Relationship between Helicobacter pylori Infection and Parasitic Infection in Patients in Ilam

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Submitted: November 2, 2013; Revised: January 5, 2014; Accepted: January 7, 2014

1. Background
Helicobacter pylori Helicobacter pylori is the responsible for chronic and also acute infections in the human stomach. Approximately half of the world population colonized or and infected by this organism. H. pylori can increase the pH of the stomach lumen by urease producing and secretion. In this situation pathogenic intestinal protozoa can cross through stomach easily and cause disease. The aim of this study was to evaluate the relationship between H. pylori infection and intestinal parasitic infections in patients of Ilam city.

Materials and Methods: Following stool samples collection during 2013 in patients with abdominal pain in Ilam, Iran. H. pylori infection was investigated based on stool antigen analysis (HPSA) by enzyme-linked immunosorbent assay (ELISA) method in patients who had recurrent abdominal pain. Stool specimens were examined using the direct examination and the spontaneous sedimentation method for detecting the trophozoite and cyst of parasites.

Results: In this study, we found 65 patients with H. pylori infection. Out of these 65 patients, the percentage of patients with positive results for Giardia lamblia was 30.7% and for Entamoebahistolytica/dispar was 12.3%.

Conclusion: The results of this study suggest that H. pylori infection may provide favorable conditions for giardiasis infection; however, this presumption needs further studies with larger sample size.

Keywords: Helicobacter pylori, parasitic infection, Giardia lamblia

2. Objectives
The aim of this study was to evaluate the relationship between H. pylori infection and prevalence of parasitic infection in patients in Ilam, Iran.

3. Materials and Methods
In this cross sectional analysis the patients with clinical significance of H. pylori infections that admitted to laboratory during 2013 were tested for H. pylori antigen by using enzyme-linked immunosorbent assay (ELISA) method in stool samples. Enrolled in this study. According to kit information, the sensitivity and specificity of this test are 83% and 92%, respectively.

Finally, the H. pylori positive samples were enrolled to study. Then, for direct examination of parasite’s trophozoites in stool samples light microscope with 40X magnification power was used.

Also, for detection of parasite’s ova sedimentation method was used as described previously (1). For acid-fast protozoa detection such as Isospora belli, Cyclosporacayetanensis, and Cryptosporidium parvum) Ziehl-Neelsen staining according to protocol was used.

4. Results
A total of 130 patients with abdominal pain participated in this study, of which 65 patients were infected by H. pylori based on ELISA test. Another Patients without H. pylori infection were excluded from our analysis. Trophozoite and cyst of Giardia lamblia in 20 (30.7%) and 7 (10.7%) of samples were seen, respectively. However, only patients who had excreted trophozoite of Giardia lamblia were calculated, since the presence of trophozoite in the stool is the sign of acute Giardiasis.

In 8 (12.3%) of samples Entamoeba histolytica / dispers cysts were seen. Any ova of parasites and acid-fast parasites were not seen.
5. Discussion

In current study, presence of parasitic agents among patients with H. pylori infections were evaluated. As mentioned above, H. pylori is responsible for different type of disorders such as stomach inflammation, duodenal ulcer, non-ulcerous dyspepsia, peptic ulcer, gastric cancer, and gastric mucosa associated lymphoid tissue (MALT) lymphoma (7, 8). Urea components can be degraded by Urease of the bacterium which cause stomach’s acid reduction (1). The lowest pH of the stomach is an innate immune system that make barrier against pathogens, and any interferences with acid producing can diminish this barrier and allows organisms to cross the this type of immune system.

*Giardia lamblia* is a parasite which cause an infection in small intestine, named Giardiasis (9, 10). *Giardia lamblia* can be transmitted by fecal oral pattern. This organism is the major cause of the diarrhea in children (11). Many factors can be the risk factors for giardiasis infections such as economic situation, population density, hygiene level, weather situation (12, 13). It has been studied that, the prevalence of giardiasis is related with hygiene level.

According to a study in 2013, the prevalence of *G. lamblia* in the children of Ilam city were 11.7% (14) reported. But, our analysis showed the prevalence of *G. lamblia* in *H. pylori* infected patients in Ilam was 42%. Therefore, it is hypothesizes, that *H. pylori* infection contribute with other infections such parasitic infection.

According to polymicrobial infections knowledges, one microbe make a favorable conditions for another one to more easily survive in their common host (15). In this regard, *H. pylori* has been known that it follow this pattern. For example, it has been reported that, *H. pylori* infections is related to *Schistosoma japonicum* Salmonella typhimurium infections (16, 17).

In Ankarklev and colleagues study’s (2012), significant higher frequency of *Giardia* infection in *H. pylori* infected patients were found (18).

According to Moreira and colleagues (2005) study’s, significant relation were seen between *H. pylori* infection and *G. lamblia* in the stool samples (19). I the Isavae and colleagues (2010) study’s, it has been showed, that 100% of H. pylori infection were concomitant with giardiasis (20). It has been reported a significant increase of urease activity in the group having co-infections (Giardiasis and *H. pylori*) than the group infected with *G. lamblia* alone (21, 22).

In other hand, high prevalence of *Giardia* in *H. pylori* infected patients may be related together, or *H. pylori* colonization facilitated by a previous establishment of *G. lamblia*.

6. Conclusion

In this study, presence of parasitic infections in persons which infected with *H. pylori* were surveyed. In conclusion, prevalence of parasitic infections in *H. pylori* infected patients were considerable. Also, more studies are needed for the validation of the relevance between *H. pylori* infection and with other parasites.

Conflict of Interests

The authors declare they have no conflict of interests.

Acknowledgements

We thank the personnel of Imam Khomeini Hospital and EbneSina Clinical Laboratory of Ilam.

Authors’ Contributions

Study concept and design: Hossein Kazemian; collection of data: Aref Shavalipour, Hamidreza Houri and Reza Mohebi; literature search: Jalil Kardan Yamchi; critical revision of the manuscript: Sobhan Ghafourian & Hamid Heidari; Supervision: Noorkhoda Sadeghifard

Funding/Support

This research was supported by Clinical Microbiology Research Center of Ilam University of Medical Sciences.

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