www.cenresin.org
ISSN 2277-0054

PREVALENCE OF INTESTINAL PARASITES IN SCHOOL AGED PUPILS IN MAFA LOCAL GOVERNMENT AREA OF BORNO STATE, NIGERIA

Biu, A.A., kyari, F. and John, W.M.
Department of Microbiology and Parasitology
University of Maiduguri, Nigeria
E-mail:biuvet@yahoo.com

ABSTRACT

A coprological study was conducted to determine the prevalence of intestinal parasites among school aged pupils attending Osas Private Nursery and Primary School and Kaleri Primary School in Mafa Local Government Area of Borno State. A total of One Hundred and Twenty (120) stool samples were examined using the formol ether concentration technique revealing a prevalence of 72 (60.0%) represented as helminth ova 33 (45.8%) comprising of hookworms 20(27.8%), *Ascaris lumbricoides* 4(5.6%), *Taenia* spp. 4(5.6%), *Hymenolepis nana* 4(5.6%), *Trichuris trichura* 1(1.4%) and protozoon cysts 39(54.2%) of *Entamoeba coli* 21(29.2%), *E. histolytica* 14(19.4%) and *Giardia lamblia* 4(5.6%). The prevalence of infection was noted to be higher in public schools 50(86.2%) compared with the private school 22(35.5%) ($p<0.05$), while more male pupils were infected 42(62.7%) compared with female pupils 30(56.6%) ($p<0.05$). Also among age groups examined, a higher prevalence was observed in children between 10 and 11 years with 21(87.5%) than the others ($p<0.05$).

INTRODUCTION

Intestinal parasitic infections present as one of the major health problems in both developed and under developed nations, most especially among school aged children in tropical Nigeria, where poor sanitation provide conducive environment for their development and transmission (Mbanugo and Onyebuchi, 2002). The World Health Organization (1987) reported a prevalence rate ranging between 50% and 80% in children worldwide mainly by *Ascaris lumbricoides*, hookworms and *Trichuris trichura*. In some parts of Nigeria, Akogun, (1987); Fashuyi, (1993) and Awogun (1984) reported a high prevalence among paediatric age group resident in Gumau District of Bauchi State; Ibadan and Illorin, while Biu and Harry (2001) and Biu and Adam (2004) reported a prevalence of 37.4% and 72.0% in school children and non school children in Maiduguri Metropolis. However, in a survey Salako (2001) estimated an overall prevalence of 70.6% in school pupils in Nigeria. Data on intestinal parasites of school pupils in Mafa Local area of Borno State is lacking, hence the need for this study with the objective of providing baseline information which could be used as an aid to medical intervention in form of sanitation and chemotherapy.

MATERIALS and METHODS

A total of 110 stool samples (comprising of 58 and 62) were collected from children attending Kaleri public primary school and Osas private nursery and primary school respecting, both in Mafa Local Government Area of Borno State. 7ml of 10% formol saline was transferred to a centrifuge tube in which was put 1g of the stool specimen. This was mixed gently and strained using a sieve. Faecal debris and the suspension transferred to another test tube

containing 2-3ml of formol-either. The mixture was thoroughly shaken after closure with a stop cork, and then centrifuged at 1500g for 5minutes to form four layers of suspension i.e formol ether, faecal debris, formol saline and stool sediments. The first three layers were decanted and a drop of the fourth layer placed on a clean grease-free glass slide, and covered with a cover slip and examined under high dry objective x10 and x100 respectively. A drop of lugol's iodine was added to each slide to provide for clarity of cysts if any as described by Biu and Harry (2001).

RESULTS

Table 1 shows the prevalence of intestinal parasites among school aged pupils in Mafa L.G.A. A 60.0% prevalence was obtained with helminth ova representing 45.8% comprising of hookworm (27.8%); *Ascaris lumbricoides* (5.6%); *Taenia* species (5.6%); *Hymenolepis nana* (5.6%) and *Trichuris trichura* (1.4%), and protozoan cysts representing 54.2% comprising of *Entamoeba coli* (29.2%); *Entamoeba histolytica* (19.4%), and *Giardia lamblia* (5.6%) Table 2 shows prevalence of intestinal parasites in school aged pupils based on their sex and age groups and the schools visited. Male pupils were more infected (62.7%) than females (56.6%) ($p<0.05$); also pupils attending the public school were more infected (86.2%) than those in the private school (35.5%) ($p<0.05$), and although infection was common among all the age groups studied, infection was highest among the age group between 10 and 11 years ($p<0.05$).

Table 1: Prevalence of intestinal parasites among school aged pupils in Mafa L.G.A

Ova/cysts isolated	No(%) of pupils infected
Helminth Ova:	33(45.8)
Hookworm	20(27.8)
Ascaris lumbricoides	4(5.6)
Taenia spp	4(5.6)
Hymenolepis nana	4(5.6)
Trichuris trichura	1(1.4)
Protozoan cysts:	39(54.2)
Entamoeba coli	21(29.2)
E. histolytica	14(19.4)
Giardia lamblia	4(5.6)
Total	72(60.0)

Table 2: Prevalence of intestinal parasites in school aged pupils based on their sex and age groups, and the schools visited

	No examined	No (%) of pupils infected
Sex:		
Male	67	42(62.7)
Female	53	30(56.6)
Age group		
6-7	24	8(33.3)
8-9	24	17(70.8)
10-11	24	21((87.5)
12-13	24	16(66.7)
14-15	24	10(41.7)
School		
Osas Private School	62	22(35.5)
Kaleri Public School	58	50(86.2)

DISCUSSION

This study has provided a high prevalence (60%) of intestinal parasitic infections in school children. This is in consonance with the reports of Savioli *et. al.,* (1992) that they are more prevalent in the tropics which provide optimum conditions for their propagation, and are also closely correlated with poverty, ignorance, poor environmental hygiene and impoverished health services. Adeyeba and Akinlabi (2002) and Mbanugo and Onyebuchi (2002) also attested that school children usually eat foods that are from doubtful sources, and they are generally reservoirs of parasitic infections. This study has also shown male pupils to be more infected than female pupils, and age groups between 10 and 11 years are also mostly infected. This agrees with the findings by Etim *et. al.*,(2002) that male pupils are fond of playing in dirty or filthy environment in addition to their geophagous habit which could be responsible for the higher prevalence of intestinal infections, and age groups between 5 and 13 do have the highest prevalence among community members, while intensity of parasite infection reduces with age (Nwosu 1981). Furthermore, this study has shown a higher rate of parasitism among public school pupils compared with the private school pupils, which agrees with the explanation by Akogun (1989) that public schools in Northern Nigeria are known to have poor sanitary conditions with pupils defaecating around the school compound, the pupils are mostly barefooted and eat from buying contaminated fruits, vegetables from hawkers. In conclusion, it has been reported by Ogbe and Odudu (1990); and Nworgu *et al.,* (1998) that school based intestinal parasitosis control programme is normally well accepted in Nigeria and this should be encouraged by all stakeholders.

REFERENCES

Adeyeba, O.A. and Akinlabi, A.M. (2002). Intestinal Parasitic Infections Among School Children in a Rural Community, Southwest Nigeria. *The Nigerian Journal of Parasitology,* 23:11-18

Akogun, O.B. (1989). Some social aspects of helminthiasis among the people of Gumau District, Bauchi State, Nigeria. *Journal of Tropical Medicine and Hygiene,* 92(3): 193 – 196.

Awogun, I.A. (1984). The prevalence of intestinal parasitic infections in children living in Ilorin, Kwara State, Nigeria. *West African Journal of Medicine,* 4(1): 16 – 21.

Biu, A.A. and Harry, J. (2001). Gastrointestinal Parasites: A Prevalence Study amongst School Children in Maiduguri, Nigeria. *Bioscience Research Communications*, 13(6): 609 – 613.

Biu, A.A. and Adam, F.A. (2004). Protozoon causes of human diarrhea: An investigation amongst in-patient attending the State Specialist Hospital Maiduguri – an arid zone of Northern Nigeria. *Research Journal of Science* 10(1&2): 19-21.

Etim, S.E., Akpan, P.A., Abeshi, S.E., Effiom, O.E. and Enyi- Doh, K.H. (2002). Intestinal helminth infections in children: Implication for helminth control using school – based mass chemotherapy. *The Nigerian Journal of Parasitology*, 23:53-59.

Fashuyi, H.I. (1983). The prevalence of helminth eggs in human faeces deposited on the streets of Lagos Nigeria. *West African Medical Journal*, 2:135-138.

Mbanugo, J.I. and Abazie, O.C. (2002). A comparative study of intestinal parasite infections of pregnant and non – pregnant women in Nkpor, Anambra State. *The Nigerian Journal of Parasitology*, 23:19-26.

Nwosu, A.B.C. (1981). The community ecology of soil transmitted helminthic infection of humans in a hyperendemic area of southern Nigeria. *Annals of Tropical Medicine and Parasitology*, 75:197-203.

Nworgu, O.C., Okeibuno, J., Madu, E., Amazigo, U.O. and Evans, D. (1998). A school based schistosomiasis and intestinal helminthiasis control programme in Nigeria: Acceptability to community members. *Tropical Medicine and International Health,* 3(10): 841 – 849

Ogbe, M. G. and Odudu, L.O. (1990). Prevalence of helminthiasis in school children in Epe Local Government Area, Lagos, Nigeria. *The Nigerian Journal of Parasitology*, 9 – 1: 5 – 106.

World Health Organization (WHO) (1987). Prevention and control of intestinal parasitic infection. Report of WHO Expert Committee. *Technical Report Series* 749 WHO, Geneva Pp. 12.

Savioli, L., Bundy, D.A.P. and Tomkins, A. (1992). Intestinal parasitic infections : a soluble health problem. *Transactions of Royal Society Tropical Medicine and Hygiene*, 89:353 – 354.

Mbanugo, J.I. and Onyebuchi, C.J. (2002). Prevalence of intestinal parasites in Ezinifite Community, Aguata Local Government Area of Anambra State. *The Nigerian Journal of Parasitology*, 23:27-34.