

PREVALENCE OF INTESTINAL PARASITES IN PATIENTS ATTENDING TERTIARY CARE HOSPITAL IN NORTHERN INDIA.

Microbiology

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ABSTRACT

Background: Intestinal parasitic infections have been with mankind since time immemorial and it is one of the major health problems in developing countries like India. Increasing level of parasitosis is due to lack of awareness, poverty, personal hygiene, practice of open defecation, contaminated food and unsafe drinking water, improper hand washing technique etc. **Aim:** The study was conducted to access prevalence of intestinal parasites in patients attending tertiary care hospital in northern India. **Objective:** To determine presence of ova/cysts of parasites in stool specimens. **Material and Method:** In this study specimens were collected from patients attending in and out patient for routine microscopy, it is a cross- sectional study of six months. All the stool samples were processed in parasitology laboratory by performing direct saline wet mount method and iodine wet mount method. **Result:** Out of all 350 samples examined 37 [10.57%] samples were found to be positive for at least one parasite. In this study male is more prone i.e 12.10% to infection as compared to females i.e 8.75%. Giardia [4.85%] found to be most prevalent parasite followed by Taenia [4%], Ancylostoma duodenale [1.14%], Entamoeba histolytica [0.85%], Hymenolepis nana [0.57%], Enterobius vermicularis [0.28%], Entamoeba .coli [0.28%], Blastocystis hominis [0.57%]. **Conclusion:** The study reflect that parasitic infections are still major public health concerned in tropical countries such as India; hence there is need to take effort like awareness programs, infection prevention etc. just to decrease down their prevalence.

KEYWORDS

Parasitic infection, De- worming, parasitosis.

INTRODUCTION

Parasites are the organisms that live on other organisms or hosts to survive. The term "parasite" is usually applied to Protozoa [Unicellular Organisms] and Helminths [Multicellular Organisms]. Some parasites don't affect their hosts, while others grow, reproduce or invade organs that make their hosts sick, resulting in a parasitic infection. [1].

Parasitic infection is a condition in which parasites infect gastrointestinal tract of humans, they can be found or live everywhere in human body but most likely to be present in intestinal wall. Parasitic infection is a severe health problem all through the world, especially in countries which are under development, among different high-risk groups; it accounts for a major cause of mortality and morbidity [2]. They are more common in children and leads to nutritional deficiency, anaemia, growth retardation and impaired learning ability [3].

About one third of the world is infected with intestinal parasites [4]

These infections are higher in males as compared to females & the clinical manifestations related to this are nutritional deficiencies including iron deficiency anaemia, seizures, chronic diarrhoea, portal hypertension, impaired physical and mental development in children, amoebic dysentery etc. These factors directly contribute to the frequency of IPIs and consequently the prevalence of infection varies with different states of India. [5].

Therefore a study is conducted in the Department of Microbiology, Era's Lucknow Medical College and Hospital, Lucknow, Uttar Pradesh, India, where all the patients from OPD and IPD were referred to Department of Microbiology for routine microscopy of stool examination to detect the intestinal parasites in that population. This study also aims to analyse prevalence rate of parasitic infestation in the community.

MATERIAL & METHODS

This hospital based cross sectional study is of six months duration, carried out in Era's Lucknow Medical College and Hospital; a total 350 samples were collected from indoor and outdoor patients, after taking informed written consent from them. Fresh morning faecal samples [10-50gm] was collected in clean, sterile, dry, properly labelled, leak

proof & wide mouthed container using aseptic techniques.

All stool samples were subjected to routine macroscopic and microscopic examination. Macroscopic examination included colour, consistency, and presence of mucus. Lugol's iodine wet mount and saline wet mount was prepared for microscopic examination and observed under the low (10x) and high (40x) power to detect ova and cyst in sample.

RESULTS

Total 350 feces samples were processed out of which 37 divulge, presence of parasites with a prevalence rate of 10.57%. In our study male shows more parasitosis (12.10%) than females (8.75%). Among all the positive samples highest prevalence was showed by Giardia Lamblia (4.85%), followed by Taenia (4%), Ancylostoma Duodenale (1.14%), Entamoeba Histolytica (0.85%), H.nana (0.57%) Enterobius Vermicularis (0.28%), Entamoeba coli (0.28%), Blastocystis hominis (0.57%). In this study it was noted that population consuming Tube well water were more exposed to parasitic infection i.e. (13.82%), followed by Tap Water (10.97%), & Filter Water (6.5%). In reference to age group, highest parasitic prevalence were shown by children falls under age group 1 month – 10 years (17.44%) followed by 11-20 years (12.06%), 21-30 years (12.85%), 31-40 years (2.27%), 41-50 years (8.88%), 51-60 years (3.12%), & age groups 61-70, 71-80, 81-90 were found to be nil. According to educational status, illiterate population shows maximum number of parasitic infection i.e. (13.46%), accompanied by primary school (12.30%), middle school (10.90%), High school (9.90%), Intermediates (6.25%), Graduates (8.6%) and nil prevalence was demonstrated by population did Honour's education.

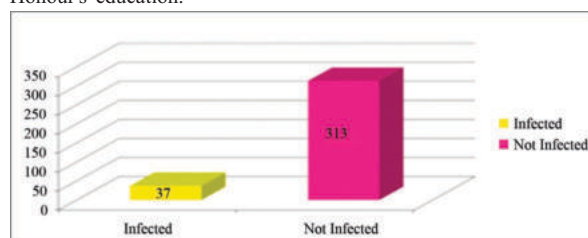


Figure 1: Prevalence of Intestinal Parasite in total sample

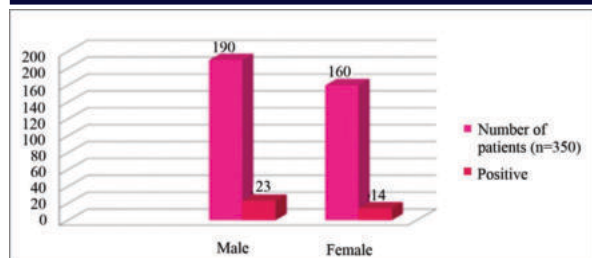


Figure 2: Prevalence of Parasitic infection in Males and Females (Gender wise)

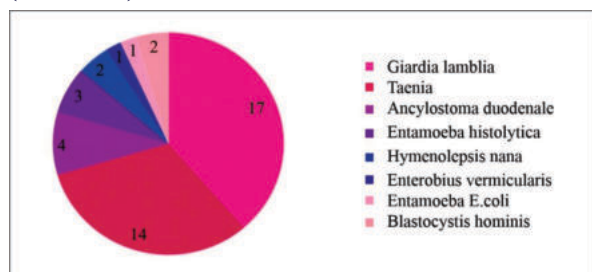


Figure 3: Prevalence of each parasite in total samples

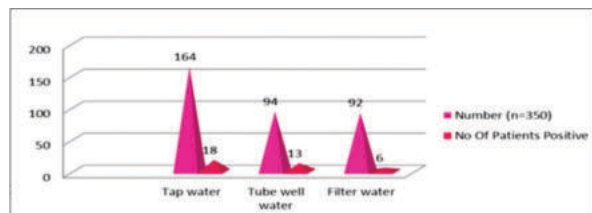


Figure 4: Prevalence of parasite according to sources of Drinking Water

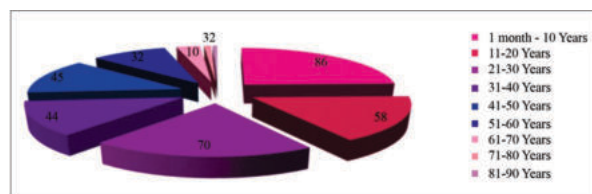


Figure 5: Distribution of Intestinal Parasites in different Age Group

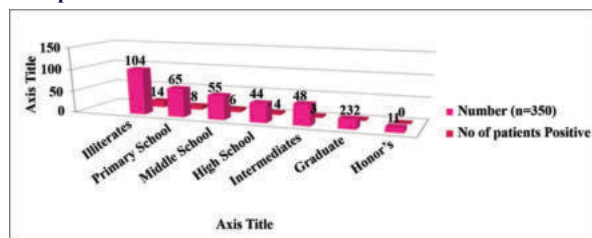


Figure 6: Prevalence of parasites according to Education Status

DISCUSSION

In the present study parasitic infection was seen in 37 patients that is having 10.57% prevalence rate and 313 were non-infected that is 89.42%, which is comparable to previous studies by Shukla N.et.al. [2007] having 11.5% prevalence rate, held in two areas of Lucknow & Singh R. et.al. [2019], shows a low prevalence rate of 4.9%.

Male patients were more commonly affected (12.10%) compared to female counterparts (8.75%), this can be explained by more outdoor activities by male compared to females, and similar study was done at international scenario in Thailand by Punsawad C. et.al. [2017], which shows intestinal parasitic infection in male is 11.7% same shown in our study but in case of females it was 88.3%, which is very much higher from present study.

There are many parasites found in contaminated water such as Giardia species causes life threatening diseases in man, so according to source of drinking water the prevalence rate found higher in Tube well water

13.82% and low in filter water 6.5% shown in our study though very few study was conducted accordingly specially in India but similar study was conducted in western Iran by Kiani H.et.al. [2016], which is contrast to our study and shows higher range of prevalence in untreated water 32.9% and 31.4% in treated water.

Peoples having no education and awareness are more prone to infection and at higher risk of morbidity in comparison with the educated ones as shown in present study, represent the higher prevalence rate in illiterates 13.46%, 12.30% in primary school certificate and least in Higher education 8.6% and nil in honour's which is much lower in disparity with the study conducted by Abossie A. et.al. [2014], which shows 85.2% in illiterates, 88.6% in primary level or below and 66.0 % in higher education level, it may be due to the poor education level in primary school children there. In India very few study is conducted at level of education to determine parasitic infection, one of them is done by Bansal D.et.al. [2018], which shows 31% infection in below primary education level and 19.15% in above primary education level; a bit similar to present study.

Age wise highest rate of infection is presented by 1 month – 10 year age group i.e 17.44%, which share similarities with Patel S.S.et.al. [2015] (16.13%). The low rate of prevalence is shown by 31-40 age groups (2.27%). Many studies are performed outside our nation which shows a bit similarities to our study such as study carried by Zaglool D.AM.et.al. [2011] ,reported (5.1%)prevalence rate in 25-44 years of age group.

Giardia lamblia is a Zoonotic protozoan causes Giardiasis, which is one of the most common parasitic infestation in children. (14), therefore in our study highest prevalence is shown by *Giardia lamblia* i.e. 4.85% which is comparable to the study done in Varanasi by, Singh S.et.al. [2017], reported 6.25% rate; followed by *Taenia* (4%), *Ancylostoma duodenale* (1.14%), *Entamoeba histolytica* (0.85%), *Hymenolepis nana* (0.57%), *Enterobius vermicularis* (0.25%), *Entamoeba .coli* (0.28%) and *Blastocystis hominis* (0.57%).

CONCLUSION

This study focused the need for health programmers and healthiness education, provision for good sanitation, personal hygiene awareness and safe, clean drinking water facility in addition need of specific approach to prevent and control intestinal parasitic infections. A part from early treatment & diagnosis in developing and under developed nation there is a need of pre- requisite protocol to control infections like -: Better sanitary management, health education & evidence based approaches etc. At last but not least one important point is to mentioned that we all know "Prevention is better than cure" so, this advocates the DE- WORMING schedule must be conducted at each and every sectors periodically just to make them aware from hazardous, life threatening effects of intestinal parasite if remain untreated and to make them know about various method and ways to prevent intestinal parasite before it deals with their life!!

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Author's contributions:

SP-Concept and design of the study, interpreted the results, prepared first draft of manuscript and critical revision of the manuscript; PS- Design of the study, Concept and coordination of the overall study FH- Statistically analysed and interpreted, reviewed the literature and

manuscript preparation; SA- Drafting and Preparation of manuscript, revision of the manuscript.

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