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Prevalence of ascariasis among patients attending University of Maiduguri Teaching Hospital, Nigeria

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ABSTRACT: A study on human ascariasis amongst patients attending University of Maiduguri, Teaching Hospital between January 2000 and September, 2004 was conducted using the formal –ether concentration method. Of the 6868 patients stool examined 108 (1.6%) were infected with (58.3%) as male and (41.7%) as female ($p>0.05$). Ages between 5- 15 and 16-25 years were most infected represented as (33.3%) and (55.6%) respectively. The disease could be described as endemic since it was recorded throughout the five year period of this study. The significance of these findings is discussed.

Keywords: Ascariasis, Prevalence, Patients, Veterinary Teaching Hospital, Nigeria.

Introduction

Ascariasis, a human gastro intestinal parasitic infection caused by *Ascaris lumbricoides* is particularly prevalent in developing countries where low standards of personal and environmental hygiene allows faecal contamination of food and drinking water (Macleod, 1985; Biu and Adam, 2004). About 250 million people mainly children are infected (WHO, 1996; Biu and Harry, 2001) which results in reduced social and economic productivity especially among school pupils (Zuckerman, 1987; WHO, 1990). There is a dearth of information on the prevalence of ascariasis in Nigeria and more so in this north eastern region, hence this study was conducted to provide some socio demographic data on the disease.

Materials and Methods

A total of 6868 stool samples from patients attending the University of Maiduguri Teaching Hospital (UMTH) were collected into clean sterile universal bottles and examined in the parasitological unit of the hospital using the formol ether concentration technique as described by Biu and Adam, (2004). 1gram of each stool sample was emulsified in 7 ml of 10 % formalin in a centrifuge tube and strained using a wire sieve with the filtrate returned back into the test tube, 3 ml of ether was then added, mixed well for 15seconds. Centrifuge at 1500g for a minute to loosen the fatly plug and debris at the top the tube with an applicator stick, the tube was inverted quickly to discard the supernatant, only a few drops of the deposit

remained which was mixed and transferred to a glass slide under a cover slip and examined at x10 objective of the Olympus microscope for typically ovoid brown eggs that has a thick transparent shell covered by a mammillated outer layer (Murray *et al.*,1995).

Data analysis: The prevalence of infection was analyzed using the paired students “t” test with “p” values equal to or less than 0.05 regarded as significant (Dibal 1991).

Results

Table 1 shows that of the 6868 stool samples examined for ascariasis, 108 (1.6%) were infected. There was no significant difference ($p>0.05$) between male (58.3%) and female (41.7%) patients; however age groups of 16-25 years had a higher prevalence (55.6%) compared to 5- 15 years and > 25 years with (33.3%) and 12 (11.1%) respectively ($p<0.05$).

Table 1: Prevalence of ascariasis based on the sex and age of patients examined.

	No. of patients examined	No. (%) patients infected
Overall	6868	108 (1.6)
Sex:		
Males	3468	63 (58.3)
Females	3400	45 (41.7)
Age groups (years):		
5-15	2000	36 (33.3)
16-25	2200	60(55.6)
>25	2668	12 (11.1)

Table 2: Cumulative five-year monthly prevalence of ascariasis among the patients examined.

Months	No. of patients examined	No. (%) infected
Jan	579	7 (1.2)
Feb	546	10 (1.8)
Mar	651	5 (0.8)
April	638	7 (1.1)
May	685	12 (1.8)
Jun	631	12 (1.9)
July	587	14 (2.4)
Aug	539	12 (2.2)
Sept.	636	10 (1.6)
Oct.	500	5 (1.0)
Nov.	434	5 (1.2)
Dec.	442	10 (2.3)

Discussion

Though the prevalence of the disease ascariasis among patients in this study area could be described as low, it can safely be reported as an endemic having consistently occurred throughout the 4 year period; and agrees with the report that most infections are benign, causing some psycho- physical misery such as mental retardation in children and substantial cost to the health care system (Julias, 1983; Biu and Usman, 2006), with high parasitic load causing nutritional deficiencies, especially in those consuming marginal diets (Biu and Adam, 2004).

This study also shows a non significant higher rate of infection among males compared to the females which agrees with the reports of Biu and Adam (2004) who suggested that it could probably be due to the socio- economic disposition of the people in the study area, since the distribution pattern is influenced by poor sanitation and sewage problems. Age groups of 16-25 years had a higher prevalence compared to ages between 5 and 15; and >25years. This contrasts the report of Chandler and Read, (1961); WHO, (1990); Biu and Adam, (2004), that gastro intestinal parasitism is most common in children below 5 years of age with a prevalence of more than 80%.

In conclusion, ascariasis has a worldwide distribution, the incidence of which is largely dependent on local habits of poor sanitation and hygiene, and in Nigeria, there are reports indicating that the pathological effect of this parasite in children are grave, and thus there is the need to improve sanitation, discourage the use of untreated human faeces as fertilizers and to regularize deworming exercises.

References

- Biu, A.A. and Harry, J. (2001). Gastro intestinal parasites: A prevalence study among school children in Maiduguri, Nigeria. *Bioscience Research Communications*, 13(6): 609-613.
- Biu, A. A and Adam, F.A (2004). Protozoan causes of human diarrhoea: an investigation amongst in- patients attending the state specialist hospital Maiduguri an arid zone of Northern Nigeria. *Research Journal of Science*, 10(1&2):19-21.
- Biu, A.A. and Usman, A. (2006). Prevalence of human gastro-intestinal parasites in Potiskum Local Government, Yobe State, Nigeria. *Savanna Journal of Agriculture*, 4:7-11
- Chandler A.C. and Read, C.P. (1961). *Introduction to Parasitology*. 10th ed. John Wiley and Sons Inc. New York. Pp. 227-296.
- Dibal, N.P. (1991). *Elementary Statistics*, Yiksa Publ. Co. Maiduguri Nigeria. 96 pp.
- Julias, W. (1983). Parasitology: A global perspective. *British Medical Journal*, 14: 66-67.
- Macleod, J. (1985). *Davidson's Principle and Practice of Medicine*. Livingstone Ltd. Edinburgh, Pp 790-799.
- Murray, P.R., Baron, E.J., Pfaller, M.A., Tenover, F.C. and Tenover, R.H. (1995). *Manual of Clinical Microbiology*. 6th ed. American Society for Microbiology (ASM). Pp. 1232
- World Health Organisation (WHO) (1990). Informal consultation on parasitic infections (WHO/CDS. 11P1, 90 (1)) Geneva WHO.
- World Health Organisation (WHO) (1996). Fighting disease, fostering development. Geneva- WHO.
- Zuckerman, B. M. (1980). *Nematodes as Biological Models*. Academic Press, London & New York Vol 1 & 2:15-17.