



Prevalence of Helicobacter Pylori Infection in Patients with Chronic Dyspeptic Symptoms at Rawal General and Dental Hospital, Islamabad

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Helicobacter Pylori infection is the most common cause of chronic dyspeptic symptoms all over the world and covers more than 60% of the out-patient department's (OPD) registry. That is why we aimed to conduct this study to determine the prevalence of helicobacter pylori infection in patients with chronic dyspeptic symptoms visiting at our out-patient department (OPD) of Rawal General and Dental Hospital.

Methods: This was a descriptive cross-sectional hospital based study conducted in the Department of Gastroenterology, Rawal General and Dental Hospital, Islamabad between the periods of two years June 2018 – June 2020 with in patients who presented with a chief complain of dyspepsia through a consecutive sampling technique. Baseline and clinical variables were collected and correlated with the presence and absence of *H. pylori* infection among 355 finally recruited participants.

Results: The overall prevalence of *H. pylori* infection was 59.71% (n = 212). Among them, married males were more common. Positive *H. pylori* patients were younger than negative *H. pylori*

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patients, 40.24 ± 6.62 vs. 44.9 ± 8.05 ($p = 0.04$). Participants who had a history of NSAIDs intake for past 7 days were significantly associated with positive *H. pylori* infection, 54.24% ($n = 115$), $p = 0.02$. While on the other hands, patients who were receiving proton pump inhibitor for the past 4 weeks were significantly associated with absence of *H. pylori* infection when they presented with chronic dyspeptic symptoms, 65.03% ($n = 93$), $p = 0.01$.

Conclusions: Our study has found that almost two third of the population suffering from chronic dyspeptic symptoms had positive *H. pylori* infection and these patients are younger than *H. pylori* negatives. Chronic NSAID users have direct relation in increased prevalence of *H. pylori* detection while use of PPI plays safety role in prevention and reducing of *H. pylori* infection.

Keywords: Chronic dyspepsia; *H. pylori* infection; risk factor; Pakistan.

1. INTRODUCTION

Helicobacter pylori (*H. Pylori*) infection is a gram-negative, microaerophilic, spiral (helical) bacterium, spreads through fecal-oral route and causes infection by invading the mucoid lining of the stomach. and is the most important cause of acute and chronic gastritis, 48.9% and 29.9%, respectively [1]. The prevalence of *H. pylori* infection vastly varied among developing and developed countries and is surprisingly higher in developing countries, 85% to 95% vs. 30% to 50%, respectively. A study conducted by Mehmood K and colleagues in Pakistan [2] have observed prevalence of *H. pylori* infection was 88.3%. About 90% of people infected with *H. pylori* never experience any symptoms or complications however 10%-20% have risk of developing peptic ulcer later in life [3-5].

In the western world approximately 25% of the population experience dyspeptic symptoms each year. Dyspepsia is a diagnosis made based on the presenting symptoms of patients related to upper gastrointestinal tract. The overall incidence of dyspepsia caused by *H. pylori* infection is 13 per 1000 individuals [6]. In an older study conducted in Pakistan has shown prevalence of dyspepsia 57% in patients infected

with *H. pylori* infection [7]. Symptoms in acute phase are acute gastritis with abdominal pain or nausea which can further develop into chronic gastritis and the symptoms are non ulcer dyspepsia, bloating and sometime vomiting. Pain is usually at empty stomach, early morning or between meals. Individual with chronic *H. pylori* infections are at high risk of developing adenocarcinoma of stomach [8-10]. Therefore, sometimes, chronic dyspepsia and long standing presence of *H. pylori* infection may be alarming sign for underlying other serious conditions such as carcinoma of the stomach or esophagus that is why timely identification of risk factors and prompt management may reduce the burden of such diseases and also improves overall patient's quality of life.

2. PATIENTS AND METHODS

This was a descriptive cross-sectional hospital based study conducted in the Department of Gastroenterology, Rawal General and Dental Hospital, Islamabad between the periods of two years June 2018 – June 2020 with in patients who presented with a chief complain of dyspepsia through a consecutive sampling technique.

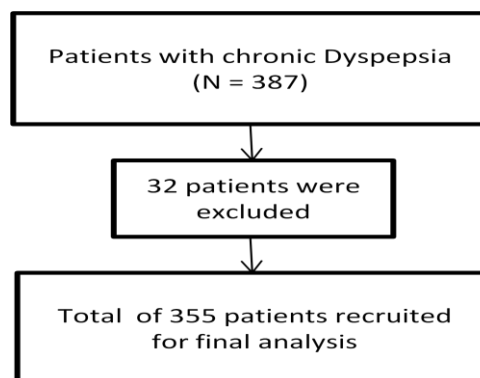


Fig. 1. Recruitment flow chart

Rawal General and Dental Hospital, Islamabad is a tertiary care teaching hospital and covered a surrounding population of more than 3.1 million for expert management. All the patients presented in out-patient-department (OPD)/admitted in the department of gastroenterology with chronic dyspepsia and with age more than 18 years to 80 years of either gender were enrolled under this study. Patients with alarming symptoms such as weight loss, haematemesis, uncontrolled and persistent vomiting were excluding from our study. The diagnosis of chronic dyspepsia was made based on the signs & symptoms patients presented with such as pain or burning in the stomach, bloating, excessive belching, or nausea after meal. The decision regarding further management was made by the attending consultant and all the patients were then advised stool antigen test for the detection of *H. pylori* infection.

Baseline demographic and clinical characteristics such as age, gender, marital status, occupation, area of residence (urban/rural), social class, education level, addiction to cigarette or alcohol, use of non-steroidal anti-inflammatory drug, use of anti-

biotic (>7 days), use of proton pump inhibitor, clinical manifestations (epigastric pain/burning, postprandial fullness, and early satisfaction), and detection of *H. pylori* infection in stool.

Statistical package for social science SPSS version 22 was used for data entry and final analysis. Chi-square test/fisher's exact test was used for comparison between categorical variables while independent *t*-test was used for continuous variables.

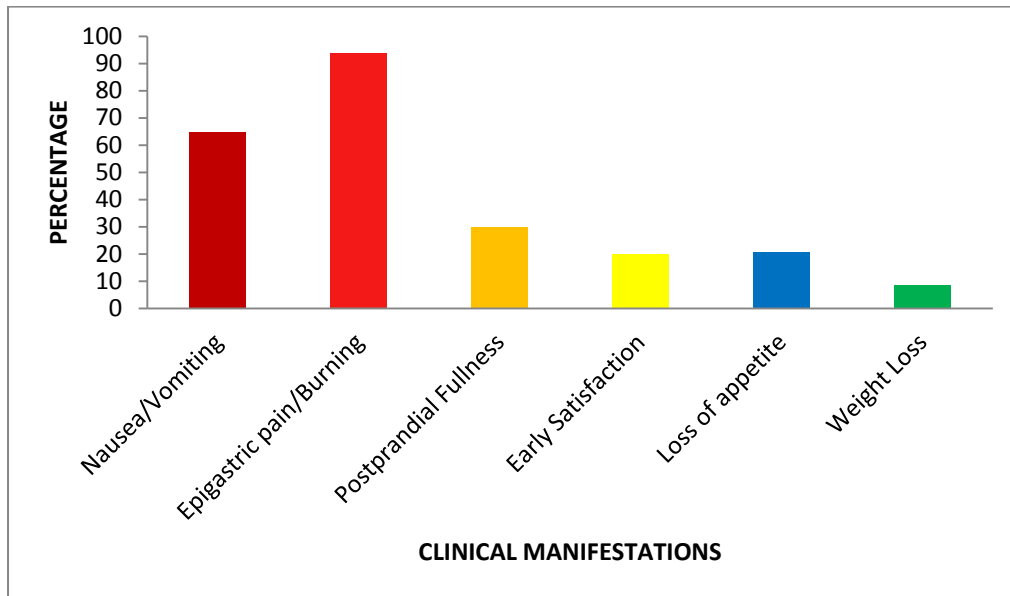
3. RESULTS

A total of 355 patients were recruited (see Figure 1) for final analysis with a mean age and SD was 40.34±9.14 years. Overall, males were predominant 57.74% (n =205). Presence of *H. pylori* infection was detected more frequently (n = 212, 59.71%) in patients with chronic dyspeptic symptoms and surprisingly, positive *H. pylori* patients were younger than negative *H. pylori* patients, 40.24±6.62 vs. 44.9±8.05 (p 0.04), respectively. In both groups, more than 60% of the participants were married and more than 70% of the study participants were urban dwellers. Table 1.

Table 1. Baseline characteristics of study participants with respect to presence and absence of *H. pylori* infection (n = 355)

Baseline variables	<i>H. pylori</i> Presence (n = 212)	<i>H. pylori</i> Absence (n = 143)	p value
Age – Years			
Range	18 - 80	18 - 80	
Mean±SD	40.24±6.62	44.9±8.05	0.04*
	N (%)	N (%)	
≥18 - <40	111 (52.35)	52 (36.36)	0.01*
≥40 - ≤80	101 (47.64)	91 (63.63)	
Gender			
Male	130 (61.3)	75 (52.44)	0.08
Female	82 (38.6)	68 (47.5)	
Marital Status			
Single	70 (33.01)	42 (29.37)	0.82
Married	134 (63.20)	90 (62.93)	
Widowed	8 (3.77)	11 (7.69)	
Area of Residence			
Urban	153 (72.16)	102 (71.32)	0.34
Rural	59 (27.83)	41 (28.67)	
Social Class			
Low	50 (23.58)	38 (26.57)	0.22
Middle	99 (46.69)	73 (51.04)	
Upper	63 (29.71)	32 (22.37)	
Education Level			
Illiterate – Primary	18 (8.49)	12 (8.39)	0.18
Secondary	54 (25.47)	35 (24.47)	

Baseline variables	H. pylori Presence	H. pylori Absence	p value
≥Graduate	140 (66.03)	96 (67.13)	
Addiction			
Cigarette	66 (31.13)	43 (30.06)	0.77
Alcohol	42 (19.81)	100 (69.93)	
Drugs			
Use of NSAIDS (>7 days)	115 (54.24)	40 (27.97)	0.02*
Use of Anti-biotics (> 7 days)	12 (5.66)	10 (6.99)	0.44
Use of PPI	9 (4.24)	93 (65.03)	0.01*



Graph 1. Distribution of clinical manifestation in patients with positive h. Pylori infection (n = 212)

Considering the risk factors, there was almost similar percentage of patients who had addiction to cigarettes in *H. pylori* positives and negatives, 31.13% and 30.06%, respectively. Consumption of alcohol was more common in *H. pylori* negatives than positives, 69.93% and 19.81%, respectively. However, risk factors did not have any significant relation with *H. pylori* infection in chronic dyspeptic patients, $p > 0.05$. Table 1.

Participants who had a history of NSAIDS intake for past 7 days were significantly associated with positive *H. pylori* infection, 54.24% (n = 115), $p = 0.02$. While on the other hands, patients who were receiving proton pump inhibitor for the past 4 weeks were significantly associated with absence of *H. pylori* infection when they presented with chronic dyspeptic symptoms, 65.03% (n = 93), $p = 0.01$. Table 1.

Epigastric pain/burning and nausea/vomiting were the most common clinical manifestation observed in patients who presented with chronic dyspeptic symptoms and had positive *H. pylori*

infection, 96.86% and 64.62%, respectively. While, 18 patients (8.49%) also had a history of weight loss. Graph.. 1.

4. DISCUSSION

Presence of *H. pylori* infection globally common in patients who experience symptoms of dyspepsia but patients with chronic dyspeptic symptoms are usually already on proton pump inhibitors hence based on this hypothesis, frequency of *H. pylori* infection should be lower than those who presented in acute stage of dyspeptic symptoms. The overall prevalence of *H. pylori* infection in our study participants who presented with dyspeptic symptoms was surprisingly higher 59.71% when comparing the data with patients who presented during acute phase of dyspeptic symptoms (36%) [11]. Also, the prevalence of *H. pylori* infection is comparatively lower in industrialized countries than developing countries like Pakistan because of multiple reasons such as poor sanitary conditions and also widespread use of antibiotics [12-15].

The effect of age on the prevalence of *H. pylori* is one of the best-documented and least disputed aspects of *H. pylori* epidemiology. In our study, presence of *H. pylori* infection was detected at an early age as compared to those who were *H. pylori* negative and presented with dyspeptic symptoms. Our findings are consistent with the previously conducted studies [16-18]. In a systemic review conducted by Bardhan PK from 14 developed and 24 developing countries clearly mentioning presence of *H. pylori* infection at an early age in developing countries as compared to developed countries [19]. Another review study conducted by Muhammad JS and colleagues [20] in Pakistan and data extracted from all South Asian countries has observed younger age group more frequently infected with *H. pylori* infection.

Our study participants who were taking NSAIDS for more than 7 days and presented with chronic dyspeptic symptoms were significantly (54.24%, p 0.02) had positive *H. pylori* infection as compared to those who were not taking NSAIDS or took occasionally. It is already proven that NSAIDS are linked with peptic ulcer disease but some of the previously conducted studies [21,22] also showed positive relation between *H. pylori* infection and presence of dyspeptic symptoms those who are taking NSAIDS as observed in our study. While, a Chinese study has shown higher prevalence of *H. pylori* infection in NSAIDS users than non- users [23]. Also, we have found that use of PPI has negative relation with the occurrence of *H. pylori* infection even in the presence of chronic dyspeptic symptoms. A study conducted by Matsukawa Y et al. [24] have observed high prevalence of *H. pylori* infection in patients taking NSAIDS in the absence of gastric ulcer. Through this study we have observed a relationship of *H. pylori* infection with chronic dyspepsia and explored what other possible risk factors relate positively and negatively.

Our study has certain limitations which should be addressed in further studies such as, our study was a single center study and data collected from this center can not reflect whole Pakistani population. Secondly, we did not screen the cause of chronic dyspeptic symptoms other than *H. pylori*, which should also be observed.

5. CONCLUSION

Our study has found that almost two third of the population suffering from chronic dyspeptic

symptoms had positive *H. pylori* infection and these patients are younger than *H. pylori* negatives. Chronic NSAID users have direct relation in increased prevalence of *H. pylori* detection while use of PPI plays safety role in prevention and reducing of *H. pylori* infection.

CONSENT AND ETHICAL APPROVAL

The Hospital Ethical Committee approved the study (Ethical approval letter number: RIHS-REC/074/21), and all the patients provided written informed consent from all patients.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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