarrhoea. In recent years, it has been shown that HIV infection and parasitic infections interact and have a mutual deleterious effect.3 Parasitic infection may facilitate the progression from asymptomatic HIV infection to AIDS by a chronic immune activation, particularly with T-helper 2 type responses. Studies using surrogate markers of AIDS, like CD4 counts and HIV viral load in addition to these tests will elucidate the dynamics of infective diarrhoea in HIV patients.

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