



Original Research Article

Occurrence of intestinal parasitic infestation in patients suffering from gastro-intestinal disturbance

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ABSTRACT

Introduction: Intestinal parasitic infections are the most common infection in the world, and are responsible for considerable morbidity and mortality. It is estimated that 3.5 billion people are affected globally and 450 million are ill as a result of these infection, the majority being children. Potable water supplies in the rural and urban areas are responsible for the high rate of intestinal parasitic infection. These parasites dwell in the gastrointestinal tract in humans and other animals in urbanized countries, protozoan parasites commonly cause gastrointestinal infections.

Aim: Occurrence of intestinal parasitic infestation in patients suffering from gastro-intestinal disturbance.

Objectives: To determine the frequency of intestinal parasitic infestation and to identify the most common intestinal parasites causing gastrointestinal disturbance on the basis of age and sex.

Materials and Methods: Stool sample to be collected in a dry, clean, wide mouthed sterile screw capped labelled 50 ml capacity plastic containers, under standard techniques after proper history of the patients. The stool sample were examined for the presence of mucus, blood, color, consistency and any segment or adult worm.

Result: Out of 95 stool sample 31 sample were positive for intestinal parasites in which egg of *Hookworm* (19) was most common among all followed by *Giardia lamblia* (6), *E. histolytica* (2), *Taenia Spps* (1), *Strongiloides stercoralis* (1) *Ascaris lumbricoides* (1) & *H. nana* (1).

Conclusion : The prevalence of 32.63% parasitic infection in this study shows that intestinal parasitic infections are still important public health problem in our region and are due to low standard of personal hygiene, poor technique of hand hygiene, non-usage of hygienic latrine, poor sanitation and an illiterate population. A multisectoral control approach of mass deworming programs and hygiene education to the student and parents is required to control parasitic infection.

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1. Introduction

Intestinal parasitic infections remain the most common infection in the world and they are responsible for significant morbidity and mortality. It is valued that 3.5 billion people are pretentious globally and many are unhealthy as a result of infection, most common was children. For these several programmes run by government organising to prevent these parasitic infections.¹

Drinkable water supplies in the village and town areas are responsible for the high rate of intestinal parasitic infection.²

These parasites stay in the gastro-intestinal tract among vertebrates in urbanized countries, protozoan parasites generally cause gastro-intestinal infections.³ The epidemiology of IPIs shows that these parasites can be found in every age group and in both sexes. In addition, high population density, poverty and malnutrition the inaccessibility of drinkable water, short health status and absence of individual hygiene provide best situations for the development and transmission of intestinal

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parasites.^{1,4} Patients with complaints of bloating, abdominal pain, indigestion, diarrhea, dysentery, constipation and unexplained weight loss.⁵

1.1. Ethics approval

Ethics approval was obtained from TMMC Moradabad institutional Ethics Committee (TMMC-IEC) Ref. No. TMMC & RC /IEC/18-19/081.

2. Materials and Methods

The study was carried out from period of December 2018 to September 2019 on stool sample which were received in our laboratory. Both outdoor as well as indoor patients were included in present study. All patients admitted in Hospital with complaints of diarrhoea with or without mucous or blood, fever, abdominal distension, nausea, vomiting anal itching were included in this study. Intestinal parasites were studied in stool samples of all selected patients and plastic containers were provided for all patients. An instruction was given to the patients how to put some stool in the container. Samples were collected in a wide mouthed clean container without contamination with urine and water. Each specimen was labelled properly with patient name, date, time and ward. Sample were examined within one hour after collection. Naked eye physical examination was carried out in each stool sample. Smear preparation was done by using normal saline and Lugol's iodine. Concentration method by using salt saturation flotation technique was also used whenever required. Examined under low power and higher magnification. Parasites were identified present in the stool sample received. All data were entered into excel spreadsheet 2007. The percentage of the parasites were calculated to find out occurrence of parasite infestation and data were analysed for interpretation.⁶

3. Results

Total 95 samples were included in our study, out of which 31(32.63%) were positive either for protozoal or helminthic infection. Total 55 males and 40 females were included which showed 22 and 9 positive cases respectively. Helminth infestation found in 22 cases while protozoal infestation found in 8 cases. The highest prevalence was found in age group 31-40 years (45.45%) followed by (41.66%) in 41-50 years age group, (38.86%) in 21-30 years age group, 36.84% in above 50 years age group, (20%) in 11-20 years age and minimum prevalence (8.33%) was in the age group 0-10 years.

Table 1: Negative and positive parasitic infection cases

Positive cases	Negative cases	Total sample
31	64	95

Table 2: Gender wise distribution of the negative and positive cases in parasitic infection

Sex	Positive cases	Negative cases	Total cases
Male	22	33	55
Female	9	31	40
Total	31	64	95

Table 3: Total positive cases in various age group

Age group	Sample	No. of positive Cases
0-10	12	1
11-20	15	3
21-30	26	10
31-40	11	5
41-50	12	5
Above 50	19	7

Table 4: Prevalence of various parasites in positive cases

Parasites	Positive Cases (N=31)	Percentage
Helminths	23	74.20%
<i>Hookworm</i>	19	61.29%
<i>Ascaris lumbricoides</i>	1	3.22%
<i>Taenia spp.</i>	1	3.22%
<i>H. nana</i>	1	3.22%
<i>Strongyloides Stercoralis</i>	1	3.22%
Protozoa	8	25.80%
<i>Giardia lamblia</i>	6	19.35%
<i>E. histolytica</i>	2	6.45%

4. Discussion

Intestinal parasitic infection are the major cause of morbidity and mortality in developing country like India, but the incidence and severity may vary depending on the location and period of time. Human parasitic infection is a global problem of enormous population with wide variation in intestinal parasites from region to region:

We have taken 95 stool samples of all age group in which 31(32.63%) were positive with different parasitic infection. In the current study, prevalence of Intestinal parasitic infection was detected 32.63% in all stool sample examined. A study completed by Mareeswaran N et al in which they reported the prevalence of intestinal parasites in stool samples was found to be 36.4%. It is higher than our study this might be due to improper waste disposal, unsafe water supply, seasonal and geographic variations.⁷

Our study, it was observed that the occurrence of intestinal parasitic infection between the male and female were found to be 70.96% and 29.04% respectively. A study was done by Purbey MK *et al* which is similar to our study they observe that prevalence rate of parasitism was seen more in male (62.69%) then compare to female (37.31%).

It may be due to most of associated risk factor like puberty, poor sanitation, hand hygiene. The predominance of male gender might be co-incident or due to behavioural factors like increased mobility in males.⁸

In our study the prevalence rate of helminthic parasites (74.20%) were higher than that of protozoal infection (25.80%). A similar study was done by Patel et al in this study they observed that the prevalence rate of helminthic parasites (65.21%) were higher than that of protozoal infection (34.79%). The prevalence of helminthic infection was due to lack of space and used the same area for defecation which was very close to their livings and they come in contact with helminthic eggs and embryonated larva and filiform larva.⁹

In this study the most common parasites were *Hookworm* (61.29%) followed by *Giardia lamblia* (19.35%), *E. histolytica* (6.45%), *Ascaris lumbricoides* (3.22%), *Taenia spp.* (3.22%), *H. nana* (3.22%), *Strongyloide stercoralis* (3.22%) respectively.

A similar study done by Eke SS et al in this study they observed that most common parasite were hookworm.

The higher prevalence found due to the fact that normally involved in farming, playing football, cleaning of surrounding and water fetching in which they work barefooted, thus possible stepping on areas contaminated with faecal matter containing the larvae.¹⁰

5. Conclusion

In our study indicates that parasites are an important and common cause of diarrhoea, vomiting and abdominal pain. Though usually not life threatening, chronic parasitic infestation can impair physical and mental growth and the nutrition and general development of children. Furthermore, these intestinal parasites may increase susceptibility to infection with other pathogens.

Timely diagnosis and identification of the etiological agents of gastrointestinal tract infection in young children towards the benefits on deworming. Conclusively, maintaining personal hygiene instead of the examination of personal hygiene, improving environment sanitation, food and water hygiene, appropriate health education as well as routine medical examination and treatment is strongly recommended.

6. Source of Funding

None.

7. Conflict of Interest

None.

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