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Original Article

Assessment of Intestinal Parasites Among Patients Visited in Tertiary Care Hospital

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ABSTRACT

Background: Intestinal parasitic infections have always been an important medical and public health issue in tropics, especially in developing countries like India. The present study was conducted to assess intestinal parasitic infection among patients visited in tertiary care hospital. **Materials & Methods:** The present study was conducted on 126 cases of parasitic infection which included 70 males and 56 females. Stool samples in all patients were collected in sterile glass container. The stool specimens were routinely examined using direct wet mount (saline) and iodine wet mount preparation to detect protozoal trophozoites, helminth eggs or larvae and parasitic cysts by microbiologist. **Results:** Age group 21-30 years had 12 males and 10 females, 31-40 years had 20 males and 12 females and 41-50 years had 16 males and 18 females, >50 years had 22 males and 16 females. Common parasitic infection was *E. coli* (40), *E. histolytica* (32), *T. Hominis* (26), *Giardia lamblia* (14), *blastocystitis* (8) and *taenia* species (6). The difference was significant ($P < 0.05$). Pattern of infection was single (72), double (36) and triple (18). The difference was significant ($P < 0.05$). **Conclusion:** Maximum cases were observed in males. Common infection was *E. coli* followed by *E. histolytica*.

Key words: Blastocystitis, *E. Coli*, *T. Hominis*

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INTRODUCTION

Intestinal parasitic infections have always been an important medical and public health issue in tropics, especially in developing countries like India. According to the World Health Organization (WHO), more than one billion of the world's population is chronically infected with parasites.¹ The overall prevalence of intestinal parasites have been reported in the range of 11.3–90% by several authors in India. The risk factors for the greater prevalence of such infections in India include humid climate, malnutrition, insanitary environment, improper and unsafe sewage and human waste disposal, and low standards of personal hygiene while low socio-economic status, scarcity of potable drinking water and impoverished health services further aids to the prevailing problem.² The parasites are important aetiological agents of gastrointestinal disorders such as diarrhoea, dysentery, vomiting, lack of appetite, abdominal distension and sometimes mentally related disorders. Furthermore, chronic infections with *Ascaris lumbricoides* and hookworms may cause malnutrition and anaemia in high risk groups. Microscopic analysis of feces is a common laboratory diagnostic test used for screening of parasites in resource limited settings.³ Parasitic infections cause detrimental effects on the physical growth of the general population and leads

to poor cognitive performance in children. It manifests with asymptomatic carrier state,^[9] gastrointestinal symptoms, or surgical problems. Symptoms presented by the patients usually depend on the host immune system, the degree of malnutrition, and environmental load. Therefore, it is essential to know the burden of intestinal parasitic infections in the Indian community.⁴ The present study was conducted to assess intestinal parasitic infection among patients visited in tertiary care hospital.

MATERIALS & METHODS

The present study was commenced in the department of microbiology of Mahatma Gandhi Medical College & Hospital, Jaipur, Rajasthan, India. It was conducted on 126 cases of parasitic infection which included 70 males and 56 females. All were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study. General information such as name, age, gender was recorded. Stool samples in all patients were collected in sterile glass container. The stool specimens were routinely examined using direct wet mount (saline) and iodine wet mount preparation to detect protozoal trophozoites, helminth eggs or larvae and parasitic cysts by

microbiologist. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I shows that age group 21-30 years had 12 males and 10 females, 31-40 years had 20 males and 12 females and 41-50 years had 16 males and 18 females, >50 years had 22 males and 16 females.

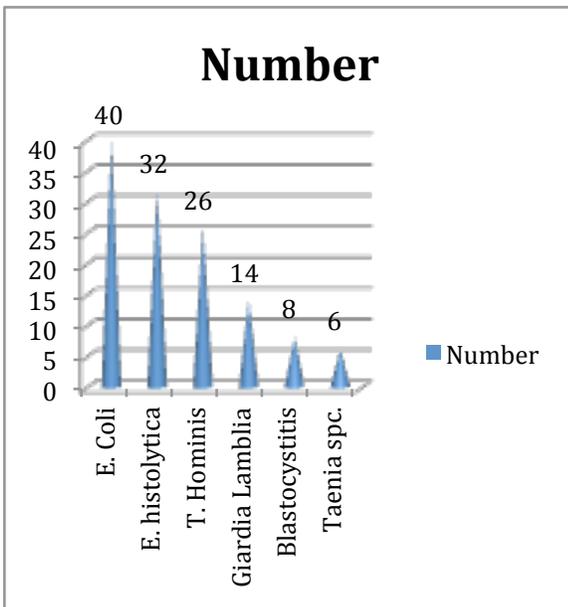
Graph I shows that common parasitic infection was E. coli (40), E. histolytica (32), T. Hominis (26), Giardia lamblia (14), blastocystitis (8) and taenia species (6). The difference was significant (P< 0.05).

Graph II shows that pattern of infection was single (72), double (36) and triple (18). The difference was significant (P< 0.05).

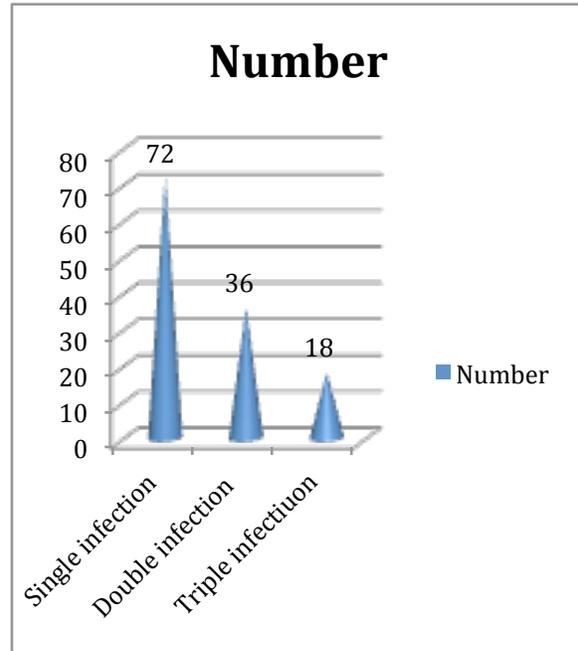
Table I Age wise distribution of cases

Age group (years)	Males	Females
21-30	12	10
31-40	20	12
41-50	16	18
>50	22	16
Total	70	56

Graph I Types of parasitic infection



Graph II Pattern of infection



DISCUSSION

Intestinal parasitic infections are more prevalent among children as compared with the general population. About 12% of the global disease burdens caused by intestinal parasites is observed among children with age ranges from 5 to 14 years in developing countries. Up to 270 million preschool and 600 million school children are living in area where high transmission of parasitic worm.⁵ These indicated that children are the major risk group for parasitic infection in many developing countries. Protozoa and helminthic parasites are the known parasites that affect the gastrointestinal cavity. Intestinal parasites such as Ascaris lumbricoides, Trichuris trichiura and hookworm are the most prevalent and affect about one-sixth of the world population. A. lumbricoides is responsible for about 1.2 billion infections globally while T. trichiura and hookworm infection accounts about 795 million and 740 million, respectively. Among the protozoan parasite, E. histolytica and Giardia lamblia are the most dominant cause of intestinal morbidity.⁶ The present study was conducted to assess intestinal parasitic infection among patients visited in tertiary care hospital. In present study, age group 21-30 years had 12 males and 10 females, 31-40 years had 20 males and 12 females and 41-50 years had 16 males and 18 females, >50 years had 22 males and 16 females. This is in agreement with Ngrenngarmert W et al.⁷ Singh et al⁸ found that out of the total 7,215 samples evaluated, 1,004 (13.9%) samples were found to be positive for least one parasite. A total of 969 (13.4%) samples had protozoan parasite and 35 (0.4%) samples had helminthes. Among these, the 670 (9.2%) samples had a single parasite, 278 (3.8%) had dual infection, 51 (0.7%) had triple, and 5 (0.07%) had quadruple infection. Discussion: The parasite prevalence gradually declined from the year 2007 (17.5%) to 2012 (11.7%). The rate of infection was found to be high in males (15.6%) as compared to females (12%) as influenced by day to day activity. More of the infected patients were found to be among age groups 21-30 years as

affected by food habits and higher exposure of young adults to contaminated environments.

In present study, parasitic infection was *E. coli* (40), *E. histolytica* (32), *T. Hominis* (26), *Giardia lamblia* (14), blastocystitis (8) and taenia species (6). We found that pattern of infection was single (72), double (36) and triple (18). This is in agreement with Ogulensi et al.⁹ Marothi et al¹⁰ in their study of 11,791 stool samples, 675 (5.72%) were positive intestinal protozoa and 289 (2.45%) for intestinal helminths. *Giardia intestinalis* accounted for the most prevalent parasitic infection (3.34%) followed by *Entamoeba histolytica*/*E. dispar* (1.96%) and Hookworm (0.97%). A parasitic infection was observed to be highest among 20-50 years of age group and lowest in the less than 5 years group of subjects.

CONCLUSION

Maximum cases were observed in males. Common infection was *E. coli* followed by *E. histolytica*.

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