Prevalence of giardia lamblia among children attended at SOS hospital MOGADISHU-SOMALIA

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ABSTRACT

Background: *Giardia lamblia is considered to be one of the leading causative agents of diarrhea, especially in children. Epidemiological surveys have shown that parasitic diarrhea in children is primarily due to G. lamblia infection Giardia lamblia can result in reduced physical fitness, delayed growth and gastrointestinal problems, such as abdominal pain, vitaminB12 deficiency and malabsorption about 200 million people have symptomatic giardiasis. In areas where sanitation and hygiene are poor the disease is most severe*

Objective: *To identify prevalence of giardia lamblia among children attended at SOS hospital in Mogadishu Somalia.*

Methods and Materials: *study was descriptive cross-sectional study conducted in SOS hospital, Mogadishu-Somalia during May 2020 to june2020; 50 stool samples were collected from the patients attending at SOS hospital. The Stool was to identify under microscope Examination used for wet preparation method. The study used SPSS (version 20.0) for analysis, and results were presented in frequencies, percentage, and bar charts.*

Results: *50 sample stools were collected from patient with suspected parasitic infection SOS hospital different age groups and both sexes were covered. When we made diagnosis test of stool in 8(16%) were giardia lamblia cyst seen also when we made diagnosis test in 2(4%) were giardia lamblia trophozoite, during diagnosing I have seen other parasites, 9(18%) were Ascaris lubricoides ova seen, 7(14%) were T.T ova seen, 5(10%) were H.nan egg seen, 4(8%) were E.histolytic, when we made diagnose test of giardia lamblia in 15(30%) were negative.*

Conclusion: *the results from the study showed high rate of giardia lamblia infection and also another parasite. We have identified domestic factors like mother education, no. of under-five children in the family, low SES and peri-domestic factors like lack of solid waste collection and visible sewage near the house. We emphasize the pro-vision of health care services, personal education and environmental hygiene by both governmental and non-governmental organization to reduce this high prevalence. Regular diagnosis should be available and treatment should be provided for infected and vulnerable communities.*

Keywords: *Giardia duodenalis, Giardi lambila Giardiasis, Cyst, Trophocyte*

1.0 BACKGROUND OF THE STUDY

Giardia intestinalis is a large-scale intestinal protozoan parasite in children under 5 years of age, but the long-term health effects of giardiasis in children have not been fully understood. In babies, giardiasis has been associated with lower serum zinc, iron, and vitamin A despite similar anthropometric indicators among infected and non-infected people. By identifying cysts, trophozoites and Giardia-specific antigens in fecal samples, giardiasis can be diagnosed. There are various faece tests available. (Duffy et al., 2013).

Giardia lamblia (Also known as Giardia intestinalis, Giardia duodenalis) has recently emerged as a significant cause of human and animal diarrhea. It is distributed throughout the world and has high levels of genetic diversity. In developing countries, with some 500,000 new cases reported each year (WHO, 1996), about 200 million people have symptomatic giardiasis. In areas where sanitation and hygiene are poor the disease is most severe (Nygard et al., 2006).

Increased prevalence in both humans and in some of the surrounding animals offers a growing concern about the role some animals play in human giardiasis (Olson, 2004). Every single person eliminates up to 900 million cysts a day. (Suman et al., 2013). the mode of transmission Person gets infection by cyst ingestion in Contaminated food, and water. Direct Individual. Conveyance can also be Are found in children, homosexual males and mentally Men. It associates increased vulnerability to giardiasis Cannabis use, with blood group A, achlorhydria, Chronic Pancreatitis, Immune and Malnutrition Defaults such as hypogammaglobulinemia and 19A deficiency. Also Flies, Faeco-oral route and contamination food and water. They are mostly asymptomatic, but in some cases, Giardia may cause diarrhea of the mucus, fat malabsorption (Shiff et al., 1982).

Multiple specimens are often needed for examination and Techniques for concentration, like structured ether or zinc Acetate are used. In asymptomatising.as well as ELISA, DNA probe and PCR. Treatment of giardia lamblia is Metronidazole (250 mg, 5–7 day thrice daily) and the drugs of choice are tinidazole (2 g single dose). Metronidazole cure levels surpass 90 per cent. Tinidazole has greater effectiveness than metronidazole. prevention of giardia lamblia is the following interventions will help to avoid giardiasis (Shiff et al., 1982).

Globally, Giardia is a common and widespread intestinal protozoan parasite which occurs in of both humans and animals. The purpose of this study is determining the prevalence rate of Giardiasis in children, Kermanshah childcare centers in Iran. .(Faraji et al., 2015).

Giardia lamblia which is also known as G. Duodenalis & G. Intestinalis is the most common human intestine protozoan parasite in the world, with detection rates ranging from 2-5% in developed nations to 20-30% in developing nations. Giardiasis is associated with poor sanitary conditions, inadequate water treatment, day-care centers and institutional facilities including nursing homes. Infection occurs when G-cysts become infected. Lamblia is consumed by a susceptible host via contaminated water, food, direct transmission from person to person, or animal to person. The WHO reported that 200 million people in Asia, Africa and Latin America have giardiasis symptoms, with some 500,000 new cases a year, particularly among children. The infection can cause severe acute diarrhea with chronic

infections in children under the age of five, resulting in weight loss and growth retardation. The reported prevalence of giardiasis in Brazilian children ranges from up to 14.6% in cases of diarrhea within a specific population to 78.3% in daycare and school settings. (Pereira et al., 2007).

Giardia is the world's most used pathogenic intestinal flagellate protozoan. Giardia lamblia (syn. Giardia intestinalis, Giardia duodenalis) is the most studied species that infect mammals, including humans. The scientific literature is very sparse about the other seven species and little is known about their characteristics and epidemiological importance. The exception is the species Giardia muris, which is often used in experimental infection to try to understand the relationship between parasite and host in G. Infection with lamblia. G Classification. Lamblia was made on the basis of the molecular characteristics of the host of origin and morph. The first division in G. *lamblia* assemblages was produced according to the specificity of the host from which the isolate originated. (Fantinatti, 2019).

Giardiasis is an infectious disease that can have both immediate and long-term effects including chronic diarrhea with or without dehydration and intestinal malabsorption, recurrent abdominal pain and weight loss. It has also been linked with chronic fatigue after contagious irritable intestine syndrome and, in particular, impaired cognitive function and failure to thrive in early childhood, all of which have drawn growing attention in recent years to this protozoan infection. Although it's distributed worldwide, Giardia's prevalence is more common in developing countries ranges from 20% to 30% compared to 2% to 5% in developed countries. (Anuradha et al., 2015).
Giardiasis is one of the intestinal protozoa causing problems of public health in most developing countries, as well as in some developed countries. Giardia lamblia is considered a leading cause of diarrhea in both children and adults. Many infected people can be asymptomatic due to the number of potential carriers such as adult males (5.3 percent), school children (39.2 percent) and food vendors (2.0 percent). In asymptomatic children (9.7%) Giardia lamblia was observed almost three times more than in symptomatic children (3.7%). Epidemiological studies have shown that parasite diarrhea in children is mainly caused by infection with Giardia lamblia, especially in areas where fresh vegetables and drinking water sources are contaminated with wastewater and food can be bought from street vendors. It is estimated that around 200 million people in Africa, Asia and Latin America are infected each year. (Nkrumah & Nguah, 2011).

Giardia lamblia has been identified as the most dangerous intestinal pathogen, with an estimated 2.8x10 annual human infection. The prevalence rates in some developing countries can exceed 20 to 60 per cent. Usually, this parasite is identified as one of the causes of childhood diarrhea, which also causes retarded growth and development of children. In Libya, a number of limited studies were conducted and most of the results of these studies were hospital-based data, showing prevalence of 1.2 to 11.4 per cent. Epidemiological data about this parasite from the Wadi Al-Shati region in Libya are not available. Studies are required against this background to determine the prevalence, and potential risk factors could contribute to G. Transmission to lamblia. The objective of this cross-sectional study was to survey the prevalence of Giardia lamblia and also to investigate possible risk factors for giardiasis among children in some areas of the province of Wadi Al-Shati, Libya.(Al-mubrook et al., 2010).

Specific objective

1. To determine the prevalence of giardia lamblia among children attended at SOS hospital.
2. To identify socio-demographic factors of giardia lamblia among children attended at SOS hospital.
3. To identify preventive practice towards of giardia lamblia among children attended at SOS hospital.

2.0 RESEARCH METHODOLOGY

2.1 RESEARCH DESIGN

The researcher uses descriptive quantitative design in cross sectional.

2.2 STUDY AREA

This study was conducted in SOS hospital because SOS is one of the largest hospitals in children at Banadir region and located about HILIWAA district from Mogadishu.

2.3 SAMPLE SIZE

A total 50 samples were collected from SOS hospital HILIWAA district.

2.4 DATA COLLECTION

Data on the occurrence of giardia lamblia infections among populations was obtained by laboratory investigations of the collect stool specimen. By an interviewing questionnaire, then we analyzed statistical tool (SPSS).

2,5 DATAANALYSII

NTERPRETATIONS

Scientific Program for Social Sciences (SPSS, Version 20) software and Microsoft Excel were used to analyze the responses from the completed questionnaires.

2.6 ETHICAL CONSIDRETION

First in considering the research ethics the researcher was received permission letter from Jamahiriya University for science and technology as well as same selected Mogadishu hospitals for them to be allowed that they can carry out their research wisely.

3.0 RESULTS

3.0 What is your gender?

The table below shows that half of the respondents 25(50%) were male while 25(50%) were female.

Table 3.0 what is your gender?

What is your gender?	Frequency	Percent%
Male	25	50%
Female	25	50%

Total	**50**	**100%**

3.1 What is your age?

The table below shows that the majority of the respondents 27(54%) were aged between 0-5 in year, 14 (28%) were aged between 6-10 in years, 9 (18%) were aged between 11-15 in years.

Table 3.1 what is your age?

What is your age?	Frequency	Percent%
0-5year	27	54%
6-10year	14	28%
11-15year	9	18%
Total	**50**	**100%**

3.2 place of residence

The table below shows the majority of the respondents 19 (38%) were from Hurwa district, 12 (24%) were from Yaqshid district, 12 (24%) were from Karan district, while only 7 (14%) were from other districts.

Table 3.2 place of residence

place of residence	Frequency	Percent%
Hurwaa	19	38%
Yaqshid	12	24%
Karan	12	24%
Other	7	14%
Total	**50**	**100%**

3.3 Place of hygiene

The table below shows the majority of the respondents the hygiene 30(60%) were poor, the hygiene of 20 (40%) were good.

Table 3.3 Place of hygiene

Place of hygiene	Frequency	Percent%
Good	20	40%
Poor	30	60%
Total	**50**	**100%**

3.4 Mother's educational status

The table below shows that the majority of the respondents 21(42%) was none (illiterate) 15(30%) were primary level, 11(22%) were secondary level, while only 3(6%) were in university

Table 3.4 Mother's educational status

Mother's educational status	Frequency	Percent%
None	21	42%
primary education level	15	30%
secondary education level	11	22%
universal level	3	6%
Total	**50**	**100%**

3.5 Do you wash your hands after toilet before touching your child?

The table below shows that the majority of respondents 25(50%) were sometimes, 22(44%) were Always, while only 3 (6%) were never.

Table 3.5 Do you wash your hands after toilet before touching your child?

Do you wash your hands after toilet before touching your child?	Frequency	Percent
Always	22	44%
Sometimes	25	50%
Never	3	6%
Total	**50**	**100%**

3.6 Your child playing ground

The below shows that the majority of respondents 35(70%) reported that the not clean, 15 (30%) reported that others clean.

Table 3.6 your child playing ground

your child playing ground	Frequency	Percent%
Not clean	35	70%
Clean	15	30%
Total	50	100%

3.7 What is your source of drinking water?

The table below shows that the majority of respondents 38(76%) were drinking tap water, while only 12(24%) were drinking stream water.

Table 3.7 what is your source of drinking water?

What is your source of drinking water?	Frequency	Percent%
Tap water	38	76%
stream water	12	24%
Total	**50**	**100%**

3.8 Type of your toilet

The table below shows that the majority of respondents 26(52%) were private, 14(28%) were open defection, while only 10(20%) were public.

Table 3.8 Type of your toilet

Type of your toilet	Frequency	Percent%
open defection	14	28%
Public	10	20%
Private	26	52%
Total	**50**	**100%**

3.9 Do you trim your child's nails when grown?

The table below shows that the majority of respondents 29(58%) were sometimes, while only 21(42%) were Always.

3.9 Do you trim your child's nails when grown?

Do you trim your child's nails when grown?	Frequency	Percent%
Always	21	42%
Sometimes	29	58%
Total	**50**	**100%**

3.10 Lab diagnosis

The table below shows when we made diagnose test of giardia lamblia in 15(30%) were negative, 9(18%) were Ascaris lubricoides ova seen, 10(20%) were G.lamblia seen, 7(14%) were Trichuris trichuira ova seen, 5(10%) were H.nan egg seen, while only 4(8%) were E.histolytic.

Table 3.10 Lab diagnosis

Lab diagnosis	Frequency	Percent%
G.lamblia	10	20%
Ascaris lubricoides	9	18%
Trichuris trichiura	7	14%
H.nana	5	10%
E.histolytica	4	8%
Negative	15	30%
Total	**50**	**100%**

4.0 DISCUSSION

When we made diagnose test of Giardia lamblia in 15(30%) is not seen , 9(18%) were Ascaris lubricoides ova seen, 10(20%) were G.lamblia seen, 7(14%) were Trichuri Trichiura ova seen, 5(10%) were H.nan egg seen, 4(8%) were E.histolytic, while only 2(4%) were G.lamblia trophozoite. compared with another study from Maharashtra,india The highest frequency of 32.41% was noted for Giardia lamblia. Relatively high frequency of 21.37% was also seen for Entamoeba histolytica. Other parasites found were Hymenolepis nana (17.24%), Ascaris lumbricoides (11.72%).(Mane et al., 2014). The majority of the respondents 21(42%) was none (illiterate) 15(30%) were primary level, 11(22%) were secondary level, while only 3(6%) were in university in this study, half of the patients 25(50%) were male. It could be said that, may be boys have more relation to sources of parasites in social and environment. In this study the highest rate of infection was seen at 4-6 year-old age groups (14.24%), and the lowest rate was observed at 0-2 year-old age-groups (1.74%). Also in another study that carried out by Machado children whose parents had low level of education have the most common infections.33 It could be said that parents of children at high level of education provide better control on personal hygiene their children.1 In this study the prevalence rate ranged in rural residents (15.67%) was more than urban residents (11.07%).(Faraji et al., 2015) On the basis of their age children were divided into three groups. Group 1 included the children between 5-8 years of age; group 2 and group 3 included the children between 9 to 12 and 13 to 15 years of age respectively. The infection rate was highest in case of group 1 (13.7%), then showed a decline with increase in age and was least in case of group 3 (3.88%). This difference was significant when compared statistically ($p = 0.01$). The reason for decline of infection with increase in age may be possibly due to strengthening of the immune system and children becoming more conscious of hygienic habits. Our findings are in close association with those of Mbuh et al. who reported highest protozoan infection rate in age group of 6-13 years which then declined in higher age groups. Chaudhary, et al. , (from his study in Barabanki, Uttar Pradesh) also reported the peak prevalence of Giardia lamblia in the age group of 1- 10 years (35.84%), which then declined gradually with successive increase in age reaching a least infectivity rate in the age group of 51-60 years (3.77%).(Abdullah, 2016)

The majority of respondents 38(76%) were drinking tap water, while only 12(24%) were drinking stream water. this agrees with the study from Mexico which reported most households got drinking water from taps (87.9%)(Cifuentes et al., 2000) Also another study from Yemen which showed They also suffer from severe water shortages and people tend to collect drinking water from unclean water sources such as streams, wells, tanks, rains, and and other natural or artificial sources.(Alshahethi et al., 2020).

The majority of respondents 29(58%) were sometimes untrimmed nails, while only 21(42%) were Always. this indicates the majority respondents were untrimmed their nails. this agrees with study from India which showed Children who used to wash hands with plain water and maintained untrimmed nails were more prone to infection than those who used soaps for hand washing after defecation and maintained clean trimmed nails.(Abdullah, 2016)

5.0 CONCLUSION

Giardia intestinal is a large-scale intestinal protozoan parasite in children under 5 years of age, but the long-term health effects of giardiasis in children have not been fully understood. In babies, giardiasis has been associated with lower serum zinc, iron, and vitamin A despite similar anthropometric indicators among infected and non-infected people.

The study was descriptive and cross sectional in design. A total of 50 patients were selected during data collection as a sample size. Questionnaire was used as a data collection tool in order to collect data from the study population. SPSS was used to analyze research data and then frequency tables and charts were used in order to present study results.

Based on study results, half of the respondents 25(50%) were male while 25(50%) were female. the majority of the respondents 27(54%) were aged between 0-5 in year, 14 (28%) were aged between 6-10 in years, 9 (18%) were aged between 11-15 in years. the majority of the respondents 19 (38%) were from Hurwa district, 12 (24%) were from Yaqshid district, 12 (24%) were from Karan district, while only 7 (14%) were from other districts. the majority of the respondents the hygiene 20(40%) was good, the hygiene of 30 (60%) was poor, the majority of the respondents 21(42%) was none (illiterate) 15(30%) were primary level, 11(22%) were secondary level, while only 3(6%) were in university

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STUDY OF MICROALBUMINURIA AMONG TYPE 2 DIABETIC PATIENTS MOGADISHU-SOMALIA

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