

## The frequency of intestinal parasites types in the samples studied in the hospital laboratory of Meybod

Jamshid Ayatollahi<sup>1</sup>, Maryam Hakimi Roknabadi<sup>2</sup>, Seyed Alireza Mousavi<sup>1</sup>, Mahdie Hamidfar<sup>1</sup>, Seyed Hossein Shahcheraghi<sup>1\*</sup>

<sup>1</sup>Infectious Diseases Research Center, Shahid Sadoughi Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran; <sup>2</sup>Medical student, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

*\*Corresponding author: Seyed Hossein Shahcheraghi. Infectious Diseases Research Center, Shahid Sadoughi Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Email: shahcheraghih@gmail.com*

DOI: 10.22034/HBB.2021.11

Received: February 9, 2021; Accepted: April 19, 2021

### ABSTRACT

Today, despite advances in medicine, intestinal parasites are still widespread worldwide. This study was performed to investigate the frequency of various intestinal parasites in the Meybod Imam Jafar Sadegh Hospital. In this study, the records of patients were reviewed and data was entered into SPSS (version 22) and analyzed. Only four patients had a positive result. The results also showed that the age group of 1-10 years had the most suspicious referrals. Most of the referrals were men. The highest number of referrals was related to spring and autumn. It can be concluded that in spring and autumn, due to the season and the nature of the food of these seasons, some symptoms including stomach ache and diarrhea caused hospitalization.

**Keywords:** Intestinal parasites, age group, season, clinical symptoms

### INTRODUCTION

The parasitic infections related to the human intestine have universal dissemination. These infections are one of the most usual and severe public health difficulties, which affect almost 3.5 billion individuals in world [1].

Bad hygiene habits, polluted water system and absence of health learning are associated with the high incidence [2,3]. They are usually diffused by both direct and indirect ways through absorption of polluted food, oral-fecal, vegetables types, and contaminated water [4-7]. Such diseases interfere with the food absorption and other materials that the body needs.

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In the body, the intestinal parasites hurt the various possibilities, such as mechanical injury, toxic materials secretion, different scars including injury to tissue by eating and efforts for fertility, anemia, lack of development and energy, decreased human activity, brain function disorder, psychological disorders, and several other side effects [8].

The intestinal parasite pathophysiology, morbidity, and survival rate are related to species types, environment, age, sex, state of the immune system of patients, host dietary condition, and vary considerably between the different individuals [9].

Occurrence of intestinal parasites in various areas of Iran is diverse [10-19]. So, there is a necessity for the research of prevalence of intestinal parasites in many parts of the country. This study was conducted to investigate the frequency of various intestinal parasites in the samples studied in the laboratory of Meybod Hospital based on sex, age and season.

## **MATERIALS AND METHODS**

This descriptive cross-sectional study was retrospectively conducted from 2017 to 2019.

After the approval of the ethics committee of the medical school and receiving the

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code of ethics, the results of tests related to patients referred to the laboratory of Imam Jafar Sadegh Meybod Hospital were examined and the information included the number of positive people in terms of parasitic infections, sex, year, season and type of parasite were extracted.

The required information was collected in a checklist prepared by the researcher. Also, the sampling method of this research was census. Inclusion criteria were the tests of all patients referred to Imam Jafar Sadegh Meybod hospital during the study period. Exclusion criteria were files with incomplete information about the characteristics and test results of patients.

Limitations of the study also included the lack of proper classification of files and as a result of increasing the time of their review and also the incompleteness of some patients files.

Finally, the collected data were finally analyzed using SPSS software version 22 and p-value items less than 0.05 were considered significant.

## **RESULTS**

The number of patients with suspected symptoms of intestinal parasites studied in this study was 484 patients. Of these patients, only 4 (0.8 %) had positive test

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results and 480 (99.2 %) had no intestinal parasites. The characteristics of four patients with positive test results and intestinal parasites are listed in Table 1. The age group of 1-10 years had the highest number with 26 % of referrals. There was a significant difference in the referrals frequency based on age groups (0.014) (Table 2). In terms of gender, the number of men (267 or 50.4 %) suspected of having

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intestinal parasites was higher than women (217 or 49.6 %). There was a significant difference between men and women (p=0.02).

Most patients had stomach ache and diarrhea as typical symptoms, there was a significant difference between patients clinical symptoms (Table 3) (p=0.022).

**Table 1.** The characteristics of patients with positive test results

Sex	Age (year)	Season	Parasite type	Clinical symptoms
Female	62	Autumn	<i>Entamoeba histolytica</i>	Fever and stomach ache
Female	7	Summer	<i>Entamoeba histolytica</i>	Fever
Female	71	Spring	<i>Blastocystis hominis</i>	Diarrhea
Male	78	Autumn	<i>Giardia</i>	Chest pain

**Table 2.** The frequency of referrals based on age group

Age Group (year)	Frequency	Percent (%)
< 1	26	5.4
1-10	126	26
10-20	43	8.9
20-30	72	14.9
30-40	59	12.2
40-50	29	6
50-60	48	9.9
60-70	27	5.6
> 70	54	11.2
Total	484	100
P-value	0.014	

**Table 3.** Patients clinical symptoms

Symptoms	Frequency	Percent (%)
Vomit	26	5.4
Diarrhea	99	20.5
Diarrhea and Vomit	70	14.5
Bloody diarrhea	17	3.5
Fever	32	6.6
Stomach ache	113	23.3
Other	127	26.2
Total	484	100
P-value	0.022	

**Table 4.** The distribution of referrals in the different seasons of the year

Season	Frequency	Percent (%)
Spring	137	28.3
Summer	123	25.4
Autumn	130	26.9
Winter	94	19.4
Total	484	100
P-value	0.031	

In terms of the distribution of referrals in the different seasons of the year, the highest rate including 28.3 % and 26.9 % were related to spring and autumn, respectively, and winter had the lowest number of referrals. Therefore, there was a significant difference between the seasons in terms of referral rate (Table 4) ( $p=0.031$ ).

## DISCUSSION

In our study, the prevalence of intestinal parasites had a significant difference based on age groups, sex, clinical symptoms and also season. Also the highest prevalence rates were related to spring and autumn.

An analysis of intestinal parasites investigated during 2014-2016 was focused

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on the morphological features of the species in Khoy, West Azarbaijan state, Iran. A total of 5610 individuals were investigated (almost 52 % male and 48 % female). Of these, almost 32 % were contaminated with approximately 1 the parasite in the intestine. The maximum occurrence rate of parasites was associated with *Blastocystis*. Also, the highest incidence was in the 20 - 29 years age group [20].

Another study in Jiroft, Kerman province in Iran during 2013-2014 showed that the most occurrence frequency of infection was related to 30-39 years age group with almost 35 %; but there was insignificant relationship between age parameter and occurrence of infection. In this report, 297 people (28 %) out of 1060 persons were contaminated with parasites. Infection incidence rates were 29 % and 27 %, separately, in women and men. There was no substantial association between sex and rates of infection [3].

Saki *et al*, during 2010-2013 investigated the prevalence of intestinal parasites in the Haftkel city, southwest of Iran. Out of 13698 samples, 658 (4.8 %) were positive for intestinal parasites. *Giardia* was the most common diagnosed parasite. In addition, the frequency of males was substantially greater than that of women.

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Also, the maximum and lowest infections were observed in the summer (34.3 %) and winter (15.3 %) seasons, separately [1].

From 2010 to 2017, out of 45829 patients in the Masjed Soleyman in Iran, 9.7 % of the people were contaminated with intestinal parasites types. Data analysis found that a significant relation exists between infection rate with season and sex. The majority of cases involving the city medical and health centers occurred in the fall and winter [8].

Also, another investigation in Benin, Nigeria revealed that nearly 4 % of the 925 cases tested, were affected by intestinal parasites types. The occurrence of infection was alike between female and male ( $P=0.54$ ). This incidence was also upper in age groups below 10 years (7.29 %) and above 50 years (7.06 %). Therefore, it was age dependent ( $P< 0.03$ ) [21].

## **CONCLUSION**

It can be assumed that, due to the season and the essence of the food of these seasons, some symptoms such as stomach ache and diarrhea caused hospitalization in spring and autumn, that more than 90% of the results of the intestinal parasite test were negative, indicating improvement in health in the city of Meybod.

## ACKNOWLEDGMENTS

The authors want to acknowledge the staff of infectious diseases research center of Shahid Sadoughi University of medical sciences in Yazd.

## REFERENCES

- [1]. Saki J, Khademvatan S, Foroutan-Rad M, Gharibzadeh M. Prevalence of intestinal parasitic infections in Haftkel County, southwest of Iran. *Int J Infect*, 2017, 4.
- [2]. Yusuf NA, Yusri YM, Ismail N, Vythilingam I. Prevalence of intestinal protozoa in an aborigine community in Pahang, Malaysia. *Trop Biomed*, 2007, 24: 55-62.
- [3]. Mahni MB, Rezaeian M, Eshrat Beigom K, Raeisi A, Khanaliha K, Tarighi F, et al. Prevalence of intestinal parasitic infections in Jiroft, Kerman Province, Iran. *Iran J Parasitol*, 2016, 11: 232.
- [4]. Saki J, Asadpoori R, Khademvatan S. Prevalence of intestinal parasites in vegetables consumed in Ahvaz, South West of Iran. *J Med Sci*, 2013, 13: 488.
- [5]. Rafiei A, Rahdar M, Valipour Nourozi R. Isolation and identification of parasitic protozoa in sampled water from the southwest of Iran. *Jundishapur J Health Sci*, 2014, 6.

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- [6]. Saki J, Foroutan-Rad M, Asadpoori R. Molecular characterization of *Cryptosporidium* spp. in wild rodents of southwestern Iran using 18S rRNA gene nested-PCR-RFLP and sequencing techniques. *J Trop Med*, 2016.
- [7]. Javaherizadeh H, Khademvatan S, Soltani S, Torabizadeh M, Yousefi E. Distribution of haematological indices among subjects with blastocystis hominis infection compared to controls. *Prz Gastroenterol*, 2014, 9: 38.
- [8]. Mazhab-Jafari K, Rouhandeh R, Bahrami R, Shahriyar F. Mass Investigation on Intestinal Parasite Infection in Masjed Soleyman, Iran. *Int J Med Lab*, 2020, 7: 224-30.
- [9]. Alum A, Rubino JR, Ijaz MK. The global war against intestinal parasites should we use a holistic approach? *Int J Infect Dis*, 2010, 14: 732-38.
- [10]. Vahedi M, Gohardehi S, Sharif M, Daryani A. Prevalence of parasites in patients with gastroenteritis at East of Mazandaran province, Northern Iran. *Trop Biomed*, 2012, 29: 568-74.
- [11]. Hooshyar H, Bagherian T, Baghbani F. Prevalence of intestinal parasitic infections among patients referred to Kashan reference laboratory in 2007-2011. *Jundishapur J Health Sci*, 2013, 5: 18-22.

**Shahcheraghi et al.**

- [12]. Akhlaghi L, Shamseddin J, Meamar A, Razmjou E, Oormazdi H. Frequency of intestinal parasites in Tehran. *Iran J Parasitol*, 2009; 44-47.
- [13]. Jafari R, Fallah M, Darani HY, Yousefi HA, Mohaghegh MA, Latifi M, et al. Prevalence of intestinal parasitic infections among rural inhabitants of Hamadan city, Iran, 2012. *Avicenna J Clin Microbiol Infect*, 2014, 1: 21445.
- [14]. Sayyari A, Imanzadeh F, Bagheri Yazdi S, Karami H, Yaghoobi M. Prevalence of intestinal parasitic infections in the Islamic Republic of Iran. *East Mediterr Health J*, 2005; 11 (3), 377-83.
- [15]. Kiani H, Haghighi A, Salehi R, Azargashb E. Distribution and risk factors associated with intestinal parasite infections among children with gastrointestinal disorders. *Gastroenterol Hepatol Bed Bench*, 2016, 9: 80.
- [16]. Hooshyar H, Rezaian M, Kazemi B, Jeddi-Tehrani M, Solaymani-Mohammadi S. The distribution of entamoeba histolytica and entamoeba dispar in northern, central, and southern Iran. *Parasitol Res*, 2004, 94: 96-100.
- [17]. Saeidinia A, Tavakoli I, Naghipour MR, Rahmati B, Lahiji HG, Salkhori O, et al. Prevalence of strongyloides stercoralis

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- and other intestinal parasites among institutionalized mentally disabled individuals in Rasht, northern Iran. *Iran J Parasitol*, 2016, 11: 527.
- [18]. Kuzehkanani AB, Rezaei S, Babaei Z, Niyayati M, Hashemi S, Rezaeian M. Enteric protozoan parasites in rural areas of Bandar-Abbas, southern Iran: comparison of past and present situation. *Iran J Public Health*, 2011, 40: 80.
- [19]. Rezaian M, Hooshyar H. The prevalence of intestinal parasitic infection in rural areas of Tonekabon, Iran. *Iran J Public Health*, 1996: 47-58.
- [20]. Kazemi E, Rostamkhani P, Hooshyar H. A survey on prevalence of intestinal parasites infections in patients referred to the public hospital in Khoy, West Azarbaijan Province, Iran. *Avicenna J Clin Microbiol Infect*, 2017, 4: 56114.
- [21]. Akinbo FO, Omoregie R, Eromwon R, Igbenimah IO, Airueghiomon UE. Prevalence of intestinal parasites among patients of a tertiary hospital in Benin city, Nigeria. *N Am J Med Sci*, 2011, 3: 462.