

HELMINTHOSIS AND INTESTINAL PROTOZOANS AMONG HIV/AIDS INDIVIDUALS IN JOS COMMUNITY, NIGERIA

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Summary

A careful case study was carried out on the helminthosis and intestinal protozoans among 800 individuals with defined HIV seropositive and were examined with the following parasitic ova and oocysts which were recovered from their faecal matter: *Entamoeba histolytica* (7.6%) and *Isospora belli* (7.3%) were only the protozoans recovered and recorded and other helminthes which include; *Necator* sp. (7.5%); *Schistosoma mansoni* (6.3%) *Trichuris trichura* (5.0%); *Ascaris lumbricoides* (10.0%); *Strongyloides stercoralis* (9.4%); *Echinococcus granulosus* (8.8%) *Trichostrongylus* sp. (3.4%) and *Ancylostoma duodenale* (3.8%) respectively. The infections were more in females 291 (36.4%) than in males 268 (33.6%), There was a significant difference between males and females. The parasitological distribution of helminthosis revealed that Aids predisposes to Entamoebiasis and Isosporiasis as the only opportunistic infection in the case study.

Introduction

Diarrhoea is considered among the syndrome that is associated with HIV infection. The general aetiological agents of gastrointestinal parasite in immunodeficient host can be divided into those that cause inflammatory and non-inflammatory diseases. These include among others, a host of bacterial, viral, parasitic and fungal organisms. Parasitic agents fall mainly into non-inflammatory group (Cooke and Moody, 1993). There are other causes, which include non-infectious diseases like malabsorption and lactate deficiency (Overbosch and Ledebor, 1995). Gastrointestinal symptoms especially diarrhoea which is not easily cured and could be intermittent or constant which are common in patients with Aids. Henderson and Blood (1976) reported that helminthological diseases vary greatly between areas, depending on the relative importance of climatic factors, nutritional status of the animal; pasture management and immunity of worm infection. Similarly parasites that can cause life threatening or chronic diarrhoea in HIV patients include protozoans such as *Entamoeba histolytica*, *Giardia lamblia*, *Balantidium coli*, *Blastocystis hominis*, *Isospora belli* and *Cryptosporidium parvum*. Helminths such as *Ascaris lumbricoides*, *Trichuris trichura*, *Necator americanus*, *Ancylostoma duodenale*, *Strongyloides stercoralis*, *Schistosoma mansoni*, and *Taenia* sp. Some of those organisms have been recognized as the cause of self-limiting acute diarrhoea in humans and Aids patients, often cause unique profuse intractable diarrhoea, as a result, the deflection of T4 lymphocytes in Aids and dysfunction of monocytes and antigen presenting cells explain the severity of immunodeficiency and leads to opportunistic infections by organisms to which the patients have been previously or currently exposed (Dalgleish and Weiss, 1986).

Objective of the Study

Is to establish the prevalence of gastrointestinal parasites in HIV/ Aids patients and to establish the relationship between the male and female rates of infection as well to determine seasonal variation.

Method

This research work was carried out at the Jos Community of Plateau State, Nigeria. Located on the northern Guinea Savannah Vegetational belt, situated approximately on latitude 9.5 N and longitude 8.5°E (Keay, 1959). Rainfall is concentrated entirely to five months period lasting from May to September; Annual mean minimum temperature is 17.2°C while the annual maximum mean temperature is 27°C.

Eight hundred of faecal matter were collected from the study subjects in a cleaned, diy wide mouthed containers with screw tops which were given to individuals with appropriate labeling which indicate the serial number of an individual's age and sex of the HIV seropositive. These specimens were collected at the early hours of the day and transported immediately after the collection for laboratory examinations.

Diagnostic technique of saline wet mount was employed as described by Faust et. al. (1976).

A portion of faeces was taken using a platinum loop thoroughly and sufficiently emulsified in a drop of 0.85% solution of sodium chloride (saline) on a slide and covered with a cover slip then examined using x 10 objective eye piece for motile protozoan trophozoites, helminthes eggs, nematode larvae. -

A modified formal ether concentration technique was also carried out as a method by Cooke and Moody, (1993). One gramme of faeces was emulsified in 1ml of 10% formalin a centrifuge wire sieve and collected in a centrifuge tube, then 2ml of Ether was added and mixed well for 1 minute. The column fluid just below the fatty layer was withdrawn into another tube using a Pasteur and topped up with formalin and centrifuged again at 3000 rpm for 5 minutes. Smears were made from the deposit for examination of eggs, cysts and appropriate staining.

Examination of samples at large was further confirmed by using x 40 objective of the eyepiece and recognition of protozoa whereby the demonstration of the trophozoite or cystic forms, helminthes eggs were recognized by seeing their characteristic eggs or larvae in faeces. A specimen however was only considered negative after screening the entire microscope slide without seeing any parasite.

HIV serological screening was carried out using Enzymelinked immunosorbent Assay (ELISA) and confirmed by western blot serum analysis. The result and data obtained were represented as tables with statistical methods. The chi-square test was used and results were considered significant if the P value was less than <0.05 or higher than >0.05.

Results and Analysis

In the general survey of faecal matter, 800 HIV individuals were examined and were used to calculate the statistical value of significance.

Out of 800 HIV seropositive, 268 males had 33.6% less than the females 291 with 36.4% higher. The common parasites encountered include, Entamoeba histolytica (7.6%) and Isospora belli (7.3%), the only protozoans sp. recovered from the faeces of HIV individuals which is believed to cause high morbidity in HIV patients. More so, Necator sp. (7.5%); Schistosoma mansoni (6.3%) were discovered to be mixed infected with other parasites while Trichuris trichura (5.0%); Ascaris lumbricoides (10.0%); Sfrongyhides stercoralis (9.4%); Echinococcus granulosus (8.8%); Trichostrongylus sp. with (3.4%) and Ancylostoma duodenale (3.8%) were less common among the HIV seropositive individuals (Table I).

Table II, shows the various months of distribution of parasitic ova and oocysts recovered from the faeces examined round the year.

More so, infection rate was high in July 9.9% with the least in January 3.4%. Monthly distribution of parasitic infections round the year was established with more emphasis during the peak of the rain.

Table III, shows the relationship of males and females prevalence of intestinal parasites in HIV positive individuals and the prevalence of ova .and oocysts recovered from the study subjects was higher in the females than the males. Acaris lumbricoides was most prevalent among HIV seropositive individuals than other examined intestinal parasites.

However, there was a significant difference in the relationship between the proportion of positive males and females (P>0.05).

Table 1: Prevalence Of Parasitic Ova And Oocysts Recovered From The Faeces Examined

Parasite	Number	Percentage	Male	Female	Total	Male	Female	Total	Male	Female
Entamoeba histolytica	75	9.4%	70	61	131	70	61	131	70	61
Isospora belli	70	8.8%	61	60	121	61	60	121	61	60
Necator sp.	70	8.8%	61	60	121	61	60	121	61	60
Schistosoma mansoni	60	7.5%	58	58	116	58	58	116	58	58
Trichuris trichura	58	7.3%	58	58	116	58	58	116	58	58
Ascaris lumbricoides	58	7.3%	58	58	116	58	58	116	58	58
Sfrongyhides stercoralis	58	7.3%	58	58	116	58	58	116	58	58
Echinococcus granulosus	58	7.3%	58	58	116	58	58	116	58	58
Trichostrongylus sp.	58	7.3%	58	58	116	58	58	116	58	58
Ancylostoma duodenale	58	7.3%	58	58	116	58	58	116	58	58
Total	750	93.8%	700	700	1400	700	700	1400	700	700
Average Mean	75	9.4%	70	61	131	70	61	131	70	61

800 faecal matter were examined.

Table II: Monthly Distribution of Parasitic Infections Round the Year 2000

Months of the Year

Names of Specie.	J	F	M	A	M	J	J	A	S	O	N	D
<i>Ascaris lumbricoides</i>	6	5	6	7	5	8	12	9	6	4	6	6
<i>Strongyloides stercoralis</i>	5	5	4	6	7	8	9	8	6	4	7	6
<i>Echinococcus granulosus</i>	3	5	4	6	6	7	8	8	6	4	7	6
<i>Entamoeba histolytica</i>	2	4	6	4	5	6	9	7	4	3	5	5
<i>Necator sp.</i>	2	4	6	4	5	6	7	5	4	3	5	5
<i>isospora belli</i>	4	5	6	5	4	6	7	5	4	3	5	4
<i>Schistosoma mansoni</i>	3	3	5	4	4	5	7	4	4	3	4	3
<i>Trichuris trichura</i>	1	2	4	4	3	5	6	3	2	3	4	3
<i>Trichostrongylus sp.</i>	0	4	2	2	3	3	5	4	2	4	4	2
<i>Ancylostoma duodenale</i>	1	0	0	2	2	4	6	3	2	2	3	5
Average mean.	3.4	4.6	5.4	5.5	5.5	7.4	9.9	7.1	5.0	4.1	6.3	5.8

Table III: Sex-Related Prevalence of Intestinal parasites of HIV Positive Individuals in Jos

Names of Specie.	M	Sex		Total Infected	Average Mean.
		(%) F	(%)		
<i>Ascaris lumbricoides</i>	32	4.0	48	80	10.0
<i>Strongyloides stercoralis</i>	30	3.3	45	75	9.4
<i>Echinococcus granulosus</i>	25	3.1	45	70	8.8
<i>Entamoeba histolytica</i>	20	5.0	21	61	7.6
<i>Necator sp.</i>	35	4.4	25	60	7.5
<i>Isospora belli</i>	28	3.5	30	58	7.3
<i>Schistosoma mansoni</i>	24	3.0	26	50	6.3
<i>Trichuris trichura</i>	21	2.6	19	40	5.0
<i>Trichostrongylus sp.</i>	15	1.9	20	35	3.4
<i>Ancylostoma duodenale</i>	18	2.3	12	30	3.8
Total	268	36.6	291	559	69.87

559 out of 800 were infected,

M = Males. F = Females.

Discussion

As previously reported, *Ascaris lumbricoides* predominates with the highest infection rate of 10.0% and the least with 3.4% among HIV seropositive individuals. The infection found in most of the patients were multiple which probably may be associated to the mechanism of parasite transmission and endemicity to these agents in the developing countries. Infection with HIV predisposes to several parasitic diseases (Dallabetta and Miotti, 1992; Lockwood and Weber, 1999).

The prevalence of parasites among individuals with HIV indicates that, male and female sexes were both exposed to the infection risk and comparatively infected as in Table III. The main source of infection could therefore be as a result of oral faecal transmission and unhygienic condition that has attributed to both sexes being susceptible to parasitic infection.

Diarrhoea was seen among Aids patients, among intestinal parasites *E. histolytica* and *I. belli* most have been the cause of the patients diarrhoea hence, the ova and the oocysts appeared in HIV

infected individuals with diarrhoea which agrees with the work done by Smith et. al. (1992) where cryptosporidiwn parvum and Isospora belli appeared opportunistic in HIV patients. Similarly, this con-elates with the work of Hunter et. aL(1992) and Cotte et. al. (1993). In this case study, E. hisiolytica and /. belli only were opportunistic protozoans pathogen of HIV infected individuals with diarrhoea.

Moura et al. (1989) had a low prevalent rate of intestinal infections which varies slightly with this present case study and with that of Cotte et. al. (1993). In view of these findings, gastrointestinal parasites which include; A. lumbricoides, S. stercoralis, Nector sp, S, mansoni, T. Irichura, Trichostrongylus sp. and Ancylostoma duodenale are not opportunistic in Aids patients.

Available data indicate that accurate infection on the incidence, prevalence and distribution of parasitic infections continued to contribute significantly to morbidity and mortality in HIV patients.

Intestinal protozoan have appeared to explain only a fraction and however, been the cause of chronic diarrhoea in Aids patients, and these disease conditions are. not uncommon in Jos (study area) Nigeria..

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