

Relationship between the eating out home and infection with Giardiasis

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الخلاصة:

أجريت هذه الدراسة في مركز الرعاية الصحية الأولية (مسلم بن عقيل في الكوفة, محافظة النجف الأشرف) للفترة من ٠١/٠٢/٢٠١٠ إلى ٠١/٠١/٢٠١١.

كانت الدراسة تهدف إلى تحديد أسباب آلام البطن والإسهال المتكرر في الذكور البالغين الذين كانوا يتناولون الطعام خارج بيوتهم فقط، ٣٣ شخصا منهم مصابون بمتلازمة القولون المتهيج. وكان العدد الإجمالي للحالات ١٥٠ مريضا. وقد أظهرت هذه الدراسة التي أجريت في منطقة كبيرة تمتاز بانخفاض الدخل وقلّة الإصحاح المائي و الغذائي، إن ابتلاع الماء (في المسابح و البحيرات و الأنهر، الراكدة و الجارية) الملوثة بمياه المجاري و فضلات الإنسان و الحيوانات و الصرف الصحي و هي من الأمور الشائعة في المجتمعات التي ينتشر فيها الإسهال المتكرر. وكانت هذه العوامل تتضافر لتسهيل انتشار المسببات المرضية المعوية، بما في ذلك استكمال الاستبيانات المطلوبة مع التفاصيل الديموغرافية، و التاريخ السريري، و العلامات الفسيولوجية.

تم جمع ١٥٠ عينة من براز الأشخاص المصابين لإجراء فحص البراز العام الروتيني. أظهرت هذه الدراسة ارتفاع معدلات الإصابة بالجياريا للمبلية ٨٤,٧%، تليها المونيليا المتحركة، البكتيريا المتحركة، الطفيليات أحواله للنسيج، الديدان الدبوسية، اشريشية القولونية، الدودة القزمية وغيرها. كما أظهرت نتائج هذه الدراسة أن أعلى نسبة من الأشخاص المصابين تحدث في الفئة العمرية من ٢٥-٢٩ سنة و ٤٠-٤٤ سنة هي الأدنى، كما أن أعلى نسبة مئوية تحدث في الأشخاص الذين يتناولون ثلاثة مرات يوميا و في الصيف أكثر مما كان عليه في المواسم الأخرى. فقط ٣٠ شخصا ٢٠% كان فحص خروجهم سالباً. توصي هذه الدراسة بممارسات النظافة الجيدة في مراكز الرعاية النهارية، و دور المسنين، و المنزل لمنع انتشار العدوى، غسل الأيدي بشكل متكرر بالماء و الصابون لمدة لا تقل عن ١٥ ثانية، تجنب التماس مع براز الشخص المصاب، كما يمكن الوقاية عند السفر إلى المناطق التي ينتشر بها مرض الجيارديا باستخدام المياه المعبأة في زجاجات فقط، و تجنب استهلاك الفواكه و الخضار النيئة. كما يجب عدم استخدام المياه غير المعالجة في المناطق التي قد يكون الطفيلي فيها موجودا، مثل الأنهار و البحيرات و مجاري المياه. غلي الماء لمدة دقيقة واحدة على الأقل قبل استخدامها.

Abstract

This study carried out in primary health care center of Muslim Ibn Akeel , in al-Kufa town –Al –Najaf Al- ashraf province from 2/1/2010 to 1/1/2011.

The study aims to determine the causes of abdominal pain and repeated diarrhoea in adult males only who were eating outdoor, 33 persons of them were diagnosed as an

irritable bowel syndrome. The total number of cases was 150 patients. This study had done in a large area with low-income , poor water, food hygiene, swallowing water (such as from a swimming pool, lake, river, pond, or stream) contaminated with sewage or stool from *Giardia*-infected people or animals and sanitation are common in communities with repeated diarrhea. These factors combine to facilitate the spread of enteropathogen including, precoded questionnaires with demographic details, clinical history, and physical signs were completed.

In this study ; 150 samples of stools were collected for routinely general stool examination. The results were showing high rates of *G. lamblia* 84.7% , followed by motile monilia, motile bacteria, *Ent.Histolytica*, *Enterobious vermicularis*, *E. coli* , *H.nana* & others.

The study showed that the highest percentage of infected persons occurs in **age group of 25-29** years and lowest in 40-44 years, also highest percentage occurs in the persons who were **eating three times daily** and in summer more than in other seasons. Only 30 patients % were with negative stool examination. This study recommended by practice good hygiene in day care centers, retirement homes, and at home to prevent the spread of infection, wash hands frequently with soap and water for at least 15 seconds, avoid contact with the feces of an infected person, when traveling in areas where giardiasis is common, infection with Giardiasis can be prevented by using only bottled water and avoiding consumption of raw fruits , vegetables and do not use untreated water in areas where the parasite might be present, such as lakes, rivers and streams. Boil the water for at least one minute before using it.

Introduction

Giardiasis is caused by *Giardia intestinalis*, which is a protozoal parasite in the family Hexamitidae (order Diplomonadida). This organism is also called *Giardia lamblia*, *Lambliia intestinalis* and *Giardia duodenalis*. The organisms isolated from humans, domestic animals and most wild animals appear to be identical; however, it is possible that *G.intestinalis* is actually a complex of several different species or subspecies. Humans are thought to be the main reservoir of infection for humans. Interspecies transmission of *G. intestinalis* has been demonstrated, and zoonotic transmission is thought to occur. *Giardia* can survive in the environment in water and food and on surfaces and objects.

Giardia duodenalis is now the most widespread human intestinal parasite in the world. Approximately 200 million people are infected with the parasite globally, with 500,000 new cases reported annually. Giardiasis occurs throughout tropical and temperate regions. In developed countries, *Giardia* has the distinction of being the most commonly reported human parasite. The prevalence of the disease varies from 2%–5% to 20%–30% in developed and developing countries respectively. [1,2]

However, the importance of animal reservoirs for human disease is controversial. Other species of *Giardia* are found in rodents, birds, reptiles and amphibians. These organisms are not known to be zoonotic. *Giardia muris* is seen in rodents, birds and reptiles. *Giardia agilis* occurs in amphibians.

The protozoal parasite *Giardia lamblia* is recognized as a major cause of diarrhoeal illness in the human [3]. Difficulties are encountered in the detection of *G. lamblia* in patient's stool because of intermittent excretion of the parasite so that several samples may be needed from each patient for diagnosis and confirmation of giardiasis. [4]. *G. lamblia* is usually diagnosed from stool samples by visualizing the organism, either the trophozoites or the cysts, in unstained wet smears with the aid of a microscope.

A number of methods have been investigated for automating the detection of *Giardia* spp., including immunofluorescent assay, enzyme immunoassay, counter immunoelectrophoresis and radioimmune precipitation assay. An enzyme-linked immunosorbent assay (ELISA) that detects excretory and secretory products of the organism is available now [5]. The test can be completed in less than 3 hours and does not depend on complex equipment for interpretation [6].

Most human infections are asymptomatic, but some people develop mild to severe gastrointestinal signs. The usual presentation is a sudden onset of diarrhea with foul smelling stools. The feces may have a greasy appearance, but blood is rarely seen. The diarrhea can be accompanied by abdominal cramps, bloating, flatulence, nausea and fatigue. Weight loss or dehydration can also occur. Vomiting and fever are uncommon. The illness usually lasts for 1 to 2 weeks, but chronic infections of months to years have been reported. Chronic infections can be seen in both immunodeficient and immunocompetent individuals, and are characterized by recurrent symptoms that may lead to malabsorption syndromes, vitamin deficiencies, severe weight loss and debilitation. Urticaria has also been reported. In addition, approximately 20-40% of patients develop disaccharide intolerance, particularly lactose intolerance, during the infection and up to six months afterward. [7]

Parasitic diseases cause tremendous mortality and morbidity worldwide. Of the 300 million people affected globally, at least 50% are school-age children living in developing countries of the world.¹ According to recent WHO estimates, one person in every four harbours parasitic worms.² The common yet neglected parasitic diseases include Malaria, Schistosomiasis, Hook worm infestation, Leishmaniasis, Giardiasis and Ameobiasis.³ Malaria, the eighth leading contributor to global diseases burden measured in disability adjusted life years (DALYs), poses a risk to 50% of the world's population in 107 countries. [8]

The great majority of diarrhea episodes last less than one week; when diarrhea persists for more than 14 days, it is called persistent, intractable, or chronic diarrhea. Persistent diarrhea is often manifested by a chronic enteropathy, with impaired mucosal healing and diminished digestive and absorptive capacity [9]. Malabsorption or maldigestion result [10]. It usually appears in children younger than 1 year of age, but can occur in older children. These prolonged episodes are important not only because of the unpleasantness of having diarrhea but because of the association with malnutrition and increased risk of death, especially in developing countries [11]. The major causes and the prevalence of persistent diarrhea differ between developed and developing countries. In the developing world, persistent diarrhea usually follows an acute episode and typically is associated with serial enteric infections without time to recover between episodes. Children are at risk of malnutrition and often have other intercurrent illnesses, such as respiratory infections. [12]

In developed countries, children are less likely to be exposed to serial enteric infections and malnutrition. In these populations, chronic diarrhea is more likely to be caused by underlying disease, such as celiac disease or other food allergy. However, enteric infections (particularly in immunocompromised patients), malnutrition, and dietary factors (eg, excessive consumption of juice or withholding feeding during diarrhea and delaying in returning to normal feeding), play a role in some cases. The difference in pathophysiology underlying most cases of persistent diarrhea in developing countries as compared to those in developed countries calls for different approaches to diagnosis and management in the two settings. The pathophysiology and management of persistent diarrhea in developing countries will be reviewed here. Approaches to diagnosis and treatment of diarrheal diseases in developed countries are discussed separately. [13]

Pakistan is an endemic country for parasitic diseases owing to a multitude of factors such as the sub-tropical climate, high level of illiteracy, rapidly mushrooming population, unbridled urbanization, overcrowding, poor hygiene, lack of awareness and lack of access

to basic health facilities. G. lamblia is an important cause of recurrent abdominal pain in children in Pakistan. It is representative about 52.8% of the children had intestinal parasitic infections. More than 40% children had infection with a single parasite while 10% with multiple parasites. burden is concentrated in Afghanistan, Pakistan, Syria, Saudi Arabia, Algeria, Iran, Brazil and Peru. After the migration of millions of refugees from the neighboring country of Afghanistan. [14]

The aim of this study was to determine the causes of abdominal pain and repeated diarrhea in persons who eat outdoor.

Materials and methods

Patients were males adult and their age between 20-44 years with abdominal pain and repeated diarrhoea who were eating outdoor. There were 150 a fresh stool sample was collected from each adult man into a disposable plastic container and examined by routinely stool examination under microscope the samples were processed immediately without preservation to look for Giardia. 33 persons of them were diagnosed as an irritable bowel syndrome.

Results

Table 1: represents distribution of cases according to age group

Age group	Number of person	Percentage
20-24	20	13.3%
25-29	54	36%
30-34	34	22.7%
35-39	26	17.4%
40-44	16	10.6%

Table 2: represents distribution of cases according to number of eating times

Number of food eating daily	Number of person	Percentage	Number and Percentage of infected persons
One time	135	90%	25 (20.8%)
Two times	90	60%	35 (29.2%)
Three times	60	40%	60 (50%)

Table 3 represents distribution of cases according to season

Seasons	Number of person	Percentage
Summer	85	56.7%
Winter	65	43.3%
Total	150	100%

Table 4 represents distribution of cases according to type of microorganism in GSE

Type of microorganism	Number of person	Percentage
Giardia lamblia	127	84.7%
Giardia lamblia + Moniliasis	105	70%
Giardia lamblia + Motile bacteria	30	20%
Ent.Histolytica	15	10%
Enterobious vermicularis	9	6%
E.coli	3	2%
H.nane	1	0.6%
Null	30	20%

The findings were showing high rates of G. lamblia 84.7% , followed by motile monilia, motile bacteria, Ent.Histolytica, Enterobious vermicularis, E. coli, , H.nana & others.

The study showed that the highest percentage of infected persons occurs in age group of 25-29 years and lowest in 40-44 years, also highest percentage occurs in the persons who were eating three times daily and in the summer more than in other seasons.

Discussion

Majority of stool examination were showed existence of microorganisms especially G. lamblia 84.7%,that belong to the low-income , poor water, food hygiene, and sanitation which are common in communities with repeated diarrhea. These factors combine to facilitate the spread of enteropathogen and lead to growth of pathogenic microorganism such as G. lamblia, Enta. Histolytica, motile bacteria, motile monilia E.coli and other micro-organisms in water causing diarrhea(table 4), the results were appreciated by[15]a large area with poor water, food hygiene, and sanitation are common in communities that leads to an increase infection with giardiasis.And restaurants were popular and suffering from shortage of sanitation conditions. [16,17]

The study showed that the highest percentage occur in the age group of 25-29 years 36% because majority of them were un mired and their work started early morning so that lead to eating out door(table2). [18]The higher rates of giardiasis observed in New Zealand in 25–44 year age group[1]

It also created a study that the highest rate of infection occur in people who eat food out of the house three times a day are more infection with Giardia Lamblia are 50 people by 50% and the least of the people who eat food out of the house once a day

25 by 20.8%.(table 3). Giardiasis is a common traveler's infection among tourists and business travelers to developing countries [19]. is particularly pronounced in Germany but is also observed in other countries. A considerable fraction of cases are probably imported from people returning from travel abroad (the main factor in the seasonal trends). However, no data from the countries on this aspect were available. [20]

Study showed that the number of infected persons in the summer was high that in the winter due to use more quantities of water for drinking ,swimming ,travels and others.(table 4) Drinking highly contaminated water is one way to get the disease

Recommendations

- Practice good hygiene in day care centers, retirement homes, and at home to prevent the spread of infection.
- Wash hands frequently with soap and water for at least 15 seconds.
- Avoid contact with the feces of an infected person.
- When traveling in areas where giardiasis is common, infection with can be prevented by using only bottled water and avoiding consumption of raw fruits and vegetables.
- Do not use untreated water in areas where the parasite might be present, such as lakes, rivers and streams. Boil the water for at least one minute before using it.
- Public swimming pools that are not properly treated and maintained are another potential source of contamination. Avoid swallowing water in swimming pools and spas. Do not swim when ill with diarrhea and be sure that children in diapers have them checked often and changed in the bathroom—not near the swimming pool.
- Wash children with soap and water after diaper changes and before re-entering the water.

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