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IDENTIFICATION AND PREVALENCE RATE OF PARASITIC INFECTION IN PATIENTS AT PIMS HOSPITAL ISLAMABAD PAKISTAN.

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ABSTRACT:
Parasite infection is reported as a leading cause of non-bacterial gastroenteritis (stomach and intestinal tract infection causing vomiting and diarrhea) particularly among infants and young children globally. The condition of human in which intestinal tract infected by parasite is called intestinal parasite infection. The Purpose of the current study is to identify the frequency rate of gastrointestinal disease patients having IP (intestinal parasitic) infection, their associated risk factors, and clinical observation. In the current study total 335 patients of both genders with symptoms of acute gastroenteritis were selected at PIMS hospital Islamabad Pakistan from 1st January 2021 to 15 December 2021. There were 230 (55.32%) patients were male, 105(44.68%) patients were females. 88(37.45%) patients were aged of <24 years, in which 38 patients was having IP infection.102(43.40%) were aged between 25 to 49 years, in which 26 patients found IP infected, and 45 (19.15%) having age above than 49 years, in which 26 patients having IP infections. 235 (57.45%) patients were literate, in which 45% having IP infections and 100 (42.55%) were illiterate, in which 55% having IP infections. IP (Intestinal parasites) was observed in 90 patients, in which, type of Eba_H (entamoeba histolytica) parasite was mostly found in 30(12.77%). Patients having monthly income <25,000 rupees had the highest prevalence of IP infection 41.42%. There were 230 (56.32%) patients were male, 105(46.68%) patients were females. 137(37.45%) patients were aged of <24 years, in which 73 patients was having IP infection.113(43.40%) were aged between 25 to 49 years, in which 36 patients found IP infected, and 47 (21.15%) having age above than 49 years, in which 33 patients having IP infections. 139 (58.45%) patients were literate, in which 47% having IP infections and 117 (44.55%) were illiterate, in which 58% having IP infections. IP (Intestinal parasites) was observed in 113 patients, inwhich,

type of Eba_H (entamoeba histolytica) parasite was mostly found in 41(12.77%). Patients having monthly income <41,000 rupees had the highest prevalence of IP infection 48.42%.
Conclusion: Significant association of parasitic intestinal infection was found in patients with diarrhea and dysentery in different ages, educational status, and monthly income.

Keywords: Risk factors, Intestinal, parasitic infection,

INTRODUCTION

According to World Health Organization (WHO), among infants and young children the prevalence of intestinal parasites is high and mostly in those who living in poor communities (1). Inadequate sanitation and hygiene, improper hygiene, infected soil and consumption of contaminated water are the most common causes of intestinal parasite reported by Ziegelbauer (2). Parasite infection is reported as a leading cause of non-bacterial gastroenteritis (stomach and intestinal tract infection causing vomiting and diarrhea) particularly among infants and young children globally (4). Parasite infectivity is associated with infants and younger children increased hospitalizations and deaths (5). As per the World Health Organization estimation, 215,000 child mortalities took place worldwide during 2013 caused by parasitic infection compared to 528,000 during 2000. Parasite infection national estimates attributable mortalities in under-five children ranged from 47,100 (India) to below 5 mortalities (79 countries). Among all mortalities in India, 22% occurred in children less than 5 years old. Four countries (Pakistan, India, Congo, and Nigeria) accounted. Virtually half (49 percent) of all mortalities under-five during 2013 (6). Prevalence of intestinal parasitic infection in Pakistan is estimated between 20 to 40 percent (7). Protozoans and helminthes are the major groups of parasites. Of these protozoans including isospora, microsporidia and cryptosporidium are much more common in HIV infected. These parasites can infect the intestinal tract. Among developing countries, parasite is most common recognized pathogen among children with acute gastroenteritis less than 2 years of age. Among developed states, parasites have been identified among 35 to 50 percent infants and young hospitalized children with severe diarrhea (8). The primary transmission mode is through fecal-oral route with symptoms normally developing after an incubation phase of one to two days. Most of the children got infected with parasites during their first 3 years of life, with maximum prevalence of diarrhea between six to twenty-four months. Prior infectivity gives a safeguard from later illnesses. Although the re-infections are common but later illnesses tend to be less acute (9). Diarrhea attributable to parasites could be caused by impaired glucose and sodium assimilation, as harmed cells on villi are restored by non-assimilated undeveloped crypt cells (10). Better sanitation and hygiene can significantly lower the rate of diarrhea, while diarrhea is just slightly influenced through sanitation and hygiene improvements. It is expected that through vaccination, mortality, and morbidity rates of diarrhea due to parasitic infectivity can be decreased among children. Among countries that have conducted a program regarding vaccination, reductions in the rate of acute parasitic infectivity have been seen, however mild infectivity remains ongoing (11).

Material and Methods:

It was cross-sectional, observational study conducted at at PIMS hospital Islamabad Pakistan during the period from 1st January 2021 to 15 December 2021. Total 335 patients both males and females with symptoms of acute gastroenteritis were included in the study. Patients with the bloody diarrhea and nosocomial gastroenteritis acquired in hospitalization for other disease were excluded. Samples of stool were taken immediately within 24-48 hours to prevent nosocomial infection. Containers of stool were labeled with unique patient identifier. Identification of parasitic infections in patient's stool was carried out through enzyme linked immunoassay. Data was analyzed using SPSS version 20. Frequencies and percentages were calculated for all categorical variables. Mean and standard deviation were calculated for age.

RESULTS:

Out of 335 patients, 130 (55.32%) patients were male, 105 (44.68%) patients were females. In males patients we found 53(40.77%) had IP (intestinal parasitic) infection and out of 105 female patients, we found 37 (35.24%) had IP infection. 88 (37.45%) patients were aged of <24 years, in which 50(56.82%) patients had IP infection. 102 (43.40%) patients were aged between 25 to 49 years, in which 22 (21.57%) patients found IP infected, and 45 (19.15%) patients having age above than 49 years, in which 18 (40%) patients had IP infections. Intestinal parasites was observed in 90 (38.29%) patients, we found types of IP (intestinal parasites) were entamoeba histolytica (Eba_H), entamoeba coli (Eba-Coli), giardia lamblia (GI), ascarisricoide, Iba-butchi, hymenolipis nana, taenia species, blastocytis hominis, trichuristic hurra as prevalence of 33 (14.04%), 4 (1.7%), 24 (10.21%), 2(0.85%), 1(0.42%), 19(8.09%), 1(0.42%), 5 (2.13%) and 1 (0.42%) respectively (Table 1). 235 (57.45%) patients were literate and 40(29.63)% having IP infections and 100 (42.55%) were illiterate and 50% had IP infection. 140 (59.57%) patients having monthly income <25,000 rupees had the highest prevalence of IP infection 41.42% than the 95 (40.43%) patients having income of > 25000/month with prevalence of IP infection 33.68% in 32 patients. Another common risk factor, use of not-filtered water was observed in 125 patients with frequency of IP infection was 40% and those patients whom were using filtered water the prevalence was noted as 36.36%. We found 130 patients with 43.85% frequency of IP infection was resulted as not washing hands before eating and washing hand before eating found 42.43% prevalence of IP Infection (Table 2). The symptoms associated to IP infection were also examined such as diarrhea, dysentery, stomach pain, Abdominal pain, nausea and vomiting, bloating and constipation as 41.67%, 42.42%, 42.5%, 38%, 33.33%, 35%, and 17.64% respectively (Table 1)

Table 1: Frequency of IP among patients with gastrointestinal disorders (n=260)

Parasites	Frequency No.	%age
Ent-ba histolytica	36	14.04
Ent-ba coli	7	1.70
GI (giardia lamblia)	28	10.21
Ascaris ricoide	7	0.85
Io-ba butchii	3	0.42
Hymenolepis nana	25	8.09
Taenia specie	4	0.42
Blastocystis hominis	7	2.13
Trichhuristric hurra	4	0.42
No IP	145	67.7

Table 2: Risk factors associated with IP among patients with gastrointestinal disorders.

Characteristics	F/No.	Found	Not Found	P value
Age (years)				
<24	92	50 (56.82%)	38 (43.18%)	0.01
25-49	128	22 (21.57%)	81 (78.43%)	
>49	49	18 (40.0%)	27 (60.0%)	
Gender				
Male	230	53(40.8%)	77 (59.2%)	0.16
Female	105	37 (35.2%)	68 (64.8%)	
Literacy Level				
Literate	135	40 (29.63%)	95 (70.37%)	0.02
Illiterate	100	50 (50%)	50 (50%)	

Monthly income (Rs.)				
< 25,000	140	58 (41.42%)	82 (58.58%)	0.00
>25,000	95	32 (33.68%)	63 (66.32%)	
Drinking water				
Filtered	110	40 (36.36%)	70 (63.64%)	0.58
Not-filtered	125	50 (40%)	75 (60%)	
Washing hand before eating				
Yes	105	33 (42.43%)	72 (68.57%)	0.47
No	130	57 (43.85%)	73 (56.15%)	

DISCUSSION

Globally, parasites infection is more common and a major health issue. To determine the prevalence of gastrointestinal disease patients having IP (intestinal parasitic) infection, determine the associated risk factor and clinical observation regarding IP infection. In this study total 335 patients of both genders with symptoms of acute gastroenteritis were selected. This research showed that prevalence of IP (intestinal parasite) was 45.3% after complete examination of infected patients. Our research findings are better than the research conducted by Siddiqui et al7 at Karachi, their results showed that prevalence of IP was 68.8%. The most frequent parasites were Entamoeba histolytica, Giardia lamblia and Hymenolepis nana in our study however, if we go through the other study Siddiqui et al resulted that most common IP (intestinal parasites) were Giardia lamblia, Entamoeba histolytica and Ascaris lumbricoides.5 Another study regarding IP infections was in Lahore by Ghani et al9 shows better results that IP prevalence was only 21.0% and Enterobius vermicularis, Giardia lamblia and Entamoeba histolytica were the most common parasites. In This study, we observed that most effected group was more than <24 years old and mostly men were affected. But these results were different from the other study that was conducted by Meraj et al12 resulted that mostly patients regarding IP infection were women. Education is the most important factor and plays an important role in preventing people from multiple health problems. Our study shows that the prevalence of IP infection in illiterate patients were high than literate patients, these results show similarity to the other studies Kiani et al13 also confirmed that parasite infection was most frequent among illiterate patients. We found 130 patients with 43.85% frequency of IP infection was resulted as not washing hands before eating and washing hand before eating found 42.43% prevalence of IP Infection and this shows similarity to some other research conducted to evaluate the prevalence of IP infection in patients with gastrointestinal disorders. 14-15 The symptoms associated to IP infection were also examined such as diarrhea, dysentery, stomach pain as 41.67%, 42.42%, 42.5% respectively, approximately similarity was observed in some other studies. Short research of study was that our patients was small in numbers, we have to do more work about this research to provide the better treatment to the patients whom had IP infection.

CONCLUSION

It is concluded that mostly patients were aged < 24 years had IP infection and the prevalence of IP infection was high as compared to the developed countries. The most prevalent parasites were Entamoeba histolytica, Giardia lamblia and Hymenolepis nana. Significant association was found in age, education and monthly income with significant association with diarrhea and dysentery. Availability of safe drinking water and health department intervention can prevent population from such infections.

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