

## ***Helicobacter Pylori* Infection, Epidemiology, Endoscopic Findings and Associated Socio-Demographic Factors in Uninvestigated Dyspepsia in the People of Misan, Iraq**

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### **Abstract**

**Background:** Dyspepsia is a complex condition, including upper gastrointestinal tract with chronic and recurrent symptoms, including epigastric pain, discomfort, postprandial fullness and satiety. This study aimed to assess the epidemiology and the endoscopic findings in relation to *H pylori* infection of uninvestigated dyspepsia, among patients attending gastroenterology in Al-Sadder Teaching Hospital in Misan province, South of Iraq.

**Methods:** The study was carried out in Al-Sadder teaching hospital, which provides open-access service to endoscopy, consecutive adult inpatients who presented with uninvestigated dyspepsia. All study participants were systematically evaluated before undergoing endoscopy. The patients were interviewed to determine the presence of alarm symptoms, including unintended weight loss (defined as decrease of more than 5% of original body weight in three months), symptoms suggestive of upper gastrointestinal bleeding and dysphagia. The study was carried by, made the interviews in person with the inpatients using a standardized questionnaire.

**Results:** Ninety patients were included and analyzed in the study. The endoscopic diagnosis of uninvestigated dyspepsia in our setting showed a predominance of functional disease, whereas cancer was an uncommon finding, despite the high prevalence of *H pylori*.

**Conclusion:** The commonest grouped age whom suffers from dyspepsia was middle age groups. Female were more complained than male. Urban regions doubled percentage than rural. Most patients presented with moderate symptoms and signs. Half of sample of study have alarm features and *H pylori* test were positive. Gender, residence, severity of symptoms and age of patients unaffected the positivity and negativity of *H pylori* test.

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### **Introduction**

Dyspepsia is predominant pain or discomfort in the upper abdomen and the patients must also have one or more of the following four symptoms: postprandial fullness, early satiety, epigastralgia and epigastric burning. Symptom onset must have occurred at least six months prior to diagnosis. Only 75% of the

experts' dyspepsia, 73% of gastroenterologists and 59% of primary care providers adhere to dyspepsia best practices; so "dyspepsia" means different things to different providers. Without a common diagnostic language, general practitioners may be unable to provide adequate treatment following common dyspepsia



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guidelines<sup>[1]</sup>. The rapid introduction of new diagnostic criteria for dyspepsia has made very difficult or virtually impossible to compare prevalence rates from different periods or geographic regions<sup>[2]</sup>. Because structural Upper Gastrointestinal (UGI) tract diseases, such as peptic ulcer, erosive esophagitis, luminal strictures and malignancy can course with dyspepsia, Esophago-gastroscopy (EGD) is the diagnostic procedure of choice to differentiate patients with organic from those with functional dyspepsia. Although it is possible to propose endoscopy as the initial strategy for dyspepsia, the establishment of this procedure for every dyspeptic patient may not be practical approach, as the high prevalence of the syndrome will result in very high costs to any health system<sup>[3]</sup>. Moreover, the diagnostic procedure and its cost effectiveness must be considering that a large number of uninvestigated dyspepsia is functional cases<sup>[4]</sup>. Thus, the use of endoscopy in the management of uninvestigated dyspepsia remains a controversial issue worldwide<sup>[2]</sup>. The frequency of uninvestigated dyspepsia varies considerably in different populations and such differences may be related to true differences in the frequency of the condition or the criteria used to diagnose dyspepsia<sup>[4]</sup>. International medical practice and academic associations have recommended using alarm signs with or without age limits, usually set at 50 – 55 years, to select dyspeptic patients for endoscopy<sup>[2-3]</sup>. The predictive values to be used in the diagnosis of upper gastrointestinal pathology have been extensively studied, but the results are inconsistent, especially because the majority of previous studies were carried out in Europe or North America<sup>[5]</sup>. As for our country, the very high prevalence of *H. pylori* infection<sup>[4]</sup>, which requires a complex and expensive treatment for a large number of individuals and the low availability of noninvasive tests for the diagnosis of *H. pylori* infection make the test and treat approach unfeasible. The age indication for endoscopy has not been determined in our country and the limited availability of this procedure does not allow it to be requested as the initial approach. By prospectively following consecutive patients with uninvestigated dyspepsia in an outpatient screening clinic from a tertiary hospital, this study aimed to assess the diagnostic effectiveness of EGD, in a developing country<sup>[6]</sup>.

Dyspepsia is a nonspecific term to denote upper abdominal discomfort that is thought to arise from the upper-GI tract<sup>[3,6-7]</sup>. Dyspepsia may encompass a variety of more specific symptoms, including epigastric discomfort, bloating, anorexia, early satiety, belching or regurgitation, nausea, and heartburn. Symptoms of dyspepsia most commonly result from 1 of 4 underlying disorders: peptic ulcer disease, GERD, functional disorders (nonulcer dyspepsia), and malignancy<sup>[3]</sup>. Dyspeptic symptoms also may result from a myriad of other problems, such as medication intolerance, pancreatitis, biliary-tract disease, or motility disorders. This broad definition of dyspepsia has complicated research efforts and limited the value of research observations to clinical practice<sup>[6]</sup>. In response, some investigators have attempted to clarify the definition of dyspepsia by using defined criteria. The Rome III Committee defined dyspepsia as 1 or more of the following 3 symptoms: Postprandial fullness, early satiety and epigastric pain or burning. Gastroenteritis increases the risk of developing chronic dyspepsia. Functional cause is the most common cause of chronic dyspepsia. Up to three quarters of patients have no obvious organic cause for their symptoms after evaluation. Symptoms may arise from a complex interaction of increased visceral afferent sensitivity, gastric delayed emptying

(gastroparesis) or impaired accommodation to food, or psychosocial stressors<sup>[6]</sup>. Diseases of the gastrointestinal tract, majority of cases concern Gastroesophageal Reflux Disease (GERD) and peptic ulcer disease. Less common causes include gastritis, gastric cancer, esophageal cancer, coeliac disease, food allergy, inflammatory bowel disease, chronic intestinal ischemia and gastroparesis<sup>[6-7]</sup>.

## Methods and Materials

This prospective observational study was carried out in Al-Sadder Teaching Hospital, which provides open-access service to endoscopy, consecutive adult in patients who presented with uninvestigated dyspepsia were screened for eligibility. All study participants were systematically evaluated before undergoing endoscopy. The patients were interviewed to determine the presence of alarm symptoms, including unintended weight loss (defined as decrease of more than 5% of original body weight in three months), symptoms suggestive of upper gastrointestinal bleeding dysphagia, vomiting and anemia. Symptom intensity was determined by the Leeds Dyspepsia Questionnaire<sup>[6]</sup> and epigastralgia was considered typical when pain was relieved by food or acid suppression or cloaking was present. The study was carried by, made the interviews in person with the in patients using a standardized questionnaire. The upper digestive endoscopy was carried out with a standard electronic video endoscope. *H. pylori* tested by on sit *H. pylori* Antibody Combo Rapid Test (catalog number R091c) test was applied to serum sample. Epidemiological data were collected from the studied population.

## Results and Discussion

The most grouped age effected was 27 - 37 years old as 40.00%. The mean age was 42 years and women comprised 60% of the dyspeptic population. 44.44% of the patients reported alarm symptoms. Non organic dyspepsia was found in 42.22% of the patients, 13.33% had GERD and 18.89% had ulcers (duodenal in 12.22% and gastric in 6.67%). Two cases of gastric malignancy were identified 2.22%, the first one was adenocarcinoma of stomach and other was gastric lymphoma. The urban residency was 62%. The symptom intensity was mild in 26.70%, moderate in 53.30% and sever in 20.00%. Epigastric pain and discomfort composed 57.78% of symptoms while 42.22% of patients presented with postprandial fullness. The prevalence of *H. pylori* was 51.11%. Gender, age, residence and intensity of symptoms have insignificant values among relation with *H. pylori* test.

Dyspepsia is a highly prevalent complaint in general and gastrointestinal clinics. It is important to know the causes of dyspepsia to establish the therapeutic approach. Dyspepsia is a frequent syndrome in our country, where there are restrictions to endoscopy and high prevalence of *Helicobacter pylori* infection. In this study found that female incidence more than male 60%, probably more females are being referred in the centers for endoscopy.

**Table 1:** The percentage of dyspeptic patients in relation to the socio-demographic variables, gastrointestinal symptoms, severity of symptoms, alarm features and endoscopic findings.

Age (years)	case	%
17 - 27	8	8.89
27 - 37	36	40.00
37 - 47	31	34.44
47 - 57	11	12.22
57 - 67	4	4.44
<b>Total</b>	<b>90</b>	<b>100</b>
Sex	case	%
Male	36	40.00
Female	54	60.00
<b>Total</b>	<b>90</b>	<b>100</b>
Residency	case	%
Rural	34	37.78
Urban	56	62.22
<b>Total</b>	<b>90</b>	<b>100</b>
Type of symptom	case	%
Epigastric pain	52	57.78
Post prandial fullness	38	42.22
<b>Total</b>	<b>90</b>	<b>100</b>
Severity	case	%
Mild	24	26.70
Moderate	48	53.30
Server	18	20.00
<b>Total</b>	<b>90</b>	<b>100</b>
Alarm Feature	case	%
None	50	55.56
Weight loss	8	8.89
Vomiting	10	11.11
Anemia	14	15.55
Bleeding	6	6.67
Dysphagia	2	2.22
<b>Total</b>	<b>90</b>	<b>100</b>
Endoscopic Finding	No	%
Normal	38	42.22
Reflux esophagitis	12	13.33
Duodenal ulcer	11	12.22
Gastric ulcer	6	6.67
Non erosive esophagitis	6	6.67
Erosive gastritis	10	11.11
Gastritis non-erosive	5	5.56
Gastric carcinoma	2	2.22
<b>Total</b>	<b>90</b>	<b>100</b>

Positive predictive values for development of cancer and ulcer were 4% and 14%, respectively<sup>[8-11]</sup>. Patients with peptic ulcer were more likely to present with gastrointestinal bleeding<sup>[12]</sup> and in our study, gastrointestinal bleeding was alarm symptom in 6.67%, whereas the prevalence of ulcer was 18.89% and malignancy, 2.22%.

**Table 2:** The positivity and negativity of H pylori test in relation to sex, residence, severity and mean age of dyspeptic patients.

H pylori test		case		%
Positive		46		51.11
Negative		44		48.89
<b>Total</b>		<b>90</b>		<b>100</b>
Variables	case			P-value
		Negative (%)	Positive (%)	
Gender	Male	17 (18.89)	19 (21.11)	NS
	Female	29 (32.22)	25 (27.78)	
<b>Total</b>		<b>46</b>	<b>44</b>	
Residency	Rural	16 (17.78)	18 (20.00)	NS
	Urban	30 (33.33)	26 (28.89)	
<b>Total</b>		<b>46</b>	<b>44</b>	
Severity	Mild	9 (10.00)	15 (16.67)	NS
	Moderate	26 (28.89)	22 (24.44)	
	Sever	11 (12.22)	7 (7.78)	
<b>Total</b>		<b>46</b>	<b>44</b>	
Mean Age (years)	< 42	19 (21.11)	24 (26.67)	NS*
	> 42	27 (30.00)	20 (22.22)	
<b>Total</b>		<b>46</b>	<b>44</b>	

\*NS: non-significant

Family history of upper gastrointestinal cancer is a type of information that is difficult to obtain, when patients know the cause of the disease, they cannot provide information on its type and precise location. Upper GI bleeding and unintended weight loss were also associated with malignancy<sup>[13]</sup>, but the sensitivity of alarm features in diagnosing upper gastrointestinal malignancy varied from 0% to 100%, while specificity ranged from 16% to 98%. This wide variation in sensitivity may be due to the small number of cancer cases detected in many of the studies<sup>[14]</sup>. Despite the difference between patients with and without alarm symptoms, it is known that symptoms have limited value in the diagnosis of upper gastrointestinal malignancy<sup>[15]</sup>.

Our study provides a score, which can be useful in indicating endoscopy for these cases. This high prevalence of infection associated with the low availability of non-invasive tests for its detection prevent the use of the proposed approach of test and treat strategy for undiagnosed dyspepsia. *H pylori* eradication treatment is always high cost and complex, with limited efficiency of 88%<sup>[16]</sup>. The number of cases of functional dyspepsia responsive to treatment is low<sup>[17]</sup>, as only 50% of ulcer patients attain symptom resolution, whereas the symptoms of patients with reflux disease do not improve with treatment<sup>[16]</sup>. Therefore, the test and treat strategy may not be adequate for developing countries, which usually have very high prevalence of *H. pylori* infection and low level of resources for health care. Empirical treatment for young patients without alarm signs may be the possible approach for undiagnosed dyspepsia in our country. *H pylori* was positive in 51.11% of patient, statistical analysis of association of this infection with age, sex, residency and severity showing not significant association between them<sup>[18-20]</sup>. The role of *Helicobacter pylori* in functional dyspepsia is controversial, and no clear causal relationship has been established<sup>[11]</sup>. This is true for both the symptom profile and pathophysiology of functional dyspepsia. Although some epidemiologic studies have

suggested an association between *H. pylori* infection and functional dyspepsia, others have not. The discrepancy may stem in part from differences in methodology and lack of adequate consideration of confounding factors such as past history of peptic ulcer disease and socioeconomic status<sup>[6,17-19]</sup>. Controlled trials disagree about whether or not *H. pylori* eradication is beneficial in functional dyspepsia, with roughly half of the trials showing improvement and the other half no improvement. In a recent multicenter US trial that randomized 240 patients to treatment or placebo, and followed patients for 12 months, 28% of treated patients versus 23% of those receiving placebo reported relief of symptoms at the 12-month follow-up. Similarly, recent European trials have not shown significant differences in symptoms after *H. pylori* eradication as compared with controls<sup>[19-21]</sup>. Systematic reviews of eradication have been conducted, with varying results. A systematic review in the Annals of Internal Medicine suggested no statistically significant effect, with an odds ratio (OR) for treatment success versus control of 1.29 (95% CI, 0.89 – 1.89; P = 0.18). Still, no effect was seen after adjusting for heterogeneity and for cure of *H. pylori*. In contrast, a Cochrane review found a small but statistically significant effect in curing symptoms (*H. pylori* cure vs. placebo, 36% vs. 30%, respectively)<sup>[2,7,13,16]</sup>.

The prevalence of GERD has increased dramatically in recent decades, mostly in the western world, where it affects about 19% to 30% of the population, increasing the risk for esophageal adenocarcinoma<sup>[4]</sup>. In this study, GERD was diagnosed in 13% of patients, similar to the findings of a recent meta-analysis, based on Rome criteria<sup>[14]</sup>. In Denmark, gastric inflammation was recently found in 11% of the patients with upper gastrointestinal symptoms<sup>[7,18]</sup>; our study did not include histological examination of the gastric mucosa, and thus, gastritis was an endoscopic diagnosis, which after the exclusion of other concurrent diagnoses showing a prevalence of 46%. The prevalence of *H. pylori* infection in our population was high 51.11% and infected individuals had a 10-fold higher probability of having any gastric mucosa lesions than non-infected individuals<sup>[5]</sup>. Our finding of 17 patients 18.89% with ulcer, 11 of them 12.22% with duodenal ulcer, is also consistent with the high prevalence of infection. Primary gastrointestinal lymphoma is a rare disease, although the stomach is the most frequent site of involvement for this neoplasm<sup>[16]</sup>. Our sample had only 1 case of lymphoma; considering the small sample size of our study, this finding was most likely fortuitous. The presence of adenopathy or abdominal tumor changes the diagnosis of undiagnosed dyspepsia into undiagnosed adenopathy or tumor and in these cases, the best approach requires imaging assessment and not an esophagogastroduodenoscopy. In our sample, all patients with malignancy were older than 40 years, but considering the finding of organic dyspepsia (reflux disease, peptic ulcer and malignancy) our study suggests the age of 42 as indicative of alarm symptom.

## Conclusion

There was no the leading role for *Helicobacter* in dyspepsia among the patients examined (in the people of Misan, Iraq).

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**Conflict of Interest:** None.

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