

Prevalence of Intestinal Parasites in Cancer Patient in Al-Najaf Province

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Abstract:

Intestinal parasites remain a major health problem for cancer patients in all developed and developing countries, in addition to that, with the number of cancer patients increasing clearly in recent years, so there is a very urgent need to study the prevalence of intestinal parasites in individuals who suffer from these diseases and to know How dangerous is that. Where infections resulting from intestinal parasitic infection are a serious and common problem in developing countries, in conjunction with the high prevalence of cancer over a wide range of the world and in the city of Najaf in particular. The current study was conducted during the period from February to October 2020 To study the spread of intestinal parasites and cancer in Najaf governorate, where 387 stool samples were examined, and 97 samples were positive for testing for intestinal parasites, During this study, the most common intestinal parasite in cancer patients was *Entameaba hitolitica* and the proportion was 43.2%. As in cancer patients, rates of intestinal parasites infection have varied, as the results of the current study showed that the age group most affected is 40-50 years. The incidence rate among males was also higher compared to females, as it ranged from about 64% and 36%, respectively. The results of the present study showed the presence of super significant presence at the probability level $p < 0.05$ for the infection rate among the rural and urban population in the study areas, where the prevalence of intestinal parasites was observed among the infected patients. Rural areas are more than urban areas, with rates ranging between 71% and 29%, respectively .The current study included the correlation of age, sex, and residence with the spread of parasites in cancer patients, due to the scarcity of information on the prevalence and type of infection with pathogenic intestinal parasites in patients. This study was conducted to find out the prevalence of intestinal parasites in cancer patients.

Keywords: Intestinal parasite, Cancer, *Entamoeba histolytica*.

1.Introduction

Intestinal parasites are organisms that parasitize on humans and animals that live in the intestine, and can live throughout the body, but most of these parasites prefer the intestinal wall and as a result of this it is called intestinal. There are many parasites and germs that can contaminate the human intestine., the most prominent of which are: amoebae, candida, Helicobacter, blastocyst, intestinal worms, parasites, and others. Parasitic diseases cause major injuries and Deaths around the world. Where Intestinal parasites are widespread and cause a lot of Medical and health problems [1].Reported by the World Health Organization (WHO). About 3.5 billion people are affected by intestinal parasite infections Worldwide, 450 million patients receive these results [2, 3]. The spread of these parasites varies in developed countries according to different environmental, economic and political factors, in addition to cultural and social factors. In contrast to developing countries, where in such countries, there is a lack of access to quality health care, insufficient sanitation and malnutrition, which increases the incidence rate. The common methods of transmission are contaminated food or drinking water, and it may also spread from person to person through fecal oral contact or through the skin through insect bites. Failure to maintain adequate hygiene after leaving the bathrooms, eating raw foods such as eggs and fish, drinking

contaminated water, and other reasons. Moreover, the role of the immune system in acquiring this infection is inevitable. The immune system plays an important role in controlling disease, limiting its severity and spread as well as helping to get rid of or control the parasite [4]. The routes of infection can vary widely in the world from benign to complex cases, and cause death in one way or another, especially in immunocompromised patients who are more qualified than others to be infected with intestinal parasites [5]. Cancer is a disease that affects cells, and it is now considered one of the most dangerous diseases that afflict humans and threaten their life in a great way. Our bodies are constantly working to form new cells to complete the growth process, but the situation in cancer patients is different because the cells here do not function normally and according to the usual mechanism [6]. Cancer is one of the main causes of death around the world, as it causes nearly 7.6 million deaths, which is a very large percentage compared to the number of other deaths resulting from the rest of the common diseases in the world in 2008 [7]. And the More than 70% of all cancer deaths occurred in low grades and Developing countries . Cancer deaths worldwide Expected to continue to rise, with appreciation 11million deaths in 2030 [8]. In general, infection appears to play a significant and important role in Causes of cancer. Indeed, it has been estimated that There will be about 26.3% fewer cancers in developing countries (1.5 million cases per year) and about 7.7% in developed countries (390,000 cases) if the cancers are associated with infectious diseases., this difference in proportions between developing and developed countries may be due to the difference in health awareness and the economic situation . Cancer is a condition in which cells divide abnormally Get out of control and be able to invade others, Changes to gene expression patterns are an important feature of cancer cells. These adjustments Caused directly or indirectly from a genetic or genetic cause [9]. There are certain genes that control this process, and as a result of damage to those genes that usually affect a person in his life, cancer occurs and the situation worsens day after day, despite the small number of individuals who inherit the damaged genes from one of the parents. In general, cells grow and multiply in an orderly manner, but damaged genes may cause cells to behave abnormally, meaning that cell growth and its uncle are not in the required mode, as cells may grow into a mass called a tumor, and cancer may occur due to many environmental and physiological conditions. Infection with viruses, bacteria, parasites, etc., for years is linked to human cancer, and some types of parasitic worms that live inside the human body can increase the risk of infection with some types of cancer, as many specialists consider infection with these microbes as a simple thing and do not take into account the seriousness of complications resulting from them [10]. Based on a combination of clinical and epidemiological evidence, several reports confirm a possible link between parasitic infections and some types of human cancers [11], where *Toxoplasma gondii* has been suggested To be associated with ocular tumor, meningioma, leukemia And lymphomas, there was another suggestion as well as that plasmodium plays a common and significant role in lymphoma development [12]. It was found that there is an association between toxoplasma infection and adenomas, and it was shown in two reports on the status of pituitary adenoma [13]. It was found that adenomas. They were associated with *T. gondii* cysts between the tumor Cells in non-immunosuppressed patients Possible relationships between *T. gondii* and the resulting neoplasms .She was in tumors of the eye, meningioma,Leukemia and lymphoma [12]. The role of *T. gondii* still needs more studies to clarify its role clearly. Interestingly, *T. gondii* has been shown to produce an increase Host cell movement (dendritic and macrophage cells) [14]. Infection, and various pathogens causing various diseases Gastrointestinal infection, and intestinal protozoa It is possible that helminthes parasites play an important role Morbidity and mortality rates in these infected people. Therefore A laboratory diagnostic evaluation is required to determine The spread of intestinal parasites among them Reports on intestinal parasitic infections were published in Immunocompromised patients, as it is male More often

infected than their female counterparts, It may be due to the behavior [15, 16]. Based on the estimates of the World Health Organization (WHO), Ascaris lumbricoids affect more than a billion people 795 million, and hookworms were about 740 million [17]. However, in patients with cancer and immunodeficiency diseases, the severity and rate of development of parasitic diseases have worsened over the past years and as a result of the main deficiency in the host defense mechanisms that put patients at risk of parasitic infection. It is localized and the patients are not able to remove the parasites, this leads to an increase in the morbidity and mortality of these patients [1]. While it has been proven that in recent years, with the increase in the number of families at risk of cancer and as a result of the frequent use of immunosuppressive drugs, the rate of parasitic infection has increased very clearly in these patients [18].

2. Materials and Methods

2.1. Sample collection

387 samples were collected from cancer patients after confirming their infection with intestinal parasites, where 97 samples were positively tested for intestinal parasites testing for cancer patients who were attending Al-Sadr Teaching Hospital, Al-Fratz Teaching Hospital and Al-Hakim Hospital this year, in addition to the Mid-Euphrates Cancer Center for the period from February 2020 until October of the same year, when samples were collected in sterile, sealed plastic containers. Preparing a special form for the patient in which the following information is filled out:

Name of patient

Age

Sex

male

female

The place residency

rural

urban

Type of parasite

2.2. Methods

The methods used in the process of detection of parasites were the use of direct swab prepared with physiological saline solution and the method of swab prepared using the solution of Lugols -Iodine, where the parasite bags and actives can be clearly seen, where the activists have a distinct and clear movement and the method of sedimentation, where in this way the unwanted substances are eliminated In the examination Ziehl Neelsen stain was also used, and this is very important in detecting the parasite cryptorchidic Sporito-sporidium because it is difficult to distinguish the cysts of this parasite using an unpigmented fecal swab, so the diagnosis depends on staining and the most common method is the staining method with the modified dye (modified zeil-neelsen stain method) [19]. After the patient is detected with any type of intestinal parasites, the patient is confirmed whether Khu has a specific type of cancer, and on this basis the patient's information was collected on one side, samples were collected on the other hand and counted, and after that, the sample is ready for examination using a light microscope and the sample is examined here using the force of magnification 10x, then the magnification power of 40x for the light microscope, where the active phases of the moving parasite and their associated bags can be seen, in addition to the possibility of detection of parasitic worms in the patient's body [20].

2.3. Statistical analysis

The results were analyzed statistically using the SPSS version 22 program and the Chi-square test was used to find out the significant differences between the samples positive for infection with intestinal parasites in cancer patients at a probability level $p \leq 0.05$

3. Results and Discussion

The total number of samples that appeared positive for infection with intestinal parasites as a result of examining the samples was 97/387 of the share of cancer patients within the control group. The results of the current study showed that the most common types of intestinal parasites among cancer patients alike were *Entamoeba histolytica* compared to With other intestinal parasites, where the rate ranged from 43.2% to cancer, while *Giardia lamblia* ranked second with prevalence rates among patients at a rate of 23%, and there was a share of prevalence Intestinal parasites such as *Ascaris lumbricoides*, *Trichomonas vaginalis*, *Creptosporidium parvume*, and *Toxoplasma gondii*. Among patients, but at lower rates. As in Table (1). This is also consistent with many studies that Entamoeba histolytica is the most common parasite in cancer patients [21, 22], whereas The spread of the parasite *Entamoeba histolytica* in our research study does not agree with the findings in Iran that the most common parasite among cancer patients was *Creptosporidium parvume* followed by *Giardia lamblia* [23].

Table 1. The prevalence of intestinal parasites in cancer.

Diagnosis	<i>Entameaba histoletica</i>	<i>Giardia lamblia</i>	<i>Ascaris lumbricoides</i>	<i>Trichomonas vaginalis</i>	<i>Toxoplasma gondii</i>	<i>Creptosporidium parvume</i>	Percentage
Cancer	42 (43.2)	22 (23)	13 (13.4)	9 (9.2)	6 (6.1)	5 (5.1)	97 100%

As for cancer patients, the rates of infection with intestinal parasites varied, as the results of the current study showed that the most affected age group is 40-50 years as in the table (2-1). This is consistent with a study [23] that the highest group infected with this type of parasites was 40-60 years. On the other hand This is inconsistent with the study of India, where they found that the age group most affected by intestinal parasites is the age group (0-10) years [24].

Table 2. The percentage of intestinal parasites infection in cancer patients, according to age groups.

Age categories	The number of patients	Percentage
1-10	14	14.4
11-20	8	8.2
21-30	12	12.3
31-40	18	18.5
41-50	29	*29.8
51-60	16	17.5
Total	97	100

*Significant differences between the number of positive samples for cancer patients and those infected with intestinal parasites, according to different age groups, at the level of probability $p \leq 0.05$

The results of the current study showed that the highest rate of infection with intestinal parasites based on the sex of the patient was more males than females by 64%, and higher in rural areas more compared to urban areas and by 71% at the level of probability $P < 0.05$ As in the table (3). Perhaps the high rate of intestinal infections in cancer patients is due to the

lack of health awareness, the frequent movement in agricultural areas, and the frequent mixing with infected animals that carry these parasites [26].

Table 3. The relationship between risk factors and intestinal parasite infestation in cancer patients.

information	Influencing factors					The significant differences
	females	males	rural	Ruban	Total	
Cancer	35 (36)	62 (64)	69 (71)	28 (29)	(97) %100	P < 0.05

4.References

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