ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Prevalence of Parasitic Infections in Paediatric Age Group: A Prospective Study.

A Arasi Samyuktha*, Illamani, Chitralekha, and Kiran Madhusudhan.

Department of Microbiology, Sree Balaji Medical College and Hospital, Chrompet , Chennai- 600044. Tamil Nadu, India.

ABSTRACT

Intestinal parasitic infections are among the common infections worldwide. It is estimated that some 2 billion people around the world are affected as a result of these infections, the majority being children. The main clinical manifestation of the disease caused by these parasites is diarrhoea, followed by anorexia and irritability. Soil transmitted helminths or parasites (STH, also known as geo helminths or intestinal helminths) survive for several years and human infections are associated with significant morbidity, particularly through effects on growth and nutrition. The study was done to determine the prevalence of parasitic infections in the paediatric patients who presented with different gastro intestinal symptoms and to correlate their presence with the health condition of the children. Stools were collected in clean disposable containers from the children admitted in paediatric OPD as well as the ward with various gastrointestinal symptoms in Sree Balaji Medical College and Hospital, Chrompet. The samples were subjected to wet mount and iodine mount for the detection of various parasites. Simultaneously the children were also screened for the presence of Enterobius Vermicularis eggs by cellophane tape method early in the morning positive for various parasites. A total of 286 samples were examined and 68 (23.77%) were positive for various parasites. The parasitic infections were more common in the age group of 5-10yrs and in male children 50 (73.52%) and the most common health problem associated with parasitic infection was found to be anaemia. This study indicates effective mass scale deworming and regular screening of parasitic infections and implication of hygienic practises among the paediatric population is essential to reduce the burden caused by them.

Keywords: Parasitic infections, paediatric, diarrhoea.

Corresponding author

ISSN: 0975-8585

INTRODUCTION

Parasitic infections or infestations can occur in children of all ages.Intestinal parasitic infections are a serious health problem throughout the world affecting mainly the developing Countries[1,2]. These infection are more common in paediatric population and infants ,toddlers are also at risk of these infections[3]. Parasitic infections can lead to anemia, intestinal obstruction,malnutrition ,retarded growth and cognitive impairment[4].It is estimated that, around 2 billion people are infected with intestinal parasitic infections[5].More than 50% are school age children .Soil transmitted helminths (STH) diseases are of major importance in developing countries. They are caused by infection with roundworm, hookworm or whipworm[6]. Children become infected by ingesting roundworm and whipworm eggs that have matured in soil contaminated by human feces, or by walking barefoot in contaminated soil where human hookworm eggs have hatched, producing larvae that penetrate the skin[7,8]. This study was conducted to determine the prevalence of parasitic infections in paediatric population in SREE BALAJI MEDICAL COLLEGE AND HOSPITAL CHROMPET and to correlate them with the health status of the children.

MATERIALS AND METHODS

Study Design & Study Population

A prospective study was planned and conducted from April 2015 to July 2015 in Sree Balaji Medical College And Hospital Chrompet. The study population comprised of all children (both sexes under the age group of 14) in both outpatient department and those getting admitted in the peadiatric ward with various gastro intestinal symptoms.

Sample Size and Sample Collection

A total of 286 stool samples were collected from children of varying age groups. Stool samples were collected in sterile containers.

Sample Processing

The stool samples were observed macroscopically for the presence of adult worms and segments of Tinea species. The same samples were also screened using light microscope for the presence of ova, cysts and trophozoites by saline and iodine preparations. The samples negative were subjected to further screening after formal ether concentration technique.The presence of Enterobius vermicularis eggs were screened by two cellophane tapes applied over the perineum one on either side and their sticky side placed on the microscopic slide. One of the slides was screened directly and the other with lactophenol cotton blue mount (LPCB) for the presence of Enterobius vermicularis.

RESULTS

Out of the 286 samples collected totally , 68 were positive for parasitic cyst and eggs. Of these Ascaris Lumbricoides is predominant followed by Taenia eggs, Hymenolepsis nana, Enterobius Vermicularis, Strogyloides, Trichuris trichura and Entamoeba Histolytica**.**

Table 1: Prevalence of different parasites

PARASITE	NO.	PERCENTAGE
ASCARIS	25	36.76%
TAENIA	12	17.64%
HYMENOLEPSIS NANA	10	14.70%
ENTEROBIUS VERMICULARIS	8	11.76%
TRICHURIS TRICHURA	7	10.29%
STRONGYLOIDES	4	5.88%
ENTAMOEBA HISTOLYTICA	2	2.94%

ISSN: 0975-8585

Table 2: Showing the prevalence of parasitic infections.

TOTAL SAMPLES (286)	RESULTS	PERCENTAGE
POSITIVE	68	(23.77%)
NEGATIVE	218	(76.22%)

Table 3: Showing the age distribution of parasitic infections

AGE GROUP	PREVALANCE	PERCENTAGE
<5YEARS	14	(20.58%)
5-10 YEARS	38	(55.88%)
10-14YEARS	16	(23.52%)

Table 4: Showing the sex distribution of parasitic infections

SEX	**GROUP PREVLANCE**	**PERCENTAGE**
MALE	**50**	**73.52%**
FEMALE	**18**	**26.27%**

DISCUSSION

In our study which included 286 samples from children under 14 years for parasitic infections the prevalence rate was 68(23.77%) were positive for parasitic cyts and eggs. .The parasitic infection were common in the age group of 5-10 years, with a prevalence rate of 38 (52.80%). The most prevalent worm infestation in our study was A.Lumbrioides (36.76%) which was high compared to the similar studies by Subha et al that showed 20.1% and Shrivastava in which prevalence rate was 22.2%[9,10]. It was followed taenia eggs (17.64%), Hymenolepsis Nana (14.70%) , Enterobius Vermicularis (11.76%), strogyloides (5.88%)s, Trichuris Trichura (10.29%)and Entamoeba Histolytica (2.94%).The most common health problem associated with parasitic infection was anemia, followed by malnutrition and growth retardation[11]. 3 children in our study had anemia with malnutrition. Almost half of the children in this study did not use boiled or filtered water for drinking. Purifying the water before drinking is very important to prevent parasitic infections in children[12].There is a strong relationship between the educational status of the parents and child's health. An unusual finding of this study is that though the parents of the children involved in this study were well educated, the prevalence of parasitic infections were high among this children. This may be due to ignorance regarding health and hygiene habits among parents.

CONCLUSION

Helminthic infestations contribute to significant disease burden in children particularly in the underpriviledged and in developing countries[13]. Survey on the prevalence of various intestinal parasitic infection in different geographic regions is a prerequisite to obtain an accurate understanding of the burden and cause of intestinal parasitic infections in a particular area. Lack of knowledge of prevalence of parasitic infection in a geographic area may lead to misdiagnosis of intestinal parasitic infections as appendicitis and inflammatory bowel disease (IBD's)[14]. The most important drawback of intestinal parasitic infections is that, about 90% of infected individuals remain asymptomatic and hence do not present to the hospital. Hence routine screening of all stool samples of children presenting to the paediatric outpatient department for ova, cysts, trophozoites and larva remain the gold standard method for the laboratory diagnosis of Intestinal Parasitic Infections[15] .Eradication of intestinal parasites is possible only with improvement of hygiene and sanitation and appropriate disposal of sewage. One of the most important ways to help prevent these parasitic diseases is to deworm the children at regular intervals and teach them the importance of washing hands correctly with soap and running warm water, particularly after using the toilet and before eating. In many developing countries, it is also important to ensure feces are disposed of properly to avoid open air defecation, to avoid walking barefoot outdoors and to avoid exposure to water that may be infected with the parasite causes infections.

REFERENCES

[1] Ogunlesi T, Okeniyi J, Oseni S, Oyelani O, Njokanme F, Dedeke O. Ind J Peadiatr 2006; 73; 1081-4.

[2] Quihui L, Valencia ME, Crompton DWT, Phillips S, Hagan P, Moreles G et al. BMC Pub Health 2006; 6: 225-32.
[3] Okyay P, Ertug S, Gultekin B, onen O, Beser E. BMC Pub Health 2004; 4: 64-9.
[4] Ostan I, Kilimciu, lu AA, Girginkarde, lei N, Ozyurt CB, Limoncu ME. BMC Pub Health 2007; 7: 342-50.
[5] Mahraj V, Hatcher J, Akhtar S, Rafique G, Beg MA. PLOS One 2008; 3: e3680.
[6] Stephenson LS, Latham MC, Ottesen EA, Parasitology 2000; 121 suppl : S 23-38.
[7] Petri WA Jr, Singh V. Clin Infect Dis 1999 ; 29: 1117-25.
[8] Alvin MD, Jacobs H. The J Peadiatric 1942; 21(4) 497-503.
[9] Subha DS,Fathima FA. Tropical Parasitol 2011; 1:88-93
[10] Shrivastava JB. Indian J Med Res 1977; 21 : 29-33.
[11] Wani SA, Ahmed F, Zargar SA, Ahmed Z, Ahmed P, Tak H. India J Parasitol 93 : 1541-3 .
[12] Wadood AU, Bari A Rehman AV, Kasim KF. Pak J Med Res 2005;44:87-8.
[13] Dickson R, Awasthi S, Demell Week C, Williamson P. Cochrane Database Syst Res 2003: CD000371.
[14] Reed Sl, Amoebiasis and infections with free living amoeba in : Harrison TR, Fauli AS, Braunwald E, et al, Editors. Harrisons principles of Internal medicine 15th ed. New York. McGraw-Hill; 2001. p-1199-202.
[15] WHO: Bark laboratory methods in medical parasitology Geneva : WHO; 1991.