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Research Article

DISTRIBUTION OF INTESTINAL PARASITES IN PEOPLE OF BODE BARSAIN, SAPTARY, NEPAL: A CROSS SECTIONAL STUDY

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ABSTRACT

Intestinal parasitic infections are one of the most prevalent infections in humans residing in developing countries and its burden is high among in people living in low land areas. A cross-sectional study was designed to determine the prevalence of intestinal parasitic infection and distribution of intestinal parasites in rural areas of Nepal. This study included people from Bode Barsain, Saptary Nepal. Of the 245 subjects examined 119 (48.6%) were females and 126(51.4%) were males. Ages ranging of the participants were from 5 years to 68 years. 147 (60%) were found to be infected with intestinal parasites (P=0.028). All together 189 parasites were seen including mixed infections as *Giardia Lamblia* with *Ascaris lumbricoides* were 21 while *Giardia Lamblia* with *H. nana* were 1, similarly *E. Histolytica* with *Ascaris lumbricoides* were 19 and *H. Nana* with *Ascaris lumbricoides* were 2 which conclude total mix parasites were 43. This study suggests the need of health education program in this area along with regular screening of intestinal parasites and treatment for effective management of the intestinal parasites among those people in Nepal.

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INTRODUCTION

Intestinal parasitic infection is one of the major health problems in developing countries. This is highly debilitating rather than deadly worm-induced diseases like filariasis and taeniasis. Soil-transmitted helminthes are particularly serious and are among the ten most common infections in the world.[1] The World Health Organization estimates that intestinal parasitic infections are distributed virtually throughout the world with high prevalence rates in underdeveloped regions.

In Nepal, over 70% of morbidity and mortality are associated with infectious diseases and is also reflected in the “top ten diseases” of Nepal [2]. Diarrhea is produced by a variety of etiological agents. Of them, intestinal parasitic infection alone contributes to a great extent in the cause of diarrhea and is one of the most common public health problems in Nepal [3]. The common intestinal helminthes reported from Nepalese children are *Ascaris lumbricoides* [2,4], hookworm, and *Trichuris trichiura* [5], with manifestations as varied as malnutrition, iron

deficiency anemia, mal-absorption syndrome, intestinal obstruction, and mental and physical growth retardation.

Efforts to control parasitic infections in developing countries typically focus on periodic anti-helminthic treatments targeted at specific risk groups, *e.g.*, school children, people living in rural areas. Nevertheless, reinfection in endemic areas is continuous [6]. The high prevalence of infection in children is attributed to the economic and social situation of the individuals which is the important cause of the prevalence of intestinal parasites [7]. Public health specialists are concerned that these infections impair children’s growth and development [8]. The distribution and prevalence of various species of intestinal parasites also differs from region to region because of several environmental, social and geographical factors [9]. In Nepal, 50% of diarrhoeal diseases among children is due to parasites, diarrhoea being major killer of Nepalese children [10,11,12].

Therefore, the present study was carried out for the diagnosis of intestinal parasitic infection status among the people of Bode Barsain, Saptary, Nepal and the data are important for

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evaluating and improving the sanitation hygienic education and system in this area [13].

METHODOLOGY

Study area and period

The study was carried out in Bode Barsain, Saptary, Nepal, during February to June 2017. Stool samples were collected and analyzed at Suresh pathology, Krishna pathology, PHC-Bode-Barsain, Saptary.

Sample collection, storage, transport, selection/rejection criteria

Stool samples were collected in a clean and sterile screw capped container and simultaneously data were collected and brought immediately to the laboratory. Upon arrival the stool samples were processed according to the standard laboratory methods. The sample was collected in a sterile screw capped container according to WHO guideline and was immediately transported to the laboratory by maintaining cold chain.

Data collection methods

Samples were collected on the basis of simple random technique. Questionnaire after getting oral consent from care taker a short questionnaire was taken from both symptomatic and asymptomatic children.

Study variables

Age, sex, ethnicity etc.

Laboratory processing of samples

The stool samples were examined macroscopically for the presence of blood, mucus and adult or larvae of helminthic parasites. The color and consistency of the stool samples were also observed at the same time. Microscopic examination was the important part of the study and carried out for the detection of oocyst, cyst, trophozoites, of protozoa and the detection of larva or eggs of helminthes. The detection was carried out at low power (10X) followed by high power (40X) of the microscopes, the suspected and possible parasite was observed under microscope by wet mount and iodine staining. This preparation was done to examine the ova and cyst of the parasite.

Data analysis

Clinical data from each patient were collected by using a questionnaire and statistical analysis was performed with MS Excel and SPSS 11.5.

RESULTS

Of the 245 subjects examined, Out of which 119 (48.6%) were females and 126(51.4%) were males. Ages ranging of the participants were from 5 years to 68 years. 147 (60%) were found to be infected with intestinal parasite as shown in Table 1. All together 189 parasites were seen including mixed infections as *Giardia Lamblia* with *Ascaris lumbricoides* were 21 while *Giardia Lamblia* with *H. nana* were 1, similarly *E. Histolytica* with *Ascaris lumbricoides* were 19 and *H. Nana* with *Ascaris lumbricoides* were 2 which conclude total mix parasites were 43 as shown in table 4.

Table 1 Association between Diagnosis and sex

Diagnosis	sex		Total	χ^2
	F	M		
Found	63(25.7%)	84(34.3%)	147(60.0%)	0.028
Not Found	56(22.9%)	42(17.1%)	98(40.0%)	
Total	119(48.6%)	126(51.4%)	245(100.0%)	

Table 2 Age and sex wise distribution

Age wise	sex		Total	χ^2
	F	M		
Less than 10	29(11.8%)	51(20.8%)	80(32.7%)	0.010
10-20	33(13.5%)	33(13.5%)	66(26.9%)	
20-30	29(11.8%)	14(5.7%)	43(17.6%)	
30-40	18(7.3%)	10(4.1%)	28(11.4%)	
40-50	4(1.6%)	6(2.4%)	10(4.1%)	
50-60	5(2.0%)	7(2.9%)	12(4.9%)	
More than 60	1(0.4%)	5(2.0%)	6(2.4%)	
Total	119(48.6%)	126(51.4%)	245(100.0%)	

Table 3 Age and diagnosis wise distribution

	Age wise							Total	χ^2
	Less than 10	10-20	20-30	30-40	40-50	50-60	More than 60		
Diagnosis Found	41(16.7%)	40(16.3%)	22(9.0%)	20(8.2%)	8(3.3%)	1(4.5%)	5(2.0%)	147(60.0%)	0.035
Diagnosis Not Found	39(15.9%)	26(10.6%)	21(8.6%)	8(3.3%)	2(0.8%)	1(0.4%)	1(0.4%)	98(40.0%)	
Total	80(32.7%)	66(26.9%)	43(17.6%)	28(11.4%)	0(4.1%)	2(4.9%)	6(2.4%)	245(100.0%)	

Table 4 Parasites distribution

Parasites	Single parasite seen			Multiple parasite seen		
	F	M	Total	F	M	Total
Ascaris Lumbricoides	37(15.1%)	42(17.1%)	79(32.2%)	15(6.1%)	27(11.0%)	42(17.1%)
E. Histolytica	7(2.9%)	16(6.5%)	23(9.4%)			
Giardia Lamblia	15(6.1%)	19(7.8%)	34(13.9%)			
H. Nana	2(0.8%)	4(1.6%)	6(2.4%)	0(0.0%)	1(0.4%)	1(0.4%)
Not Found	57(23.3%)	42(17.1%)	99(40.4%)	104(42.4%)	98(40.0%)	202(82.4%)
Pinworm	1(0.4%)	0(0.0%)	1(0.4%)			
Strongyloides	0(0.0%)	2(0.8%)	2(0.8%)			
Stercolaris	0(0.0%)	1(0.4%)	1(0.4%)			
Taenia Species	0(0.0%)	1(0.4%)	1(0.4%)			
Total	119(48.6%)	126(51.4%)	245(100.0%)	119(48.6%)	126(51.4%)	245(100.0%)

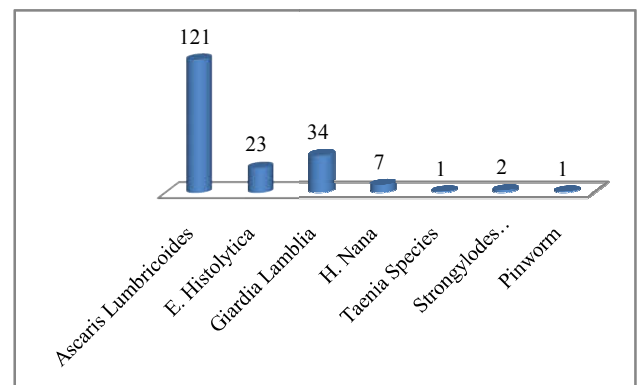


Fig 1 Shows the distribution of different intestinal parasites

DISCUSSION

Our study aimed at finding the distribution of intestinal parasites infection and to evaluate the risk factors associated to this co-infection. The overall prevalence of intestinal parasites was 60% in the people Bode Barsain.

This study findings in contrast to prevalence is similar to Maharjan et al 2013 [14], Yadav et al 2016 [15]. Higher

participation was seen in male 126(51.4%) compared to female 119(48.6%). Parasitic infections were as *Ascaris lumbricoides* 121 followed by *E. Histolytica* 23 followed by *Giardia lamblia* 34 *H.nana* 7 *Strongyloides stercoralis* 2 and *Taenia spp.* and pinworm 1 and 1 respectively.

CONCLUSION

The distribution of intestinal parasite was high. The study indicates that the parasitic diseases are still a significant health problem in Nepal. Environmental sanitation improvement and health education promotion at different levels of Saptari district and empowering the health centre can be helpful for the prevention and control of parasitic infections in the area.

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