

Survey of Intestinal Helminths in Human Immuno Virus Sero Positive Patients in Braithwaite Memorial Hospital in Port Harcourt, Nigeria.

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Abstract: The study was carried out to determine the burden of intestinal helminth in Human Immuno Virus (HIV) – Sero positive patients in Braithwaite Memorial Hospital, Port Harcourt. About 120 subjects were sampled from those who are sero HIV-Positive, HIV positive but on drugs and full blown aids. Stool samples were collected from all the subjects in a clean wide mouthed container and sent to the Microbiology Laboratory for stool examination by Direct Smear and formol ether concentration methods. A total of 60(50%) patients were found to harbor intestinal helminths with *Ascaris* in 24(20%) patients, Hookworm in 17(14.1%) patients, *Trichuris trichuria* accounted for 11(9.79) while *Strongyloides* was found in 8(6.7%) of the subjects. The males subjects that harboured the helminths were 24(20%) while the females were 36(30%). Subjects on antiretroviral drugs harboured least no of parasites giving a total of 26(21.6%) with males accounting for 14(11.6%) and females 12(10%). The age bracket of 25 – 44 years had the highest infection rate of 31(25.8%) while age bracket of 10-15 years had the least rate of 7(5.8%). The suppression of immunity due to HIV infection shows significant role in increasing the intestinal helminths infestations consequently, adequate treatment of infected persons, proper health education and good personal hygiene will help in reducing occurrence of intestinal Helminths and as such be encouraged.

Keywords: Antiretroviral drugs, infestation, Helminths, Immunity.

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I. Introduction

Intestinal Helminths are worms that populate the gastrointestinal tract (Oyerinde, 1999): Many Helminths undergo extensive migrations through body tissues, which both damage tissue of directly and initiate hypersensitivity reaction. Helminths are often spread by poor hygiene related to faeces, contact with animals or poorly cooked food containing parasites (Okpala, 1961).

Most helminth infections are acquired in poor tropical and subtropical areas, but some also occur in the developed world. Many potential helminthic infections are dominated by host defence; others become established and may persist for prolonged periods, even years (Awole *et al.*, 2003). Although helminthic infections are often asymptomatic, severe pathology can occur. Most obvious forms of direct damage result from blockage of internal organs from the effect of pressure exerted by growing parasites. (Gemed and Abate, 2004).

Human Immunodeficiency virus (HIV) infection is a worldwide problem in the present day with about 42 million people infected globally while Sub-Sahara African accounted for more than half. It is estimated that more than 100 million people would be carrying the virus in less than 10 years from then. Infection rate in Nigeria ranges between 4.97% -5.8%. One of the major health challenges among HIV sero positive patients is opportunistic infection due to low immunity (Cheesbrough 1999). Intestinal Helminth infection is common in HIV sero positive patients.

The magnitude of intestinal helminth infections in HIV/AIDs patients require careful consideration in the developing world. Intestinal helminth infection are amongst the most wide spread of all chronic human infections worldwide. The rate of infection is remarkably high in Sub-Sahara Africa, where the majority of HIV/AIDs cases are concentrated. Multiply infection of Helminths by hookworm and roundworm also occur (Okpala, 1961).

World Health Organization –WHO (1991) noted that the level of helminth infections can be viewed as an index of a community's progress towards a desirable level of sanitation. Infections with intestinal helminths have been associated with stunting of linear growth, weakness and cognitive impairment in HIV patients.

However, the distribution and prevalence of various species of intestinal helminths differ from region to region. Since the prevalence and geographic distribution of helminthic infection and HIV-1, particularly in Africa are remarkably high, possible casual relationship between these infections may occur (Wolday *et al.*, 2001). Intestinal helminthic infections are among the leading cause of morbidity and mortality in patients infected with HIV (Okpala, 2003). Heminthic infections are cause by divers species from platyhelminths (flatworms) and Namathelminths (round worms). HIV is essentially a single entity. (Nixon and Anderson, 2005). Helminths have been implicated in the modulation of immune responses to by stander antigens and could suppress HIV-specific CD4⁺ and CD4⁺ derived cytokine production and lymphocyte proliferation, suggesting that they may play a role in suppressing antiviral immune responses (Nixon and Anderson, 2005)

Studies have shown that co-prevalence of HIV and Helminth infections are pertinent to whether helminths increase susceptibility to HIV, or HIV increases susceptibility to helminths in either case, a higher prevalence of HIV might occur in individuals with Helminths (Cegeiski *et al.*, 1993).

The study was aimed at determining the prevalence rate of intestinal helminth infection in HIV sero positive subjects and those who are on antiretroviral drugs.

II. Materials And Methods

Study Area

The study was carried out in Braithwaite Memorial Hospital (BMH), Port Harcourt using 120 already confirmed HIV sero positive patients.

Collection of Samples

Stool samples were collected from 120 subjects attending HIV clinic at Braithwaite Memorial Hospital (BMH). Clean dry wide mouthed screw capped containers were given to them for collection of stool sample.

Sample Analysis

Macroscopic examination

The samples were examined macroscopically for colour, consistency, presence of adult worms, blood, mucus and pus.

Microscopic examination wet preparation

Using applicator's stick, wet preparation of Iodine and saline were made and covered with ownership before examination. The smear was examined with x10 and x40 objective lenses.

Formol-ether concentration technique

About 1 gram of faeces was emulsified in 4mls of formol water in a screw capped container. It was mixed and sieved through a guaze into a centrifuge tube. About 3ml of di-ethyl ether was added. The container was properly mixed and centrifuged for about 2 minutes. Using applicator's stick, the layer of faecal debris was gently loosened from the sides of the tube and decanted.

Drops of the deposit was placed on a grease free slide and saline added. A cover slip was applied and examined using x10 and x40 objective lenses for identification of parasites.

Statistical Analysis

Data generated was analyzed using the SPSS 11 statistical software and the Chi-Square Method. Data was expressed as percentages. A p-value of \leq was considered statistically significant.

III. Result

A total of 120 samples were collected and examined in the laboratory. Out of the 120 samples, 60(50%) haboured parasites with 24(20%) being males and 36(30%) being females. *Ascaris lumbricoides* was seen in 24(20%) of the samples, Hookworm 17(14.12), *Trichuris trichuira* 11(9.2%) and *Strongyloides stercoralis* 8(6.7%) as shown in table 1.

Table 1: Distribution of Intestinal Helminthes in HIV Sero-Positive Subjects.

Parasites	Total No. Examined	No. of Male Positives (%)	No. of female Positives (%)	Total Positives
Ascaris Lumbricoides	30	10 (8.3)	14(11.6)	24(20)
Hookworm	30	7(5.8)	10(8.3)	17(14.1)
Trichuris Trichuria	30	4(3.3)	7(5.8)	11(9.2)
Strongyloides stecoralis	30	3(2.5)	5(4.2)	8(6.7)
Total	120	24(20)	36(30)	8(6.7)

Table 2 shows the rate of infection amongst those on antiretroviral drugs About 14(11.6) males haboured parasite and 12(10.2) females haboured the parasite, given a total of 26 (21.6%) of the patients with the helminth. *Ascaris* accounted for 10 (8.3%), Hookworm 7(5.8%), *T. Trichuria* 5(4.2%) and *Strongyloides* 4(3.3%).

Table 2 Distribution of intestinal helminths in HIV Sero-Positive subjects on antiretroviral drugs.

Parasites	Total No. Examined	No. of Male Positives (%)	No. of female Positives (%)	Total Positives
Ascaris Lumbricoides	30	5(4.2)	5(4.2)	10(8.3)
Hookworm	30	4(3.3)	3(2.5)	7(5.8)
Trichuris Trichuria	30	3(2.5)	2(1.6)	5(4.2)
Strongyloides stecoralis	30	2(1.6)	2(1.6)	4(3.3)
Total	120	14(11.6)	12 (10)	26(21.6)

P>0.05

Figure 1 shows the age distribution of AIDs Patients according to age and sex. The age bracket of 25 – 44 years showed the highest prevalence rate of 31 (25.8%), followed by 45-60years is 15(12.5%), 15-25 years 13(10.8%) while the least rate was in age bracket 10-15years at 7(5.8%). The males were 21 (17.5%) and the females 39(32.5%).

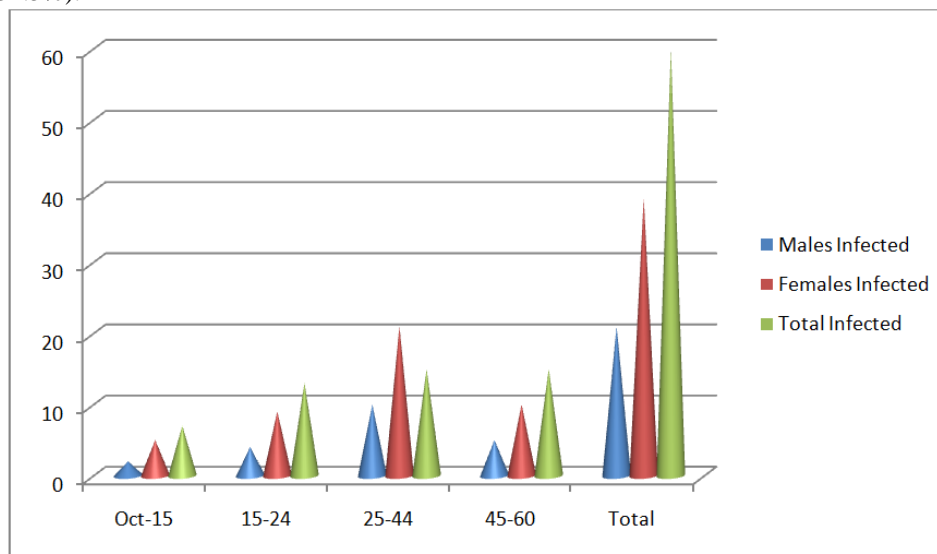


Figure 1: Age and Sex distribution of HIV Sero-Positive Patients

IV. Discussion

The study revealed that prevalence rate of intestinal helminths are lower in males (20%) than in females (30%). The low rates recorded in this study may be due to public health awareness and improvement on poor personal hygiene and poor environmental condition in the study area. The overall prevalence rate of 50% is in agreement with the work done by Lindo *et al.*; (1998) in San Pedro Sula, Honduras, Central America. The fairly low rate may also be attributed to the fact that the patients were on clinical and also undergoing antiretroviral therapy. Also to mention is the environmental and behavioral pattern of the people in the region which does not favour the survival of helminth ova and larvae.

Those on antiretroviral drugs had lower infection rate than those yet to be on antiretroviral therapy because helminth multiply easily with immune compromised patients (Cheebrough, 1999). The statistically insignificant (P>0.05) reduction in the prevalence of HIV Sero-Positive subjects could be attributed also to the fact that the subjects were undergoing antiretroviral therapy so their immune system is boosted.

Consequently, Lindo *et al.*, (1998) reported that the administration of antiretroviral drugs balance the immune system and therefore gives them immunity against the intestinal helminth, which makes it difficult to detect intestinal helminths in HIV Sero-Positive subjects under therapy.

V. Conclusion

Routine examination of stool sample for helminth of HIV Sero-Positive patient is essential as it significantly benefits the infected individual to reduce morbidity rate and improved quality life. There should be increased and improved awareness on the sources of infection and health education and personal hygiene should be the watchword of those infected. Routine screening of healthy people should be preached in order not to get more people into this public health menace.

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