

## Helicobacter Pylori infection among Dyspeptic Patients Referred for Endoscopy

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### ABSTRACT

**Background and Objectives:** Dyspepsia is a relatively common clinical condition encountered by primary care physicians, lately H.pylori has been related to duodenal and gastric ulcers, and to a lesser extent, gastric malignancy. Screening for H.pylori can now be done by noninvasive techniques. Evaluating frequency of H.pylori infection in dyspeptic patients in relation to age, gender, patient symptoms and endoscopic findings.

**Methods:** This prospective and descriptive study was conducted in Kurdistan Center for Gastrology and Hepatology (KCGH) on 86 dyspeptic patients, all the patients underwent Oesophageogastroduodenoscopy to find the cause of dyspepsia, a blood sample collected for determination of serum IgG for H.pylori.

**Results:** H.pylori account for 54(62.7%) of 86 dyspeptic patient. The incidence of the infection was higher in female patients ( $p=0.03$ ), there was statistically significant difference between female and male ( $p=0.02$ ). H.pylori infection is common in age groups 21-40 and 41-60 (26.7% and 23.2%) respectively, there was no relation between patient symptoms and H.pylori infection ( $p>0.05$ ) except vomiting, loss of appetite and weight loss ( $p<0.05$ ) also there was no association between endoscopic findings and H.pylori infection ( $p>0.05$ ) except for gastric and duodenal erosion ( $p<0.0001$ ).

**Conclusions:** H.pylori infection is frequent among dyspeptic patients, the infection is more common between ages 21-60 years and H.pylori infection has no relation to symptoms and endoscopic findings.

**Key words:** Dyspepsia, H.Pylori, Endoscopy.

### INTRODUCTION:

Dyspepsia is a relatively common clinical condition encountered by primary care physicians and is found in approximately 20% to 25% of adults in the United States<sup>1</sup>. Dyspepsia is characterized by chronic or recurrent upper abdominal pain or discomfort and is often associated with one or more of the following symptoms occurring at any given time: early satiety, a burning sensation in the upper abdomen, upper abdominal fullness or bloating and/or nausea.<sup>2</sup> In patients presenting with predominant or frequent (i.e. more than once a week) symptoms of heartburn, gastroesophageal reflux disease (GERD) is the primary diagnosis that should be

considered until proven otherwise<sup>3</sup>. It is estimated that 20%-40% of the population complain of dyspepsia<sup>4-6</sup>. Most dyspeptic patients either have no identifiable cause of dyspepsia (non-ulcer dyspepsia) NUD or have peptic ulcer disease PUD namely, gastric or more commonly, duodenal ulcers<sup>7,8</sup>. Less common causes of dyspepsia include gastric cancer and pancreatic disease. Given the high prevalence of dyspepsia in the population and the expenses incurred by endoscopy, dyspepsia is a major burden on health system resources<sup>6</sup>. Lately, Helicobacter pylori (H.pylori), has been linked to duodenal and gastric ulcers, and to a lesser extent, gastric malignancy. Screening for H.pylori can now be done by

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Tests or urea-breath tests: Eradication of H.pylori has been shown to cure PUD<sup>7</sup>. However, in most studies, it had little impact on NUD. It has been suggested that instead of subjecting dyspeptic patients to endoscopy as an initial diagnostic test one may screen these patients for H.pylori by noninvasive tests and treat those who test positive. Endoscopy would then be restricted to patients who test negative for H.pylori, those who do not improve after a therapeutic trial for H.pylori, and to patients whose clinical picture is suggestive of malignancy e.g., weight loss<sup>7</sup>. The potential cost effectiveness of this approach was based on the epidemiologic profile of H.pylori in Western countries, where the prevalence of this infection is relatively low compared with that seen in third world countries<sup>9-11</sup>. The Aims of the study was to evaluate frequency of H.pylori among the dyspeptic patients & to determine the relation of H.pylori infection to patient's symptoms and endoscopic findings.

#### **PATIENTS& METHODS:**

##### **Study design:**

This prospective and descriptive study was conducted in the Kurdistan Center for Gastroenterology and Hepatology (KCGH) in Sulaimani Teaching Hospital. The studied subjects were chosen from patients that referred to KCGH for performing OGD (open access endoscopy). After explaining the nature and purpose of the study, informed consent was obtained from all the patients. 86 patients (54 females and 32 males), who presented to KCGH for OGD between the period of 16/12/2007 to 16/03/2008 and having symptoms like (retrosternal burning, upper abdominal pain, belching, fullness after meals, anorexia, nausea, vomiting, regurgitation) of more than four weeks duration were included in the present study. A detailed history was elicited from each patient. Complete general physical and systemic examination was done and all the previous and present records and investigations were assessed. All patients underwent

basic investigations to rule out any other disease. Hb gm%, ESR, blood sugar, AST, ALT, serum alkaline phosphatase, serum amylase, urine examination, serum urea, creatinine, electrolytes, ECG and ultrasonography of abdomen to exclude other disease like gall stones, cholecystitis. Patients suffering from diabetes mellitus, liver diseases, gallbladder disease, kidney disease, pancreatic disease, pregnant women, individuals over 75 years of age and patients with complex medical or surgical conditions were excluded from the study.

##### **Methods:**

**Endoscopy:** Patients were fasted overnight or 8 hours before performing OGD, sedation given with intravenous Midazolam 5mg-10mg. The esophagus, stomach and duodenum were visualized and mucosal findings on endoscopy were noticed, upper gastrointestinal endoscopy was done by (Olympus- EVIS LUCERA –GIF- XQ 260) and (Pentax 2.8 EG-2985K). The Endoscopic probe was sterilized with Gluteraldehyde (Glutide-28) in endoscope washer for 20 minutes. **Helicobacter pylori assay:** Helicobacter pylori infection was determined by the measurement of serum H. pylori immunoglobulin (IgG) antibody with ELISA (HELICOBACTER PYLORI IgG; Biohit plc.Helsinki, Finland). If the result of Anti H pylori IgG <34 EIU it means negative, if the result between 34-42 EIU it means borderline and if its >42 EIU it means positive. **Statistical Analysis:** Data were translated into codes using a specially designed coding sheet, and then converted to computerized database. An expert statistical advice was sought and statistical analyses were done using SPSS (Statistical Package for Social Science) version 15 and STATGRAGH PLUS (version 4) computer software. Student's t test, chi square test and Fischer exact test is used to assess the statistical significance difference.

**RESULT:**

This study was conducted on 86 dyspeptic patients with a mean age  $43.22 \pm 16.72$  and their ages were ranging from 16 to 75 years. 54 women and 32 men were participated in the study and 22 of them were smoker and 11 of them were drinker. The distribution of the results of H. pylori, fifty four (62.7%) out of 86 were H. pylori positive while thirty two (37.2%) cases were negative for H. pylori, student's t test was used to compare the two result which shows statistical significance difference ( $p=0.03$ ). The present study enrolled 37 (68.5%) females which is significantly higher than males 17 (31.4%) ( $p=0.02$ ) for positive H.pylori while no statistical difference were found between males and females in negative H.pylori cases ( $p=0.99$ ) by using Chi-square test. Mean age of the studied subject is  $43.22 \pm 16.72$  ranged between 16-75 years. The maximum numbers of patients were in the age group of 21-40 years and 41-60 years (26.7% and 23.2% respectively), there is no statistical

association between these age groups and frequency of H.pylori infection except for age groups of  $\leq 20$  years ( $p < 0.05$ ) by using Chi-square test in (Table 2). There were no association between patient's symptom and H.pylori status except for vomiting, loss of appetite and mild weight loss ( $< 2-3$ kg), the most frequent symptom is upper abdominal pain followed by retrosternal burning. As shown in (Table 3). Table (4) shows that there is no significant relation between endoscopic finding and the results of H. pylori except for duodenal erosion and gastric erosion, the most common cause of dyspepsia in the positive H. pylori patients is combined finding (15.1%) (i.e. pathology in esophagus and stomach, stomach and duodenum, or esophagus and duodenum) followed by NERD (12.7%) and duodenal ulcer (9.3%). Other endoscopic findings like (lax cardia and esophageal varices) were account for (3.4%) of H.pylori positive patients. Chi-square test for the comparison of two proportions was used to assess patient's endoscopic finding and

**Table 1:** Number of H.pylori positive & H.pylori negative patients according to sex.

| Gender  | H.pylori status<br>N=86 |                      |
|---------|-------------------------|----------------------|
|         | Positive (%)<br>N=54    | Negative (%)<br>N=32 |
| Male    | 17 (31.5)               | 15 (46.9)            |
| Female  | 37 (68.5)               | 17 (53.1)            |
| P value | 0.02                    | 0.99                 |

**Table 2:** Age-wise distribution of H.pylori status among dyspeptic patients

| Age group | H.pylori status<br>N=86 |              | P value |
|-----------|-------------------------|--------------|---------|
|           | Positive (%)            | Negative (%) |         |
| $\leq 20$ | 2 (2.3)                 | 4 (4.6)      | 0.03    |
| 21 to 40  | 23 (26.7)               | 11 (12.7)    | NS      |
| 41 to 60  | 20 (23.2)               | (13.9) 12    | NS      |
| > 60      | 9 (10.4)                | 5 (5.8)      | NS      |

**Table 3:** Symptom profile in H.pylori positive and H.pylori negative patients.

| Main presenting symptom  | H.pylori status<br>N=86 |              | P value  |
|--------------------------|-------------------------|--------------|----------|
|                          | Positive (%)            | Negative (%) |          |
| Upper abdominal pain     | 19 (22)                 | 8 (9.3)      | NS       |
| Retrosternal burning     | 14 (16.2)               | 7 (8.1)      | NS       |
| Fullness after meals     | 7 (8.1)                 | 4 (4.6)      | NS       |
| Nausea                   | 4 (4.6)                 | 9 (10.4)     | NS       |
| Vomiting                 | 4 (4.6)                 | 1 (1.1)      | 0.006    |
| Loss of appetite         | 4 (4.6)                 | 2 (2.3)      | 0.03     |
| Weight loss (mild<2-3kg) | 2 (2.3)                 | 1 (1.1)      | < 0.0001 |

**Table 4:** Endoscopic findings and H.pylori status among dyspeptic patient .

| Endoscopic findings              | H.pylori status<br>N=86 |              | P value  |
|----------------------------------|-------------------------|--------------|----------|
|                                  | Positive (%)            | Negative (%) |          |
| Combined(see text above)         | 13 (15.1)               | 6 (6.9)      | NS       |
| Non erosive reflux disease(NERD) | 11 (12.7)               | 7 (8.1)      | NS       |
| Duodenal ulcer                   | 8 (9.3)                 | 0 (0%)       |          |
| Gastric ulcer                    | 4 (4.6)                 | 0 (0%)       |          |
| Duodenal erosion                 | 2 (2.3)                 | 1 (1.1)      | < 0.0001 |
| Gastric erosion                  | 1 (1.1)                 | 2 (2.3)      | < 0.0001 |
| Others                           | 3 (3.4)                 | 8 (9.3)      | NS       |
| Normal OGD                       | 12 (13.9)               | 8 (9.3)      | NS       |

**DISCUSSION:**

H.pylori is the most common bacterial infection in man .Most epidemiological studies revealed that the prevalence of H.pylori in children is low and increases with age.<sup>63, 71</sup> The present study enrolled 86 dyspeptic patients. Out of which 54 patients had H. pylori positive giving a prevalence of 62.7% which significantly higher than negative H.pylori patients 32

The present study result is compatible to other study (60%) which enrolled 400 dyspeptic patients in Sulaimani General Teaching Hospital, they were examined by upper G.I endoscopy and 2 piece biopsy were taken from antrum for rapid urease test for detection of H.pylori infection. This can be explained by high incidence of H.pylori in developing countries.<sup>63</sup> .The present result is higher than that of Zana et al (38%) which performed their study on

102 patients<sup>64</sup>. This may be due to different methodology as they use histopathological test for diagnosis of H.pylori in gastric biopsies and IgG determination can not differentiate between newly infected and chronic cases. While the present study result is nearly compatible to that of Haim Shmuly et al which show positive H.pylori to be (71%),<sup>65</sup> this may be due to inadequate sanitation practices and crowded or high-density living conditions in developing countries than in developed countries. In the current study among 54 H. pylori positive patients, 37(68.5%) were females which is higher than males 17 (31.4%), this is nearly inline with that of Haim Shmuly et al which showed H. pylori positive patients to be 59 % of female gender<sup>65</sup>. This may be explained by that, females seeking health advice more than males at least in our region. In the present study, age distribution showed maximum prevalence of H. pylori infection in the age group of 21-40 and 41-60 years (26.7% and 23.2% respectively) and minimum prevalence in the age group of  $\leq 20$  and  $> 60$  years (2.3%, and 10.4% respectively). This nearly inconsistent with study of Rajesh Kumar et al which showed maximum prevalence of H.pylori infection is between 36-45 and minimum prevalence between 66-75<sup>66</sup>. This can be explained by the fact that H.pylori infection increases with age and inadequate sample size, different methodology and ethnic group. In the present study most of the common clinical features did not show a significant association with either presence or absence of H.pylori infection except vomiting, weight loss and loss of appetite ( $p=0.006$ ,  $=0.03$  and  $<0.0001$ ) respectively. This is compatible with other studies, in which the severity of various symptoms did not show a significant association with either the presence or absence of H.pylori, except the severity of abdominal distention, and heartburn. ( $p<0.001$  and  $<0.05$  respectively)<sup>67-71</sup>. In the present study, most patients (62.7%) were infected with H.pylori. The frequency of this infection had

dyspepsia as determined by endoscopy. These observations are consistent with those reported previously from Eman A.Abahussain et al study<sup>71</sup>. A minority of our patients were found to have a duodenal erosion and gastric erosion (2.3% and 1.1% respectively) ( $p<0.0001$ ). Interestingly, no gastric cancers were encountered in this group of patients, despite the high frequency of H.pylori in our population. This apparent lack of association between the frequency of H.pylori on one hand and the symptoms and cause of dyspepsia on the other hand most probably reflects the high frequency of H.pylori in the general population.

#### CONCLUSIONS:

1. This study revealed that infection with H. pylori is frequent among dyspeptic patients referred for endoscopy in KCGH in Sulaimani Teaching Hospital.
2. H. pylori infection is more common among subjects aged between 21-60 years than among children and older aged subjects (more than 60 years).
3. The frequency of H.pylori infection in general had no significant correlation with clinical features and the underlying cause of dyspepsia as determined by endoscopy, which indicates the high frequency of H.pylori in our region.

#### RECOMMENDATIONS:

1. Use of test and treat strategy for detection and eradication of H. pylori infection recommended in dyspeptic patients without severe symptoms or signs suggestive of underlying malignancy or subjects aged less than 55 years.
2. Further studies are needed on dyspeptic patients to determine the prevalence and incidence of H. pylori infection in our region.
3. Diagnosis of H. pylori needs further investigation like IgM, IgA and gastric biopsy to increase the accuracy and to differentiate between newly infected cases and chronic cases.

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