

Prevalence of Parasitic Infections in Peadiatric Population – A Prospective Study

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Abstract- Introduction: The study was done to determine the prevalence of parasitic infections in the pediatric population, and to correlate their presence with the health status of the children. **Materials and methods:** Stools were collected in wide mouthed disposable containers from the children admitted in pediatric ward with various complaints in Chigateri Government Hospital, Davangere, Karnataka. The samples were screened by saline and iodine preparation 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.

Results: A total of 220 samples were examined and 53 (24.09%) were positive for various parasites 21(39.6%) samples were positive for multiple parasitic infections. The parasitic infections were more common in the age group of 5-10yrs and in male children 40(75.40%) and the most common health problem associated with parasitic infection was found to be anaemia.

Summary: This study indicates effective mass scale deworming and regular screening of parasitic infections is essential to reduce the burden caused by them.

Index Terms- Parasitic infections, Chigateri Hospital, Enterobius vermicularis

I. INTRODUCTION

Intestinal parasitic infections (IPI's) are a serious health problem throughout the world affecting mainly the developing countries^(1,2). These infection are more common in peadiatric population and can lead to anemia, malnutrition and cognitive impairment.⁽²⁻⁴⁾

It is estimated that, around 2 billion people are infected with intestinal parasitic infections.⁽⁵⁾ More than 50% are school age children. About 39 million disability adjusted life years (DALY) are linked to IPI's which are responsible for huge financial burden.⁽⁶⁾

This study was conducted to determine the prevalence of intestinal parasitic infections in peadiatric population in and around Davangere, Karnataka and to correlate them with the health status of the children.

II. MATERIALS AND METHODS

Study Design & Study Population:

A prospective study was planned and conducted from October 2011 to November 2012 in Chigateri Government District Hospital, attached to J.J.M. Medical College,

Davanger, Kanataka. The study population comprised of all children (both sexes under the age group of 14) getting admitted in the peadiatric ward irrespective of their presenting complaints.

III. SAMPLE SIZE AND SAMPLE COLLECTION

A total of 220 stool samples were collected from children of varying age groups. Stool samples were collected in wide mouthed sterile containers. The same children were also examined for the presence of Enterobius vermicularis eggs by the cellophane tape method done early in the morning before the child baths or defecates.

IV. 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 microscopically 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.⁽⁷⁾

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.

V. RESULTS

THE Table-1: Showing the prevalence of parasitic infections.

Total Samples (220)	Results (%)
Positive	53 (24.09%)
Negative	167 (75.09%)

Pie diagram showing the rates of various parasitic infections:

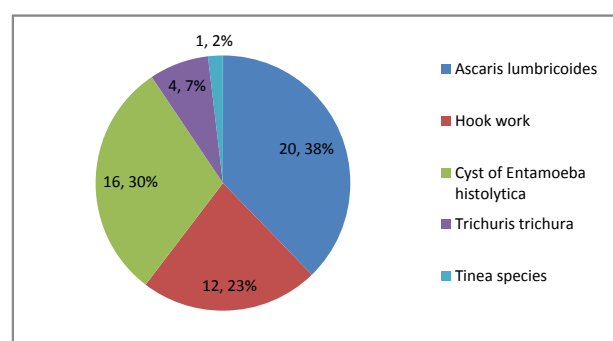


Table-2: Showing Multiple Parasitic Infections:

Ascaris lumbricoides + Hook worm	8 (38.09%)
Trichuris trichura + Hook worm	4 (19.04%)
Cyst of EH + Ascaris lumbricoides	8 (38.09%)
Tinea species + Ascaris lumbricoides	1 (4.7%)

Bar diagram showing the association of parasitic infection with health status:

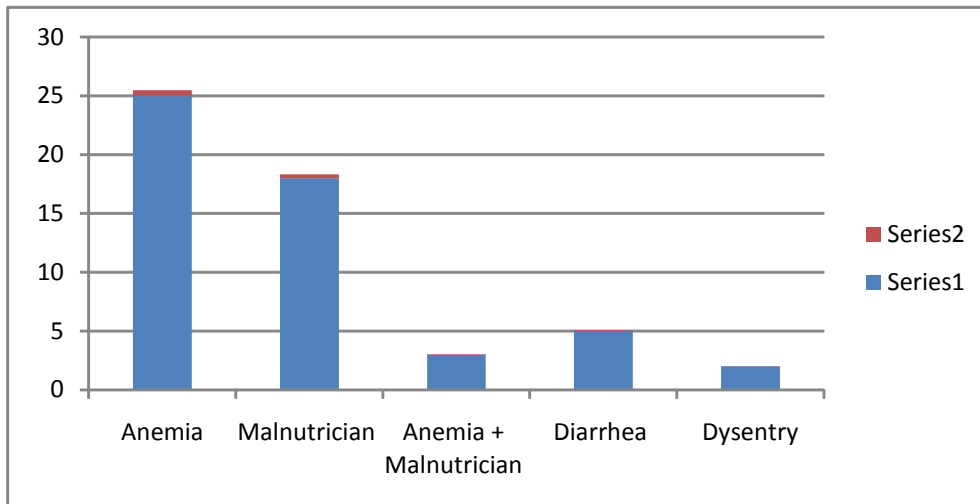


Table-3: Showing the age distribution of parasitic infections:

Age Group	Prevalence	Percentage
<5 Year	12	22.60%
5 - 10 Year	28	52.80%
10-14 Year	13	24.50%



Table-4: Showing the sex distribution of parasitic infections:

Sex Group	Prevalence	Percentage
Male	40	75.40%
Female	13	24.50%

The study showed 0 % prevalence of *Enterobius Vermicularis*

VI. DISCUSSION

In our study which included 220 samples from children under 14 years for parasitic infections the prevalence rate was 53 (24, 09), which was in accordance with the study conducted by Subha et al among school children Chitradurga in Karnataka, which reported prevalence rate of 51.5%.⁽⁹⁾

The most prevalent worm infestation in our study was *A.Lumbricoides* (37.7%) 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%.⁽¹⁰⁾

39.6% of our study samples showed multiple parasitic infections, which was low when compared to the study by Wani et al, showing 46.7%.⁽¹¹⁾

The most common health problem associated with parasitic infection was anemia (47.17%), followed by malnutrition. 3 children in our study had anemia with malnutrition. (33.9%). These findings were in accordance with a report from Gulbarga, Karnataka, which showed the prevalence of anemia and worm infestation 12

The parasitic infection were common in the age group of 5-10 years, with a prevalence rate of 28 (52.80%) whereas study in Quetta showed a high prevalence rate in the age group of 9-12 years.⁽¹³⁾

The cellophane tape method applied for screening *Enterobius vermicularis* eggs came negative with all the 220 samples screened.

VII. CONCLUSION

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)⁽¹³⁾.

The most important drawback of IPI's is that, about 90% of infected individuals remain asymptomatic and hence do not present to the hospital.⁽¹⁴⁾

Hence routine stool sample screening of all children presenting to the paediatric outpatient department for ova, cysts, trophozoites and larva remain the gold standard method for the laboratory diagnosis of IPI's.⁽¹⁵⁾

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