



Research Article

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Prevalence of parasitic infections in stool samples investigated in central laboratory of Meybod

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Abstract

Parasitic infections are one of the major health problems worldwide, especially in developing countries. This study was done to determine the prevalence of intestinal parasites in patients referred to the central laboratory of Meybod. This research was a descriptive and cross-sectional study in which the stool samples related to all patients referred to the central laboratory of Meybod in 2020 were evaluated. After collecting data, analysis was performed with SPSS software (version 22) and chi-square test. The prevalence of intestinal parasites was as 67 (5.2%) *Giardia lamblia* and 33 (2.6%) *Entamoeba coli*. The most frequent seasons of positive patients for intestinal parasites were summer and autumn. The prevalence of parasites in this study was lower than the prevalence reported in other studies.

Keywords: Intestinal parasites, Prevalence, Stool sample.

INTRODUCTION

Numerous studies conducted in different parts of Iran indicate the spread of intestinal parasites in different urban and rural areas, but in recent years, their prevalence has decreased significantly in parallel with the improvement of public health in the country [1-3]. Epidemiological studies conducted in different parts of the world have shown that the economic and social status of individuals is an important factor in the prevalence of parasitic infections [2, 4].

Poverty, illiteracy, poor hygiene, lack of access to safe water and hot and humid weather are some of the causes associated with intestinal parasitic infections [5]. Intestinal infections are among the most common diseases in children in schools. School-age children are most at risk for intestinal parasitic infections as well as disabilities [6].

Intestinal parasitic infections cause poor physical growth, vitamin deficiency, iron deficiency anemia, poor academic performance and rarely cause death in children [7].

Parasitic infections rarely cause death, but due to the scale of the problem, the number of deaths is significant. In addition, parasitic infections incur heavy economic costs on communities [8, 9]. Chronic parasitic infections are also considered as a topic that contributes to the spread and severity of other infectious diseases, including tuberculosis and malaria [10].

Therefore, the study of the prevalence of intestinal parasites is not only necessary in order to implement appropriate control strategies, but also has a special importance in determining the risk of communities [11].

Thus, this study was designed to determine the prevalence of intestinal parasites in patients referred to the central laboratory of Meybod.

MATERIALS AND METHODS

This research was a descriptive and cross-sectional study. It was result of general physician thesis and presented in the ethics committee of Shahid Sadoughi University of Medical Sciences of Yazd and was approved. The sampling method was census and all patients referred to Meybod Central Laboratory in 2020 who submitted fecal samples to the laboratory were examined.

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Patients who were referred by physicians were given disposable plastic containers for sampling. Most samples were taken in the laboratory and some patients brought the sample to the laboratory after preparing the sample at home.

A drop of physiological serum and a drop of lugol were placed in the middle of two separate slides, stir with a wooden applicator and move the fecal impregnated applicator in a drop of physiological serum, then lugol in a circular motion and finally with magnification of 10 and 40 were examined under a microscope.

The collected data were entered into SPSS v.22 software and then analyzed.

RESULTS

Out of 1285 participants in this study, 651 (50.7%) were male and 634 (49.3%) were female. 100 patients (7.8%) were infected with intestinal parasites, of which 56 (56%) were males and 44 (44%) were females.

The prevalence of intestinal parasites was as 67 (5.2%) *Giardia lamblia* and 33 (2.6%) *Entamoeba coli*.

The most frequent seasons of positive patients for intestinal parasites were summer and autumn.

The highest prevalence of infection was in the age group of 1- 20 years.

There was not a significant difference in terms of infection based on sex ($p=0.438$). Prevalence of different intestinal parasites based on sex has been showed in Table 1:

Prevalence of positive and negative test for different intestinal parasites based on age has been showed in Table 2:

Table 1: Prevalence of intestinal parasites based on sex

Sex	Stool exam Number (%)	Parasites		Total Number (%)	p-value
		<i>Giardia lamblia</i> (Positive) Number (%)	<i>Entamoeba coli</i> (Positive) Number (%)		
Male	595 (91.4%)	36 (5.5%)	20 (3.1%)	651 (100%)	0.438
Female	590 (93.1%)	31 (4.9%)	13 (2.1%)	634 (100%)	
Total	1185 (92.2%)	67 (5.2%)	33 (2.6%)	1285 (100%)	

Table 2: Prevalence of positive and negative test for intestinal parasites based on age groups

Age group (Year)	Stool test (Positive) Number (%)	Stool test (Negative) Number (%)	Total Number (%)	p-value
1-20	57 (4.4%)	554 (1.43%)	611 (47.5%)	0.177
21-40	21 (1.6%)	263 (20.5%)	284 (22.1%)	
41-60	16 (1.2%)	236 (18.4%)	252 (19.6%)	
Above 60	6 (0.5%)	132 (10.3%)	138 (10.7%)	
Total	100 (7.8%)	1185 (92.2%)	1285 (100%)	

CONCLUSION

Regarding the prevalence of parasites in different regions, differences in geographical area, season, duration and type of study (past or future), sample size and study population may be among the effective factors. The higher prevalence of *Giardia* compared to other parasites

DISCUSSION

The current study showed that there was not a significant difference in terms of infection based on sex and age. Also, *Giardia lamblia* was the most frequent parasite. The most frequent prevalence based on season was related to summer. Finally, the highest prevalence of infection was related to the age group of 1- 20 years.

A study was aimed to evaluate the prevalence of intestinal parasites in diverse patient groups, such as cancerous patients, transplant recipients and patients with early immunodeficiency. Overall, the incidence of parasites was almost 32% in primary immunodeficiency individuals, 25.9% in cancerous group, and 28% in patients with organ transplant. The most prevalence of parasites in patients with immunodeficiency was related to *Blastocystis hominis* (16.2%) and *Giardia lamblia* (12.5%), respectively [12].

Another study was designed to investigate the prevalence of intestinal parasites in the city of Haftkel, Iran (southwest). 4.8% out of samples were positive for these parasites and *Giardia lamblia* was identified in 3.1% cases as the most frequent parasite. The most common season in terms of infection rate was the summer [13].

The aim of another study was to assay the prevalence of parasitic infections in the immunocompromised patients. *Blastocystis hominis* and *Giardia lamblia* were the most predominant parasites in these patients. There was no statistically significant relationship based on the individuals' age [14].

A study in Urmia City, West Azerbaijan in Iran revealed that the most prevalent infections related to intestinal parasites were including *Entamoeba coli* and *Giardia lamblia*, respectively. 40 percent of 1–5 year age group had positive test consequences in their experiments [15].

Another study in Jiroft (Kerman Province, Iran) showed that the most predominant parasites were *Blastocystis hominis* and *Giardia lamblia* [16].

in the present study, could draw more attention to researchers to increase the quality of laboratory and clinical diagnosis of this parasite.

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Conflict of Interest

We declare that we have no conflict of interest.

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