

Frequency of H. Pylori Infection among Dyspeptic Patients and Correlation with Histopathological Evaluation

H. Pylori
Infection among
Dyspeptic
Patients

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ABSTRACT

Objective: To determine the frequency of H. Pylori infection among dyspeptic patients through histopathological evaluation.

Study Design: Descriptive cross-sectional Study

Place and Duration of Study: This study was conducted at the Gastroenterology Department of Ziauddin Medical University Hospital in Karachi from November 2, 2022, to May 1, 2023.

Materials and Methods: Patients between the ages of 18 and 60 who had dyspepsia and requested an endoscopic biopsy were enlisted. Samples were gathered and transported for histopathological analysis in a formalin bottle. Hematoxylin-eosin was used to stain the section in the histopathology lab. Using SPSS, data analysis was carried out. Data presentation using descriptive statistics. The percentages used to express categorical variables. For a continuous variable, the mean and standard deviation were calculated. H. Pylori infection frequency was given as a percentage.

Results: There were 101 females and 95 males. The median age of the group was 39.54 ± 12.91 years. 39 patients had H. Pylori, which was diagnosed. Among the 196 individuals, 79 had mild gastritis while the remaining 117 had moderate gastritis. Thirty (30.6%) male patients and nine (8.9%) female patients had H. Pylori. H. Pylori is highly correlated with gender, although there is no correlation between gender and mild or severe chronic gastritis. H. Pylori was discovered in 13 (21.3%), 9 (22.5%), 6 (13.0%), and 11 (22.4%) patients, respectively, in the age ranges of 18–30, 31–40, 41–50, and 51–60. With regard to age groups and H. Pylori, no meaningful correlation was discovered. The mild chronic gastritis was discovered in 27 (44.3%), 17 (42.5%), 14 (30.4%), and 21 (42.9%) patients, respectively, in the age groups of 18–30, 31–40, 41–50, and 51–60. 34 patients (55.7%), 23 patients (57.5%), 32 patients (69.6%), and 28 patients (75.1%) in the age categories of 18 to 30, 31 to 40, 41 to 50, and 51 to 60 years, respectively, had mild chronic gastritis.

Conclusion: According to the study's findings, H. Pylori is very common among dyspeptic patients who were diagnosed using biopsy-based techniques. A sizable section of the Pakistani population is infected with H. Pylori, and the H. Pylori status of a person presenting with disorders that have a strong association with this organism should be taken into consideration.

Key Words: dyspepsia, peptic ulcer disease, gastritis, and H. Pylori infection.

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INTRODUCTION

A considerable section of the population is affected by dyspepsia, which is characterised as a non-painful but

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subjectively unpleasant experience comprising symptoms such as early satiety, bloating, upper abdominal fullness, or nausea.⁽¹⁾ According to the Rome Working Teams' commonly used definition, Constant pain or discomfort that is focussed in the upper abdomen is what is known as dyspepsia.⁽²⁾ Dyspepsia has a significant negative effect on a person's quality of life, especially when reflux symptoms occur often and last twice a week or longer.⁽³⁾ While 25% to 40% of the general population suffers with dyspepsia annually, it is notable that many afflicted people do not seek medical care for their suffering.⁽⁴⁾ A variety of upper gastrointestinal symptoms, such as pain, discomfort, anorexia, heartburn, regurgitation, and belching, are included in the dyspepsia spectrum.⁽⁵⁾ In addition to the human toll, dyspepsia results in high medical costs and lost workdays. The potential contribution of H. Pylori

infection to the development of dyspepsia in the absence of visible ulcers has long been a fascinating mystery.⁽⁶⁾

There are contradictory findings from the many research that have looked at the connection between dyspepsia and H. Pylori infection. Even in those with normal endoscopic mucosal results, some studies indicate that dyspeptic patients are more likely to have H. Pylori⁽⁷⁾. H. Pylori, a pervasive bacteria, has a fluctuating worldwide distribution, with an especially high frequency in undeveloped areas⁽⁸⁾. In individuals with damaged stomach mucosa, research have shown a substantial link between H. Pylori infection and dyspepsia.⁽⁹⁾

The endurance of science is seen throughout the history of H. pylori discovery. A previously unknown bacteria, first described as Campylobacter pylori, was successfully isolated from stomach biopsies by Warren and Marshall more than 20 years ago⁽¹⁰⁾. However, as a result of further research into its ultrastructural cellular fatty acid composition, RNA sequencing, growth traits, and other factors led to its formal reclassification as Helicobacter pylori⁽¹¹⁾. The discovery of H. Pylori's contribution to peptic ulcer disease (PUD) transformed this disorder from a non-infectious illness to one that is largely infectious. As a result, H. Pylori is now the most common illness found and treated, particularly in emerging and undeveloped countries like Pakistan⁽¹²⁾.

This study's main objective is to determine how often H. Pylori is found in dyspeptic individuals receiving histological assessment. Among the different diagnostic methods, histopathology is acknowledged as having the greatest diagnostic yield⁽¹³⁾. Early H. Pylori identification and treatment in dyspeptic people may not only provide light on the pathophysiology of the condition but also lessen the risk of concomitant disorders⁽¹⁴⁾.

MATERIALS AND METHODS

The Ziauddin Medical University Hospital Gastroenterology Department in Karachi funded this descriptive cross-sectional study from November 2, 2022, to May 1, 2023.196 non-probability-purposive samples were used. The study covered all men and women 18–60 with upper abdominal pain. Patients with stomach surgery, bleeding, recent antibiotic, bismuth, or proton pump inhibitor use, identified and treated

cases, pregnant women, and other co-morbid diseases were removed. GI endoscopic biopsies were performed on dyspepsia patients. The intuitional ethics committee consented in writing. The patient, relative, or attendee gave informed permission after satisfying the inclusion criteria. A hematoxylin-eosin slice was analysed in the lab by a skilled histopathologist uninformed of clinical data. Results were analysed using SPSS 17. Descriptive statistics and percentages were used for sex. Continuous variables like age have a mean and a standard deviation. The H. pylori infection percentage is the number of positive patients divided by dyspeptic patients. By age and gender, study findings were stratified.

RESULTS

In total, 196 patients of either gender between the ages of 18 and 60 who had dyspepsia and sought an endoscopic biopsy at the gastrointestinal department of the Ziauddin Medical University Hospital in Karachi were enrolled in the study. Sample was obtained and sent for histological analysis in a formalin bottle.

Figure I show these percentages.

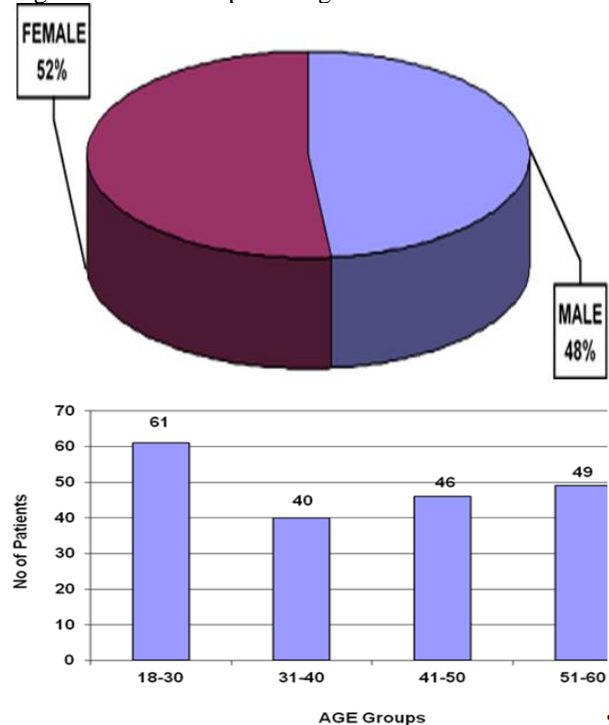


Figure No. 1: Frequency of Age Group

Table No. I: Descriptive Statistics of AGE and AGE Groups

	Mean ±SD	95%CI	Median(IQR)	Max- Min
Overall Age (years)	39.54±12.91	37.72 To 41.35	40 (21)	18 – 60
18 – 30 years	23.83±4.84	34.96 To 37.62	36 (7)	18 – 30
31 – 40 years	36.29±3.15	34.96 To 37.62	36 (7)	31 – 40
41 – 50 years	45.35±2.69	44.26 To 46.44	45 (3)	41– 50
51 – 60 years	56.79±2.87	55.70 To 57.89	56 (5)	51 – 60

Table No. 2: Frequency of Histopathological Findings of H. Pylori

		Frequency (n)	%
Helicobacter Pylori	Present	39	19.9%
	Absent	157	80.1%
TOTAL		196	

Table No. 3: Frequency of Histopathological Findings of Chronic Gastritis

	Frequency (n)	%
Mild Chronic Gastritis	79	40.3%
Moderate Chronic Gastritis	117	59.7%
TOTAL	196	

Table No. 4: Association of Histopathological Findings with Gender

Gender	Histopathological Findings	Frequency (n)	P-Value
Male	H. Pylori (Present)	30	< 0.01 *
	H. Pylori (Absent)	65	
Female	H. Pylori (Present)	9	
	H. Pylori (Absent)	92	
Male	Mild Chronic Gastritis	35	> 0.05 **
	Moderate Chronic Gastritis	60	
Female	Mild Chronic Gastritis	44	
	Moderate Chronic Gastritis	57	

Table No. 5: Association of H. Pylori with Mild / Moderate Chronic Gastritis

H. Pylori	Chronic Gastritis	Frequency (n)	P-Value
Present	Mild	6	< 0.01 *
	Moderate	33	
Absent	Mild	73	
	Moderate	84	

DISCUSSION

About 50% of the world's population is infected by the exceedingly common bacterium H. Pylori. About 25% of people in the United States and other western nations experience dyspepsia on an annual basis¹⁵. Some dyspepsia cases could be different stages of H. Pylori infection that eventually lead to ulcer disease. According to research, H. Pylori is closely linked to intestinal metaplasia and gastritis¹⁶.

Between 25% and 40% of the general population have dyspepsia annually. Numerous studies indicate that people with dyspepsia who have normal endoscopic mucosal findings also have higher H. Pylori prevalence¹⁷.

We discovered that H. pylori infection affected 50% of our DU patients. Serology has shown to be effective for detecting H. pylori infection in comparison to biopsy-based testing. 257 An earlier investigation found conflicting evidence connecting the infection to persistent upper abdomen pain or discomfort in the absence of peptic ulceration¹⁸. It is now widely acknowledged that H. pylori does not cause any particular symptom profile Gastritis was the most frequent endoscopic finding (58.7%; 115/196). In our study, gastritis was more prevalent than ulcers, and this finding was similar to that of a study, who discovered

that gastric ulcers were more common, occurring 6.4% more frequently than duodenal ulcers (4.8%).¹⁹

Histopathology revealed that 20% (23/115) of cases of gastritis²⁰.were H. Pylori positive and that 80% (92/115) were H. Pylori negative In previously conducted investigations, out of 306 patients, 47% (n=144) were found To have H. Pylori positivity and 53% (n=162) to have H. Pylori negativity for gastritis. Most cases (70.2%) in the study by Seed Afzal et al. were H. Pylori positive²¹. H. Pylori positivity was also found by another study in 81% (n=248) of the participants with dyspepsia and endoscopic and histopathologic signs of gastritis. The frequent use of H2 blockers, proton pump inhibitors, and antibiotics may be to blame for the lower occurrence of H. Pylori in our patients²². In this study, 19.9% (39/196) of the patients had H. Pylori infections. Studies done in Nigeria and other countries of West Africa using biopsy-based techniques have revealed a significant prevalence of H. Pylori²³.

This study's primary drawback is that it was conducted in a hospital context, where it may not be an accurate depiction of the prevalence of H. Pylori among dyspeptics in the general community. This limitation is exacerbated by the fact that the study was conducted in only one location. Therefore, a community research is preferred as it is typically more representative²⁴. Another drawback of our study is that the majority of our samples are made up of middle-aged patients; younger and elderly patients are very infrequent, which may have an impact on the results with respect to age. Additionally, during endoscopy, antral biopsies were performed on each dyspepsia patient.

CONCLUSION

H. pylori is frequent in biopsy-diagnosed dyspeptic individuals, the research found. Additionally, gastritis is

the most common endoscopic lesion in dyspeptic individuals. Although dyspepsia patients have normal upper gastrointestinal endoscopic exams, *H. pylori* infection is nevertheless common. *H. pylori* must be diagnosed and treated in dyspepsia patients. Established indications should be actively studied for *H. Pylori*. *H. pylori* infection should be detected during the first endoscopy. If *H. pylori* is found, eradication should begin immediately. A large portion of Pakistan's population is afflicted with *H. pylori*; hence, people with illnesses strongly linked to this bacterium should be tested.

Author's Contribution:

Concept & Design of Study: S. M. Qamrul Arfin
 Drafting: Sohail Hussain, Imtiaz Begum
 Data Analysis: Syed Ali Raza, Ashar Ekhlaiq Ahmed
 Revisiting Critically: S. M. Qamrul Arfin, Sohail Hussain
 Final Approval of version: S. M. Qamrul Arfin

Conflict of Interest: The study has no conflict of interest to declare by any author.

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