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ORIGINAL ARTICLE

Prevalence of Helicobacter Pylori Infection Among Dyspepsia Patients in a Tertiary Care Hospital of Puducherry

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Abstract

Background: Dyspepsia is a relatively common clinical condition characterized by chronic / recurrent upper abdominal pain or discomfort. Dyspeptic individuals were found to be infected with H-pylori than asymptomatic individuals. Though most individuals are asymptomatic, H. pylori plays a key role in the etiology of many upper gastrointestinal disorder. **Materials and Methods:** This cross-sectional prospective analytical study was done in Department of General surgery, IGMCRI Pondicherry from February 2022 to June 2022. Both male and female patients attending surgery OPD of age 20 to 60 years with upper gastrointestinal symptoms like dyspepsia and epigastric pain were subjected to upper gastrointestinal endoscopy and scopy findings noted and a Rapid urease test done for them. **Results:** The prevalence of H-Pylori was found to be 53%. Gender wise distribution shows more prevalence among females (61%) compared to males (44%). Of the total patients, 72% presented with abdominal pain, 34% presented with associated nausea, vomiting and 50% presented with regurgitation, 47% presented with bloating sensation. 11% present with other associated symptoms like malena and dysphagia. 9 patients with dyspepsia had ulcers in the antral wall and duodenum with 33% RUT positivity. 11 of them presented with pangastritis with 72% RUT positivity, 47 of them had antral gastritis with 66% RUT positivity, and 15 of them were found to have normal endoscopic findings with 33% RUT positivity.47% of the patients with esophageal varices and 20% of the patients with ulceroproliferative growth showed RUT positivity. **Conclusion:** This study validates that more than half the patients with dyspepsia in our population are H-pylori positive. Early referral for Upper GI endoscopy can help diagnose the same and associated clinical condition and initiate an early anti-H. Pylori regimen to achieve quicker symptom relief in these patients.

Keywords: Abdominal pain, Gastritis, RUT, Ulcer

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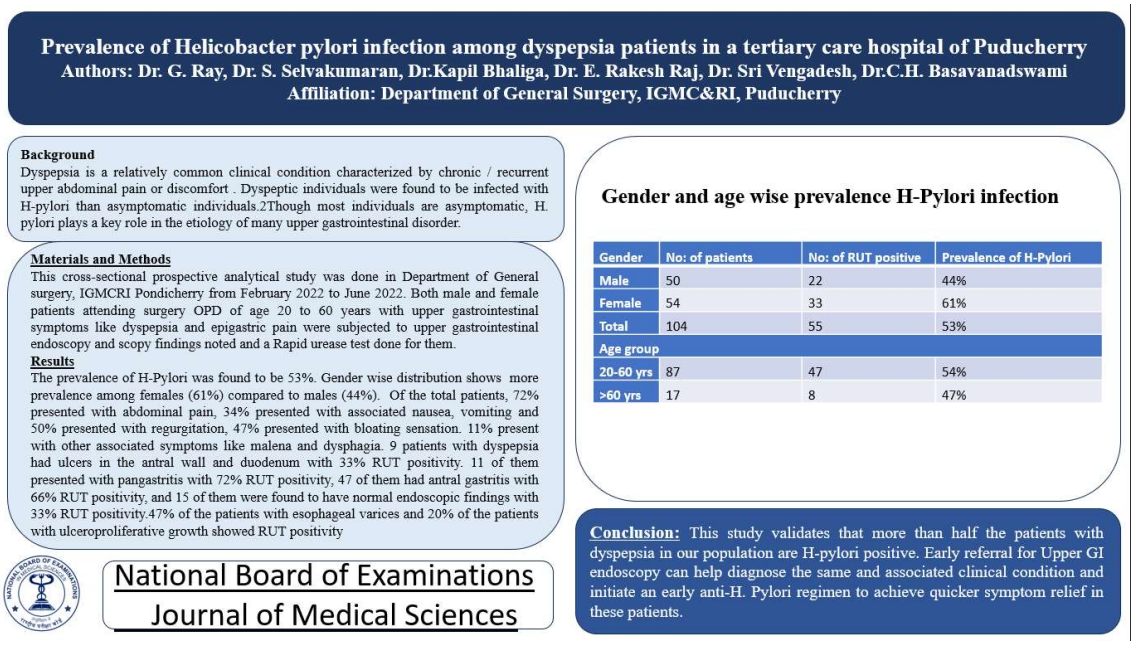
Graphical Abstract



Introduction

Dyspepsia is a relatively common clinical condition characterized by chronic / recurrent upper abdominal pain or discomfort and is often associated with one or more of following symptoms at any given time - upper abdominal pain, burning sensation in the chest or upper abdomen, regurgitation, anorexia and early satiety [1]. Dyspeptic individuals were found to be infected with H-pylori than asymptomatic individuals [2]. Though most individuals are asymptomatic, H. pylori plays a key role in the etiology of many upper gastrointestinal disorders. H. pylori infection is among the leading gastroenterological public health problems in developing countries [1]. Approximately 80% of the population may be infected by the age of 20 [3]. H- pylori infection can be diagnosed invasively using rapid urease test using endoscopic biopsies [4]. Dyspepsia is classified as organic or functional dyspepsia (FD). Organic dyspepsia is defined as dyspepsia induced by known etiology with structural disease like endoscopic lesion. Duodenal or gastric ulcer, erosive gastritis, duodenitis, gastritis, and malignant processes are included under organic dyspepsia. Dyspepsia with the absence of structural disease after the investigation using imaging, endoscopy, or similar method is called functional dyspepsia [5]. Number of invasive and noninvasive techniques though available in the diagnosis of H Pylori, conventional endoscopy is considered a powerful diagnostic tool for upper gastrointestinal tract as it enables the visualization of mucosal lining of the esophagus, stomach and duodenum. The rapid urease test (RUT) provides an opportunity to begin treatment immediately after the test [6]. Though prevalence studies are available in different states of India, data concerning the prevalence of H. pylori infection among dyspeptic patients in Puducherry are scanty; hence, the present study has been undertaken [7-9]. Further response of these patients to standard treatment regimens

would assist the primary care physicians in deciding upon treatment among dyspeptic patients.

Aim and Objectives

The primary objective of the study are to analyze the prevalence of H.pylori infection among patients with dyspepsia and to analyze the treatment response to anti-H.pylori regimen among patients with dyspepsia.

Methodology

This cross-sectional prospective analytical study was done in Department of General surgery, IGMCRI Pondicherry from February 2022 to June 2022. Both male and female patients attending surgery OPD of age 20 to 60 years with upper gastrointestinal symptoms like dyspepsia and epigastric pain willing to undergo endoscopy with tissue biopsy for rapid urease test were included after obtaining written informed consent. Pregnant women, patients diagnosed with bleeding or anxiety disorder, and patients with retroviral or HBV infection will be excluded. Based on the previous study [7], the sample size was calculated to be 93, with alpha error of 5% and an absolute precision of 10%. With 10% failure to follow up the sample size was estimated to be 102. Based on convenient sampling method among the patients attending surgery OPD from Monday to Saturday, 600 patients were diagnosed with dyspepsia, among them 250 patients satisfied the inclusion and exclusion criteria. However, only 104 patients willing to undergo endoscopic procedures were included.

All 104 patients were given appointment on specific dates to undergo upper GI endoscopy. They were advised to report in the endoscopy room after overnight fasting. The procedure was carried out in the endoscopy room under topical lignocaine spray in the Department of General surgery, IGMC & RI, Pondicherry in the morning from 8.30 to 10 am after explaining the procedure completely and getting the written informed consent. Patients were asked to remove the dentures before the procedure. The procedure was repeated after 1 week for willing but non-coperative patients. Patients taking anticoagulants were advised to stop the drug 5 days before the date of appointment. Cardiac fitness was obtained for all the patients on anti-failure treatment. Continuous ECG monitoring was done in these patients till the endoscopic procedure was complete. The esophagus, fundus, greater curvature, lesser curvature and duodenum upto second segment was visualized. Biopsy was taken from edge of the ulcer in patients with ulcer and ulceroproliferative growth. In all others, biopsy was taken from antrum and lesser curvature as it is the preferential site for H-pylori infection. The specimens taken were subject to RUT and the results were obtained within 5 minutes. For patients with ulcer and ulceroproliferative finding specimens were also sent for histopathological examination for further analysis to rule out carcinoma.

Statistical analysis

All the data are tabulated in Microsoft Excel. Analysis was done using Statistical Package for Social Sciences (SPSS) version 21.0 software. The presence of symptoms, prevalence of H Pylori and response to treatment were analysed for descriptive statistics. The findings were expressed as percentage.

Results

Table 1 shows that the prevalence of H-Pylori was 53%. Gender wise distribution shows more prevalence among females (61%) compared to males (44%). Among the total, 87 patients belong to the age group of 20 to 40 years with 54% prevalence and 17 patients belong to 41 to 60 years of age with 47% prevalence. Of the total patients, 72% presented with abdominal pain, 34% presented with associated nausea, vomiting and 50% presented with regurgitation, 47% presented with bloating sensation. 11% present with other associated symptoms like malena and dysphagia.

Table 2 shows the Upper GI endoscopic findings and RUT-positivity, where 9 patients with dyspepsia had ulcers in the antral wall and duodenum with 33% RUT positivity. 11 of them presented with pangastritis with 72% RUT positivity, 47 of them had antral gastritis with 66% RUT positivity, and 15 of them were found to have normal endoscopic findings with 33% RUT positivity.47% of the patients with esophageal varices and 20% of the patients with ulceroproliferative growth showed RUT positivity. Only 55 patients were found to be RUT positive, thus 53% of the dyspeptic patients were found to RUT positive. 90 patients had non-ulcer dyspepsia and 56% of them were infected with H-pylori.

Table 3 shows that all RUT-positive patients with findings of pangastritis, antral gastritis, duodenal ulcer, and normal findings responded 100% to the anti-H-Pylori treatment on follow-up after 4 weeks. However, 7 patients with esophageal varices and 1 with ulceroproliferative growth had persistent symptoms after 21 days and after 4 weeks follow up. 85% of the symptomatic patients with RUT positivity responded to treatment with anti-H Pylori.

Table 1. Gender and age wise prevalence H-Pylori infection

Gender	**No: of patients**	**No: of RUT positive**	**Prevalence of H-Pylori**
Male	50	22	44%
Female	54	33	61%
Total	104	55	53%
Age group			
20-60 yrs	87	47	54%
>60 yrs	17	8	47%

RUT: Rapid urease test, yrs- years

Table 2. RUT positivity in different endoscopic findings of patients with dyspepsia

Endoscopic findings	**No. of patients**	**No. of RUT positive patients**	**% positive**
Pan gastritis	11	8	72%
Antral gastritis	47	31	66%
Normal study	15	5	33%
Duodenitis or ulcer	9	3	33%
Ulceroproliferative growth	5	1	20%
Vascular ectasis	2	0	0 %
Esophageal varices	15	7	47%

Table 3. Response to anti H Pylori treatment among RUT positive patients

Endoscopic findings	**RUT positive patients**	**Asymptomatic Post 4 weeks**	**Treatment response**
Pan gastritis	8	8	100 %
Antral gastritis	31	31	100%
Normal study	5	5	100%
Duodenitis or ulcer	3	3	100%
Ulceroproliferative growth	1	0	0%
Vascular ectasis	0	0	0
Esophageal varices	7	0	0%
Total number of patients	55	47	85%

Discussion

The prevalence of H-pylori infection among dyspeptic patients was found to be 53%. The prevalence was found to be higher when compared to study done in Telangana and Bangladesh which were only 32.9% and 47.8% respectively [10,11]. H. pylori positive patients have a 10–20% risk of developing ulcer and a 1–2% risk of developing gastric cancer in their life time [12]. World Health Organization (WHO) and the International Agency for Research on Cancer has classified H-Pylori as a class 1 carcinogen [13]. In this study, prevalence was found to be higher in females than males, it was found to be higher in the age group of 20 to 60 years. This is similar to the study done by Sharma et al. [7] Treatment for H. pylori infection is recommended in all symptomatic individuals to prevent the development of gastric adenocarcinoma and mucosa-associated lymphoid tissue (MALT) lymphoma [14].

The prevalence of H-pylori infection in non-ulcer dyspepsia was found to be 56%, which is slightly more when compared to the study done by Sharma et al. [7] which was 40%. 72% of patients with pan gastritis were infected with H-Pylori. Among the patients with antral gastritis, 66% were H-Pylori infected. This is similar to the study done by Faintuch et al. which is 61% [15]. RUT positivity among patients with normal endoscopic findings were 33%, which is higher than the study done by Yellapu et al. [16] 47% of the patients with esophageal varices and 20% of the patients with ulceroproliferative growth were infected with H-Pylori.

In this study RUT-positive patients were treated with anti-H-pylori kit for 21 days. The patients were asked to report their dyspeptic symptoms immediately after the completion of treatment and after 4 weeks. 47 RUT-positive patients did not have any symptoms of dyspepsia even after 4 weeks of anti-H-pylori regimen. Thus 85% of symptomatic RUT-positive patients responded to treatment. Similarly, there was 24 to 53% improvement in symptoms among H-Pylori-positive patients in different studies [17,18]. Tanaka et al. reported that 73% of the patients had improvement in the dyspeptic symptoms [19]. This difference could be due to differences in the criteria for improvement of dyspepsia in different studies. Remaining RUT-positive patients with esophageal varices and ulceroproliferative growth were treated with banding and further evaluation for staging of carcinoma respectively. Thus upper GI endoscopic evaluation in patients with more than 4 to 6 weeks of dyspepsia not only help in diagnosing Hpylori infection but also in identifying associated findings like esophageal varices, carcinoma, etc. RUT-negative patients with dyspepsia were treated with oral C. pantoprazole for 3 days or 5 days based on the symptom severity. Follow-up of these patients for 4 weeks did not show any symptom recurrence. All patients were advised to avoid alcoholic beverages and spicy food. They were asked to practice mindful meditation or yoga to reduce their stress level to reduce the recurrence of dyspepsia due to increased gastric secretion.

Conclusion

This study shows anti-H-pylori treatment can be prescribed after upper GI endoscopy and rapid urease test. This finding could assist primary care physicians in deciding on referring patients for upper

GI endoscopy who are not responding to proton pump inhibitors rather than treating them empirically. It also enables them to diagnose other associated findings like esophageal varices and early detection of carcinoma among patients presenting with ulcers.

Strengths & Weakness of the Study

H-Pylori infection was diagnosed with upper GI endoscopic biopsy and RUT, which helps in understanding the prevalence of H-Pylori infection in patients with different endoscopic findings. The study has a few limitations. Post-treatment endoscopy and RUT were not repeated for H-Pylori-infected patients. RUT could be falsely negative among patients treated with proton pump inhibitors. The risk factors like smoking and socioeconomic status were not recorded. Histopathological findings were not correlated with endoscopic findings. This study could be extended with a larger sample size and by scoring the dyspeptic symptoms before and after treatment to clearly define the treatment response.

Statements and Declarations

Conflicts of interest

The authors declare that they do not have conflict of interest.

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