

ORIGINAL ARTICLE

Frequency of Helicobacter Pylori Infections and Its Association with Immune Thrombocytopenia in Patients Presenting with Dyspepsia in Tertiary Care Setting, IslamabadMian Asif Mujtaba¹, Hareema Saeed Khan², Rimsha Azhar^{1*}, Amina Zulfiqar¹, Shoukat Hussain Bukhari³, Asia Yousaf⁴**ABSTRACT****Objective:** To determine the frequency of Helicobacter Pylori (H. Pylori) infection and its association with immune thrombocytopenia in patients presenting with dyspepsia symptoms.**Study Design:** Cross-sectional study.**Place and Duration of Study.** The study was conducted at the Department of General Medicine, Gastroenterology and Hematology, PIMS Islamabad, Pakistan from 20th October 2019 to 20th April 2020.**Methods.** A total of 275 patients with the symptoms of dyspepsia were enrolled. All patients of either sex or any age with the signs and symptoms of dyspepsia presenting through Gastro/Medicine OPD, wards, and emergency and admitted to hospital were included in the study. Those addicted to alcohol, on drugs (NSAIDS, Steroids) without PPI cover, chronic renal failure, and pregnancy were excluded from the study. The primary outcome was to determine frequency of helicobacter pylori infection in dyspeptic patients in our local settings.**Results:** In this study, out of a total of 275 cases, females presented in dominance with 61% proportion. The average age of patients was 40 years, ranging from 44 to 95 years. The main presenting complaints were retrosternal burning (74.4%), bloating (65%), pain in the upper abdomen (49.6%), and water brash (37.9%). The frequency of helicobacter pylori infection confirmed on stool for helicobacter pylori antigen was (64.2%). 30.5% of patients have immune thrombocytopenia among those with stool for helicobacter pylori antigen positive.**Conclusion:** Our findings validate previous reports on the association of helicobacter pylori infection with dyspepsia. In our study a high proportion of patients (64.2%) were having helicobacter pylori infection.**Keywords:** *Dyspepsia, Helicobacter-Pylori Infection, Immune Thrombocytopenia.***How to cite this:** Mujtaba MA, Khan HS, Azhar R, Zulfiqar A, Bukhari SH, Yousaf A. Frequency of Helicobacter Pylori Infections and Its Association with Immune Thrombocytopenia in Patients Presenting with Dyspepsia in Tertiary Care Setting, Islamabad. *Life and Science*. 2025; 6(1): 81-86. doi: <http://doi.org/10.37185/LnS.1.1.630>

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Introduction

Dyspepsia was defined as persistent or recurrent

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E-mail: rimshaazhar6@gmail.comReceived: Feb 15, 2024; 1st Revision Received: Jun 11, 20242nd Revision Received: Sep 12, 2024; Accepted: Oct 02, 2024one or more than one of the four cardinal symptoms, namely epigastric pain, epigastric burning, postprandial fullness, and early satiety without any organic causes to explain the symptoms.¹ It is a wide spectrum of gastrointestinal disorders that affects 25% of the population worldwide.² According to Rome III questionnaire, 10.3% patients had dyspepsia; 7.3% patients had postprandial distress, epigastric pain was present in 5.5%, while 24.4% had all symptoms.³ There is a strong association between Helicobacter Pylori (H-Pylori) and

dyspepsia. Many causes of dyspepsia exist, including *Helicobacter Pylori* that causes dyspepsia symptoms.⁴ Dyspepsia is more prevalent in younger age group than older population. It is more prevalent in women than men except older than 65 years.⁵ Functional dyspepsia is a diagnosis of exclusion. More than 60% of the patients who were investigated for more serious diseases like peptic ulcer, gastro-esophageal reflux disease and gastric cancers, the tests results are normal and the diagnosis was functional dyspepsia.⁶ *Helicobacter Pylori* (H-Pylori) is associated with chronic gastritis, peptic ulcer disease, gastric adeno-carcinoma and lymphoma.⁷ It is one of the most common infectious diseases worldwide.⁸ There is evidence that suggests that *Helicobacter pylori* is a frequent organism in dyspeptic patients, causing peptic ulcer dyspepsia and non-ulcer dyspepsia.⁹ The risk factors of acquiring *Helicobacter Pylori* (H-Pylori) infections are poor sanitary conditions, smoking, high salts intake, overcrowding, number of siblings and poverty. Developing countries have a higher prevalence rate than developed countries 70% vs 30%.¹⁰ *Helicobacter Pylori* is diagnosed by enzyme-linked immunosorbent assay (ELISA), stool for H-Pylori antigen, and urea breathe test.¹¹ A study done by Sardar and colleagues in Jinnah post Graduate medical college Karachi, Pakistan revealed that prevalence of *Helicobacter Pylori* infection is 60.6%.¹² Urban areas are affected more than rural areas 70% vs 34.3%, which is more common in unmarried college-going students. Poor sanitation and drinking unhygienic water are the other risk factors for *Helicobacter Pylori* (H-Pylori) infections.¹³ Idiopathic thrombocytopenic purpura is an immune-mediated destruction of platelets by the autoantibodies against the platelet antigen. It is common in women than men.¹⁴ The overall prevalence is 2.5-3.9/100,000 persons per year; being more prevalent in children than adults.¹⁵ *Helicobacter Pylori* (H-Pylori) stool antigen was

present in 40% of immune thrombocytopenia (ITP) patients. However, *Helicobacter Pylori* (H-Pylori) eradication therapy significantly improved the mean platelet counts from $48.56 \pm 21.7 \times 10^9 /l$ to $94.2 \pm 26.8 \times 10^9 /l$.¹⁵ The study was planned to determine the burden of *Helicobacter Pylori* infection and its association with thrombocytopenia in patients with dyspepsia. By its eradication, we can, not only improve the quality of life of such patients but also reduce the incidence of gastric carcinoma. Secondly, *Helicobacter Pylori* (H-Pylori) infection is a correctable cause of thrombocytopenia, by eradicating this organism; we can improve immune mediated thrombocytopenia

Methods

The Study was conducted at the Department of General Medicine, Gastroenterology and Hematology, PIMS Islamabad, Pakistan from 20th October 2019 to 20th April 2020 after taking approval from the Ethical Review Committee of the hospital held on dated: 04th February 2019 vide letter no: 194-5/2019. Sample size was calculated with WHO sample size calculator according to following assumptions: Confidence level = 95%, Population proportion = 60%–70%. Absolute precision = 9%. The total sample size was 275 patients. Non-probability consecutive sampling is used. All patients of either sex (male or female) or any age with the signs and symptoms of dyspepsia having immune thrombocytopenia with platelets count of less than 140,000, presenting through Gastro/ Medicine OPD, wards, and emergency and admitted to hospital were included in the study. Those patients having hepatitis A virus infection (HAV), hepatitis B virus infection (HBV), hepatitis C virus infection (HCV), Human immunodeficiency virus infection (HIV), systemic lupus erythematosus (SLE), Alcohol addicts, on drugs like non-steroidal anti-inflammatory drugs (NSAIDs), Steroids, proton pump inhibitors (PPIs), chronic renal, hepatic failure, and pregnancy were excluded from the study. Data was collected on a specially designed proforma Informed consent was taken from the patients fulfilling inclusion

criteria 275 patients with dyspepsia symptoms having immune thrombocytopenia with platelets count of less than 140,000, presenting through Gastroenterology/Medicine departments of Pakistan Institute of Medical Sciences (PIMS) who fulfilled the inclusion and exclusion criteria were enrolled in the study. After collecting baseline information from patients, presenting complaints, history and signs, symptoms were recorded. Renal function test (RFTs) and other baseline tests like complete blood picture to see the platelets count were sent to the hospital laboratory. Stool sample was taken in a specifically designed disposable plastic bottle. Samples were sent to the specified laboratory for testing of Helicobacter pylori antigen in the stool. The slides of the stool sample were made. Helicobacter Pylori (H-Pylori) antigen is detected by polymerase chain reaction (PCR).

Data was entered in computer using SPSS version 22 (a statistical software) for analysis. Descriptive analysis was used for measuring mean, standard deviation, median and ranges for continuous variables like age, hemoglobin, Urea and Creatinine. Frequencies and percentages were recorded from categorical variables like sex, presenting complaints, and H-Pylori diagnosis. Results were described and also presented in the form of tables and graphs.

Results

In our study 275 patients presenting with sign and symptoms of dyspepsia having thrombocytopenia were enrolled. The mean age was

40.02 + 14.4 years ranging from 14 to 95 years. 75% were above 30 years of age. While about 50% were above 41 years of age. Female gender was predominant 61.3% proportion compared to males 38.7% in the current study. The presenting complaints of patients were retrosternal burning in 102 (74.4%) cases, bloating 89 (64.9%) cases, pain and/or discomfort in upper abdomen in 68 (49.6%) and water brash was present in 104 (37.9%). The chemistry results of the study patients were as the average serum urea was 31.9 + 7.3 mg/dl in the study patients ranging from 3.0 to 48.0 mg/dl. The mean + SD serum creatinine level was 0.70 + 0.26 in the study patients ranging from 0.2 to 1.2 mg/dl. The majority of the study patients had serum urea of up to 30 mg/dl, while almost 70% of the study cases had serum creatinine levels between 0.4 and 0.9 mg/dl. The final diagnosis of h-pylori in study patients was done on the basis of stool for h-pylori antigen investigation. The frequency of h-pylori in the current study was 177 (64.2%). In our study we found out that females 128 (72.7%) were more likely to have h-pylori compared to males 47 (27.3%) (figure.1). The distribution of h-pylori cases according to age is equal in all age groups in the current study. 54 (30.5%) patients with H. pylori infections have thrombocytopenia. (Table-1 and 2).

Discussion

Helicobacter pylori (H-pylori) infection is nowadays recognized as one of the most common complications, which occur in 25% of

Table-1: Descriptive Baseline Statistics (n=275)

	Mean± S.D	Min – Max
Age (years)	40.02±14.4	14-95
Urea (mg/dl)	31.9 ± 7.3	3 – 48
Creatinine (mg/dl)	0.70 ± 0.26	0.2 – 1.2
Platelets (×10 ⁹ l)	220.4 ± 76	140 - 400

Table-2: Frequency of Thrombocytopenia in H-Pylori (n = 275)

	Thrombocytopenia	
	Yes	No
H-Pylori Infection (n = 177)	54 (30.5%)	123 (69.5%)

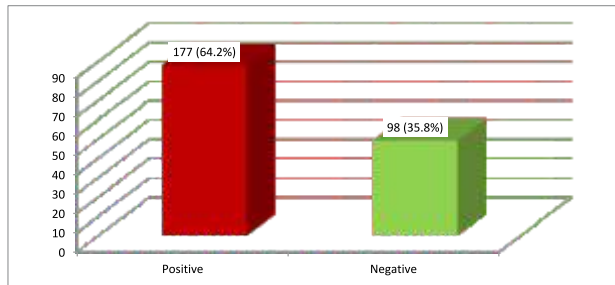


Fig.1: Frequency of H-pylori Positive patients

the adult population and are responsible for dyspepsia, which occurs in 25% of the adult population and accounts for 5% of general clinic visits. Dyspepsia is the term used for acute, chronic or recurrent one of the following four symptoms epigastric discomfort or pain, postprandial upper abdomen fullness, early satiety, bloating, belching, and nausea, retching or vomiting without structural diseases.^{16,17}

H. pylori infection associated with immune thrombocytopenic purpura (ITP). Many observational studies found a good platelet response in ITP patients treated H. pylori eradication.¹⁸ A randomized controlled trial revealed that H. pylori eradication resulted in a significant platelet response in patients affected by ITP.¹⁹

Common causes of dyspepsia are gastroesophageal reflux disease and peptic ulcer disease.²⁰ Serious but rare causes are gastric carcinomas must be considered.²¹ The alarming symptoms for dyspepsia are; gastrointestinal bleeding, progressive weight loss, dysphagia, persistent vomiting and iron deficiency anemia. It needs urgent investigation and management.²² In our study the incidence of h-pylori in dyspepsia patients was 64.2%. Compared to our findings previous studies showed H. pylori infection with variable rates. A retrospective study, by Dedino et al. 2012-2016. Helicobacter pylori prevalence was 51.5%.²³ Sardar M and colleagues from Pakistan revealed the prevalence rate 60.6%.¹² Urban affected more than rural people 70% vs 34.3%, more common in unmarried adolescent.¹³ The rates of H. pylori infection are greater than our findings of 64.2%.

Choi et al. showed that the prevalence of Helicobacter. Pylori infections are decreased

from 58.2% (in 1990-2010) to 43.1% (in 2011-2022). There is much reduction in prevalence when compare to our study.²⁴ The average presenting age of our study patients was 40.0 + 14.4 years ranging from 14 to 95 years. There is a slight variation in different geographical areas. Namyalo and his colleagues showed that prevalence of Helicobacter. pylori infection was higher at 39.4% in young 19–35 years than in older age. It may be due to work-related stress.²⁴⁻²⁶

In our study, the female gender was predominant with 61.3% proportion and female to male ratio of 1.5: 1. While in Agarwal's study, the positivity of Helicobacter pylori infections in the female to male ratio was 1–1.7.²⁶ Another primary objective was to see helicobacter pylori infection association with thrombocytopenia.

Limitations of the study include a small sample size; a large sample size would be a better indicator, and the inaccessibility of data about bacterial strain identification.

Conclusion

Our findings validate previous reports, that H. pylori infection is associated with dyspepsia and thrombocytopenia. Our findings are further validated by the evidence that after the Helicobacter eradication therapy, there is marked improvement in platelets count (Thrombocytopenia is settled)

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Conflict of Interest: The authors declare no conflict of interest

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Authors Contribution

MAM: Idea conception, study designing, data collection, data analysis, results and interpretation

HSK: Idea conception, study designing, data collection, data analysis, results and interpretation

RA: Study designing, data collection,

AZ: Study designing, data analysis, results and interpretation, manuscript writing and proofreading

SHB: Study designing, manuscript writing and proofreading

AY: Data collection, data analysis, results and interpretation

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