A CROSS-SECTIONAL SURVEY IDENTIFYING THE BACTERIAL ETIOLOGY OF INTESTINAL DISORDERS IN HIV-INFECTED PATIENTS

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Article history:		Abstract:
		Gastrointestinal disorders are very common in people with HIV, which can lead to death. Several etiological factors and pathophysiological mechanisms have been proposed to cause this condition, and this study was aimed at identifying the bacterial etiology of intestinal disorders in HIV-infected patients to Iraqi patients.

A cross-sectional study was established in Iraq in different hospitals to patients infected with HIV, where 100 patients were recruited, and they were distributed into two groups (70 patients, 30 control.

In this study, a survey was conducted on patients whose ages ranged between 15 years and 55 years.

The statistical analysis program IBM SPSS SOFT 22 was used to calculate the mean values and the standard regression to the healthy coefficients.

The results which found in this study (100 patients were recruited, and they were distributed into two groups (70 patients, 30 control)

The patients were distributed according to gender (40 male patients, 30 female patients in the HIV+ group) as for the control group (18 males, 12 female cases), the Prevalence of identifying the bacterial ethology of intestinal disorders for the patient (Salmonella species 9 with 12.8% and C. parvum 12 with 17.14%, E. histolytica/dispar for seven patients with 10%

. In Iraq, there are some data on the prevalence of enteric pathogens in patients with immunodeficiency, and identification of the causative agent responsible for the disease in the digestive system can be very useful for the management and treatment of these patients as viral enteritis is a pathological manifestation that reduces the quality of life and causes high spending on public health.

INTRODUCTION

Gastrointestinal complications occur between 50-90% of patients infected with human immunodeficiency virus (HIV), and diarrhea is the most common clinical manifestation (60-90% of cases). 30-70% of patients infected with HIV develop chronic diarrhea at some

point in their course (the cumulative incidence of diarrhea can be as high as 90% in the Arab world and in some countries [1,2,3].

The immunity of the gastrointestinal mucosa decreases in these patients, and changes in the T-helper and T-suppressor lymphocytes present in the lamina propria are similar to those that can be observed in the peripheral blood, causing a decrease in IgA secretion, leading to an increase in the ability of microorganisms to adhesion to the intestinal mucosa. [4,5]

Infections of the small and large intestines are among the most representative GI problems in HIV-infected patients, usually manifesting as diarrhoea, abdominal pain, occasional fever, and, in severe cases, weight loss. In addition to identifiable secondary infections, patients may present with chronic diarrhea syndrome in which there is no identifiable agent other than HIV; [6] This condition is often known as AIDS or HIV enteropathy. It is a clinical disorder resembling chronic gastroenteritis that is accompanied by diarrhea lasting longer than a month. [7]

The tissues of the small intestine show low-grade mucosal atrophy with reduced mitosis, suggesting a state of hyper degeneration.

In the recent literature, information on the prevalence of bacterial etiology of intestinal disorders among people with HIV is scarce [8]. A number of authors assert that HIV infection with bacterial etiology is more severe, but the evidence for the effect of bacterial invasions on the development and transit of HIV infection remains controversial [9]. There is less data on bacterial etiology and the clinical course of HIV infection in patients receiving treatment and. Regardless of the course of the infection and the length of the asymptomatic period, patients with HIV have problems with growth or weight loss. The frequency of detection of violations of physical development in HIV patients ranges from 20 to 80% (in the presence of clinical symptoms of the disease). [10]

Dysfunction of the gastrointestinal tract contributes to the exacerbation of physical development problems - delay in weight gain and growth. Therefore, with the onset and progression of symptoms of the disease [11]

In this study, we aim to identifying the bacterial etiology of intestinal disorders in HIV-infected patients.

MATERIAL AND METHOD

A cross-sectional study was established in Iraq, in different hospitals, to patients infected with HIV, where 100 patients were recruited, and they were distributed into two groups (70 seropositive, 30 seronegative).

In this study, a survey was conducted on patients whose ages ranged between 15 years and 55 years, and patients with diabetes were excluded, in addition to pregnant patients.

In this study, data were collected in cooperation with the authorities responsible for providing ethical approvals for a full year period from 2020 to 2021, and illustrative tables were made to demographic characteristics related to age, sex, distribution of intestinal bacteria pathogens among patients with enteric disorders

The danger of HIV infection also lies in the fact that a person infected with HIV feels completely healthy for a long time. The main method for laboratory diagnosis of HIV infection is the detection of HIV antibodies in blood serum using an enzyme immunoassay (ELISA).

It can take from 3 to 6 months from the moment of infection with HIV until the time when the ELISA method can determine the presence of HIV antibodies in the blood.

T lymphocytes (T-cells) occupy a special place in the immune system and serve as a key population in the development of the cellular immune response. The number of normal subpopulations of T lymphocytes is much greater than that of B lymphocytes.

A blood test, often prescribed after a general exam, is a biochemical test. This analysis helps detect tumor markers.

Clinical blood test - a set of tests aimed at determining the number of various blood cells, their parameters (size, etc.), and indicators reflecting their ratio and performance. A general blood test includes, as a rule, from 8 to 30 parameters: counting the number of erythrocytes, leukocytes, and platelets in 1 microliter or liter of blood, as well as a number of other indicators describing the shape, size, and other characteristics of these cells, formula Leukocytes (percentage of different forms of leukocytes) and erythrocyte sedimentation rate (ESR) calculation.

Antibiotic susceptibility testing refers to (microbiological) culture studies. The most widespread method is the disk diffusion analysis method. According to this method, pathogenic microorganisms are inoculated into a nutrient medium.

Antibiotic-soaked tablets are placed on top after that and placed in a thermostat for 16-18 hours

The Vitek Automated Analyzer was relied upon for antibiotic susceptibility analysis, ensuring high standardization and computerization of the study.

RESULTS

Table 1- Demographic results of a patient with an enteric disorder

	Patient, N=70	Control, N=30	P-value
Age			
15-24	20	12	0.04
25-34	22	8	
35-44	15	6	
45-55	13	4	
BMI			
24-27	28	14	0.23
28-31	22	8	
32-35	20	8	
Sex			
Male	40	18	0.12
Female	30	12	
Family income			
Low	25	8	0.88
Moderate	27	16	
High	18	6	
Education			
Primary	13	7	0.75
Secondary	15	6	
College	17	7	
Higher	25	10	
Residence			
Urban	40	17	0.63
Rural	30	13	

Table 2- Distribution of results according to the association of major clinical syndromes of infection with intestinal bacteria

Variable	Patient (N=70),%	Control (N=30), %	P-value
Autoimmune gastroenteritis.	15	10	0.33
Severe and persistent diarrhea	30	12	0.01
Bacteraemia associated with extraintestinal involvement	25	8	0.004

Table 3- Prevalence of identifying the bacterial etiology of intestinal disorders

Variable	Patient (N=70),%	Control (N=30), %	P-value
Salmonella species	9 (12.8%)	4 (5.7%)	0.04
E. histolytica/dispar	7 (10%)	2 (2.8%)	0.042
lamblia	4 (5.7%)	3 (4.2%)	0.052
C. parvum	12 (17.14%)	1 (1.42%)	0.016
Vermicularis	2 (2.85%)	2 (2.85%)	0.05
Salmonella & A. lumbricoides	3 (4.2%)	1 (1.42%)	0.049
Shigella & C. parvum	5(7.14%)	1(1.42%)	0.016

Table 4- Laboratory findings related to the patients in this study

Variable	Patient (N=70),%	Control (N=30), %	P-value
Total WBC (x 109 /L)	4.25±1.56	5.1±2.32	0.045
Lymphocytes	6.3±2.22	3.6±1.5	0.035
Granulocytes	7.43±3.1	5.6±1.45	0.046
Monocytes	5.55±2.54	6.54±3.3	0.05
CD4+ T cell	9.64±2.7	8.41±6.5	0.0495
hs-CRP	5.27±4.55	6.64±2.43	0.048

Table 5- Person correlation bacterial etiology of intestinal disorders with patient and control

Items	bacterial etiology	Patient	Control
R correlation	1.0	+0.83	-0.96
s-sig	--	0.049	0.06
N	100		

DISCUSSION

In this study, 100 patients were collected and divided into two groups (HIV+ for 70 patients) (and HIV - for 30 cases).

identifying the bacterial etiology of intestinal disorders in HIV-infected patients. In this study, the ages ranged between 15-55 years, and the most frequent ages in this study were from 15-24 years for 20 patients in the HIV+ group and 12 cases in the control group.

The patients were distributed according to gender (40 male patients and 30 female patients in the HIV+ group) as for the control group (18 males, 12 female cases), as shown in the table.

Lesions of the stomach and duodenum are rare, the most common being viral ulcers, particularly cytomegalovirus. These have non-specific clinical symptoms: pain, nausea, and vomiting.

Mycobacteria should be considered, and a biopsy of the duodenum should be considered when the patient has systemic compromise and elevated alkaline phosphatase because it is possible to find a mycobacterium avium infection. [12]

It is important to remember that lesions that can be found in the stomach will be lymphomas or Kaposi's sarcoma, which are commonly seen in advanced HIV patients.

As in the case of the esophagus, if there is indigestion and the stomach is healthy, the possibility of finding the results on a biopsy is also very low. In a study of 500 patients with CD4 counts less than 300 who were on antiretroviral therapy, 1.6% of the patients were positive: 4 had CMV lesions, and 2 had cryptosporidium lesions. Therefore, it is believed that in these circumstances, no It is worth taking a biopsy because if CMV lesions are found in the stomach, and there are no systemic symptoms, they generally will not be treated. [13,14,15]

The prevalence of Helicobacter pylori is very high, there are reports of 32%, and it is more common in patients with CD4 counts over 200, i.e., in patients with good defences. [16,17]

All these manifestations are decreasing because, after six months of treatment, patients have practically no complications at this level. Epidemiologically, the incidence of gastrointestinal manifestations decreased with antiretroviral therapy, and for this reason, in the treatment of the lesions that have been mentioned, it can be seen that all advances in diagnosis and treatment occurred in general until 2004. The latest drugs for antifungals, in general, have been used systematically in Oesophageal candidiasis because it is difficult to obtain voluntary patients due to the low incidence in patients with access to ART. [18]

Recently, 11 caregivers of HIV-positive patients from various centers were consulted about the number of gastric and duodenal lesions they had seen in the past 12 months. Only two answered in the affirmative (without considering Helicobacter pylori infection); in both cases, they were ulcers, one due to Mycobacterium tuberculosis and the other due to CMV. [19]

Diarrhea is most common in the small and large intestines, as is the case in immunocompromised conditions. The small intestine will be profuse with weight loss and abdominal pain. The pain of the large intestine will be more frequent and of a small amount with pain in the lower quadrant.

In addition, it has been shown that other viruses can cause diarrhea. A study showed that infection with astroviruses, adenoviruses, and picornaviruses was indeed more common in patients with diarrhoea than in those without. This showed that many patients who were originally diagnosed with HIV enteropathy actually had viral illnesses. [20]

CONCLUSION

Infectious gastroenteritis is one of the most common human diseases that affects mainly and most severely people in the maximum ages between 15-24 years in an epidemic form.

It constitutes an important cause of morbidity and mortality worldwide, especially in populations with scarce resources and in immunocompromised persons. And in this study, we found in person correlation between bacterial etiology of intestinal disorders with the patient and control. A positive statistical relationship was found between group patients and bacterial etiology, with a statistical significance of 0.049.

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