Research Paper Microbiology

Study of the Prevalence of Intestinal Parasitic Infection in Children of Ghaziabad.

Dr. Muzaffari Yasmeen | Asst Prof, Dept Microbiology , Rama Medical College Hospital & Research Centre, Ghaziabad 245304, UP

Shalini Singh | Tutor , Dept Microbiology, Rama Medical College Hospital & Research Centre, Ghaziabad 245304, UP

ABSTRACT

Introduction : Intestinal parasite still constitutes one of the major causes of Public health problems in the world .It is estimated to affect around 3.5 billion people globally & 450 million are ill as a result of these infections the majority being children. Recent estimates suggest that Ascaris lumbricoides can infect over a billion.

Material And Methods: This observational study was done 'between' January 2014 to December 2014. Stool samples were collected to examination and the findings were recorded and documented.

Result :A total 100 patients were observed, 34 samples were positive (23 males and 11 females). The cyst positive rate of intestinal protozoal infestation was 10%, while the egg positive rate of intestinal helminthic infestation was 21%, and 3% had mixed infestations.

CONCLUSION:We concluded here that the Ascaris lumbricoides (29.41%) was the predominant intestinal parasites. Sustainable health, especially for children, is not possible without good environmental sanitation.

KEYWORDS

INTRODUCTION : Intestinal parasite still constitutes one of the major causes of Public health problems in the world .It is estimated to affect around 3.5 billion people globally & 450 million are ill as a result of these infections the majority being children. High prevalence is attributed to poor sanitation, poverty, lack of health education & soil, water or food contamination. It is estimated that the global burden of diseases caused by intestinal nematodes is 39.0 million disability adjusted life years (DALYs), compared with malaria at 35.7 million and schistosomiasis at 4.5 million. Recent estimates suggest that ***Ascaris lumbricoides*** can infect over a billion, ***T. trichiura*** 795 million, and hookworms 740 million people. Other species of intestinal helminthes are not widely prevalent. Intestinal helminthes rarely cause death. The global prevalence of the soil-transmitted helminthes is high. The distribution of intestinal parasitic infection depends on many factors. These include sociodemographic variables associated with poverty such as reduced access to adequate sanitation, potable water, and health care as well as the prevailing climatic and environmental conditions. Common parasites found in stool are- ***Entamoeba histolytica, Entamoeba coli*** and ***Giardia lamblia*** and some others protozoa like ***Cryptosporidium parvum, Isospora belli*** and ***Toxoplasma gondii*** are major pathogens in people infected. ***Ascaris lumbricoides, Trichuris trichiura*** & ***hookworm*** collectively referred to as soil-transmitted helminthes are the most common intestinal parasite. Prevalence of ***Ascaris lumbricoides*** was highest (68.3%) followed by ***Trichuris trichiura*** (27.9%), ***Enterobius vermicularis*** (12.7%), ***Taenia saginata*** (4.6%) in India. The present study aimed to estimate prevalence of intestinal parasitic infections in 3 to 15 years school going children. Chronic infections impair physical and mental growth and development of children in general. Furthermore intestinal parasites may increase susceptibility to infections with other intestinal pathogens. It is therefore important to identify the problem and tackle it in the interest of public health.

AIMS & OBJECTIVES

The overall objective of the present study was to determine the prevalence and incidence of intestinal parasitic infections in rural school children.

MATERIAL AND METHODS:

The present study was carried out the Department of Microbiology and Paediatric Ward of Rama Medical College and Research centre, Ghaziabad, Uttar Pradesh. 100 patients were included in this study. This observational study was done 'between' January 2014 to December 2014. Stool samples were collected to examination and the findings were recorded and documented. Findings were analyzed statically to know the prevalence of intestinal parasitic infection. All patients admitted with complaints of diarrhoea with or without mucous or blood, fever, abdominal pain, abdominal distension, nausea, vomiting anal itch during one year period were included in this study. Stool specimens were collected from 100 students (3-15 years old). Examination of stool consists of macroscopic and microscopic examination. The direct smear technique was used. The slide was examined under the microscope with the 10x objective to scan the whole slide after scanning; the 40x objective was used to identify the parasites. Intestinal protozoa and eggs of helminths can be detected and identified by microscopic examination of the stool. It includes saline wet mount, iodine wet mount.

RESULT :

A total 100 patients were observed attending OPD and IPD of Paediatric Dept. in Rama Medical College and Research centre, Ghaziabad, Uttar Pradesh..The study was conducted between January 2014 to December 2014, in which 34 samples were positive (23 males and 11 females).

Table 1: Age-wise Distribution of the parasitic infection among patients

Age	Total no. of cases	No. of positive cases	Percentage (%)	No. of negative cases	Percentage (%)
0-05	19	10	52.63	9	47.36

6-10	50	15	30	35	70
11-15	31	9	29.03	22	70.96
Total	100	34	34	66	66

Table no. 1 shows the distribution of total patients are given in this table along with infected cases and their age-wise prevalence rates .The maximum number of patients were in the age group 6-10 years .The overall positivity of cases is 52.63% in 0-05years age group and medium prevalence of positive cases 30% in 6-10 years age group and minimum prevalence 29.03% was in the age group 11-15 years and the overall negative cases is 47.36% in 0-05 years age group, 70% in 6-10 years age group and 70.96% in 11-15 years age group.

Table- 2: Sex-wise distribution of the positive & negative cases in parasitic infection

Sex	No. of positive cases	No of negative cases	Total no. of cases
No. of male	23	41	64
No. of female	11	25	36
Total	34	66	100

Table no. 2 shows that total number of 100 patients were included in this study of which 64 were males & 36 were females .Out of 100 patients 34 developed infection (males 23 & females 11) and 41 males & 25 females in negative cases out of 100.

Table3: Type of parasitic infection in the patients

Type of infection in Patients	
Single parasitic infection	31
Mixed parasitic infection	3
Total infected patients	34

Table no. 3 shows the pattern of parasitic infection in patients, out of 34 patients 3 showed mixed infection where as in 31 patients infection was found out to be of single type.

Table 4: Percentage of different intestinal parasites infected the patients

Types of parasites	Total no.- 34	Percentage (%)
Protozoa	10	29.41
E.histolytica	5	14.70
Giardia lamblia	5	14.70
Helminths	24	70.5
A.lumbricoides	10	29.41
Hookworm	7	20.58
E. vermicularis	2	5.88
H. nana	3	8.82
Trichuris trichiura	2	5.88

Table no. 4 shows the types of intestinal parasites detected from schoolchildren.The cyst positive rate of intestinal protozoal infestation was 10%, while the egg positive rate of intestinal helminthic infestation was 21%, and 3% had mixed infestations. The cyst positive rate of intestinal protozoal infestation was 14.70% for ***Giardia lamblia*** and 14.70% for ***Entamoeba histolytica***. The egg positive rates for helminthic infestation were 29.41%, 8.82 %, 5.88%, 20.58%, 5.88% for ***Ascaris lumbricoides, Hymenolepis nana, Trichuris trichura*** and ***Ancylostoma dudenale , Enterobius vermicularis*** respectively.

DISCUSSION:

In our study, the results revealed that the prevalence of Intestinal parasitic infection was elevated. Thirty four percent of the children were identified as having one or more of the following parasites present in their stool samples as ***Ascaris lumbricoides, Ancylostoma duodenale, Trichuris trichiura, H. nana, Entrobius vermicularis, Entamoeba histolytica, Giardia lamblia.*** These results are consistent with those of previous studies conducted in subtropical areas. In the present study, intestinal parasites were detected in 34% of all the stool samples examined .The results showed that 34 (3) were mixed infection with one or more intestinal parasites. Other Indian studies have reported prevalence ranging from 7.5-15.5% in Chandigarh and 16.8% in Delhi. , The prevalence of intestinal parasite in the study was 73 (22.81%) in Bareilly district. The prevalence of intestinal parasite in this study was 34% which is less when compared with the findings of Rao ***et al***. In Wardha district of central India. The prevalence of intestinal parasite infection was 7.56%. In my study the prevalence of helminthic parasites was higher than that of protozoal infection and ***Ascaris lumbricoides and hookworm*** were the commonest intestinal parasite isolated. Other studies have reported Giardia to be the commonest parasite. Prevalence of other helminths such as, ***E. vermicularis, Hymenolepsis nana and Trichuris trichiura*** was low. The results of the present investigation indicated that the total prevalence of intestinal protozoa infection was 29.41% out of 34 among school children. ***Giardia intestinalis*** and ***Entamoeba histolytica*** were each detected in 14.70% of cases. The prevalence of ***Entamoeba histolytica*** ranges from 4 to 47% in India . The prevalence found in the present study is comparable to the other study the 9% in Andhra Pradesh Das ***et al,*** , but lower than the 15.2% and 24.4% observed in Tamil Nadu. Ganga ***et al***, and the Sudan Magambo ***et al***. respectively. The prevalence of intestinal helminthic infestation in the present study was 70.5% out of 34. Few studies from Nepal have reported ***A. lumbricoides*** as the most common helminth among school children while other studies reported hook worm as the most common helminth. This is in favour to findings from the present study in which ***A. lumbricoides*** and ***hookworm*** were the commonest***.*** Abundance of helminthes infections was reported for ***E. vermicularis*** (24.9%), ***H. nana*** (1.14%) and ***A. lumbricoides*** (0.28%), by Mostaghim ***et al***. Another study from Vellore reported The commonest helminth identified from cases were hookworms (n=67, 37.2%), followed by A. lumbricoides (n=18, 10.0%) and T. trichiura (n=16, 8.9%). In Bareilly majority 31 (9.68%) of the isolate were the egg of Ascaris lumbricoides, followed by cyst of Giardia lamblia 20 (6.25%), Entamoeba histolytica 8(2.5%), Hymenolepis nana 7(2.18%), Trichuris trichuria 5 (1.56%), and Taenia sp. 2 (0.64%).[7] Kim ***et al.*** did a survey among residents of Hamyang-gun, Korea during the period of January 2001 to March 2002. They managed to collect 1,041 stool samples from residents who visited a Public Health Centre. They found the overall egg positivity rate for the Oriental liver fluke (***Clonorchis sinensis***) was 16%. In present study infection rates were lower in female than male .Out of 100 school children below 15 years of age in the study area and positive rate of males (35.93%) out of 64 and positive rate of females (30.55%) out of 36. The higher prevalence (30%) among children in the group aged (06-10) years appears to be associated with their activities but in the previous study of Batu Krishna Sharma ***et al.*** found that the significantly higher prevalence (71.0%) among children in the group aged 11-14 years.

CONCLUSION

We concluded here that the ***Ascaris lumbricoides*** (29.41%) was the predominant intestinal parasites identified in the stool sample collected from the patients attending Rama Medical College, followed by ***Hookworm*** (20.58%), ***E. histolytica*** (14.70%), ***Giardia lamblia*** (14.70%), ***Hymenolepis nana*** (8.82%), ***Enterobius vermicularis*** (5.88%) and ***Trichuris trichiura*** (5.88). The study data suggest that one low-cost solution to reducing intestinal parasitic infection in this particular group is by decreasing the proximity of one putative reservoir to homes in order to reduce contamination of inside and outside play areas, water and food supplies. Other low technology, low-cost solutions include the covering of open water sources, improving sanitary food and water storage and handling, and basic personal hygiene. The discharge of untreated household waste-water into the local river and streams should be discouraged as well as the frequent practice of defecation on the open ground and near these drinking water sources. Sustainable health, especially for children, is not possible without good environmental sanitation.

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