Original Research Article

A retrospective analysis of data collected over 05 years for prevalence of *Helicobacter pylori* infestation in symptomatic patients from Jammu and Kashmir

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Abstract

Introduction: Infection with H. pylori infection is common. About two-third of the population in the world carry H pylori in their bodies. The infection is acquired in the childhood and persist despite of 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 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 second part of the duodenum. One antral and one corpus biopsy sample each were used for rapid urease test (RUT).**Results:** A total of 1000 patients underwent UGIE for different set of complaints. Most common complaint in this study group was epigastric pain (43%) followed by dyspepsia (33.2%) and 80.23% and 78.61% 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, gastric ulcer was seen in 240 patients and among them 73.33% were H pylori positive. 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. Overall prevalence of H. pylori manifestation in study group was seen in 78.5% patients.**Conclusion:** Among all symptomatic patients enrolled in this study the most symptom was epigastric pain followed by dyspepsia and most common comorbidities in the study group were HTN and Diabetes mellitus. Rapid urease test was performed on UGI endoscopic biopsy specimen for H pylori infestation and 78.5% patients were found to be positive.

Keywords: H. pylori, Rapid urease test, Dyspepsia, Biopsy, Duodenal ulcer.

Introduction

Infection with Helicobacter pylori (H. pylori) infection is common. About two-third of the population in the world carry HP in their bodies. The infection is acquired in the childhood and persist despite of local and systemic immune response [1, 2]. Majority of the infections remain asymptomatic and only 10- 20% progress to clinical disease [3]. H. pyloriis a gram negative bacterium. It colonizes the mucosal lining of the human digestive tract. It has special affinity for stomach and duodenum [1]. Right from its discovery by Warren and Marshall in the early eighties; research on H. pyloriis voluminous [4, 5]. 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 [6]. H. pyloricauses chronic active gastritis as a rule in almost all the 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 [7, 9]. The infection has also been implicated to cause iron deficiency anemia; idiopathic thrombocytopenia and vitamin B12 deficiency [10, 11]. The guidelines of the European Society for Pediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) and North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) state that endoscopic biopsy is an important component for the initial detection of H. pyloriinfection [12].

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Materials and Methods

This was a prospective observational study done 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 personal interview and doing a complete physical examination of the participants of the study. A structured pro forma was used and filled after interviewing and

examining the patient. The following information was collected for all the participants: age, gender, symptoms and their duration, comorbidities and their durations, 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, 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 second part of the duodenum. One antral and one corpus biopsy sample each were used for rapid urease test (RUT) (for high yield). All the biopsy samples were also sent for histopathological examination (HPE). 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 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%)

Most common symptom in our study group was epigastric pain in 430 patients and among these 345 (34.5%) were H Pylori positive and 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, 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%)

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 from 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 under developed 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, gastro esophageal reflux disease (GERD) and gastric cancer [13, 14]. Around 70% children of under developed countries may be affected by H. pylori infection. The cause of infection in children is contact with bacteria. A child may contact with the bacteria by not eating cleaned and properly cooked food, by drinks water which was contaminated with infected bacteria and by not washing hands properly after going to bathroom [15]. The rate of H. pylori infection is lower in developed nations such as Australia, North America and Western Europe whereas GERD ratio is higher over there [16-18]. 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, by drinking clean water, by quitting smoking and reducing alcohol intake [23]. Epidemiological studies were done in different parts of Asia for H. pylori infection. Seroprevalence rate for H Pylori was high in Bangladesh and India. Study done by Ahmed et al. have shown highest prevalence rates of 90% among the asymptomatic individuals [24]. Recently some studies based on CLO test shows it is 67% which indicate decline in prevalence of infection. Moreover, the overall H pylori prevalence in other Asian countries including. India (79% by ELISA), Pakistan (84% by PCR), and Japan (41% by measuring urinary levels of anti-H. pylori antibody) was 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% that was higher in men (29.4%) than women (14.9%) [25]. In this study we looked for prevalence of H pylori infection only in symptomatic patients, the prevalence of disease in study group was 78.5% in our patients by using RUT and the patients having Diabetes mellitus and CRF had very high prevalence of 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 underwent UBT where 23% 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 prevalence of disease in our study was also higher than this study when we used RUT for diagnosis of H pylori infection in our study group. In a study conducted by Dutta et al among men, H. pylori was 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 was 42.6% while it was 48.3% in the 31-50 years group and 34.9% in the above 50 years group [28]. Kukreja et al [29] conducted a study in Gujrat by using RUT and found prevalence rate of H. pylori infection was 24.19 %. More than half (53%) of the infected patients had complained of persistent burning abdominal pain. 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 total 41 (76%) patients out of 54, positive for H. pylori by RUT. By serology, we found 81% of patients positive. Collectively, total 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 most common comorbidities in the study group were HTN and Diabetes mellitus. Rapid urease test was performed on UGI endoscopic biopsy specimen for H. pylori infestation and 78.5% patients were found to be positive.

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