Iranian J Publ Health, Vol.38, No.1, 2009, pp.127-130

Short Communication

Giardia lamblia and *Helicobater pylori* Coinfection

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(Received 15 Jun 2008; accepted 7 Feb 2009)

Abstract

Background*: Giardia lamblia* and *Helicobacter pylori* are two flagellate microorganisms that grow in duodenum and stomach. The aim of this study was to evaluate the prevalence of them in patients with dyspepsia and other GI disorders.
Methods: In this cross-sectional study, co-infection of above-mentioned agents was investigated in a group of 130 patients [median age of 40 yr (range=11-79) including 76 males (58.8%)] with dyspepsia using three methods of duodenal aspiration sample, duodenal biopsy samples and evaluation of stool samples.
Results: : From 105 patients (59 males, 46 females, median age 40 years, range 11-79) entering this study from 3 hospitals, 4 patients (3.8%) had *G. lamblia* and 61 patients (58%) had *H. pylori*. All 4 patients infected by *Giardia* had also *H. pylori* infection. Tenesmus (3 out of 4 patients) was the most common symptom in patients with *H. pylori* infection (48 out of 61 patients) was reflux. Other symptoms in patients infected with both organisms (4 patients) included diarrhea (2 cases), weight loss (2 cases), and loss of appetite (1 case) but no report of vomiting.
Conclusion: In patients co-infected with *Giardia*, *H.pylori* differentiation by physical examination is not possible. So in those patients with positive Rapid Urease Test (RUT), stool examination for *Giardia* detection is recommended. In addition, metronidazole (broad spectrum, anti-protozoal drug) can be useful in *H. pylori* infection.

Key words: Giardia lamblia, Helicobacter pylori, *Endoscopy*

Introduction

Dyspepsia is referred to a group of upper GI Symptoms (1) such as bloating, early satiety, fullness after meals, nausea, vomiting and loss of appetite (2). Prevalence of dyspepsia in Iran has been reported around 24% in general population (3). It has been shown that small intestine parasites like *Giardia* can cause dyspepsia (4, 5). Global prevalence of *Giardia* is 20-60% and the incidence rate among industrial countries and Iran is 2-7% (6) and 19-22% respectively (4). Clinically it has a wide range from symptom free to severe diarrhea (7, 8). *Helicobacter pylor*i is a mobile spiral gram-negative, micro aerophil bacillus that produces a urease which in turn results in reduced acid (9). This condition provides a proper environment for *Giardia*. Moreover, they have a transmission route (2, 10). Therefore, co-incidence of these two infections is probable; but it has not been previously studied in Iran.

Material and Methods

This cross-sectional study aimed at investigating this co-infection in a group of 130 patients [median age of 40 (range= 11-79) including 76 males (58.8%) and 54 females (41.5%)] with dyspepsia (fullness after meals, early satiety, epigastric pain or heart burn who satisfy Rome 2 criteria) (11) using three methods: duodenal aspiration sample, duodenal biopsy samples (and Ra-

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pid Urease Test= RUT), and evaluation of stool samples. One hundred and five patients (from 130 cases) had presented their stool samples and underwent total investigation procedure. Those patients with known malignant, genetic or metabolic disease or those with a drug history of antibiotic therapy for at least three consecutive days within the previous months, history of taking proton pump inhibitors or bismuth were excluded.

Results

Age groups of 31-40 yr (26.9%) and ≥61 yr (7.7%) were the most and least common groups respectively. Prevalence of parasites found in patients is categorized based on the detection method in Table 1.

As it is noted from the table, a total number of four patients were positive for *Giardia*. Based on RUT, 61 patients (58%) were infected with *H. pylori*. It was detected that *H. pylori* was positive in all the four *Giardia* positive cases. In the four patients infected with both *Giardia* and *H. pylori*, the most common symptoms were: tenesmus, boating, abdominal pain, and reflux (each with 3 cases= 75%). Diarrhea, nausea, and weight loss were the next most common symptoms (each with 2 cases= 50%). Fever, loss of appetite, odynophagia, vomiting, and headache were less common ones. Characteristics of these four patients infected with both infections are summarized in Table 2.

Table 1: Comparison of the laboratory tests for parasitic infection in the study population

Parasite	Duodenal biopsy n (%)	Duodenal aspiration n (%)	Stool exam n (%)
Giardia lamblia	1 (0.8)	2 (1.5)	4 (3.9)
Blastocystis hominis	0	0	15 (14.28)
Entamoeba coli	0	0	9 (8.56)
Iodamoeba bocelli	0	0	3 (2.85)
Negative	129 (99.2)	128 (98.5)	74 (70.5)

Table 2: Characteristics of patients with *Giardia lamblia* infection

Patient	Age (yr)	Sex	Blood group	Chief complaint	Endoscopic findings	Duodenal aspiration	Duodenal biopsy	Stool exam
No. 1	29	Male	A+	Tenesmus	Antral gastritis	–	–	+
No. 2	37	Female	O+	Epigastric pain	Erosive gastritis	+	–	+
No. 3	41	Female	O-	Nausea	Pangastritis	–	–	+
No. 4	70	Male	A+	Epigastric pain	Erosive gastritis	+	+	+

Conclusion

According to studies done in Pakistan and France the prevalence of *Giardia* in adults who underwent endoscopy due to dyspepsia was 9-44% (12, 6) and 11.4% (13) respectively. A study done in Italy on patients with Irritable Bowel Syndrome (IBS) and dyspepsia who underwent endoscopy showed a *Giardia* prevalence of 6.5% (14). It was also detected in 15.5% of American patients with dyspepsia (15). Its prevalence among children underwent upper GI endoscopy in west of Middle East and America has been reported 4.9% and 5.6% respectively (16, 17).

The parasite has randomized passage in stool and therefore may have false negative results. Diagnostic value of stool exams to detect it varies: first stool specimen 30-50%, second stool specimen 80-90% and third stool specimen ≥90%. Studies done in endemic regions confirmed that duodenal aspirations and biopsies are also proper

diagnostic methods to detect *Giardia* (17). Previous studies have shown a relation between blood group A and *Giardia* infection (10); 50% of our *Giardia* positive cases has also blood group A.
This co-infection has been reported in larger number of cases previously (18). It can be caused by common risk factors, transmission routes, probability of synergism in metronidazole resistance and common lab findings leading to GI metaplasia in both organisms (14). Gastritis resulting from each organism predisposes the person to the other one (19, 20). Additionally, these two organisms can have synergist effects on each other (21). Although in our study all 4 patients with *Giardia* were also infected with *H. pylori*, due to little number of cases and high prevalence of *H. pylori* in Iran, it is not possible to find a significant statistical relation between Giardiasis and *H. pylori* infection.
In conclusion, in patients infected with *Giardia* or *H. pylori*, presence of the other organism is highly possible. Moreover, differentiation of them based on clinical picture is not possible. Therefore, in patients with positive Rapid Urease Test, stool examination for detection of *Giardia* detection is recommended.

Acknowledgements

Thanks for sincere cooperation of the staff of Dept. of Gastroenterology, Baqiyatallah, Emam Khomini and Valiasr Naja hospitals in Tehran and Protozeology laboratory, School of Public Health, Tehran University of Medical Sciences, Iran.
The authors declare that they have no conflict of interests.

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