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Original Article

Prevalence of Intestinal Parasites and Related Factors in Primary School Children in Varamin

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ABSTRACT

Background*: Intestinal parasitic diseases are very common in Iran, especially among children, and the statistics show that these pathogens are more common among primary school students, in comparison with other age groups. To determine the rate of outbreaks of these pathogens in the city of Varamin, the primary school students in the academic year 1999-2000 were studied.*

Materials and Methods*: The method of research was descriptive and the study was observational – interviewing. The simple sampling method was carried out over 293 primary school students in the city of Varamin. The samples were tested by direct laboratory methods and sedimentary concentration. For the purpose of finding cryptosporidum, Ziel-Neelsen modified method (88 samples out of total samples) was used for detection of cryptosporidium.*

Results*: Of 293 primary school students, 139 (47% were reported positive) for intestinal parasited of which, 116 students (83%) had one parasite, 21 students (15%) had two parasites and 2 students (2%) had 3 parasites. Giardia contamination was seen in 78 cases (49%) and was the most common contamination. Eighty-eight samples were reported negative for cryptosporidium. There was no significant difference among students of rural and urban areas for parasitism. There was not significant difference between males and females regarding the rate of contamination. There was a significant difference between mother's and father's occupation with the rate of contamination among students. However, the above-mentioned correlation was found to be weak based on Tchouprov test (14 and 15% respectively). There was a significant difference between parents' educational level and the rate of contamination. All students were drinking hygienic water (From pipeline) and 99% of these students were washing their hands with soap and water after using toilet.*

Conclusion*: This study suggested that there was a significant relationship (although weak) between mother and fathers' occupations and the rate of contamination among students and also a significant difference, existed between parents' educational level and the result of stool examination indicating the importance of general awareness and knowledge in preventing intestinal parasitic diseases.*

Key words: *Intestinal parasite, Epidemiology, Varamin*

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INTRODUCTION

Acute gastrointestinal diseases are extremely common in developing countries and intestinal parasitic infections are among the most important health problems in those areas, where a large number of people are infected every year and parasitic infections are responsible for a considerable morbidity and also mortality (1). The highest rates of protozoa and helminthic infections worldwide occur in the tropical regions and the distribution of these infections depends on conditions such as climate, human activities, population movements and poor sanitation (2). As reported by the World Health Organization (WHO) diarrhea, including that of parasitic origin remains one of the most common illnesses in children, and one of the major causes of infant and childhood mortality in developing countries (3). Many epidemiological data on the spread or distribution and prevalence of intestinal parasitosis are available for developing countries, and prevalence of *Entamoeba histolytica*, for example, ranges from 5% to 81% and is estimated to involve around 480 million people worldwide. *Giardia lamblia* is the most common intestinal parasite in the United States. 3% to 7% of the populations with G. lamblia are in Australia, out of which 1.6% is asymptomatic (2, 4-8). In a study in China, *Enterobius vermicularis* (47.0%), *Trichuris* trichiura (18.8%) and Taenia saginata (17.2%) were the most frequent causes of intestinal parasitic infections (9). Estimates of the global prevalence of intestinal nematode infections transmitted through soil are: 1000 million cases of Ascaris lumbricoides, 900 million of hookworms (*Ankylostoma duodenale* and *Necator americanus*) and 500 million of Tr. *trichiura* (10). The prevalence of infections varies in different parts of Iran. A review of 300 cases of intestinal parasitic infections showed that A. lumbricoides was the most common nematode and G. lamblia and E. histolytica were the most common unicellular microorganisms causing intestinal parasitic infections (11). The prevalence of intestinal parasitic infections varies in different parts of the country, with 47.2% in Kerman (11), 22.4% in Shahrekord, 21.9% in Mazandaran, 65.5% in Amol and 32.2% in Tabas (13-15).

To determine the prevalence of these pathogens in the city of Varamin, primary school children were studied in the academic year 1999-2000.

MATERIALS AND METHODS

This was a descriptive observational-interviewing study. The simple sampling method was carried out over 293 primary school students in Varamin. The samples were tested by direct laboratory methods and sedimentary concentration. For detection of cryptosporidium, Ziel-Nelsen modified method (88 samples out of total samples) was used. Statistical analysis was performed by using SPSS software version 12 (SPSS, Inc., Chicago, IL). Correlations between variables were analyzed by using Chi-square test or Fisher exact test. P-value less than 0.05 was considered significant.

RESULTS

Out of 293 primary school students, 139 students (47%) were reported positive for intestinal parasitism 142(48.5%) males, 151(51.5%) females out of which 116 students (83%) had one parasite, 21 students (15%) had two parasites and 2 students (2%) had 3 parasites. Giardia contamination was seen in 78 cases (49%) which was the most prevalent contamination. There was no significant difference between students of rural and urban schools for parasitism. There was no significant difference between sexes regarding the rate of contamination. There was a significant difference between mother’s and father's occupation and the rate of contamination among students (according to Tchouprov test it was a weak

correlation, 14 and 15% respectively). There was a significant correlation between parents' educational level and the rate of contamination. All students were drinking hygienic water (From pipe-line) and 99% of these students were washing their hands with soap and water after using the toilet. Prevalence of intestinal parasitic infection among primary school children is shown in Table 1.

Table 1. Prevalence of intestinal parasitic infection among primary school children, Varamin , 2000-2001

Intestinal parasite	Urban	Rural
Giardia Lamblia	47	16
Giardia Lamblia + Entamoeba coli	3	3
Giardia Lamblia + Entamoeba coli + H. nana	0	1
Giardia Lamblia + Entamoeba coli+ E. vermicularis	1	0
Giardia Lamblia+ Endolimax nana	2	1
Giardia Lamblia+ B. hominis	2	0
Giardia Lamblia+ H. nana	1	0
Giardia Lamblia+I.Butchlie	1	0
S. stercoralis	1	0
Entamoeba coli	14	12
Entamoeba coli+ B. hominis	0	2
Entamoeba coli+ I.Butchlei	1	0
Endolimax nana	5	1
B. hominis	10	4
H. nana	1	0
H. nana+ Entamoeba coli	0	1
A. lumbricoides	1	0
E. vermicularis	3	0
E. vermicularis + Giardia Lamblia	1	0
I.Butchlei	1	0
T. trichiura	0	1

DISCUSSION

This study shows that intestinal parasitic infections are a major public health problem among primary school children in Varamin, affecting about half of the population. No significant differences were seen among students of rural and urban schools for parasitism. This is in accord with Vali study, but in disagreement with Asmar and Shahabi research (16-18). There was no significant difference between sexes regarding the rate of contamination. This is in agreement with Shahabi and Asmar studies (17, 19). There was a significant correlation between parents' educational level and the rate of contamination which was in accord with Asmar study (17).

CONCLUSION

This study suggested that there was a significant correlation between mother and father's occupations and the rate of contamination among students. Also a significant difference was detected between parents' educational level and the result of stool examination indicating the importance of general awareness and knowledge in preventing intestinal parasitic diseases.

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