

Helicobacter Pylori infection in Adult Patients with
Non- Ulcer Dyspepsia

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Abstract:

Non –ulcer dyspepsia is the most common reason for patients to experience chronic epigastric pain or discomfort in which the causes are multifactorial but Helicobacter pylori infection is widespread and well recognized as major cause of gastro-intestinal diseases. Aim: This study aimed to estimate prevalence of Helicobacter pylori infection among dyspeptic patients with no ulcer formation Method: The present cross – sectional study was done in the outpatients department of AL-Gomhoria Teaching Hospital. A total of 208 adult patients attending Gastro - Intestinal Outpatient Department for upper gastrointestinal disorders symptoms. To find out the Helicobacter pylori the patients were examined for stool antigen using Card test. Negative upper endoscopy examination was required to rule out ulcer formation. A detailed data was collected, regarding the sex, age of the patient and smoking habits Result: out of these 208 patients,92 were found positive for Helicobacter pylori by stool Ag test , giving a prevalence of (44.2%). Among a total of 143 males,

61 were found positive for Helicobacter pylori (42.7%) and among 65 females, 31 were found positive (47.7%). Age distribution showed maximum prevalence of Helicobacter pylori in the age group of 30-39 years (50.7%) with statistically significant p value 0.01 and minimum prevalence in the age group of more than 70 years (20%). A higher prevalence of Helicobacter pylori was found among smoker patients (54.9%) with statistically significant p value 0.001 and among patients having gastritis (53.3%) was statistically significant p value 0.001. The study of symptoms intensity showed a prevalence of (50%) in patients with severe symptoms intensity were p value was 0.0 1 statistically significant. Conclusion: Dyspepsia with evidence of Helicobacter pylori infection and absence of ulcer formation were with highest prevalence among smoker cigarette, gastritis and those patients with age group of 30-39 years.

Keyword: Dyspepsia, Helicobacter pylori, non-ulcer formation

Introduction:

The term “dyspepsia,” derived from the Greek words dys (bad) and pepsis (digestion), refers to symptoms thought to originate in the upper gastrointestinal tract (1) and is often used to refer to upper abdominal pain or discomfort but may also encompass symptoms of early satiety, postprandial abdominal bloating or distention, nausea,

and vomiting. (2) An organic cause is found in 40 percent of patients with dyspeptic symptoms. (3) The most common organic disorders causing dyspepsia are gastro duodenal ulcer, gastro-esophageal reflux disease, and gastric cancer (4) Around 60%

of the patients with dyspepsia do not have obvious organic lesions after thorough investigation (5) that is, the diagnosis is essential, functional, or non -ulcer dyspepsia. The history and physical examination do not reliably differentiate organic from non-ulcer dyspepsia. (6)

Non-ulcer dyspepsia (NUD) is a complex disease entity with respect to its pathophysiology and can be categorized into three groups: ulcer-like, dysmotility - like, and reflux-like dyspepsia according to their predominant symptoms. (7) NUD is defined by the diagnostic criteria as the presence of one or more of the following symptoms: bothersome postprandial fullness, bothersome early satiety, bothersome epigastric pain, or bothersome epigastric burning, and no evidence of structural disease including upper endoscopic findings to explain the symptoms, (8) that related to multifunctional disorders of the upper gastrointestinal tract mediated by altered gastrointestinal motility, (9) abnormal acid secretion, (10) visceral hypersensitivity, (11) an imbalance of the autonomic nervous system, (2) psychological factors, and Helicobacter pylori infection. (13) Helicobacter pylori (*H. pylori*) are one of the most common pathogens affecting humans, reported to infect approximately 35% to 70% of the world's population. Many individuals infected with *H. pylori* will develop asymptomatic gastritis, but 10% develop peptic ulcer, gastric or duodenal, or gastric cancer. The clinical outcome of the infection depends on a combination of bacterial, host, and environmental factors. (14) Globally, the prevalence of *H. pylori* in patients with an ulcer or non-ulcer dyspepsia is high. The role of *H. pylori* in non-ulcer dyspepsia is less clear and the clinical benefit of the eradication remains and symptomatic improvements following *H. pylori* eradication have been matters of debate. (15)

Methods:

A total of 208 patients (143 males and 65 females) participated in this study attending outpatient department for symptoms of dyspepsia. Informed consent was taken from all the patients after explaining to them the nature and purpose of study. Endoscopy was carried out to exclude the presence of peptic ulcer. Patients treated with antibiotics, bismuth, or proton pump inhibitors within 4 weeks preceding the study were excluded. Stool samples were collected in airtight containers and stool assay was performed using a non-invasive, accurate Immunocard STAT HpSA test.

Statistical Analysis

Data were analyzed by descriptive and the chi-square test to compare the association between different variables and positive H. pylori. A value of $P < 0.05$ was considered statistically significant. Calculations were done using the software package SPSS 22.0

Results:

Out of total 208 patients, 92 patients were H. pylori positive giving a prevalence of (44.23%) (Table 1)

Out of total 143 males, 61 were positive for Helicobacter pylori (42.7%) whereas out of 65 females 31 were positive (47.7%) (Table 2)

The prevalence was estimated in different age groups, age ranges from 18 to above 70 years with mean of 53.0 ± 8.2 . The maximum number of positive patients was found in the age group of 30-39 years 50.7% and the minimum prevalence was in the age group of above 70 years (20%). Statistical significant were in the age of 30-39 with p-value 0.001 and age of 40-49 years with p-value 0.05 (Table 3)

Out of 113 cigarette smoking patients 62 were positive for Helicobacter pylori with a prevalence of (54.9%) were Statistically significant p-value 0.001 in compare

to 95 non- smoker patients were 30 positive for H. pylori with a prevalence of (31.6 %) (Table 4)

Symptoms intensity were grouped and classified according to mild, moderate and sever. Out of 118 patients belonging to mild intensity symptoms 53 were positive for H. Pylori(44.9%) , out of 78 of moderate intensity symptoms , 33 were positive for H . pylori(42.3%) and out of 12 of sever intensity symptoms , were 6 positive for H . pylori (50%) with statistically significant p value 0.01 (Table 5)

Out of 98 positive H. pylori patients, 49 patients were with abnormal endoscopic findings (Gastritis) and with prevalence of (53.3 %) and normal endoscopic findings in 43 with prevalence of (46.7. %) (Table 6)

Table 1: Helicobacter pylori prevalence

| | |
|-------------------------|--------|
| Total subject | 208 |
| Positive for H. pylori | 92 |
| Prevalence of H. pylori | 44.2 % |

Table 2: Helicobacter pylori positive patients according to gender

| sex | Total | Total positive subjects for Helicobacter pylori | Percentage % |
|--------|-------|---|--------------|
| Male | 143 | 61 | 42.7 |
| Female | 65 | 31 | 47.7 |

Table 3: Helicobacter pylori positive patients according to age groups

| Age group | Total subjects | No. of positive patients | Percentage % | P- value |
|-----------|----------------|--------------------------|--------------|----------|
| 18-29 | 70 | 31 | 34,3 | 0.197 |
| 30-39 | 69 | 35 | 50.7 | 0.01* |
| 40- 49 | 37 | 17 | 45.9 | 0.05 * |
| 50- 59 | 18 | 5 | 27.8 | 0.156 |
| 60- 69 | 9 | 3 | 33.3 | 0.605 |
| >70 | 5 | 1 | 20 | 0.119 |

Chi - square test *P-value *statistically significant*

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Table4: Helicobacter pylori positive patients according to Smoking cigarette

| | Total subjects | No. of positive patients | Percentage % | P value |
|------------|----------------|--------------------------|--------------|---------|
| Smoker | 113 | 62 | 54.9 | 0.001** |
| Non-smoker | 95 | 30 | 31.6 | 0.119 |

Chi-square test. *p-value* *statistically significant

Table 5: Helicobacter pylori positive patients according to symptoms intensity

| | Total subjects | No. of positive patients | Percentage % | P value |
|----------|----------------|--------------------------|--------------|---------|
| Mild | 118 | 53 | 44.9 | 0.715 |
| Moderate | 78 | 33 | 42.3 | 0.675 |
| Sever | 12 | 6 | 50 | 0.01* |

Chi-square test. *P-value* *statistically significant

Table 6: Helicobacter pylori positive patients according to Endoscopic findings

| Endoscopic findings | No. of Positive patients | Percentage % | P value |
|---------------------|--------------------------|--------------|---------|
| Normal | 43 | 46.7% | 0.05* |
| Gastritis | 49 | 53.3 % | 0.001** |

Chi-square test. *p-value* *statistically significant

Discussion

The prevalence of Helicobacter pylori infection varies worldwide, but higher colonization rates have been seen in developing countries, compared to developed countries.

This study was conducted to find out the prevalence of H.pylori among patients attending outpatients department for dyspeptic symptoms, were screened for Helicobacter pylori by Immunocard STAT HpSA test and endoscopy procedure performed to exclude an underlying ulcer.

In a study from Germany were screened for Helicobacter pylori they recorded that, in 25% symptomatic individuals were with positive H.pylori and no ulcer formation. (16) Rocco et al reported in their study prevalence of 11% of the Italian general population. (17) The overall prevalence recorded in our study was 44.23%, which is higher in comparison to the above study whilst slight higher rates of 45% are noted in the study conducted Nigerian population. (18) This can be explained by the fact that, prevalence of H. pylori infection with NUD varies widely by geographic area.

In the present study, among Helicobacter pylori positive patients 42.7% were males and 47.7% were females. Although there is a slightly greater female preponderance but the difference between the genders was not significant which goes in accordance with a similar study from ministry of health of japan reported that females were more than male to have dyspeptic –related complaints with no ulcer. (19) However, in a study by Hiroharu et al reported that Helicobacter pylori positivity has shown increasing tendency with females 55.6% as compared to males 42.3%; with upper gastrointestinal symptoms and no particular lesion on upper endoscopic examination. (20) In another study, attention was given to gender differences indicating that prevalence of Helicobacter pylori infection was higher in men with upper and non-upper digestive tract symptoms than that in women. (21)

Our study has been conducted to examined adults 18 years or older, while most surveys had showed that dyspepsia does not appear to be related to any particular age group. The distribution in our study showed maximum prevalence in the age group of 30-39 years 50.7% with statistically significant p value 0.01 and minimum in the age group of more than 70 years 20% with no statistically significant p value 0.119

Peak prevalence of NUD have been noted between the ages 45-54 in a Canadian survey (22) whilst functional dyspepsia appeared to peak in Chinese subjects 41-50 years (23) and in Japanese adults 50-59 years (24) An early study from England and Scotland found an association with different age groups with non-ulcer dyspepsia more common in adult < 39 years, (25) while a study from Saudi Arabia, age related prevalence of Helicobacter pylori were reported that, maximum prevalence of 77.5% found in the age group of 30- 39 years. (26)

In the present study, out of 113 patients smoker 62 patients were positive for H. pylori (54.9%) statistically significant p 0.05, however, same result with our study were found that, regular smoking has been identified as a risk factor in populations in United

State subjects with dyspepsia were more likely to report smoker (57.2%) consulting a physician for their symptoms than participants without dyspepsia, (27) while in the few population-based studies that have examined NUD, smoking has

not been shown to be a risk factor, as well in surveys of patients with NUD this observation explained by Basha Ayele and Eshetu Molla, among Ethiopian subjects with NUD were found that, only 10.7% of smoker from 84 cases were with functional dyspepsia (28)

The prevalence of Helicobacter pylori in our study was found to be higher among patients with severe symptoms intensity being 50%, in moderate was 44.9% and 44.9% in mild symptoms intensity. This is consistent with previous studies which have follow-up at three months shows a rising trend of the functional dyspepsia with positive H.pylori score in all these patients with severe symptoms.29 as well Malfertheimer et al demonstrated high percentage 73.6 of positive Helicobacter pylori

patients with non-ulcer dyspepsia and severe symptoms in the form of epigastric pain and bloating, (30) While Gisbert et al not found any significant related to positivity of H.pylori in functional dyspepsia and the degree of the symptoms (31)

The prevalence of Helicobacter pylori was higher, 53.3% among Endoscopic finding in patients with gastritis patients with statistically significant $p < 0.001$ as compared to those who were with normal findings 46.7%. This result is comparable to that reported by Dhali and Garg who assessed endoscopically the association between H.Pylori and functional dyspepsia where they found prevalence of H.pylori in functional dyspepsia was 65% of the patients were positive and 35% were negative, (32) similar study also done by Morad et al were found 81% of patients with H. pylori with normal upper gastrointestinal endoscopy while the rest of patients were with gastritis. (33) Similar findings found by Louwwe, gastric colonization with H.Pylori was 63% from 106 patients with non- ulcer dyspepsia. (34)

Both normal and gastritis have been studied as risk factors for peptic ulcer and gastric cancer among Helicobacter pylori infected individuals. (35)

Conclusion: occurrence of H. pylori infection in terms of dyspeptic symptoms is achieved by this study in absence of ulcer formation had high prevalence of non – functional dyspepsia and statistically significant effect mainly in related to age distribution and smoking habit. This evidence has led to alterations in most of the major guidelines throughout the world, which now recommend H. pylori eradication in patients with functional dyspepsia and positive test for this bacterium.

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هيلوباكتر بيلوري في المرضى المصابين بعسر الهضم بدون قرحة هضمية

الملخص

عسر الهضم بدون القرحة الهضمية يظل السبب الأكثر شيوعاً للمرضى الذين يعانون من الألم المزمن في منطقة المعدة ويرجع ذلك لأسباب متعددة ولكن عدوى هيليكوباكتر بيلوري واسعة الانتشار معترف بها كسبب رئيسي.

هدفت دراسة هذا البحث إلى تقدير معدل إنتشار عدوى هيليكوباكتر بيلوري بين مرضى عسر الهضم دون تكوين للقرحة ، حيث اجريت هذه الدراسة المقطعية في قسم العيادات الخارجية لمستشفى الجمهورية التعليمي. شملت الدراسة مجموع 208 من المرضى البالغين الذين يعانون من اضطرابات الجهاز الهضمي العلوي ، ولمعرفة وجود عدوى هيليكوباكتر بيلوري تم فحص مستضاد البكتيريا في براز المرضى وكذلك المنظار العلوي لإستبعاد تكوين القرحة ، وقد اظهرت النتائج التالية : من بين هؤلاء المرضى البالغ عددهم 208 تم العثور على نتيجة إيجابية لوجود البكتيريا في 92 مريض ، معدل الإنتشار في هذه الدراسة %44.2. من بين مجموع 143 من الذكور، 61 حاله إيجابية بمعدل %42.7 ، من بين مجموع 65 من مرضى الإناث تم العثور على 31 حاله إيجابية للبكتيريا بمعدل %47.7 - اظهر التوزيع العمري الحد الاقصى لإنتشار هيليكوباكتر بيلوري في الفئة العمريه 30-39 بمعدل %50.7 ذات دلالة إحصائية 0.01 والحد الأدنى للإنتشار في الفئة العمريه اكثر من 70 عام %20 . بين المرضى المدخنين كان إرتفاع معدل إنتشار البكتيريا %54.9 وذات دلالة إحصائية 0.001 . بين المرضى المصابين بالتهابات المعدة كان معدل الإنتشار %53.3 ذو دلالة إحصائية 0.001 . كما اظهرت الدراسة معدل إنتشار شدة الاعراض %50 وذو دلالة إحصائية 0.01

خلاصة هذا البحث ان عسر الهضم بوجود عدوى بكتيريا هيليكوباكتر بيلوري مع عدم تكوين القرحة الهضمية اعلى إنتشار كان بين المرضى المدخنين ثم التهاب المعدة ثم بين المرضى الذين تتراوح اعمارهم بين 30-39 عام .