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Original Research Article

FREQUENCY OF HELICOBACTER PYLORI AMONGST PATIENTS WITH GASTROINTESTINAL TRACT SYMPTOMS

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Abstract: *Worldwide, H. pylori is recognised as a serious concern for public health that causes peptic ulcer disease, gastric cancer and chronic gastritis. The frequency of H. pylori infection ranges from 13% to 81%. Globally, H. pylori infection accounts for around 89% of stomach cancer.* ***Objective:*** *To determine the frequency of helicobacter pylori amongst patients with gastrointestinal tract symptoms.* ***Methodology:*** *The current cross-sectional study was carried out at the Department of Medicine General Hospital Peshawar from September 2023 to February 2024. The overall sample size of the current study was 150 patients. All the patients were assessed for the pylori SAT (Stool antigen test). All the information was gathered on a specialized proforma designed for our research. All the data was analysed using SPSS version 23.0.* ***Results:*** *In the current study, 150 patients were enrolled. Male patients were 100 (66.67%) while female patients were 50 (33.33%), with a ratio of males to females of 1:2. Among 150 patients, 129 (86%) individuals tested positive for H. pylori, whereas 21 (14%) patients tested negative. The enrolled patients' ages ranged from 15 to 85 years with a mean age (SD) of 50.3 (11.01). After analysing the endoscopic reports of patients, it was found that fifteen patients (25%) had chronic gastritis, thirty-five patients (58%) had duodenal ulcers, ten patients (16.6%) had stomach ulcers, and eight patients (13.3%) had non-ulcer dyspepsia.* ***Conclusion:*** *Our study concludes that Helicobacter pylori is the most prevalent problem among patients with gastrointestinal tract symptoms. Early diagnosis and timely treatment are fundamental to avoiding this severe problem.*

Keywords: Frequency; Helicobacter pylori; Gastritis; Dyspepsia

Introduction

The bacteria H. pylori colonises the stomach and causes gastric cancer, chronic gastritis and peptic ulcer disease in humans. These gram-negative, spiral-shaped bacteria have gained global attention as a significant public health concern (1). H. pylorus has been categorised as a Group 1 carcinogenic pathogen until 1994. H. pylori infection is thought to affect 50% of people on the entire globe, with infections more common in developing nations. This infection is well acknowledged as a significant determinant for the development of stomach cancer both in Western and Eastern countries (2, 3). In addition, H. pylori is the primary and most challenging factor responsible for peptic ulcers, gastric carcinomas, gastric lymphomas and chronic or atrophic gastritis. However, it is less probable for younger individuals to suffer from these outcomes compared to older individuals (4, 5). Furthermore, H. pylori infection, which is common in impoverished countries, may lead to gastro-duodenal illnesses such as stomach cancer and gastritis (6). The incidence of H pylori infection ranges from 13% to 81% (7). The prevalence of stomach cancer globally is mainly attributed to H. pylori infection, accounting for around 89% of cases. Individuals who have previously had H. pylori infections have a 14.2% higher likelihood of developing stomach cancer in comparison to individuals who have never suffered from the infection in the past(8). Heartburn, gastrointestinal pain or distension, nausea, unexplained anaemia, full quickly, vomiting, and involuntary weight loss are among the symptoms linked with Helicobacter pylori infections. Regardless of the IARC categorising the bacterium H. pylori as a category one carcinogen in 1994, there are currently no established therapies for stomach cancer or other malignancies caused by mishandling of this bacteria. More specifically, managing H. pylori infection is becoming more difficult due to the increasing trend of antibiotic resistance (9). Approximately 50% of the global population is estimated to be afflicted with Helicobacter pylori, resulting in one of the most widespread diseases among humans in developing nations (10). H.pylori infection is the primary cause of gastrointestinal health problems (11). Nearly 80% of people may be infected by age 20. In India, the overall incidence of this disease is 22% in 0-4 years of age, 56% in 5-9 years of age and 87% in the age ranges of 10–19 years (12). The majority of those infected do not exhibit any symptoms. In only a small number of cases, it essentially acts as a cofactor for the development of gastrointestinal disorders like dyspepsia. (13, 14). To diagnose H. pylori, numerous laboratory tests are available. These include urea breath tests, saliva and urine antibody testing, stool antigen testing, serological immunoglobulin G, and immunoglobulin M detection(15). Other diagnostic tests include endoscopy, polymerase chain reaction, histological examination, and the rapid urease test (RUT)

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(16). This study was conducted to determine the frequency of H.pylori patients with gastrointestinal tract symptoms.

Methodology

This cross-sectional study was conducted at the Department of Medicine General Hospital Peshawar from September 2023 and February 2023. The overall sample size of the current study was 150 patients. The inclusion criteria for the study were all the patients diagnosed with H.pylori infection by performing stool antigen tests regardless of sex and age. The exclusion criteria were all the individuals who were on antibiotic treatment. All patients were assessed for the H. pylori SAT (Stool antigen) test. All the data was analysed using SPSS version 23.0. Mean and SD (± standard deviation) were shown for the quantitative data. Numbers and percentages also represented qualitative factors.

Results

A total of 150 patients were enrolled in the current study. Amongst 150 patients, 129 (86%) individuals tested positive for H. pylori, whereas 21 (14%) patients tested negative. The male patients were 100 (66.67%) while female patients were 50 (33.33%), with a ratio of males to females of 1:2 (Table 1). The age of the enrolled patients ranged from 15–85 years, with a mean age (SD) of 50.3 (11.01) years (Table 2). Within this research, 90 individuals reported experiencing discomfort in their belly (epigastric), 65 reported feeling full in their stomach, 75 reported feeling nauseated, 35 reported vomiting, and 65 reported having trouble digesting fat. Patients experienced 70 bloating, 60 blenching, three melena, and 50 early satiety. The frequency of H. pylori is somewhat higher in those with abdominal discomfort; other symptoms do not significantly differ (Table 3). After analysing the endoscopic reports, it was found that fifteen patients (25%) had chronic gastritis, thirty-five patients (58%) had duodenal ulcers, ten patients (16.6%) had stomach ulcers, and eight patients (13.3%) had non-ulcer dyspepsia (Table 4).

Table 1: Patient distribution based on gender

	H. pylori Negative n (%)	H.pylori Positive n (%)	Total
Male	10 (11.1)	80 (88.8)	90
Female	11 (18.3)	49 (81.6)	60
Total	21	129	15

Table 2: Age dissemination of Helicobacter pylori patients

Age groups	H. pylori Positive	H. pylori Negative	Total
10-25	6	2	8
26-35	18	3	21
36-45	25	4	29
46-55	23	3	26
56-65	21	2	23
66-75	18	4	22
76-85	18	3	21

Table 3: Frequency of Helicobacter pylori infection concerning symptoms

	present	H .pylori positive	H. pylori negative
Upperabdiomnal pain	90	80	10
Gastric fullness	65	59	6
Vomiting	35	30	5
Nasusea	75	70	5
Fatty food intolerance	65	57	8
Bloating	70	50	20
Belching	60	50	10
Early satiety	50	40	10
Melena	3	2	1

Table 4: The association of endoscopic irregularities with Helicobacter pylori infection

Endoscopic irregularities	Helicobacter pylori Positive n (%)	Helicobacter pylori Negative n (%)
NUD	6 (60%)	4 (40%)
Gastric ulcer	8 (72.7%)	3 (27.2%)
Duodenal ulcer	32(88.8%)	4 (11.1%)
Chronic gastritis	7(58%)	5 (41.6%)

Discussion

According to many epidemiological investigations, the frequency of H. pylori infection varies significantly among the population under study. Compared to developed nations, the incidence of illness in developing countries is often more significant. It begins at a younger age, indicating an essential role of financial position in its transmission (17). Evidence from a recent comprehensive study suggests that approximately half of the world's population is infected with Helicobacter pylori (7,8). This indicates that the prevalence of Helicobacter pylori infection is very high globally. It is well known that the frequency of infections is more significant in low-resource and developing nations; a rate of prevalence of over 70% has been observed in Africa, the highest incidence globally (3), while the prevalence in industrialised countries has been reported to vary between 25 and 40% (9, 11).

In our study, 150 patients were selected. The male patients were 100 (66.67%), while female patients were 50 (33.33%), with a ratio of males to females of 1:2. The male-to-female proportion is consistent with previous studies in which the male predominates the female (18-21). However, these results contradict the findings of an earlier study that reported female predominance (22).

The distribution of H. pylori illness across different age groups did not exhibit any discernible trend of increasing or decreasing infection rates with advancing age. The frequency of H. pylori did not significantly vary across the age categories of <55 and >60. Previous studies reported comparable findings to our study (23-25). However, research has shown that compared to older age groups, those between the ages of 20 and 40 had a greater frequency of H. pylori infection (26, 27). In our study, 129 (86%) individuals tested positive for H. pylori, whereas 21 (14%) patients tested negative. These findings align with the previous study's findings (28-32). In our study, after

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analysing the endoscopic reports, it was found that fifteen patients (25%) had chronic gastritis, thirty-five patients (58%) had duodenal ulcers, ten patients (16.6%) had stomach ulcers, and eight patients (13.3%) had non-ulcer dyspepsia. A systematic review of 22 studies conducted in developed countries (33) revealed abnormal endoscopy findings in only 51% of patients with dyspeptic symptoms. Similarly, another study found that the prevalence of disease among individuals with dyspeptic symptoms ranged from 58% to 62% (34). This discrepancy may be attributed to the patient selection criteria and the preventive interventions and considerations used in various studies. Additionally, disparities in socioeconomic level and healthcare-seeking behaviour may contribute to this distinction (35). During our examination, we identified duodenal ulcers and chronic gastritis as the most prevalent abnormalities seen during endoscopy. There is enough data to support the benefits of H. pylori eradication treatment for individuals with gastritis and peptic ulcer disease (36, 37). Therefore, professionals should conduct testing and treatment for the infection if resources are available. In situations when supportive testing is not available or may not be feasible, precise therapy is recommended. The present study clearly emphasises the prevalence of H. pylori in the general population. There is a requirement for further comprehensive research in this area, examining the correlation between different components and lifestyle factors, presenting evidence, exploring various research methods, and considering pre-existing conditions such as diabetes mellitus about the prevalence of H. pylori infection. Additionally, following up with patients after therapy and lifestyle changes is essential.

Conclusion

Our study concludes that *Helicobacter pylori* is the most prevalent problem among patients with gastrointestinal tract symptoms. Early diagnosis and timely treatment are fundamental for avoiding this serious problem.

Declarations

Data Availability statement
All data generated or analysed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved b-y the department concerned. (IRB-22SILQDQ dated 12-9022)
Consent for publication
Approved
Funding
Not applicable

Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

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Coordination of collaborative efforts.
KAINAT (MBBS Student)
Conception of Study, Final approval of manuscript.
YASIR AHMAD
Study Design, Review of Literature.
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Manuscript revisions, critical input.
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Data entry and data analysis, as well as drafting the article.
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Coordination of collaborative efforts.
NIQABULLAH (MBBS Student)
Manuscript drafting.
MUHAMMAD NAZIR UDDIN
Conception of Study, Development of Research Methodology Design, Study Design, manuscript Review, and final approval of manuscript.

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