

Evaluation of Intestinal Parasites in Patients with Chronic Disease

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Received: 24 April 2023, Accepted: 30 April 2023, Published online: 30 April 2023

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Abstract

Objective: Parasitic diseases concern all segments of society, especially children in the growing age. Intestinal parasites not only cause mental and physical development retardation, but also cause loss of work force with the complaints they cause, negatively affecting both physical and mental health and the country's economy. In this study, we aimed to evaluate intestinal parasites in patients with chronic diseases.

Methods: The files of patients who applied to the internal medicine outpatient clinic between 01.01.2022 and 31.12.2022 and underwent direct stool microscopy in the Parasitology Laboratory of Ordu University Medical Faculty were retrospectively scanned. The patients were divided into 2 groups as those with chronic disease and those without chronic disease. As a chronic disease; Diabetes Mellitus, hypertension, chronic heart disease, chronic heart failure, asthma, chronic obstructive pulmonary disease, other chronic lung diseases, chronic kidney failure, chronic liver failure, goiter diseases, rheumatic diseases were taken as. Socio-demographic characteristics of the patients such as age, gender, educational status, economic status and marital status, and stool microscopic examinations were recorded.

Results: 385 patients were evaluated in the study. It consisted of 281 female and 104 male patients. 209 patients with chronic disease were identified. There is a significant relationship between age, marital and educational status and chronic diseases in the comparison of those with and without chronic disease according to their socio-demographic characteristics ($P<0.005$).

Conclusion: There was no significant difference between those with and without chronic disease in terms of intestinal parasites. However, it has been suggested that controlled studies are needed by increasing the number of patients in the patient groups.

Key Words: Chronic diseases, intestinal parasites, parasites

Kronik Hastalığı Olan Hastalarda Bağırsak Parazitlerinin Değerlendirilmesi

Özet

Amaç: Parazit hastalıkları büyüme çağındaki çocuklar başta olmak üzere toplumun tüm kesimlerini ilgilendirmektedir. Bağırsak parazitleri, zihinsel ve bedensel gelişme geriliğine neden olmasının yanı sıra, oluşturdukları şikayetler ile işgücü kaybına da neden olarak hem beden ve ruh sağlığını hem de ülke ekonomisini olumsuz etkilemektedir. Bu çalışmada kronik hastalığı olan hastalarda barsak parazitlerini değerlendirmeyi amaçladık.

Metod: 01.01.2022- 31.12.2022 tarihleri arasında iç hastalıklarına polikliniğine başvuran, Ordu Üniversitesi Tıp Fakültesi Parazitoloji Laboratuvarında gaita mikroskopisi yapılan hastaların dosyaları retrospektif olarak tarandı. Kronik hastalığı olan ve kronik hastalığı olmayan olmak üzere hastalar 2 gruba ayrıldı. Kronik hastalık olarak; Diabetes Mellitus, hipertansiyon, kronik kalp hastalığı, kronik kalp yetmezliği, astım, kronik obstrüktif akciğer hastalığı, diğer kronik akciğer hastalıkları, kronik böbrek yetmezliği, kronik karaciğer yetmezliği, guatr hastalıkları, romatizmal hastalıklar olarak alındı. Hastaların yaş, cinsiyet, eğitim durumu, ekonomik durumu ve evlilik durumu gibi sosyo-demografik özellikleri, gaita mikroskopik incelemeleri kaydedildi.

Bulgular: Çalışmada 385 hasta değerlendirmeye alınmıştır. Bunların 281'i kadın 104'ü erkek hastadan oluşmuştur. Kronik hastalığı olan 209 hasta tespit edilmiştir. Kronik hastalığı olan ve olmayanların sosyo demografik özelliklerine göre karşılaştırmasında yaş, evlilik ve eğitim durumu ile kronik hastalıklar arasında anlamlı bir ilişki vardır ($P<0,005$).

Sonuç: Barsak parazitleri açısından kronik hastalığı olan ve kronik hastalığı olmayanlar arasında anlamlı bir fark bulunmamıştır. Ancak hasta gruplarındaki hasta sayısının artırılarak kontrollü çalışmalar gerektiği önerisi sunulmuştur.

Anahtar Kelimeler: Kronik hastalıklar, bağırsak parazitleri, parazitler.

Suggested Citation: Yar TM, Karaman U, Kaya Y. Evaluation of Intestinal Parasites in Patients with Chronic Disease. ODU Med J, 2023;10(1): 18-23



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INTRODUCTION

Low socio-economic level, inadequate or unbalanced nutrition, crowded environments, low body resistance predispose to parasitic infections (1). Intestinal parasites can cause various gastrointestinal system symptoms such as nausea, vomiting, abdominal pain, diarrhea, constipation, increased appetite and loss of appetite in infected individuals. It causes neurological disorders, restlessness, grinding of teeth and psychic disorders (2). Many studies have been carried out in our country and other countries for the immunology, pathology, epidemiology, diagnosis-treatment-protection of parasitoses, and it has been observed that parasites are common in all regions and in all age groups (3). In some cases caused by parasites, some of the patients are chronic and may lead to death in a long time. They cause loss of blood, vitamins, malnutrition, anemia, getting infections more quickly, and other secondary diseases due to a decrease in body immunity (4).

In the study, the detection of intestinal parasites in patients with chronic diseases was investigated. At the same time, it was aimed to compare the incidence of parasites and the socio-demographic characteristics of the patients such as age, gender, educational status, economic status and marital status.

METHODS

Before starting the study, approval was obtained from the Ordu University Clinical Research Ethics Committee (2023/100). The files of patients who applied to the internal medicine outpatient clinic between 01.01.2022 and 31.12.2022 and underwent direct stool microscopy in the Parasitology Laboratory of Ordu University Faculty of Medicine were retrospectively scanned. Patients with chronic disease and without chronic disease were divided into 2 groups. Stool microscopic examinations were recorded.

Statistics: Thechi-square test was used to compare the groups. Inchi-square tests, if the expected frequency of a cell is below 5, Likelihoodrati oki-square value was calculated instead of Pearson chi-square value. Categorical data were expressed as number sand percentages. All calculations were made with SPSS v26 (IBM Inc., Chicago, IL, USA) statistical pack age program.

RESULTS

In the study, 385 patients were evaluated. It consisted of 281 female and 104 male patients. 209 patients with chronic disease were identified. The comparison of those with and without chronic disease according to their socio-demographic characteristics is given in Table 1. According to the table, there is a significant relationship between age, marital and educational status and chronic diseases (P<0.005). Percentage of chronic disease incidence was found to be higher than 50 years

of age and above. Again, the percentage of chronic diseases was found to be higher in married people. Also, when looked at according to education level, the percentage of chronic diseases was found to be higher in those who graduated from primary school.

In the study, the parasite was found in 130 patients with chronic disease (Table 2). No significant correlation was found between the incidence of the parasite and chronic diseases. However, the most common parasites include *Blastocystis* spp. and *Cryptosporidium* spp. is

Table 1. Comparison of socio demographic characteristics

	Without Chronic Disease	With Chronic Disease	P value
Age n (%)			
15-19	4 (2.3)	8 (3.8)	0,0001
20-24	15 (8.5)	4 (1.9)	
25-29	17 (9.7)	0	
30-34	20 (11.4)	6 (2.9)	
35-39	11 (6.3)	13 (6.2)	
40-49	49 (27.8)	38 (18.2)	
50 andabove	60 (34.1)	140 (67)	
Gendern(%)			
Female	134 (76.1)	147 (70.3)	0.208
Male	42 (23.9)	62 (29.7)	
MaritalStatus n (%)			
Single	15 (8.5)	12 (5.7)	0.004
Married	145 (82.4)	153 (73.2)	
Widow	16 (9.1)	44 (21.1)	
Economical Situationn(%)			
High	13 (7.4)	16 (7.7)	0.898
Middle	133 (75.6)	161 (77)	
Low	3 (17)	32 (15.3)	
Education Statusn(%)			
Illiterate	45(25)	72(34.4)	0.021
PrimaryEducation	81(46)	102(48.8)	
SecondaryEducation	33 (18.8)	19(9.1)	
University	17(9.7)	16(7.7)	

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Table2. Comparison of Intestinal Parasites

Intestinal Parasite	Without Chronic Disease		With Chronic Disease		P value
	N (%)	N (%)	N (%)	N (%)	
	Negative	Positive	Negative	Positive	
Intestinal Parasite	63(35.8)	113(64.2)	79(37.8)	130(62.2)	0.751
<i>Blastocystis hominis</i>	111(63.1)	65(36.9)	145(69.4)	64(30.6)	0.196
<i>Iadamoeba butschlii</i>	171(97.2)	5(2.8)	205(98.1)	4(1.9)	0.738
<i>Entamoeba coli</i>	148(84.1)	28(15.9)	177(84.7)	32(15.3)	0.889
<i>Entamoeba histolytica</i>	175(99.4)	1(0.6)	208(99.5)	1(0.5)	1
<i>Dientamoeb afragilis</i>	172(97.7)	4(2.3)	197(94.3)	12 (5.7)	0.124
<i>Giardia intestinalis</i>	164(93.2)	12(6.8)	199(94.7)	11(5.3)	0.527
<i>Chilomastix mesnili</i>	176 (100)	0	207(99.5)	1(0.5)	1
<i>Enterobius vermicularis</i>	174(98.9)	2(1.1)	200(96.2)	8(3.8)	0.117
<i>Hymenolepis nana</i>	176 (100)	0	207(99.5)	1(0.5)	1
<i>Cryptosporidium spp.</i>	118(67)	58(33)	142(68.3)	66(31.7)	0.827
<i>Cyclospora cayetenensis</i>	173(98.3)	3(1.7)	202(97.1)	6(2.9)	0.516
<i>Entamoeba hartmanni</i>	173(98.3)	3(1.7)	208(100)	0	0.095
<i>Ascaris lumbricoides</i>	175(99.6)	1(0.6)	207(99.5)	1(0.5)	1
<i>Taenia spp.egg</i>	175(99.6)	1(0.6)	207(99.5)	1(0.5)	1

DISCUSSION

In the study, the patients who applied to the internal medicine outpatient clinic and underwent parasite examination were evaluated retrospectively and the patients were divided into 2 groups as those with chronic disease and without chronic disease. As a chronic disease; Those who had parasite examination for diabetes mellitus, hypertension, chronic heart disease, chronic heart failure, asthma, chronic obstructive pulmonary disease, other chronic lung diseases, chronic kidney failure, chronic liver failure, goiter diseases, rheumatic diseases were screened. Those who did not have parasite examination and did not have chronic diseases were also screened as a control group.

Kulik et al. investigated intestinal parasites in stool samples taken from 86 dialysis patients and 146 healthy volunteers and found *Blastocystis spp* in 18 people, *Endolimax nana* in 14 people, and *Cryptosporidium spp* and *Entamoeba coli* in

4 people. The frequency of parasites in patients undergoing dialysis was found to be 45.1%, and it was recommended that *Blastocystis spp* and *Cryptosporidium spp* should not be ignored in routine controls (5). Kumar et al. analyzed stool samples from 160 HIV-positive patients and looked for intestinal parasites. Stool samples were taken from 59 patients with chronic diarrhea, 50 patients without diarrhea, HIV positive patients and 41 patients with acute diarrhea. Parasites were detected in 39% of those diagnosed with diarrhea and 14% in those who did not. *Cryptosporidium spp* was found in 7 patients with chronic diarrhea, 28 patients with diarrhea and dialysis were included in the study, and parasites were seen in 78.6% of these patients. *G. intestinalis* 17.9%, *Cryptosporidium spp* 10.7%, *E. histolytica* 7.1%, *Microsporodia spp* 10.7%, *E. coli* 7.1% (6). Türkçapar et al. investigated the frequency of *Cryptosporidium* in 74 dialysis patients and 50 healthy volunteers

using the MAF method. 15 (20.3%) *Cryptosporidium* spp. oocysts were detected in 74 patients (7). Ferrerira et al. analyzed 330 samples from 110 chronic hemodialysis patients and found *E. histolytica*/*E. dispar* in 9 patients, *G. intestinalis* in 1 patient, *Strongyloides stercoralis* in 2 patients, *E. nana* in 6 patients, and *E. coli* in 11 patients (8). In a study conducted in patients receiving hemodialysis treatment, *Cryptosporidium* spp. they found (9). In another study conducted in diabetic patients, *Cryptosporidium* spp was found in 12.9% (10). Abaza et al. examined 427 stool samples from patients with malignancy, diabetes, corticosteroid therapy, and renal failure and detected parasites in 23% of them. It was seen in 28.8% of patients with kidney failure and 8% of diabetics. Of the parasites, *G. intestinalis* (10.3%), *E. histolytica* (7%), *Cryptosporidium* spp (6.3%), *Microsporidia* (2.3%), *S. stercoralis* (0.7%) (11). Baqai et al. examined parasites in stool samples from 10 cancer, 20 dialysis, 20 diabetic patients. In 50 stool samples, 40% of *Cryptosporidium* spp found positive. *Cryptosporidium* spp. was detected in 25% of diabetic patients, 35% of dialysis patients, and 80% of cancer patients (12).

In this study, parasites were found in 130 patients with chronic disease. Common parasites include *Blastocystis* spp. and *Cryptosporidium* spp. and no significant difference was observed between chronic diseases. Again in the study, a

significant difference was found between age, marital and educational status and chronic diseases. No difference was found between socio-demographic characteristics and the presence of parasites. This may be due to the small number of patients with chronic diseases.

CONCLUSION

In the study, when the patients with and without chronic diseases were compared, no significant difference was found between the incidence of parasites. However, it was suggested that controlled studies should be carried out by expanding the patient groups. Again, frequently encountered parasites *Blastocystis* spp. and *Cryptosporidium* spp. is.

Cryptosporidium spp.. is a pathogenic parasite and should be followed. In this direction, parasite examination will be performed routinely in chronic diseases, and the quality of life will be increased by treating the parasites detected.

Ethics Committee Approval: This prospective study was approved by the ethical review committee of Ordu University (ODU) (2023/100).

Peer-review: Externally peer-reviewed.

Author Contributions: Concept: TMY, UK, YK Design: TMY, UK, YK Literature search: TMY, UK, YK Data Collection and Processing: TMY, UK, YK. Analysis or Interpretation: TMY, UK, YK. Written by: TMY, UK, YK

Conflict of Interest: The authors declared no conflict of interest.

Financial Disclosure: The authors declared that this study has not received no financial support.

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