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Original Article

Urea Breath Test (UBT) shows high prevalence of Helico bacter pylori (H. pylori) infection in patients with dyspepsia in southern Iran.

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Abstract

Introduction: Helicobacter pylori (H. pylori) is suggested to play a role in dyspepsia. The aim of this study was to assess the prevalence of H. pylori, in dyspeptic patients.

Methods: This cross-sectional study was conducted on 850 patients with dyspepsia in Iran (2006-2007). The patients were selected using convenience sampling method. Data was collected using ROME III criteria questionnaire. Patients who consumed antibiotics one month before the study were excluded. Urea breath test (UBT) was performed for diagnosis of H. pylori infection and patients with a UBT value above 25 were considered as positive for H. pylori infection.

Results: Among 782 patients, 540 (69%) were female and 242 (31%) were male, with the average age of 35.3±18. The prevalence of H. pylori infection was 72.1% (564). There was a significant correlation between H.pylori with age and gender ($p<0.05$). The prevalence of H. pylori among patients without abdominal fullness, gastroesophasial reflux, peptic ulcer and gastrointestinal bleeding was significantly higher than those with positive history of dyspeptic symptoms ($p<0.05$). There was no significant association between H. Pylori infection and epigastric pain, gastric cancer or belching (P – value > 0.05).

Conclusion: The prevalence of H. pylori in southern Iran is higher than other areas. Screening and treating patients with dyspeptic symptoms are recommended.

Keywords: Prevalence, Helicobacter pylori, patients.

Introduction:

Up to 40% of the general population suffers from upper gastrointestinal symptoms (1). Dyspepsia is one of the most common reasons of gastrointestinal related physician referrals (2). According to "ROME" III definition, dyspepsia is a chronic or recurrent pain or discomfort in the stomach and duodenum. Its symptoms include postprandial heaviness, early satiety, heartburn, bloating, epigastric pain, belching, nausea and vomiting (3-5). These symptoms can reduce the quality of life of patients (1). Several factors such as psychosocial and environmental features are involved in the pathophysiological of dyspepsia. Helicobacter pylori (H. pylori) are suggested to play a role in dyspepsia (6, 7). H. pylori infection has infected over 50% of world's population, especially in developing countries. It is estimated that up to 75% of the general population of these countries are infected with this organism (8, 9). Evidence shows that the prevalence of H. pylori infection is higher among patients with dyspepsia than those without it (10-12). H. pylori infection is also related to peptic ulcer bleeding and gastric cancer (13). Several invasive and noninvasive tests have recommended For H. pylori diagnosis. Urea Breath Test(UBT) and stool antigen testing are the best noninvasive tests for diagnosis (14). Carbon-14 (C-14) urea breath test has a high sensitivity and specificity for H. pylori infection diagnosis, UBT has more advantages than other diagnostic methods. For instance it is easy to perform, relatively inexpensive, rapid response, appropriate for office use and enduring it hasn't danger (15-19). Nevertheless the results of UBT in patients that had intake proton pomp inhibitors or antibiotics in past 1 month may be false negative(20). The aim of this study was to assess the prevalence of h. pylori, in dyspeptic patients.

Method:

This cross-sectional study was carried out among 850 dyspeptic patients that referred to Shahid Mofateh clinic (general outpatient clinic for infectious disease) of Yasouj University of medical sciences in Iran in 2006-2007. This study was approved by the research ethics committee. These patients were selected using convenience sampling method. Data was collected using ROME III criteria questionnaire for dyspepsia. This questionnaire included; demographic questions such as age and gender, patients were classified According to the dyspeptic symptoms (epigastric pain, abdominal fullness, bloating and belching), Past medical history of patients (history of gastrointestinal bleeding, peptic ulcer and gastroesophageal reflux), Treatment for H. Pylori infection, Family history of gastric cancer and peptic ulcer.

Patients who received antibiotic treatment 1 month before recruiting, proton pomp inhibitors or H2-blockers 2 weeks before recruiting and those with incomplete data were excluded.

After 12 hours fasting, the patients swallowed a 14c-urea capsule with 50 cc of water to determine H. pylori status, and after 10 minutes, the samples were collected and analyzed. Patients with UBT values below 25 were negative for H. pylori infection, patients with UBT values were between 25-50 and

patients with UBT values higher than 50 were positive for H. pylori infection. Data was analyzed with SPSS 18 by using descriptive statistical tests such as mean, frequency and chi-square.

Results:

Among 850 patients, 782 were enrolled in the study and 68 were excluded (due to previous treatment for H. pylori or lack of cooperation). Overall, 540 (69%) of the patients were female and 242 (31%) were male. the average age of the participants was 35.3±18 with a range of 12-85 years. Prevalence of H. pylori infection was 72.1% (564) within the population (mean age, 34 years) and 218 (27.9%) were not infected. in this study females were more infected with H. pylori than males and this difference was statistically significant (p=0.04). Table 1 shows the prevalence of H. pylori infection among male and female.

Table 1: H. pylori infection rates in relation to gender

Gender	Frequency (N)	H. pylori Positive N (P)	H. pylori Negative N (P)	p-value
Female	540	401(75%)	139(25%)	0.04
Male	242	163 (68.6%)	79(31.4%)	

Among the patients 527(67.4%), 227(29%) and 293(37.4%) had a history of abdominal fullness, gasteroesophasial reflux and peptic ulcer, respectively. Among patients without abdominal fullness, 196(76.9%) had H. pylori infection, these differences were statistically significant (p<0.05).

This study showed frequency of H. pylori infection decreased with increasing age (p< 0.05). Table 2 shows the frequency of H. pylori infection among participants according to age.

Table 2: prevalence of H. pylori infection in relation to age.

Age	**Frequency**	**H.pylori Positive N (P)**	**H. pylori Negative N (P)**	**P-value**
<30 Y/O	240	181 (75.5%)	59 (24.6%)	0.02
30-50 Y/O	431	305 (70.8%)	126 (26.2%)	
>60 Y/O	37	21 (56.8%)	16 (43.2%)	

Among patients who had gastroesophageal reflux, 152 (67%) were positive for H. pylori infection whereas 74.2% (412) of patients without gastroesophageal reflux had H. pylori infection. This difference was statistically significant (p=0.02).

In this study, 73.1% (372) patients without peptic ulcer had higher prevalence of H. pylori infection compared to patients with peptic ulcer 192 (65.5%). This was statistically significant (p=0.001).

Presence and absence of H. Pylori infection in was similar Patients with gastro intestinal bleeding while 74.2% of patients with no history of gastrointestinal bleeding, patients had positive status of H. Pylori infection. Generally, H. Pylori infection in patients with negative history of gastrointestinal bleeding were significantly more than those with positive history of gastrointestinal bleeding (p=0.004). There was no significant association between H. Pylori infection and epigastric pain, gastric cancer or belching (P – value > 0.05).

The rate of H. pylori infection is higher in third world countries than developed countries, evidence shows its rate in Iran is up to 80-90%(Abadi, Taghvaei et al. 2011). H. pylori infection is considered as a risk factor for mucosa-associated lymphoid tissue (MALT) lymphoma, gastric ulcer, duodenal ulcer and gastric cancer (Parsonnet, Hansen et al. 1994, Megraud 2004, O'Connor, Gisbert et al. 2010).

Conclusion:

The rate of H. pylori infection is higher in third world countries than developed countries, evidence shows its rate in Iran is up to 80-90%(21). H. pylori infection is considered as a risk factor for mucosa-associated lymphoid tissue (MALT) lymphoma, gastric ulcer, duodenal ulcer and gastric cancer (22-24).

In this study frequency of H. pylori infection was 72.1%among dyspeptic population. This finding is consistent with other studies conducted in Pakistan (74.4%)(25), Venezuela (61-90%) (26), brazil (63.4%) (27) and Eastern Cape Province (66.1%) (28), but was higher than Australia (15.5%) (29), Spain (51.6%) (30), Slovak republic (35%) (31), Ukraine (42.7%) and Cuba (30.8%) (32). The results show that H. pylori infection is significantly higher in females than males. This was inconsistent with a study carried out by Sasidharan, (33) and is similar to a study conducted in Saudi Arabia (34). These results show a reduction of H. pylori infection rate with age. This result was also different than other studies conducted in Saudi Arabia (34) and Slovak republic (31). There were no association between H. pylori positivity and gastroesophaseal reflux, gastric ulcer and abdominal fullness. This is similar to other studies carried out by Smith and Macenlle Garcia (35, 36). However dissident results have been reported in some studies (27, 37, 38).

This study shows H. pylori infection has a high prevalence in southern Iran, nevertheless it has a lower prevalence than previous studies carried out in northern regions of Iran (39). This study also suggests that the H. pylori status don't correlate with dyspeptic symptoms. Some situations can affect the prevalence of H, pylori infection including eating polluted and raw vegetables, water distribution systems, houseflies and overloaded families (9, 40). Some essential changes can reduce the prevalence of H. pylori infection such as improving individual's sanitation and life style (9).

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Conflicts of Interest: The authors of this article declare that they have no conflicts of interest.

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