Correlation between Helicobacter pylori and excessive belching and bloating

Nihad Abdul-Hussain Jafar

University of Tikrit / College of Vet. Medicine / Department of Microbiology

Abstract

The purpose of this prospective study is to determine the prevalence of Helicobacter pylori among patients suffering from excessive belching and bloating (dyspepsia). The study was carried out on 60 individuals (30 male and 30 female) suffering from excessive belching and bloating without any signs and symptoms of gastric disorders or previous gastric diseases. This study showed that 39 (65%) out of 60 patients with excessive belching and bloating had anti-H. pylori antibodies in their serum comparing with only 9 (30%) out of 30 in control group. Therefore, excessive belching and bloating could be used as pre-symptoms for the development of H. pylori infection. On the basis of this evidences, it is acceptable to offer H. pylori eradication therapy to the infected patients with dyspepsia to prevent probable future infection and development of gastritis or peptic ulcer.

Key words: Helicobacter pylori, Belching and bloating, dyspepsia

Introduction

Helicobacter pylori (H. pylori) is a spiral-shaped bacterium that causes chronic infection in human stomachs, and often leads to gastritis and peptic ulcers (1,2). Since its characterization by Marshall & Warren in 1983, H. pylori have been found to have established role in peptic ulcer disease, non-ulcer dyspepsia, active and chronic gastritis and gastric carcinoma (3,4). The exact role of H. pylori in non-ulcer dyspepsia remains speculative (5), but it has been related to non-ulcer dyspepsia and widely published data suggests that H. pylori is etiologically linked to non-ulcer dyspepsia (6,7).

Helicobacter pylori is a common bacterium infecting about half the world's population. The prevalence of H. pylori infection varies widely by geographic area, age, race, ethnicity, and socio-economic status. Rates appear to be higher in developing than in developed countries (8,9). High prevalence of the acid peptic diseases as a result of H. pylori has negative impact on patient quality of life and also poses economical strains. Loss of working days due to acid peptic disease adds to economical burden. Early detection of H. pylori in any population and it eradication in such patients results in a significant reduction in usage of acid suppression and an improvement in overall quality and
severity of dyspeptic symptoms (10). Moreover, there is always a fear of resistance to anti H. Pylori treatment (drugs like clarithromycin and/or metronidazole) with empirical and irrational institution of drug therapy in acid peptic disease patients (11). Thus, it is important to find out regional H. pylori prevalence and identify high risk population infected with H. pylori so that treatment strategies can be planned and implemented in such patients to reduce the menace of this disease.

Many methods are used to diagnose H. pylori infection in patients with symptoms of gastrointestinal diseases. Specimen-dependent and costly invasive diagnostic methods include gastric and duodenal biopsy followed by urease test (presumptive), culture and/or histology staining (12). A stool sample may be useful for antigen testing to identify a current H. pylori infection. Non-invasive techniques include the urea breath test, which requires expensive laboratory equipment and moderate radiation exposure, and serological methods (13, 14). Individuals infected with H. pylori develop antibodies which correlate strongly with histologically confirmed H. pylori infection (15, 16, 17).

Frequent belching may indicate that too much air is being swallowed, or the presence of a disorder such as gastroesophageal reflux disease, peptic ulcer disease, and gastritis. H. pylori infection may contribute to belching and bloating as the bacteria produces and metabolizes ammonia resulting in the release of carbon dioxide. This production and metabolism of urea by the H. pylori bacteria is the chemical method by which it survives in the gastric acid of the stomach. In chronic infections, the large population of the H. pylori bacteria can contribute to small but significant quantities of carbon dioxide gas within the stomach (18).

The aim of this study is to evaluate the probable relationship between belching and bloating and the presence of anti-H. pylori antibody in serum of individuals suffering from excessive belching and bloating.

**Materials and methods**

Patients: Blood sample were collected from 60 patients (30 male and 30 female) attending private clinics at Al-Door city from 1st January 2012 until 31st May 2012. All patients suffering from excessive belching and bloating without any signs and symptoms of gastric disorders or previous gastric diseases. Their age ranged between 19 to 63 years old, with average of. Also blood samples were collected from thirty normal (15 male and 15 female) individuals without any signs and symptoms of gastric
Correlation between Helicobacter pylori and excessive belching and bloating

Tikrit Medical Journal 2017; 22(1): 60-67

disorders or previous gastric disease and used as control group. Their age ranged from 22 to 60 years old.

Detection of H. pylori antibody in the serum: The one step H. pylori test device (Acon) was used to detect anti-H. pylori antibody in serum of suspected (individuals with excessive belching and bloating) and control group. In this test procedure, anti-human IgG is immobilized in the test line region of the test. The test device placed in clean and level surface. Using the device dropper, three drops of serum were added to the specimen well (S) of the test device. If the serum contains H. pylori antibodies it will react with H. pylori antigen coated particles and the mixture will migrates chromatographically along the length of the test and interacts with the immobilized anti-human IgG. A colored line in the test line region within 10 minutes indicating a positive result. If the specimen does not contain H. pylori antibodies, a colored line will not appear in the test line region indicating a negative result. A colored line in the control well (C) should be appear in all positive or negative specimens.

Results

The results of the present study showed that 39 (65%) out of 60 individuals who had excessive belching and bloating have anti-H. pylori antibodies in their serum, while only 9 (30%) out of 30 normal individuals (control group) have anti-H. pylori antibodies in their serum (Table 1). According to sex distribution it is clear that 25 (64.1%) out of the 39 positive cases were female, while 14 (35.9%) of the cases were male (Table 2).

Discussion

H. Pylori has been shown to be associated with peptic ulcer disease, active and chronic gastritis and gastric carcinoma (3,4). Many studies have been conducted to establish link between H. Pylori and non-ulcer dyspepsia. Results of some studies suggest that there is no role of H. Pylori in non-ulcer dyspepsia (19, 20). But other studies relate H. Pylori to non-ulcer dyspepsia and suggest that there is evidence that H. Pylori plays an etiological role in non-ulcer dyspepsia (21, 22).

In present study H. Pylori detected by serological method in 65% of patients suffering from dyspepsia (Table 1). This result is similar to that found by Ghulam Sarver et al who detected H. Pylori by serological method in 71% of dyspeptic patients (23). H. Pylori is prevalent in varying frequencies in different parts of world. There is high prevalence of H. Pylori in developing countries. Review of Western literature reveals that prevalence of H. Pylori in dyspeptic patients ranges from 30-

Tikrit Medical Journal 2017; 22(1): 60-67
Correlation between Helicobacter pylori and excessive belching and bloating

The prevalence is low in developed countries as compared to developing countries (24). This is evident in studies conducted by Gregson et al (25), Rokkas (26), in which H. Pylori was found to be 55% 37%, respectively in patients suffering from dyspepsia.

According to age distribution it was found that more than 89% of the cases with positive anti-H. pylori antibodies were at age group between 20-50 years old (Table 2). Similar results found in Pakistan by Hameed K, who found that more than 80% of dyspeptic patients who have anti-H. pylori antibodies were at age group between 20-50 years old (27). In a result conducted in Tikrit city at Iraq in 1999, it was found that the majority of patients (65%) infected with H. pylori was at age group 20-50 (28).

Conclusion

excessive belching and bloating could be used as pre-symptoms for the development of H. pylori infection.

Recommendation

On the basis of the results of the present study, it is acceptable to offer H. pylori eradication therapy to the infected patients with dyspepsia to prevent probable future infection and development of gastritis or peptic ulcer.

Acknowledgement

I sincerely thank Dr. Sinan Bahjat Issa for providing patients and Mr. Hamad Bayat Hameed for his help in taking the samples.

References

7- Marshal BJ and Warren JR. Unidentified curved bacillus in the stomach of patients with Gastritis

Tikrit Medical Journal 2017;22(1):60-67
Correlation between Helicobacter pylori and excessive belching and bloating

Correlation between Helicobacter pylori and excessive belching and bloating


22- Talley NT, Hunt RH. What role does Helicobacter pylori play in dyspepsia? Arguments for and against H. Pylori being associated with dyspeptic symptoms. Gastroenterology. 1997;(113(6)):67-68


Correlation between Helicobacter pylori and excessive belching and bloating


<table>
<thead>
<tr>
<th>Groups</th>
<th>No. (%) of cases with anti-H. pylori antibodies in their serum</th>
<th>No. (%) of cases without anti-H. pylori antibodies in their serum</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals with excessive belching and bloating</td>
<td>39 (65)</td>
<td>21 (35)</td>
<td>60 (100)</td>
</tr>
<tr>
<td>Control group</td>
<td>9 (30)</td>
<td>21 (70)</td>
<td>30 (100)</td>
</tr>
</tbody>
</table>

Table (2): Age and Sex distribution among cases with anti-H. pylori antibodies.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>20-30</td>
<td>1</td>
<td>2.6</td>
<td>8</td>
<td>20.5</td>
<td>9</td>
</tr>
<tr>
<td>31-40</td>
<td>5</td>
<td>12.8</td>
<td>11</td>
<td>28.2</td>
<td>16</td>
</tr>
<tr>
<td>41-50</td>
<td>6</td>
<td>15.4</td>
<td>4</td>
<td>10.3</td>
<td>10</td>
</tr>
<tr>
<td>51-60</td>
<td>2</td>
<td>5.1</td>
<td>2</td>
<td>5.1</td>
<td>4</td>
</tr>
<tr>
<td>61-70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>total</td>
<td>14</td>
<td>35.9</td>
<td>25</td>
<td>64.1</td>
<td>39</td>
</tr>
</tbody>
</table>
Correlation between Helicobacter pylori and excessive belching and bloating

The relationship between Helicobacter pylori and excessive belching and bloating.

Nehad Abdulhusen Gumr

College of Medicine, College of Dental Medicine, Department of Pathology, Pathology Laboratory.

Summary

The aim of this study was to determine the relationship between Helicobacter pylori and excessive belching and bloating. The study included 60 patients (30 males and 30 females) who were examined by biopsies of the stomach. The study found a significant difference in the incidence of Helicobacter pylori between the two groups. Helicobacter pylori was found in 39 out of 60 patients (65%) of the study group, while it was found in 9 out of 60 patients (15%) of the control group. This significant difference suggests that Helicobacter pylori may be a risk factor for excessive belching and bloating. Therefore, the study recommends the use of appropriate treatment for patients with Helicobacter pylori, including antibiotic therapy, to prevent the occurrence of excessive belching and bloating.