

CRYPTOSPORIDIOSIS IN HIV/AIDS ADULT PATIENTS IN JOS, CENTRAL NIGERIA.

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SUMMARY

Objective: To determine the prevalence of Cryptosporidiosis in adult HIV/AIDS patients with diarrhoea

Method: Blood and stool samples of 190 HIV-seropositive adults and another 190 HIV-seronegative adults aged 15-70 years were collected and screened for HIV and Cryptosporidium oocysts respectively. The sera were screened by double ELISA and the stool by the modified Ziehl Neelsen method.

Result: Out of the 190 HIV-seropositive adults 17(9.0%) excreted Cryptosporidium oocyst in their stool while only 3(1.6%) of the control group excreted the oocyst.

Conclusion: The prevalence of Cryptosporidiosis is high in HIV/AIDS adult patients in this environment.

INTRODUCTION.

Cryptosporidium first described in 1907 (1) is an intracellular protozoan parasite that is associated with gastrointestinal diseases in all classes of vertebrates (2,3). The first reported cases were reported in the United States in 1976 (4). Since then, there has been a substantial number of reported cases and is now recognised as a major cause of diarrhoea in immunosuppressed and immunocompetent hosts. The risk of severe and/or prolonged disease is increased in patients with cellular and humoral immune deficiencies, including HIV, organ transplantation, immunosuppressive drugs, IgA deficiency and hypogammaglobulinaemia (5). This paper examines the prevalence of Cryptosporidium infection in HIV/AIDS adult patients presenting with diarrhoea at the Jos university Teaching Hospital.

SUBJECTS, MATERIALS AND METHODS.

Study Area and Population

This study was hospital based and involved 190 consecutive HIV sero-positive adult patients aged 15-70 years. The control consisted of another 190 consecutive HIV sero-negative patients aged 15-70 years. The study population presented with diarrhoea at the Jos University Teaching Hospital, located in Jos Metropolis. The study was over a period of 9 months (Jan-August 2000). Consent was obtained before recruitment into the study. Ethical clearance was obtained from JUTH ethical committee. The details of personal and clinical information were obtained using a questionnaire.

Sample collection and Processing.

Serum: Blood samples were collected aseptically by venipuncture of the cubital veins. The area was cleaned using 70% isopropyl alcohol in water with 1% iodine for at least 1 minute and allowed to dry. With precautions to avoid touching and re-contamination, the needle was inserted and 4-5 mls of blood was obtained. This was then dispensed into clean plastic containers (z-10 tubes). The blood was allowed to clot and serum separated by centrifuging at 1,800 rpm. The serum thus obtained was used for HIV serology by the ELISA method using Genelavia kits. Absorbance was read with ELX80 micro-plate Reader (Bio-Tek instrument INC.USA). Another separate sample was obtained from seropositive patients and re-run for HIV antibodies (double ELISA). Ninety-Five percent sensitivity of the ELISA method had been documented from our centre (6).

Stool: Stools were collected into clean, wide mouth grease-free, screw capped and numbered glass containers, provided for each patients. These were returned to the laboratory immediately. The stool samples were processed each day within 4 hours of collection. Appearance and consistency were noted for each stool sample. The demonstration of *Cryptosporidium* oocyst was by microscopical examination of smears made after formol-ether concentration of stools and stained by the modified Ziehl Neelsen (Z-N) technique as given by the WHO (7) and examined with the oil immersion objective of a light microscope. *Cryptosporidium* oocyst positive slides were obtained from Prof J.U.Umoh (veterinary public Health department Ahmadu Bello University Zaria).

Ethical Clearance: Ethical clearance for this research was obtained from the Jos University Teaching Hospital ethical committee.

RESULTS.

Among the 190 HIV sero-positive patients (age range 15 - 70 years), 53.7% were males while 46.3% were females (ratio M:F=1.16:1). They were mostly aged between 21 and 40 years. (Table I.)

Seventeen (9.0%) out of the 190 HIV seropositive patients excreted *Cryptosporidium* oocyst in their stools. This was made up of 8 (4.2%) males and 9 (4.7%) females. (Table II).

In the control population only 3 (1.6%) subjects excreted the oocyst of the protozoan.

TABLE I: AGE AND SEX DISTRIBUTION OF ADULT HIV/AIDS PATIENTS IN JOS.

AGE (Years)	SEX		TOTAL
	M	F	
15-20	2	9	11
21-30	27	44	71
31-40	46	26	72
41-50	22	7	29
51-60	3	2	5
61-70	2	0	2
TOTAL	102(53.7)	88(46.3)	190(100)

Parenthesis = percent total

TABLE II: AGE AND SEX DISTRIBUTION OF CRYPTOSPORIDIUM POSITIVE ADULT HIV/AIDS PATIENTS IN JOS.

AGE (Years)	SEX		TOTAL
	M	F	
15-20	0	1	1
21-30	2	7	9
31-40	6	1	7
41-50	0	0	0
51-60	0	0	0
61-70	0	0	0
TOTAL	8(4.2)	9(4.7)	17(8.9)

Parenthesis = percent total
n=190

DISCUSSION.

The prevalence of Cryptosporidium in HIV/AIDS patients in this study was found to be 9.0%. This prevalence is high and confirms the high prevalence in diarrhoeal stools from HIV/AIDS patients. This finding is within the range of 8-30% reported from developed countries (7-10) and lower than the 11-50% of the developing countries of Africa (11-15) and South America (16,17). Firstly, it could be due to the difference in diagnostic techniques. While this study made use of only microbiological techniques where single stool specimens were examined, and only 30% sensitivity of single stool specimen has been reported.(18) , most of the reports from

industrialized and indeed some developing countries used more sensitive techniques such as endoscopy and histology in addition to the microbiological techniques. This could explain the seemingly higher prevalence recorded in the other reports. Secondly, the prevalence recorded in this study is higher than the 1.6% recorded in the HIV sero-negative control population. The prevalence of cryptosporidium in stools of the seronegative control population is very low. This may be a reflection of its prevalence in general population. Taking this into consideration, the prevalence of cryptosporidiosis in HIV/AIDS patients in this population can be said to be relatively high.

CONCLUSION.

This report confirms the high prevalence of cryptosporidiosis in HIV/AIDS patients in our environment. It is therefore of utmost importance to include the treatment of cryptosporidiosis in this group of patients, especially that the diarrhoea is a life threatening diseases

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