

Original Research Article

Prevalence of *Helicobacter pylori* infection among dyspepsia patients with mucosal lesion in tertiary care hospital

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ABSTRACT

Background: *Helicobacter pylori* (*H. pylori*), a curved rod shaped bacteria, is found to be associated with acid peptic disease patients, more in ulcer than non-ulcer, leading to a belief that *H. pylori* plays a role in its etiopathogenesis. In this study we examine the prevalence of *H. pylori* infection among dyspepsia patients with mucosal lesion.

Methods: 300 patients of dyspepsia were enrolled in the study as per inclusion/exclusion criteria for a period of eight months. Enrolled patients were subjected to upper gastro-intestinal endoscopy and findings were recorded. Biopsy specimen taken from mucosal lesions were immediately inoculated on 'RUT dry kit' to test for *H. pylori* infection.

Results: 234 out of 300 patients (78%) were found to be positive for *H. pylori* infection. The incidence of *H. pylori* infection was higher in patients with ulcer dyspepsia (88.46%) when compared to the patients with non-ulcer dyspepsia (72.44%).

Conclusions: Prevalence of *H. pylori* infection was high and was found to have an association with ulcer dyspepsia allowing us to conclude that *H. pylori* may have a role in its etiopathogenesis.

Keywords: Dyspepsia, *H. pylori*, Rapid urease test

INTRODUCTION

Dyspepsia is generally defined as chronic or frequently recurring epigastric pain/discomfort originating in gastro-duodenal region and may be accompanied with other gastrointestinal symptoms such as nausea, belching, vomiting, postprandial fullness and early satiety.¹ Chronic dyspepsia symptoms can be unceasing, sporadic or recurrent.²

It is one of the most common reason for patients being referred to an endoscopist. Causal factors may include lifestyle factors, stress, altered visceral sensation, alterations in gastric acid secretion, peptic ulcer disease (PUD), drugs, especially non-steroidal anti-inflammatory drugs (NSAIDs), as well as *Helicobacter pylori* (*H. pylori*) infection.³

H. pylori is a Gram negative, micro-aerophilic, spiral shaped, flagellated bacteria residing in the gastric mucosa of human stomach. *H. pylori* was found to be a cause of gastric and duodenal ulcers in 1994 by National Institute of Health Consensus Conference while International Agency for Research on Cancer classified it as group I human carcinogen for gastric adenocarcinoma.⁴ *H. pylori* is prevalent worldwide infecting about 50% of world's population. It is more common in developing countries and its prevalence increases with age. Both, invasive and non-invasive methods are available for diagnosis of *H. pylori* infection.

Urea breath test is the most preferred non-invasive method due to its high specificity and sensitivity (95-100%), others being serum antibody test and stool antigen test. Invasive techniques involve taking

endoscopic gastric biopsy specimens whose histology yields highly sensitive (96%) and specific (98.8%) results. It is also cost effective, but needs an expert endoscopist.^{5,6}

Studies have verified that *H. pylori* infection contributes to etiopathogenesis of various gastrointestinal diseases which did not have a previous microbial cause.⁷ *H. pylori* has known to cause acute gastritis, gastric ulcer (which may lead to gastric cancer), gastric mucosa associated lymphoid tissue lymphomas, duodenitis as well as duodenal ulcer.⁸

The aim of this study is to examine the prevalence of *H. pylori* infection among dyspepsia patients with mucosal lesion in our tertiary care hospital.

METHODS

This study was conducted at the endoscopy department of United Cigna Hospital, Aurangabad, Maharashtra, India from January 2017 to August 2017. 300 consecutive consenting patients, irrespective of gender, presenting with dyspepsia symptoms and fitting into the inclusion/exclusion criteria were included in the study.

Inclusion criteria

Patients between 16-75 years of age with chronic upper abdominal pain, nausea, vomiting, melena, hematemesis, weight/appetite loss, symptoms of dyspepsia, or diagnosed with chronic gastritis, gastric/duodenal ulcers on gastro-duodenoscopy were included in the study.

Patient who did not give consent, were below 15/above 75 years of age, on proton pump inhibitors/NSAIDs for more than a month, known cases of chronic pancreatitis, presented esophageal growth/mucosal lesion on endoscopy, unwilling/unfit for gastroscopy, received anti-*H. pylori* treatment, pregnant and lactating women were excluded from the study.

Data collection

Both OPD and IPD patients of the hospital were recruited in the study after fulfilling inclusion/exclusion criteria. Detailed history, physical examination and all baseline investigations were carried out. Personal information of the patients was kept confidential. Administrative permission from the concerned authorities was obtained. The data was collected on a proforma.

Procedure

All the patients included in this study underwent upper gastro-intestinal endoscopy under tropical anesthesia. The patients were asked to fast for 6 hours prior to the procedure. Oral lignocaine sprays were given to patients 5-10 minutes before the procedure for local anesthetic effect.

The upper gastro-intestinal endoscopy was conducted with Olympus 150, 170 and 190 series, flexible, fiberoptic endoscope with patients in left lateral positions. On entering the esophagus, any lesions/growth were looked for. Cases of esophagus carcinoma were excluded from the study as per the exclusion criteria.

On entering the stomach, presence of any ulcers was looked for. Any evidence of gastritis or bile reflux from the duodenum was noted. Then the duodenum was entered up to its second part and evidence of any duodenitis/duodenal ulcer was noted.

Endoscopic biopsy was taken from antrum of stomach in the area of gastritis or edge of ulcer depending on the findings. Biopsy specimen were immediately inoculated on 'RUT dry kit'. The case was taken as *H. pylori* positive when the rapid urease test examination was positive which was indicated by change in colour of kit from yellow to pink/red.

RESULTS

Among the 300 patients enrolled in the study, 234 (78%) were positive for *H. pylori* infection: 150 males and 84 females. The remaining 66 patients were found to be negative for *H. pylori* infection in which 43 were males and 23 were females (Table 1).

Table 1: Gender distribution of *H. pylori*.

	Total no. of patients	<i>H. pylori</i> positive	Percentage (%)
Male	193	150	77.72
Female	107	84	78.50
Total	300	234	78

The subjects were grouped into four different age groups with class size of 15. A total of 74, 99, 78 and 49 fall within the age group 16-30, 31-45, 46-60 and 61-75 respectively. As is evident from table 2, the age group 31-45 had the highest *H. pylori* prevalence rate (Table 2).

Table 2: Age distribution of *H. pylori*.

Age group	Total no. of patient	<i>H. pylori</i> Positive	Percentage (%)
16-30	74	45	60.81
31-45	99	91	91.91
46-60	78	68	87.20
61-75	49	30	61.22

Out of 300 patients, 210 (70%) presented to our hospital with upper abdominal pain or discomfort out of which 157 (74.76%) had *H. pylori* infection.

Similarly, 90 (30%) patients presented with nausea or vomiting, 45 (15%) with hematemesis, 60 (20%) with melena and 15 (5%) with weight/appetite loss out of

which 70, 32, 51 and 12 had *H. pylori* infection respectively (Table 3).

Table 3: Association between clinical presentation and *H. pylori*.

Clinical presentation	No. of cases	<i>H. pylori</i> positive	%
Abdominal pain	210	157	74.76
Nausea/vomiting	90	70	77.77
Hematemesis	45	32	71.11
Melena	60	51	85.00
Loss of weight/appetite	15	12	80.00

Table 4: Association between endoscopic finding and *H. pylori*.

Endoscopic finding	Total no. of patients	<i>H. pylori</i> positive	Percentage
Gastritis	190	138	72.63
Duodenitis	06	04	66.66
Gastric ulcer	56	48	85.71
Duodenal ulcer	48	44	91.66

The most commonly occurring endoscopic findings were as follows: gastritis 190 (96.33%), duodenitis 6 (3.06%), gastric ulcer 56 (18.66%) and duodenal ulcer 48 (16%) cases out of which 138, 4, 48 and 44 were *H. pylori* positive respectively (Table 4). Depending on endoscopic findings, the patients were categorized into two groups.

- Ulcer dyspepsia: Gastric Ulcer, duodenal ulcer
- Non-ulcer dyspepsia: Gastritis, duodenitis

Ulcer dyspepsia

In this group there were 104 (34.66%) patients, out of which 65 were males and 39 females. The age range was from 16 years to 75 years. 92 (88.46%) of these were *H. pylori* positive. This group was further divided into:

Gastric ulcer

There were 56 (18.66%) patients i.e., 28 males and 28 females with gastric ulcer, of which 48 (85.71%) patients i.e., 23 males and 25 females were infected with *H. pylori*.

Duodenal ulcer

There were 48 (16%) patients i.e., 37 males and 11 females with duodenal ulcer, of which 44 (91.66%) patients i.e., 35 males and 9 females were *H. pylori*.

Non-ulcer dyspepsia

In this group there were 196 (65.33%) patients, out of which 128 were males and 68 females. The age range

was from 15 years to 75 years. 142 (72.44%) of these were *H. pylori* positive. This group was further divided into:

Gastritis

There were 190 (96.93%) patients i.e., 122 males and 68 females who had gastritis, of which 138 (72.63%) i.e., 88 males and 50 females were infected with *H. pylori*.

Duodenitis

All 6 cases of duodenitis were males and of them 4 were positive for *H. pylori* (66.66%) (Table 5).

Table 5: Comparison of ulcer dyspepsia with non-ulcer dyspepsia.

Cases	Total no. of patients	Male: Female	<i>H. pylori</i> positive	Percentage
Ulcer dyspepsia	104	65: 39	92	88.46
Non-ulcer dyspepsia	196	128: 68	142	72.44

DISCUSSION

Several studies have been conducted to prove association of *H. pylori* with various acid peptic diseases and stomach carcinoma post its discovery. The have all led to following observations:

- Treatment of *H. pylori* leads to reversal of gastritis in patients with chronic non-specific gastritis.
- Eradication of *H. pylori* decreases the relapse of peptic ulcer to 1-3% as compared to 80% relapse in patients with persistent *H. pylori* infections even after medical management.

Despite above findings, cause and effect relationship between *H. pylori* and peptic ulcer disease is not established. The association of *H. pylori* with non-ulcer dyspepsia is also controversial due to conflicting results of the therapeutic trials previously conducted. Marshall and Warren observed that 18 out of 22 (81%) patients with gastric ulcer and all the 13 (100%) patients with duodenal ulcers were positive for *H. pylori*. In 59 patients with gastritis/duodenitis, 32 were positive for *H. pylori* (54.73%). In patients with normal upper GI endoscopy 8 out of 16 (50%) were positive for *H. pylori*.⁹

In their study of 180 patients, Wulfen V et al, found an overall positivity in 98 patients (54%). They observed that in patients with duodenal ulcers, 45 out of 54 patients (83%), while 13 out of 18 (73%) patients with gastric ulcer showed *H. pylori* infection. 79 out of 127 patients (62%) with gastritis/duodenitis were positive also for *H. pylori*.¹⁰

3 studies Vaira et al, Sobala et al and Patel et al were almost similar in design and looked at consecutive patients with dyspepsia presenting for endoscopy. They reported their results in terms of endoscopic findings with regard to antibody status for *H. pylori*.

Combining the studies provided a much larger sample of 631 patients, in which overall 351 patients (55.63%) were positive for *H. pylori*. In these studies, out of 64 patients with duodenal ulcers, 59 patients (92.19%) were tested positive for *H. pylori*, while in 30 patients with gastric ulcer, 25 patients (83.33%) tested positive. 121 patients (57.62%) out of 210 patients with gastritis/duodenitis were positive for *H. pylori*.¹¹⁻¹³

At the 'Department of Endoscopy, United Ciigma Hospital, Aurangabad', we have made a sincere attempt to explore the possibility of proving association between *H. pylori* and ulcer dyspepsia and its contribution to non-ulcer dyspepsia.

In the present study, the overall positivity for *H. pylori* is 234 out of 300 patients (78%) which is more as compared to other studies. The incidence of *H. pylori* is higher in patients with ulcer dyspepsia (88.46%) as compared to non-ulcer dyspepsia patients (72.44%) as seen in other studies.

In the duodenal ulcer sub-group, 44 out of 48 patients i.e., (91.66%) and in gastric ulcer sub-group 48 out of 56 patients i.e., (85.71%) showed positivity for *H. pylori* indicating significant association of *H. pylori* with both duodenal and gastric ulcers; though the prevalence is more in patients with duodenal ulcer.

In 234 patients who were positive for *H. pylori* only 104 patients developed peptic ulcer disease (34.66%) unlike the remaining 65.33% patients who did not despite harboring *H. pylori*. The overall results were in broad agreement with the studies previously conducted.

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