Co-infection between *Entamoeba histolytica* and *Helicobacter Pylori* in Patients at Wasit Province

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Abstract

The current study was conducted at Wasit province, Iraq during the period from 28 October 2020 to 28 December 2020. The study included one hundred stool samples taken from questionable patients of *Entamoeba histolytica* and *Helicobacter pylori*. Samples were collected from patient attended to General Hospital of Martyr Fairuz at Hay district , Saeed Health center and Hospital of Al-Kut. All samples have been checked using direct smear lugol's iodine stain for *Entamoeba histolytica* and dipstick for *Helicobacter pylori*. The result showed that 40 samples (40%) out of 100 patients were gave positive by rapid test cassette; females 23 (23%) positive samples and males 17(17%). While 14 samples (14%)out of 100 samples were positive for *Entamoeba histolytica*. The highest infection in females 8(8%) and the lowest in males 6(6%). The result showed 10 samples (10%) out of 100 patients positive for both *E. histolytica* and *H. pylori*. The highest infection was recorded in females 6(6%) and the lowest in males 4(4%).

The highest infection of *H.pylori* in age group (39 and more) years ; females recorded 6(6%) and males recorded 6(6%), while the lowest infection in group (>1) years old ; females recorded 1(1%) and males recorded 1(1%). The infection rate of *Entamoeba histolytica* was highest in age group (1-13) years old ; females was recorded 1(1%) and males was recorded 4(4%) , while the lowest in age group (26-39) years old ; females recorded 1(1%) while males without infection. Infection with both *E.histolytica* and *H.pylori* was recorded the highest in group (39 and more) years old ; females was recorded 3(3%) and males was recorded 2(2%) while the group (>1) years old do not recorded infections.

Keywords: *Entamoeba histolytica, H. pylori, Dipstick, Lugol'siodine stain, Human, Stool*

Introduction

A parasite is an organism that cause harm in its host [(1)]. *E.histolytica* was first described by Fedor Losch in 1875 in St. Peters burg, Russia. cause anemia in pregnant and children [(2)].The spread of intestinal parasites differ from one region to another and its spread related to many factors such as geographical factors, climate, poorness , malnutrition, personal clean less and other factors [(3)]. One trophozoites of *Entamoeba histolytica* reach the host intestine can damage the mucosa epithelial layer and prevalence through the sub-mucosa and the lamina propia and other tissues [(4)]. Infection of the gastrointestinal tract include two distinct clinical entities : *Helicobacter pylori* the causative of gastric infection this bacteria was first isolated by Warren and Marshal in 1983 [(5)]. And *Entamoeba histolytica* the causative agent of inflammation of the gastric and intestinal mucosa [(6)]. *Entamoeba histolytica* cause the human amoebiasis is endemic in most tropical and sub-tropical countries and it the causative agent of the dysentery [(7)]. *Helicobacter pylori* (*H.pylori*) are gram-negative bacilli responsible for chronic gastritis [(8)]. It has been known for more than a century are present in human's stomach [(9)]. The epidemiology of the *Helicobacter pylori* changing with

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parallel decline in peptic ulcer and gastric cancer [10]. Poor socioeconomic circumstances is a risk for *H.pylori* infection and parasite infection.

Materials and Methods

Materials: glass slides, cover slides, microscope, normal saline, lugol's iodine stain, pipette, stick, eppendorf tube , dipstick for *H.pylori*.

Samples collection: A total of one hundred stool specimens collected from suspected persons with *Entamoeba histolytica* and *H.pylori* in general Hospital of Martyr Fairuz at Hay district, Saeed health center and Al-Kut Hospital. Stool samples were collected during the period from 28 October 2020 to 28 December 2020. These specimens were collected in sterile plastic containers in morning [11] and from different ages and both sexes.

Methods

For examination with microscope used two slides for each specimen, one drop of Iodine and added small amount of stool on one slide and mix well and cover slip, then one drop of normal saline (0.9%) on another slide with added small amount of stool , mix well and cover slip , then examination with microscope at 40 magnification 40X [12]. Each sample checked *H.pylori* by dipstick [13].

Results

A total of 100 samples of stool collected from patients with solid , semisolid and diarrhea.

Table 1 shows the rate of *Helicobacter pylori* infection 40 positive samples out of 100 patients . The highest infection in females 23 (23%) positive samples and the lowest infection in males 17(17%). The rate of *Entamoeba histolytica* infection 14 (14%) positive samples out of 100 patients. The highest infection in females 8(8%) and the lowest in males 6(6%).The rate of infection association between *E.histolytica* and *H.pylori* 10 (10%) positive samples out of 100 patients. The highest infection was recorded in females 6(6%) and the lowest in males 4(4%).

Table 1.The result of direct and Iodine methods

H.pylori + ve %	Direct & Iodine E.histolytica + ve %	E.histolytica & H.pylori + ve %	Negative	Total
40(40%)	14(14%)	10(10%)	36(36%)	100(100%)

Table 2 shows the infection rate according to the gender and the age. The highest infection of *H.pylori* in age group (39 and more) years old ; females recorded 6(6%) and males recorded 6(6%), while the lowest infection in age group (>1) years old ; females recorded 1(1%) and males recorded 1(1%). The infection rate of *Entamoeba histolytica* was highest in age group (1-13) years old ; females was recorded 1(1%) and males was recorded 4(4%) and the lowest in age group (26-39) years old ; females recorded 1(1%) while males without infection. Infection with both *E.histolytica* and *H.pylori* was recorded the highest in age group (39 and more) years old ; females was recorded 3(3%) and males was recorded 2(2%) while the group (>1) years do not recorded infections with both *E.histolytica* and *H.pylori*.

Table2. Distribution of *Entamoeba histolytica* and *H.pylori* infections according to age and gender

Age/years	H.pylori + ve % Male female	Direct & Iodine E. histolytica + ve % Male female	H.p & E.h + ve % Male female	Negative % Male female	Total 100%
>1	1(1%) 1(1%)	1(1%) 1(1%)	0 0	3(3%) 1(1%)	8(8%)
1-13	2(2%) 7(7%)	4(4%) 1(1%)	0 2(2%)	9(9%) 5(5%)	30(30%)
13-26	5(5%) 6(6%)	0 2(2%)	1(1%) 0	3(3%) 6(6%)	23(23%)
26-39	3(3%) 3(3%)	0 1(1%)	1(1%) 1(1%)	1(1%) 3(3%)	13(13%)
39 and more	6(6%) 6(6%)	1(1%) 3(3%)	2(2%) 3(3%)	3(3%) 2(2%)	26(26%)
Total	17(17%) 23(23%)	5(5%) 8(8%)	4(4%) 6(6%)	19(19%) 17(17%)	100(100%)

Discussion and Conclusion

Intestinal parasites are common in developing countries, poor socioeconomic conditions is major risk factors for acquiring *Entamoeba histolytica* and *Helicobacter pylori*. *Helicobacter pylori* colonizes gastric mucosa and cause gastric ulcer. The spread of intestinal parasitic infection and *H.pylori* associated with contaminated food and water and the extent of personal hygiene. *Entamoeba histolytica* causes amoebic dysentery, infection with *H.pylori* is strongly associated with an increased risk of gastric ulcer. Most persons infected with *H.pylori* will never have gastric ulcer. Other factors that increase the risk of gastric ulcer among persons infected with *H.pylori* need to be detected [(14)]. Several methods are available for identification of *E.histolytica* oocyst and trophozoites and *H.pylori* including direct smear and lugol's iodine stain for *E. histolytica* and dipstick for *H.pylori* in stool.

The present study for *Entamoeba histolytica* and *Helicobacter pylori* infection at Wasit province for different ages and gender. A total of 100 samples collected from patients were suffered abdominal pain with solid, semi-solid, or diarrhea in general Hospital of Martyr Fairuz and Saeed Health center at Hay district and Al-Kut Hospital. Stool samples were detected by direct and Lugol's iodine stain to diagnose *Entamoeba histolytica*, the result showed 14 (14%) positive samples out of 100 samples ; 8(8%) females and 6(6%) males. The highest infection appeared in age group (1-13) years old ; females recorded 1(1%) and males 4(4%), this result agreed with [(15)]. Ten positive samples for both *Entamoeba histolytica* and *Helicobacter pylori*, the highest infection in group age group (39 and more) years old ; females recorded 3(3%) while males recorded 2 (2%). This result disagreed with [(16)] that showed (0.528) for *E.histolytica* and (0.02) for *H.pylori* out of one hundred and sixty – one patients. *H.pylori* examined by dipstick for each sample, 40 (40%) positive samples of *H.pylori* was detected [(17)]. The highest infection appeared in females 23 (23%) and the lowest infection in males 17 (17%). Our results appeared that age group (39 and more) years old recorded the highest for *H.pylori* where the females registered 6(6%) and the males recorded 6 (6%), while the age group (>1) years old revealed 1(1%) for females and 1(1%) for males, this results disagreed with [(18)].The higher infection in males and the lowest infection in females, this result agreed with [(19)] and disagreed with [(20)]. *Helicobacter pylori* is known to be pathogen in many gastrointestinal disorders, such as

gastric cancer [21]. The infections caused by *H. pylori* depending on the age, the highest infected patients was in over 30 years old [22,23]. The present study showed association between *Entamoeba histolytica* and *H.pylori* infections at Wasit province. Females recorded the higher infections with *E.histolytica*, also the higher infection with both *E.histolytica* and *H.pylori* in patients. The highest infection with *H.pylori* recorded in females 23(23%) while in males 17(17%) out of 100 samples. Microscopic identification of trophozoites and cyst in the stool is the common method for diagnosing *Entamoeba histolytica* in fresh stool [24].

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