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PREVALENCE OF GIARDIASIS AMONG PATIENTS WHO ATTENDED GENERAL HOSPITAL GWANTU, KADUNA STATE, NIGERIA

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ABSTRACT
A six-month prevalence study on Giardia - a protozoan parasite among patients that attended the General Hospital Gwantu was conducted using the formol - ether concentration method. Two hundred and fifty - six (256) stool samples were examined. Of the 256 patients examined, 85(33.2%) harboured Giardia species, representing 39 (30.5%) for males and 46 (35.9%) for females; (n=128 each) (P>O.05). Ages between 2-25 years examined had a prevalence of 42 (22.2%), while those above 25 years had a prevalence of 43 (64.2%) (P<0.05). Of the 156 diarrhoeic patients examined, 64 (41.0%) were positive, while out of the 100 non diarrhoeic patients, 21 (21.0%) were positive (P<O.05). This study has contributed to the literature base of giardiasis and, therefore, has created awareness about the disease among the sampled populations and community. The fair distribution of infection among patients during the period of study makes the infection endemic in Gwantu. The aim of this study was to assess the prevalence of giardiasis in Gwantu with a view to enhancing prospects for prevention and control.

KEYWORDS: Prevalence, Giardiasis, Gastro-Intestinal Parasites, Diarrhea, Cysts, Gwantu

INTRODUCTION
Gastro-intestinal parasitism has been reported to be caused by a great number of worms and protozoans (Fabiyi, 1991, Biu and Harry, 2001; Biu and Adam, 2004; and Biu, et al., 2009). Giardiasis are usually associated with contaminated water, food, poor personal hygiene, ignorance and poverty; and the availability of mechanical vectors, such as houseflies, (Oyerinde, 1976; Ogbe, et al., 2002), causing diarrhea with over 3 million deaths annual mostly in children (WHO, 1990; Biu and Adam, 2004). Adeyeba and Akinabi (2002) reported a prevalence of 2.0% among school children in Oyo State, Nigeria and despite the fact that Biu and Harry (2001) earlier reported a prevalence of 5.5% in school children in Maiduguri, there is still little information on giardiasis among this study population, therefore, this study was designed to provide further base-line prevalence index with a view to improving means of prevention and control.

Significance of the Study
This study was designed to provide further baseline prevalence index with a view to creating awareness about the disease and improve means of prevention and control.

Limitations of the Study
Giardiasis is a true cosmopolitan pathogen, with highest prevalence in developing countries. It can present with a broad range of clinical manifestations from asymptomatic, to acute or chronic diarrhoeal disease associated with abdominal pain and nausea. Most infections are self-limiting in immune competent individuals, but re-infection and chronic infection can occur in immune compromised individuals. However, the need for collection of several stool samples done in consecutive days could lead to mis-diagnosis and hence the limitation of this study.

MATERIALS AND METHODS
Data Collection
Stool specimens from 256 patients comprising of 128 each of male and female; aged between 2-25 years (189) and above 25 years (67) were obtained using specimen bottles labeled with personal data such as the sex and age of patients that attended the General Hospital Gwantu. Also, the stool consistency — formed, semi-formed, unformed or liquid was noted as diarrhoeic or non-diarrhoeic.

The formol-ether concentration method as described by Obiamin and Nmorsi (1991), Biu and Adam (2004) and Biu, et al., (2009) was used to examine the stool specimen collected. One gram of each stool sample was emulsified in 7m1 of 10% buffered formalin into a swing-out centrifuge tube. The mixture was filtered and the filtrate poured into a test tube to which 3ml of ether was added and shakened to mix properly for 5 seconds. The formol emulsion was put back into a centrifuge and spun at 1,500 rpm

for 1 minute. The fatty plug was then loosened using an applicator stick and the tube quickly inverted, discarding the supernatant, allowing a few drops of the deposit to remain which was mixed properly and a drop of it was placed on a clean glass slide and covered with cover slip. It was examined using x40 objective. A drop of lugol's iodine was added to aid in diagnosis by improving the clarity of the cysts.

Statistical Analysis: The data obtained were analysed using the students paired t-test, and data with "p" values equal to or less than 0.05 regarded as significant (Compell, 1986).

RESULTS

Table 1 shows the monthly distribution pattern for giardiasis in patients examined at Gwantu. A fair distribution of infection was noticed, indicating that the disease could be endemic in the area (Fig. 1). Table 2 shows a prevalence of 85 (33.2%) for giardiasis among 256 patients examined. Male patients had 39 (30.5%0 and females 46 (35.9%) (P>0.05) prevalence rates (Fig.2).

Table 3 shows the distributions of giardiasis between ages 2— 25years and above 25 years. Ages between 2 — 25years had a significantly lower (P<0.05) prevalence of 42 (22.2%) compared to those above 25 years with 43 (64.2%). (Fig.3.) Table 4 compared patients with diarrhoeic stools with patients with non-diarrhoeic stools. Patients with diarrhoeic stool consistency had a significantly higher ((P<0.05) prevalence of 64(41.0%) compared with non-diarrhoeic patents with prevalence of 21(21.0%).

Table 1: Monthly Distribution Pattern of Giardiasis in the Patients Examined in Gwantu.

Months of Study	**No of Patients Examined (n=256)**	**No (%) Infected**
Jan.	52	14(26.9)
Feb.	20	5(25.0)
Mar.	62	29(46.8)
April	30	15(15.0)
May	42	10(23.8)
June	50	12(24.0)

Table 2: Prevalence of Giardiasis by Sex of the Patients Examined in Gwantu

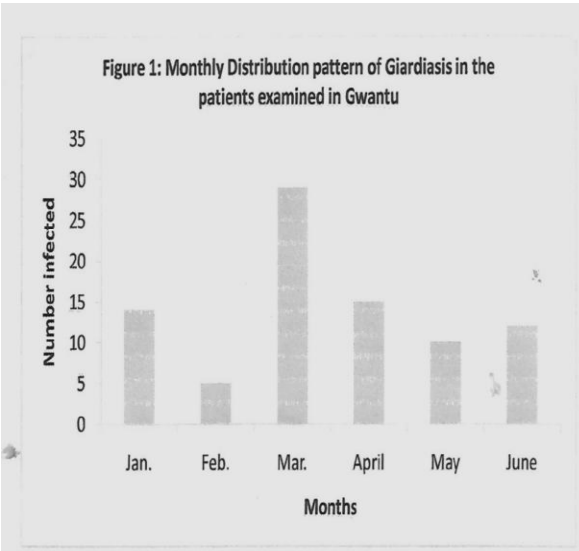
Patients (Sex)	**No Examined**	**No (%) Infected**
Male	128	39(30.5)P<0.05
Female	128	46(35.9)
Total	256	85(33.2)

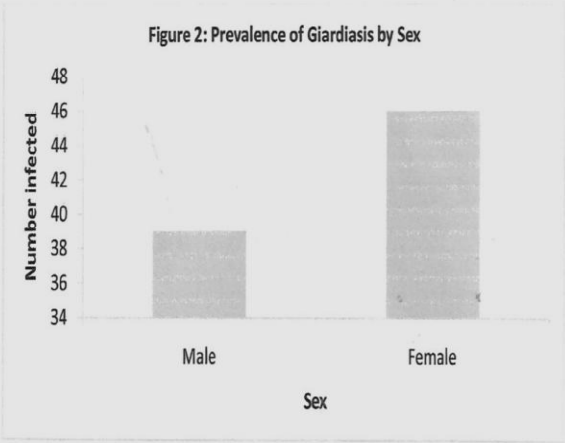
Table 3: Prevalence of Giardiasis by Age of the Patients Examined in Gwantu

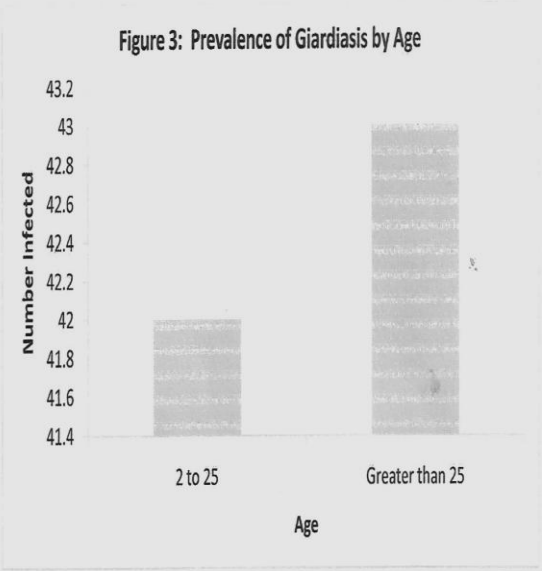
Patients Age(Years)	**No Examined**	**No (%) Infected**
2 – 25	189	42(22.5)P<0.05
>25	67	43(64.2)
Total	256	85(33.2)

Table 4: Prevalence of Giardiasis by Stool Consistency of Patients Examined in Gwantu

Patients	**No Examined**	**No (%) Infected**
Stool consistency		
Diarrhoeic	156	64(41.9)P<0.05
Non-diarrhoeic	100	21(21.0)
Total	256	85(33.2)







DISCUSSION

The Prevalence of 33.2% observed for giardiasis in this research can be described as fairly high compared with the reports of Adeyeba and Akinlabi (2002) of a 2.0% among school children in Oyo State, Nigeria. Biu and Harry (2001) reported a 5.5% prevalence in school children in Maiduguri, Dawah et al., 2010 reported prevalence of 2.4% among dysentery patients in Kaduna. This high prevalence could have arisen from cystic contamination of water and food supplies, as stated by Fabiyi (1991) and Biu and Adam (2004).

In this research, more female were infected than males, however, no statistically significant difference was observed. WHO (2012) has observed that differences in prevalence of giardiasis between male and female may be as a result of socio-economic disposition of the population, especially their cooking role and the disease pattern which is influenced by poor handling of drinking water, food or sewage. The finding of a significantly higher infection rate ($P<0.05$) in ages older than 25years compared with those of ages less than 25 years agrees with the reports by Chandler and Read (1961) who found that incidence of giardiasis (beaver fever) increase during childhood and usually reaches its peak in young adults. Also, the finding of a higher infection in diarrhoeic patients is supported by the reports by WHO (1990) and Biu and Adam (2004).

CONCLUSION

The prevalence of giardiasis recorded in this study may be as a result of poor personal hygiene and poor environmental sanitation-improper sewage disposals.

RECOMMENDATIONS

From the foregoing, therefore, we make the following recommendations:

i.Factors that propagate giardiasis such as socio-economic disposition of women should be emphasized.

ii. Potable water should always be used in food preparation

iii. Practice hand washing — wash hands before cooking food, before and after eating food, after using the toilet, changing diapers and attending to a diarrhoeic or sick patients.

REFERENCES

Adeyaba, O.A. and Akinlabi, A.M. (2002). Intestinal Parasitic Infectious among school children in a rural community of southwest Nigeria. *Nigeria Journal of Parasitology. 23:11-18.*

Biu, A. A. and Harry, J. (2001). Gastro-Intestinal Parastitism: A review study among school children in Maiduguri, Nigeria. *Biosciences Research Communications* 13(6): 609 — 613.

Biu, A. A. and Adam, F.A. (2004). Protosoan causes of human diarrhea: An investigation amongst in-patients attending the state specialist hospital, Maiduguri, an arid zone of Northern Nigeria. *Research Journal of Science*, 10(1 and 2): 19— 21.

Biu, A. A., Bintu, I. and Agbadu, E.T. (2009). Prevalence of giardiasis among out-patients of the university of Maiduguri Teaching Hospital, Nigeria. *International Journal of Biomedical and Health Sciences*
5(4):171 — 174.

Chandler, A. C. and Read, C.P. (1961). *Introduction to Parasitology*. 1OLU ed. John Wiley and Sons Inc. New York. 227 — 296.

Compell, R.C. (1986). *Statistics for Biologists*. Cambridge University Press, Cambridge. pp 86—90.

Dawah, I. S. Inabo, H. I. and Jatau, E.D. (2010). Screening for Entamoeba histolytica from dysentery patients at government hospitals in Kaduna.

Fabiyi, J.P. (1991). Review of intestinal parasites in Nigeria. *Journal of Medicine Today on parasitic Disease* 2:28 — 30.

Obiamin, B. A. and Nmorsi, P. (1991). Human gastro-intestinal parasites in Edo State, Nigeria. *Nigerian Journal of Parastitology* 32:17 — 183.

Ogbe, M. G., Edet, E. E. and Ischei, M. N. (2002). Intestinal helminth infection in primary school children in areas of operation of Shell Petroleum Development Company (SPDC) of Nigeria, western division in Delta State. *Nigerian Journal of Parastitology* 23:3-10.

Oyerinde, 0. (1976). The Role of houseflies in dissemination of hookworms. *Annals of Tropical Med. Parasitol*. 70:455 —462.

WHO (1990). Informal Consultation on parasitic infections WHO/CDS/IPI.90,I Geneva, WHO.

WHO (2012). The World Health Report on fighting disease, fostering development WHO/CDS/IPI.98,3 .Geneva. WHO.