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A retrospective study to analyze symptomatology among h.pylori positive patients at a tertiary care hospital

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Abstract

Introduction: Infection with H. pylori infection is common. About two-thirds of the population in the world carry H pylori in their bodies. The infection was acquired in childhood and persists despite local and systemic immune response. **Materials and Methods:** This was a prospective observational study done on 1000 patients at a tertiary health care hospital in Jammu, India, over a period of 04 years (March 2016 to March 2020). Written and informed consent regarding the purpose, procedures, and risks was obtained from all patients. Data were collected by conducting a personal interview and doing a complete physical examination of the participants of the study. All patients underwent basic investigations as per symptoms and comorbidities. UGIE was performed on all the study participants using a video gastroscope. Gross features of the upper GI tract were noted and biopsies were obtained from the stomach (antrum, body, and fundus), and the second part of the duodenum. One antral and one corpus biopsy sample each were used for the rapid urease test (RUT). **Results:** A total of 1000 patients underwent UGIE for a different set of complaints. The most common complaint in this study group was epigastric pain (43%) followed by dyspepsia (33.2%) and 80.23% and 78.61% of patients were positive for H pylori on RUT. On UGI endoscopy duodenal ulcer was seen in 430 patients and among them 85.34% were H pylori positive on RUT, the gastric ulcer was seen in 240 patients, and among them, 73.33% were H pylori positive. The most common comorbidity was hypertension in the study group and among these patients, 138(88.46%) were H pylori positive, 2nd common comorbidity was Diabetes mellitus and among them 133(91.86%) were H pylori positive. The overall prevalence of H pylori manifestation in the study group was seen in 78.5% of patients. **Conclusion:** Among all symptomatic patients enrolled in this study the most symptom was epigastric pain followed by dyspepsia and the most common comorbidities in the study group were HTN and Diabetes mellitus. A rapid urease test was performed on UGI endoscopic biopsy specimen for H pylori infestation and 78.5% of patients were found to be positive.
Key Words: H. pylori infection, childhood, HTN, and Diabetes mellitus.

Introduction

Infection with H. pylori infection is common. About two-thirds of the population in the world carry HP in their bodies. The infection was acquired in childhood and persists despite local and systemic immune response[1,2]. Majority of the infections remain asymptomatic and only 10-20% progress to clinical disease[3].
Helicobacter pylori (H. pylori) is a gram-negative bacterium. It colonizes the mucosal lining of the human digestive tract. It has a special affinity for the stomach and duodenum. Right from its discovery by Warren and Marshall in the early eighties; research on *H. pylori* is voluminous[4]. It is considered to be one of the most common chronic bacterial infections which affect almost two-thirds of the worldwide population[6]. The transmission of this bacteria is from person to person and through contaminated water. It causes inflammation in the gut, especially in the stomach and duodenum[7]. Most of these inflammatory changes are silent and clinical manifestations occur in around one fifth of the patients after a long latent period. *H.pylori* causes chronic active gastritis as a rule in almost all patients. Studies have shown that this infection has a role in causing peptic ulcer disease (PUD), atrophic gastritis, gastric neoplasm, and "mucosa-associated lymphoid tissue (MALT)" lymphoma.

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The infection has also been implicated to cause iron deficiency anemia; idiopathic thrombocytopenia and vitamin B12 deficiency.
The guidelines of the European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) and the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) state that endoscopic biopsy is an important component for the initial detection of *H. pylori* infection.

Materials and methods

This was a prospective observational study done at a tertiary healthcare hospital in Jammu, India, over 04 years (March 2016 to March 2020). Written and informed consent regarding the purpose, procedures, and risks was obtained from all patients.
Data were collected by conducting personal interviews and doing a complete physical examination of the participants of the study. A structured pro forma was used and filled out after interviewing and examining the patient. The following information was collected for all the participants: age, gender, symptoms, duration, comorbidities, and their durations, and any treatment patient has received. All patients underwent basic investigations as per symptoms and comorbidities. Patients having DM II underwent fasting and postprandial blood sugar levels, and hemoglobin A1c (HbA1c) levels, All patients having pain abdomen and fatty dyspepsia also underwent USG Abdomen. UGIE was performed on all the study participants using a video gastroscope. Gross features of the upper GI tract were noted and biopsies were obtained from the stomach (antrum, body, and fundus), and the second part of the duodenum. One antral and one corpus biopsy sample each were used for the rapid urease test (RUT) (for high

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yield). All the biopsy samples were also sent for histopathological examination (HPE). A commercially available RUT kit, manufactured

by Halifax Research Laboratory, Kolkata, under the trade name of Pylo Dry, was used.

Results

A total of 1000 patients underwent UGIE for a different set of complaints.

Table 1: Correlation of symptoms with *Helicobacter pylori* infection

Symptoms	No. of patients %	H Pylori positive %	H Pylori negative %
Epigastric pain	430 (43%)	345 (34.5%)	85 (8.5%)
Dyspepsia	332 (33.2%)	261(26.1%)	71 (7.1%)
Epigastric fullness	101(10.1%)	73 (7.3%)	28 (2.8%)
Loss of appetite	40 (4%)	30 (3.0%)	10 (1.0%)
Persistent vomiting	32 (3.2%)	23 (2.3%)	9 (0.9%)
Anemia	27 (2.7%)	21 (2.1%)	6 (0.6%)
Upper GI Bleed	18 (1.8%)	15 (1.5%)	3 (0.3%)
Loss of weight	14 (1.4%)	12 (1.2%)	2 (0.2%)
Melena	6 (0.6%)	5 (0.5%)	1 (0.1%)
	1000 (100%)	785(78.5%)	215(21.5%)

The most common symptom in our study group was epigastric pain in 430 patients and among these 345 (34.5%) were H Pylori positive 2nd commonest symptom was dyspepsia in 332 patients and among these 261 (26.1%) were H Pylori positive these symptoms were followed by epigastric fullness, loss of appetite, vomiting, anemia, and upper GI Bleed, weight loss and melena as shown in table 1.

Table 2: Correlation of endoscopic abnormalities with *Helicobacter pylori* infection

Endoscopic findings	H Pylori positive %	H Pylori negative %	Total
Duodenal ulcer	367(36.7%)	63(6.3%)	430
Gastric ulcer	176(17.6%)	64(6.4%)	240
Chronic gastritis	154(15.4%)	52(5.2%)	206
NUD	88(8.8%)	36(3.6%)	124
	785(78.5%)	215(21.5%)	1000(100%)

Duodenal ulcer was seen in 430 patients and among them, 367(36.7%) were H pylori positive on RUT, the gastric ulcer was seen in 240 patients and among them 176(17.6%) were H pylori positive, in 206 patients there was chronic gastritis and 154(15.4%) patients were H pylori positive and NUD was seen in 124 patients and among them 88(8.8%) were H pylori positive.

Table 3: Correlation of comorbidities with *Helicobacter pylori* infection

Comorbidities	No. of patients	H Pylori positive %	H Pylori negative %
Hypertension	156	138(88.46%)	18 (11.5%)
Diabetes mellitus	138	133(96.37%)	5 (3.62%)
Hypothyroidism	86	79(91.86%)	7 (8.13%)
Hyperthyroidism	13	9(69.23%)	4 (30.76%)
Portal HTN	9	3(33.33%)	6 (66.66%)
CRF	4	4(100%)	0 (0%)

The most common comorbidity was hypertension in the study group and among these patients, 138(88.46%) were H pylori positive, 2nd common comorbidity was Diabetes mellitus and among them 133(91.86%) were H pylori positive and 04 patients had CRPF and all of them were H pylori positive.

Discussion

The occurrence of H. pylori transmission varies on age, race, ethnicity, and geographic area. The rate of transmission of H. pylori in developing countries is comparatively high as compared to developed nations. H. pylori bacterium has infected approximately 50 percent of the total population[6]. The frequency of H. pylori diseases is reducing over the last decade in many countries but still, its intensity is high in some underdeveloped countries.

The decline of H. pylori is due to changes in the epidemiology of the bacterium which further cause changes in the epidemiology of peptic ulcer, gastroesophageal reflux disease, and gastric cancer[13,14]. Around 70% of children of underdeveloped countries may be affected by H. pylori infection. The cause of infection in children is contact with bacteria. A child may contact the bacteria by not eating cleaned and properly cooked food, drinking water that was contaminated with infected bacteria, and not washing hands properly after going to the bathroom[15].

The rate of H. pylori infection is lower in developed nations such as Australia, North America, and Western Europe whereas the GERD ratio is higher over there[16,17,18]. In contrast, the frequency of H. pylori diseases is high in developing countries such as Europe, Africa, India, China, and South America while GERD frequency is lower in them[19-22].. The rate of H. pylori infection can be reduced by improving personal hygienic and sanitary infrastructure. There are several important steps for decreasing the prevalence of H. pylori infection i.e. washing hands thoroughly, eating food that is clean and properly cooked, drinking clean water, quitting smoking, and reducing alcohol intake[23].

Epidemiological studies were done in different parts of Asia for H pylori infection. The seroprevalence rate for H Pylori was high in Bangladesh and India. The study done by Ahmed et al. has shown the highest prevalence rate of 90% among asymptomatic individuals[24]. Recently some studies based on the CLO test show it is 67% which indicates a decline in the prevalence of infection. Moreover, the overall H pylori prevalence in other Asian countries includes. India (79% by ELISA), Pakistan (84% by PCR), and Japan (41% by measuring urinary levels of anti-H. pylori antibody) were also reported high. In Europe (<40%) and the United States (<40%), a significantly lower prevalence rate of H. pylori was observed. A study of adults in Ontario, Canada, found that the overall seroprevalence was 23.1% which was higher in men (29.4%) than in women (14.9%)[25].

In this study we looked for the prevalence of H pylori infection only in symptomatic patients, the prevalence of disease in the study group was 78.5% in our patients by using RUT, and the patients having Diabetes mellitus and CRF had a very high prevalence of the disease. The prevalence of H pylori infection in our study was high as compared to a study conducted by Ahmed MM et al[26] for patients having dyspepsia, those who underwent UBT where 23% of patients were found positive for H pylori infection.

Another study conducted by Habib AM et al[27] in 2016 in Chittagong has shown a decrease in the prevalence of H pylori in the older age groups. It was observed that H. pylori prevalence was higher in patients under the age of 30 years (78.3%) than in patients with ages between 30 and 40 years and over 40 years (63.3%). But the overall prevalence was 49% by PCR and 54% by CLO. The

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prevalence of disease in our study was also higher than in this study when we used RUT for the diagnosis of H pylori infection in our study group. In a study conducted by Dutta et al among men, H. pylori were present in 45.7%while the frequency of infection in women was lower at 33.2%. In the 15-30 years age group, the frequency of infection was42.6% while it was 48.3% in the 31-50 years group and 34.9% in the above 50 years group[28].

Kukreja et al conducted a study in Gujrat by using RUT and found a prevalence rate of H. pylori infection was 24.19 %. More than half (53%) of the infected patients had complained of persistent burning abdominal pain. The prevalence rate was found highest in the patients suffering from peptic ulcer disease (66.6%). Rajesh kumar et al[30] enrolled 265 symptomatic patients of acid peptic disease, out of which 92 patients were found H. pylori-positive (by biopsy urease test and histopathological test) giving a prevalence of 34.71%. Among H. pylori-positive patients, 64.13% were males and 35.86% were females.

In a study by Agarwal et al[31], in a North Indian population, they found a total of 41 (76%) patients out of 54, positive for H. pylori by RUT. By serology, we found 81% of patients positive. Collectively, a total of 85% of patients were found to be positive for H. pylori and 15 patients were negative. The prevalence of h pylori infection was lesser in our study group as compared to this study population.

Conclusion

Among all symptomatic patients enrolled in this study, the most symptom was epigastric pain followed by dyspepsia and the most common comorbidities in the study group were HTN and Diabetes mellitus. A rapid urease test was performed on UGI endoscopic biopsy specimen for H pylori infestation and 78.5% of patients were found to be positive.

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