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 (version22) 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

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

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

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

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

Acknowledgement

The authors want to thank infectious diseases research center of Yazd, Iran for their assistance.
Conflict of Interest

We declare that we have no conflict of interest.

Financial Support

None declared.

REFERENCES


