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PREVALENCE OF HELICOBACTER PYLORI INFECTION AMONG ADULT PATIENTS WITH DIFFERENT GASTROINTESTINAL PARASITES IN TANTA CITY DISTRICT

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Abstract

This study determined the prevalence of *Helicobacter pylori* infection in patients with different gastrointestinal symptoms. Two hundred and six patients were collected from outpatient clinic of medical department from March to June 2014. The age was ranged between 15 years old up to 60 years old. 76 males with mean age (33.2±13.5) and 130 females with mean age (32.8±14.9). All patients were submitted to full clinical examination and stool examination was performed to detect helicobacter pylori antigen and other intestinal parasites. After getting a full history, the patient was asked specifically for history of taking non-steroidal anti-inflammatory drugs, presence of heart burn, epigastric pain, flatulence, nausea or vomiting, passing black stool hematemesis and presence of other diseases.

The results showed that 69.4% of the patients were positive for helicobacter pylori antigen (143/206). The prevalence among males and females was the same (69.7%-69.2%). The prevalence among different age groups was not significant but; some-how high among age group of 15 up to 25 years old (70%). 72 patients out of 140 were associated with Co-infection with *Entamaeba histolytica* mainly or *Giardia lamblia* (51.4%). Epigastric pain and heart burn were representing about 90% of symptoms in patients with positive *Helicobacter pylori* antigen.

Consequently, the prevalence of *H. pylori* infection is high in and around Tanta City in the Nile Delta (about 70%).

Keywords: *Helicobacter pylori* antigen, non-steroidal anti-inflammatory drugs (NSAIP's). Gastro-intestinal protozoa, Gastro-intestinal troubles

Introduction

Helicobacter pylori are a spiral gram-negative unease-producing bacterium that can be found in the mucous. Coating the gastric mucous or between the mucous layer and gastric epithelium (Perez *et al,* 2004). The prevalence of *H. pylori* varies among different countries and is significantly higher in developing than in industrialized countries (Kusters *et al,* 2006).

H.pylori infection is most commonly acquired in childhood and results in a chronic active gastritis that is usually long-life without specific treatment (Sykora *et al,* 2006).

In addition to causing chronic gastritis and peptic ulcers, *H. pylori* has been associated with the development of gastric adenocarcinoma and gastric mucous-associated lymphoid tissue (MALT) lymphoma (Blaser and Atherton, 2004).

The International Agency for Research on Cancer classified *H. pylori* as a group I carcinogen and a definite cause of gastric cancer in humans (Go, 2002).

This study was conducted to highlight the importance of *H. pylori* infection among patients with different GIT symptoms and among different age groups. Moreover, our study has explored the prevalence of *H. pylori* infection in particular area in Nile Delta (Tanta City and its District).

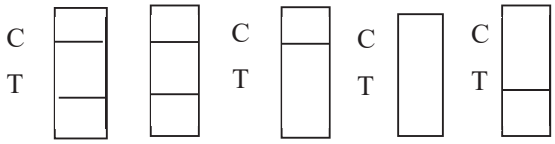
Patients, Materials and Methods

The patients were divided into three groups according to their age: GI (15 to < 25 years), GII (25 to < 45 years), and G III (45 years and over). This study was carried out on two hundred and six patients with different complaints of gastro-intestinal tract (GIT) symptoms. The age ranged between 15-60 years old. There were 76 males with

mean age (33.2±13.5) and 130 females with mean age (32.8±14.9). The study was approved by the Research Committee, Faculty of Medicine, Al-Azhar University.

All the patients were submitted to full clinical examination. After obtaining a full history sheet from each one, the patients were asked specifically for the presence of heart burn, epigastric pain, and nausea or vomiting, flatulence, the bowel, motions the presence of black stool and any other associated diseases. The stool sample of each patient was examined for: (1) detection of *H. pylori* Ag by rapid test which is an immunochromatographic assay with 98% specificity and 95% sensitivity (Schwarzer *et al*, 2007). (2) Also, each stool sample was thoroughly examined for the intestinal parasites by using concentration method (Garcia *et al*, 1993). The stool smears were stained with Mallory stain and/or hematoxylin and eosin stain for intestinal parasites and by Modified Zeihl-Nelsen for the cryptosporidiosis *parvum* (El-Naggar *et al*, 2006).

The *Helicobacter pylori* Ag test interpretation was as follows:



Positive Negative Invalid

Where C= control, T= tests.

The commercial kits used to detect *H. pylori* Ag in the stool sample were purchased (Eugene®, Lotus Global Co., Ltd, 15 Alexandra Road, London UK, NW8-ODP)..

Results

The study was conducted through March 2014 to the end of June 2014, on patients attended the out-patient clinic with different GIT symptoms. One hundred and forty three patients out of two hundred and six (143/206) were positive for *H. pylori* Ag in stool (69.4%). Infected males were 69.7% (53/76) and females were 69.2% (90/130). Details were given in tables (1, 2 & 3).

Table 1: Prevalence of *H. pylori* among different age groups.

Groups	Age groups	Total No.	Positive *H. pylori*	Positive %
GI	15-25	80	56	70
GII	25-45	88	59	67
GIII	45-+	38	28	73.7

No statistical significant difference between groups with little high prevalence among GI and GIII.

Table 2: Association of different GIT symptoms in *H. pylori* infected patients.

Symptom	Positive patients	Positive %
Epigastric pain	128	128/140 (91%)
Heart burn	122	122/140 (87%)
Flatulence	105	105/140 (75%)
Nausea/vomiting	48	48/140 (34%)
Loose motion	36	36/140 (25.7%)
Melena	5	5/140 (3.6%)

Epigastric pain and heart burn were commonest symptoms associated with *H. pylori* Ag positive patients. Melena was the least symptoms. Also, association of *H. pylori* Ag positive patient 72/143 were associated with *Entameba histolytica* parasite (72/143= 50.3%).

Table 3: Prevalence of intestinal parasites.

Parasite	Positive patients	Positive %
Entameba histolytica	103	103/206 (50%)
Ascaris lumbricoides	11	11/206 (5.3%)
Enterobius vermicularis	9	9/206 (3.4%)
Giardia lamblia	6	6/206 (3%)

Discussion

Helicobacter pylori are very common micro-organism of worldwide distribution, particularly childhood. Once acquired, infection persisted chronically, probably continuing in the stomach throughout host-life (Howden, 1996). *H. pylori* infection was accepted as the most common cause of gastritis, and is etiologically involved in gastric ulcer, duodenal ulcer, gastric adenocarcinoma and primary gastric B-cell lymphoma (Marshall and Warren, 1984; Graham and Graham, 1999).

Thus, *H. pylori* represents a public health problem all-over the world which deserve a great efforts to be spend for more studies, eradication and treatment.

In the present study, the prevalence of *H. pylori* infections was 69% among patients with different gastrointestinal symptoms from different areas in Tanta District, Gharbia Governorate. This result agreed with Turkish study Yilmaz *et al.* (2002) who reported 64.4% among 466 children aged 6-17 years. By comparing the present study with that conducted by Hamed *et al.* (2013) in children aged 4-13 years. It was shown that the prevalence of H.pylori infection among adults was higher than that among children (68% and 52%) respectively. The result of the present study showed that the prevalence of *H. pylori* infection was the same among males, (69.7%) as well as among females (69.2%) which more or less went with the study done by Sonnenberg *(*2007).

In the present study, the prevalence of *H. pylori* infection among different age groups was not significantly different with tend to be little higher in group aged 15-25 years (70%) and group aged 45 years and more (73.7%), which could be attributed to the common socioeconomic status (Graham *et al,* 1991).

The physical examination was unreliable and often normal, although some patients had epigastric tenderness with deep palpation. The other causes of epigastric pain were excluded. Epigastric pain is the classic symptom associated with peptic ulcer disease. This agreed with Chen *et al.* (2001).
The present study demonstrated a strong association of epigastric pain and the presence of *H. pylori* infection, which agreed with Yong *et al.* (2005) and Hamed *et al.* (2013). Epigastric pain represented about 91% of the patients' complaints and heart burn about (87%) both together represented about 90% of symptoms which was consistent with the study of Babu *et al.* (2005), but was inconsistent with Chung *et al.* (2011). In the present study, the haematomesis was not the main complaint nevertheless, melena was found in 5 patients (3.6%). However one would be able to predict *H.pylori* infection in symptomatic patients with never epigastric pain or heart burn after exclusion of other causes of epigastric pain.

Of interest, Fürész *et al.* (2004) reported that *H. pylori* are contagious. But, there is a grey area between the terms contagious and colonized. Contagious usually implies a disease-causing agent is transferred from person to person, while colonization usually implies a non-disease-causing agent simply populates a body surface but does not cause disease, even when transferred from person to person. The grey area occurs when many people have the agent that causes disease in some of them, but not in many others. They concluded that its spread can be reduced or even prevented by medication of the infected persons and/or by improving the hygienic

conditions and the introduction of the anti-infective sanitary regulations

Nowadays, *H. pylori* infection causes many risky complications to their patients. Escobar-Pardo *et al*. (2011) found that *Giardia lamblia* was closely associated with *H. pylori* infection Uğraş and Miman (2013) stated that H. pylori and intestinal parasites mainly *Blastocystis hominis* and *G. intestinalis* were frequent among individuals living in low socioeconomical countries. The co-existence of *H. pylori* and intestinal parasites, which have a negative effect on thriving and iron status in growing children, was a very important public health problem. The national sanitation education intervention methods might help in decreasing the co-existence of these synergistic microorganisms.

Nashaat and Mansour (2014) found that the response to iron therapy in cases of iron deficiency anemia in the Egyptian patients without *H. pylori* infection was better than those infected with *H. pylori*. *H. pylori* eradication in the infected cases increased their response to iron therapy. Helaly *et al.* (2014) stated that gastric colonization with *H. pylori* could be a source for gall bladder infection in Egyptian patients, and the organism may act as a lithogenic component, especially in the context of pure pigmented gallstones.

Fouad *et al.* (2014) found that *H. pylori, G. intestinalis* and coeliac disease were common causes of dyspepsia among Egyptian patients. The *G. intestinalis* genotype A demonstrated a greater association with dyspeptic symptoms. Gravina *et al.* (2015) reported that a prevalence of *H. pylori* infection was significantly higher in patients with rosacea than control group and that eradication of *H. pylori* infection led to a significant improvement of skin symptoms in rosacea.

Awad *et al*. (2014) in Egypt assessed the diagnostic approaches of Helicobacter pylori (IP)-associated iron deficiency (ID) and anemia (IDA) in children with dyspeptic symptoms and evaluated the effect of simultaneous anti-*H. pylori* therapy and oral iron in comparison with each of anti?, HP therapy and oral iron therapy alone, on iron status as assessed by serum soluble transferrin receptor (sTfR) level. They concluded that Serum sTfR level proved to a better parameter for assessment of iron status in *H. pylori*-infected children than serum iron or ferritin which may be increased as the result of an acute-phase reaction to *H. pylori* infection. *H. pylori*-associated iron deficiency (ID) and iron deficiency anemia (IDA) treatment by using the anti-*H. pylori* triple therapy either combined with iron supplementations or alone proved more effective than oral iron therapy alone for resolution of *H. pylori*-associated ID or IDA and the restoration of the functional pool of iron status as assessed by serum level of sTfR in children with such conditions.

El-Fakhfakh *et al*. (2014) evaluated the frequency of anti-*H. pylori* serum and salivary antibodies positivity among Egyptian patients with gastric disorders and the validity of salivary, serum serological tests for diagnosis of *H. pylori,* comparing this with gold standard tests performed on endoscopy biopsy. They concluded that by correlating the salivary IgG results with *H. pylori* status diagnosed by culture, salivary IgG succeeded to diagnose 19 cases from the 31 positive *H. pylori* patients with the sensitivity of 63.33% and specificity of 92.86% whereas the results of salivary IgA showed a sensitivity of 80% and specificity of 92.86%.

Eshraghian (2014) investigated the epidemiology of *Helicobacter pylori* infection among the healthy asymptomatic population in Iran and countries of the Eastern Mediterranean Region (EMRO). He stated that the overall prevalence of H. pylori infection, irrespective of time and age group, in the other EMRO countries ranged from 22% to 87.6%. He concluded that the prevalence of *H. pylori* in the Eastern Mediterranean Countries was more or less still high even in the healthy asymptomatic population. He added that the strategies to improve the sanitary

facilities, educational status, and socioeconomic status should be implemented to minimize the *H. pylori* infection.

Conclusion

This study was conducted on patients attending medical outpatient clinic. The patients came from urban and rural areas surrounding Tanta City, the capital of Gharbia Governorate and its district. The outcome results showed that prevalence of *H. pylori* infection among the population was high (69.4%). The prevalence was more or less the same among males as well as among females (68%). There was no significant difference of infection among different age groups. Epigastric pain together with heart burn and dyspepsia were comprised about 90% of symptoms associated with *H. pylori* infection.

Recommendations

1. More epidemiological studies are needed to cover other Egyptian Districts with special attention to socioeconomic status, other associated organisms, other associated diseases, environmental factors exploration and genetic factors.

2. Eradication of the infection is important especially in childhood. More research has to be done in pharmacology to get a drug safe, easily to be taken and more efficacies against this organism. Besides, the other co-parasites and/or micro-organisms, if present must be diagnosed and treated as well.

3. More studies needed to explore the behavior, etiology and host-parasite relationship of the organism.

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