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Prevalence of Helminths Ova in Faeces of Patients Attending State Specialist Hospital, Maiduguri, Borno State, Nigeria

A. A. Biu, J. Luka* and Z. G. Adamu

Department of Veterinary Microbiology and Parasitology, Faculty of Veterinary Medicine, University of Maiduguri, P. M. B 1069, Maiduguri, Nigeria

ABSTRACT

A prevalence study was carried out among patients attending the State Specialist Hospital, Maiduguri, Nigeria, with a view to determinining the intestinal helminthes infection using direct stool smear and formol ether concentration techniques. The study revealed an overall prevalence of 7(7.0%) with hookworm infection constituting (6.0%) and taenid ova1 (1.0%). Three (3.0%) male patients were infected with hookworm and 1 (1.0%) with taenid ova while 3(3.0%) females had hookworm and no taenid ova. 2(2.0%) young patients had hookworm and 1 (1.0%) taenid ova whereas 4(4.0%) adults had hookworm with no taenid ova. The helminths identified could be of great medical and economic importance. Their relevance as it relates to health of individuals as well as methods of controlling them are discussed

Key words: Intestinal helminth, prevalence, Maiduguri, Nigeria

INTRODUCTION

Intestinal helminthes infection constitute one of the most important and prevalent infections in human population particularly in rural areas with worm burden common among children aged 5 - 14 years (Nwosu,1981; Arinola and Fawole, 1995). The common effect on health is a subtle and insidious constraint on normal physical development resulting in children failing to achieve their genetic potential for growth and suffering from the clinical consequences of iron deficiency anemia and other nutritional consequences (Drake and Bundy, 2001). About 135,000 people die annually worldwide due to soil- transmitted helminthes (Savioli *et al.,* 2004). The following are some of the helminthes affecting Man; *Schistosoma species, Paragonimus species, Fasciolopsis buski, Ascaris lumbricoides, Enterobius vermicularis, Trichuris trichiura* (Cheesbrough, 2005).Others include *Fasciola hepatica, Opisthorchis sinensis, Echinococcus granulossus, Diphylobothrium, Strongyloides stercoralis, Ancylostoma duodenale and Necator americanus* (Cheesbrough, 2005). Infection with one or more of the species listed above could result in untoward effects on the health of the infected individuals with the clinical presentation dependent on the species infecting a host and intrinsic host's factors. Little information exist on the status and impact of intestinal helminthes in Maiduguri in both the adult population and the children, This study was therefore, designed to determine the prevalence of helminthes infection in patients attending State Specialist Hospital, Maiduguri, Nigeria, and to discuss the effects caused by this helminthes.

MATERIALS AND METHODS

Stool samples were collected from one hundred patients visiting the Maiduguri Specialist Hospital, Maiduguri, Nigeria, during the months of November and December 2008. Permission was sought for and obtained from the Hospital's Head of Laboratory. Consents of the patients were also obtained. Each patient was given a labeled specimen bottle bearing personal information (sex, name and age) for the collection of the sample. Collected samples were immediately taken to the laboratory for processing. Patients, fifteen years and below were classified as young while those older than fifteen years were classified as Adult for the purpose of this study.

Direct stool smear technique and formol ether concentration technique were used in the analysis of the samples collected. Samples analyzed using the direct fecal smear were processed according to the method described by

*Author for correspondence

(Anon, 1977) where a small quantity of stool were placed in a drop of water on a clean grease-free slide and mixed thoroughly using an applicator stick, after which the coarse materials were removed (Anon,1977). A cover slip was then placed on the sample and examined under ×10 objective with the condenser iris sufficiently closed to give a good contrast. Formol ether concentration technique was carried out as described by (Chatterjee, 1981, Obiaminwe and Nmorsi, 1991; Biu and Adam, 2004). One gram of stool was emulsified in 7ml of 10% buffered formalin into a swing-out head centrifuge tube (Measuring and Experiment Ltd ., UK). The mixture was strained using a wire sieve and the filtrate poured into another test tube and to which 3mls of ether was added and mixed thoroughly for 5 seconds. The formol ether emulsion suspension was put back into a centrifuge tube and centrifuged at 1500 rpm for 1 minute. The fatty tube is then loosened using an applicator stick and the tube quickly inverted, discarding the supernatant, allowing a few drops of the deposit to remain from which a smear was made on a clean glass slide and examined under ×10 objective .Helminth ova were identified based on their size and morphological features as described by (Jeffrey and Leach, 1975; Cheesbrough, 2005).

RESULTS AND DISCUSSION

The results indicates that, of the 100 patients examined, 59 were males and 41 were females.6 (6%) were positive for hookworm egg; and 1(1%) for *Taenia* egg; giving an overall infection rate of 7%.Of the six patients with hookworm egg, 3 were males and 3 were females, giving respective percentage infection rates of 5.1 and 7.3.The rates were not statistically different (Table 1).

Helminthes particularly soil transmitted species are of great economic and health implication. The prevalence of hookworm and taenid ova in this study though low reemphasizes their importance relevance in the study areas as previously reported by Biu and Harry (2001) as well as other study areas (Yong *et al.*, 2000; Hung *et al.*, 2005; Ijagbone and Olagunju, 2006). The identification of hookworm as the most prevalent parasite agrees with the report of Akogun (1989) where in a study in Gumau District of Bauchi State, a prevalence rate 4.4%, 22.5%, and 1.5% for hookworm, ascarid and trichurid egg types respectively, was reported. This study also agrees with the findings of (Hung *et al.*, 2005) in Southern Vietnam where Hookworm infection constituted about 23% of the 28.6% overall prevalence of infection. The difference seen in the rate of infection in males and females is not significant statistically and the same non significant difference is seen between adults and the young population sampled. The location of where this study was conducted could be responsible for the prevalence rate seen as the region has longer dry season throughout the year which is unfavorable for the survival of the free living stages of parasites that normally serve as the source of infection. The presence of basic social amenities like clean water could also be responsible for the finding coupled with increased awareness on the need to maintain optimum level of hygiene.

The parasites identified in this study could be of great medical and economic significance depending on the specie identified for example infection with hookworm is frequently associated with skin reaction at the site of penetration (Cheesbrough, 2005). Adult hookworm infection has been associated with causing a chronic blood loss (Cheesbrough, 2005). Several control measures are usually advocated for the control helminthosis. Nwosu (1981) emphasized the need to target younger age groups for health education and behavior modification in order to reduce environmental contamination with infective stages. It was also suggested that most heavily infected individuals in a community should be identified and treated over a period of time. Hung *et al.* (2005) advocated for the provision of clean water especially in rural areas including maintenance of high level of sanitation through provision of public convenience in strategic locations. Mass education of the populace was also encouraged.

Table 1. Distribution of helminthes ova among patients based on their age and sex

	Number of patients examined	Number (%) of patients infected with ova of:		
		Hookworm	Taenia	Total
Overall	100	6 (6.0)	1 (1.0)	7 (7.0)
Sex: Male	59	3 (5.1)	1 (1.6)	4 (6.7)
Female	41	3 (7.3)	0 (0.0)	3 (7.3)
Age: Young	42	2 (2.0)	1 (1.0)	3 (3.0)
Adult	58	4 (4.0)	0 (0.0)	4 (4.0)

REFERENCES

Akogun, O. B. (1989). Some social aspects of helminthiasis among the people of Gumau District Bauchi State, Nigeria. *J. Trop. Med. Hyg.* 92,193-196.

Anon (1977). Manual of veterinary parasitological laboratory techniques. *Technical Bulletin* No 18, Vol. 7. Ministry of Agriculture, Food and Fisheries (MAFF), London. 129pp.

Arinola, O. and Fawole, O. (1995). Age and sex graded helminth infections in a Nigerian village. *East Afr. Med. J.* 72, 110-112.

Biu, A. A and Adam, F. A. (2004). Protozoan causes of human diarrhea: an investigation amongst in-patients attending State Specialist Hospital,Maiduguri, and arid zone of Northern Nigeria .*Res. J. Sci.* 10 (1/2), 19-21.

Biu, A.A. and Harry, J. (2001).Gastrointestinal parasites: a prevalence study among school chindren in Maiduguri, Nigeria. *Biosci. Res. Communs.* 13(6), 609-613.

Chatterjee, K.D.(1981). *Parasitology in Relation to Clinical Medicine*,12th ed. Chatterjee Medical Publ. Heers, Calcutta, India. pp. 112-130.

Cheesbrough, M. (2005). *District Laboratory Practice in Tropical Countries*, 2nd ed. Cambridge University Press, Oxford, England. pp. 178-309.

Drake, L.J and Bundy, D.A. (2001). Multiple helminthes infection in Children: Impact and control. *Parasitology* 122, S73-81.

Hung, Le Q., Vries, P.J.D., Giao, P.T., Binh, T.Q.; Nam, N.V and Kager, P.A.(2005). Intestinal helminthes in an ethnic minority commune in Southern Vietnam. *South. Asian J. Trop. Med. Publ. Hlth* 36(3), 623-628.

Ijagbone, I.F and Olagunju, T.F. (2006). Intestinal helminthes parasites in school chindren in Iragbiji Boripe Local Government, Osun State, Nigeria. *Afr. J. Biomed. Res.* 9(1), 63-66.

Jeffrey, H.C and Leach, R.M. (1975). *Atlas of Practical Helminthology and Protozoology*, 3rd ed..Wolfe Medical Publications, London. pp. 91 and 113.

Nwosu, A.B.C. (1981).The community ecology of soil transmitted helminthes of humans in a hyperendemic area of Southern Nigeria. *Ann. Trop. Med. Parasitol.* 75, 197-203.

Obiamiwe, B.A. and Nmorsi, P. (1991). Human gastrointestinal parasites in Bendel State, Nigeria. *Angewandte parasitologie* 32, 177-183.

Savioli, L., Albonico, M., Engels, D. and Montressor, A. (2004).Progress in the prevention and control of schistosomiasis and soil transmitted helminthiasis. *Parasitol. Int.* 53, 103-113.

Yong, T-S., Lee, K.J. and Ahn, Y.K. (2000). A small scale survey of intestinal parasites infections among children and adolescents in Legaspi city, The Philippines. *Korean J. Parasitol.* 38(3), 183-185.