Original article:

Prevalence of intestinal parasites at tertiary teaching Hospital, BRIMS, Bidar

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ABSTRACT

BACKGROUND- Major public health problem worldwide particularly in the developing countries is parasitic infections and which constitutes the greatest cause of illness and disease

OBJECTIVE- to determine the prevalence of intestinal pathogens at tertiary teaching hospital BRIMS, Bidar.

MATERIALS AND METHODS- Prospective study of 150 patients age (4months-65years) of either gender suffering from diarrhea from in patient of paediatric and medicine department were taken, stool samples were collected and examined under light microscope with direct saline smear and lugol’s iodine solution. Parasitic detection was confirmed by formalin ethyl acetate concentration method.

RESULTS- Prevalence was more common in men (85%) were commonly affected than females (45%). the most common intestinal parasitic infection was hookworm (60%), followed by (30%) giardia, 20% cryptosporidium, (10%) E histolytica, (6%) ascarius, (4%) strongyloides. Main source of infection can come from other sources of drinking water and even many (100%) patients had no method of purification which might be cause of infection

CONCLUSION- Lower socioeconomic status, longer duration and frequency of diarrhea non availability of toilet were leading risk factors of present study. Hook worms were the most common parasitic infection in our study.

KEY WORDS- Prevalence, Intestinal parasites, Hookworm.

INTRODUCTION

Major public health problem worldwide particularly in the developing countries is parasitic infections and which constitutes the greatest cause of illness and disease. 60% world’s population is infected with gut parasites which might play a major role in morbidity due to intestinal infections. The most common age group getting affected by parasitic infection is children and young adults in particular regions where hygienic measures are not strictly followed and in regions with limited resources. According to WHO 1987 reports suggests that most common parasitic infections reported globally are ascarius (20%), hookworm (18%), trichuris trichiura (10%), and entamoeba histolytica (10%). These parasitic infections will lead to the consequences like malnutrition, anemia, cognitive impairment and increased susceptibility to other infections. Various states of India reported high prevalence (46.7%-71.1%) of parasitic infections in children and adults. Keeping this in the background the present study was conducted to identify the prevalence of intestinal parasites in pediatrics and medicine in patients with complaints of diarrhea of age group (4months-65years) at tertiary teaching hospital Bidar.
MATERIALS AND METHODS

STUDY POPULATION-
A prospective observational study was conducted among pediatrics and medicine in patients with complaints of diarrhea of age group (4 months-65 years) at tertiary teaching hospital Bidar. The study was conducted after taking approval from institutional ethical committee.

INCLUSION CRITERIA-
All inpatients of either gender of age group (4 months-65 years) from paediatric and medicine department at tertiary teaching hospital Bidar who complaints of diarrhea with or without mucous or blood, fever, abdominal pain, vomiting during one month from (February-March) were included in this study.

EXCLUSION CRITERIA-
1) Those patients admitted without complaints of diarrhea and below 4 months and above 65 years were excluded from the study
2) Patients presenting with diarrhea associated with other illness like hepatitis, respiratory infections, lactose intolerance history, and surgical conditions like appendicitis were all excluded
3) Pregnant and lactating women
Informed consent was taken from all the participants and informed verbal consent was taken from the parents of enrolled children

STUDY VARIABLES
After selection of study participants, a detailed history was taken and thorough physical examination was conducted to collect details about age, gender, socio-economic status, eating, source of drinking water, method of purifying drinking water, nutritional status, clinical presentation, present/past history and laboratory investigations details were recorded. On admission, grade of dehydration was assessed by using WHO guidelines for assessment of dehydration in to no, some or severe dehydration [12]. Modified Prasad’s socio-economic classification was used to determine the socio-economic status [14].

STOOL SAMPLE COLLECTION AND INTESTINAL PARASITIC EXAMINATION-
Mother/parents were explained how to collect the stool sample. For children less than two years of age, parents were explained to apply the diaper on the opposite side so that the fecal matter did not get absorbed and the sample was available for examination. Children above two years age were explained how to collect the sample in the bottle. The collected bottles were immediately sent to the laboratory for light microscopy and differential diagnosis of protozoa cyst. Stool smears were examined under light microscope with direct saline smear and lugol’s iodine solution. Parasitic detection was confirmed by formalin ethyl acetate concentration method.

RESULTS
Out of 150 patients, 130 patients stool sample was analyzed and we can infer that prevalence of parasitic infections are very common all the samples were examined for stool examination. From table 1 we can tell that male (85%) were commonly affected than females (45%). Main source of infection can come from other sources of drinking water and even many (100%) patients had no method of purification which might be cause of infection.
According to table 2- the most common intestinal parasitic infection was hookworm (60%), followed by (30%) giardia, 20% cryptosporidium, (10%) E histolytica, (6%) ascarius, (4%) strongyloides.
### TABLE 1
**PREVALENCE OF PARASITIC INFECTION OF HOSPITALIZED PATIENTS WITH DIARRHEA ACCORDING TO DEMOGRAPHIC CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td>85</td>
<td>45</td>
</tr>
<tr>
<td>SOCIAL CLASS – upper and middle lower</td>
<td>75</td>
<td>55</td>
</tr>
<tr>
<td>DURATION OF DIARRHEA &lt; 7 DAYS</td>
<td>95</td>
<td>35</td>
</tr>
<tr>
<td>FREQUENCY - &lt; 10/day</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>TOILET FACILITY - yes no</td>
<td>75</td>
<td>55</td>
</tr>
<tr>
<td>SOURCE OF DRINKING WATER - municipality others</td>
<td>110</td>
<td>20</td>
</tr>
<tr>
<td>WATER PURIFICATION METHOD - none filter/boiling</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>VOMITING/ABDOMINAL PAIN/ FEVER - yes no</td>
<td>100</td>
<td>30</td>
</tr>
</tbody>
</table>

### TABLE 2
**INTESTINAL PARASITES IN TERTIARY HOSPITAL BIDAR**

<table>
<thead>
<tr>
<th>Prevalence (%)</th>
<th>Intestinal Parasites</th>
</tr>
</thead>
<tbody>
<tr>
<td>60%</td>
<td>Hook Worm</td>
</tr>
<tr>
<td>30%</td>
<td>Giardia</td>
</tr>
<tr>
<td>20%</td>
<td>Cryptosporidium</td>
</tr>
<tr>
<td>10%</td>
<td>E Histolytica</td>
</tr>
<tr>
<td>6%</td>
<td>Ascaris</td>
</tr>
<tr>
<td>4%</td>
<td>Strongyloides</td>
</tr>
</tbody>
</table>
DISCUSSION
Morbidity due to intestinal parasites has always been an important public health problem in various countries, but severity may vary depending on the location and period of time. In our study males 85% were commonly affected than females 45% which was similar to other studies depending upon different sample size, different socioeconomic status and age groups being studied.

This study shows low prevalence when compared to other studies conducted in different other states/regions of India. As reported by various studies giardia (5.4%) was most common when compared to our study hookworm was most commonest intestinal parasitic infection. As reported by various studies high prevalence of parasitic infection was in lower socioeconomic group. Longer duration of diarrhea more than 7 days was more in present study, frequency of stools more than 10/day was another significant risk factor suggesting intestinal parasitic infection. Non availability of toilet facility at home leads to open fields defecation favors’ the spread of infection through fecal-oral route. Most of the patients had no methods of purification 100% in contrast to other studies reported significant association between parasitic diarrhea and non purification of water.

The present study had some limitations hospitalized patients were taken into consideration (selection bias), non availability of some demographic characteristics, no testing of virus infection because of non availability of testing at institute.

CONCLUSION
Lower socioeconomic status, longer duration and frequency of diarrhea non availability of toilet were leading risk factors of present study. Hookworms were the most common parasitic infection in our study. Large scale studies should be performed repeatedly in order to observe prevalence and changes in epidemiology of parasites.

REFERENCES