Section: General Surgery

Original Research Article

A STUDY OF THE PREVALENCE OF H. PYLORI AS A CAUSATIVE FACTOR FOR GASTRITIS PATIENTS UNDERGOING UGI ENDOSCOPY SCREENING FOR DYSPEPTIC SYMPTOMS

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Abstract

Background: Helicobacter pylori infection is a major cause of gastritis and peptic ulcer disease. The genus Helicobacter, including human isolates, causes inflammation of stomach mucous membranes, leading to gastritis, duodenal ulcers, and gastric lymphoma. This study aimed to determine the prevalence of H. pylori infection as a causative factor for gastritis in patients undergoing UGI endoscopy for the following symptoms abdominal pain, dyspepsia, and vomiting. **Materials and Methods:** This prospective study included 100 patients with gastritis who underwent UGI endoscopy at the Government Dharmapuri Medical College and Hospital for 18 months from January 2020 and June 2021. Data regarding patient history, endoscopy findings, and rapid urease test results were collected. **Result:** The highest prevalence was found in the 20 -30 years (35%), with 62% of males and 38% were females. 36% of the patients were smokers, 64% were non-smokers, 35% were alcoholic, and 65% were non-alcoholic. Patients had dyspepsia (42%), vomiting (35%), and abdominal pain (27%). There was no significant difference in age, sex, or smoking status between the H. pylori groups ($p = 0.876$, $p = 0.121$, $p = 0.341$). However, a significant difference was observed in the BMI between the H. pylori groups ($p = 0.007$). There were no significant differences in the diagnosis, comorbidities, or symptoms of H. pylori infection ($p > 0.05$). **Conclusion:** The prevalence of H. pylori infection has decreased, possibly because of human host and socioeconomic factors. Improving hygienic practices and living standards can prevent transmission, as India strives to develop.

INTRODUCTION

Marshall and Warren were the first to prove that H. pylori was the major etiological factor for gastritis and peptic ulcer disease. The genus Helicobacter consists of curved, helical, spiral, or fusiform microaerobic/HILIC gram-negative rods with or without periplasmic fibres, with the majority of species exhibiting urease activity. Organisms may appear coccoid or spheroidal if they are cultivated for long periods. Human isolates include H. pylori, H. cinaedi, H. fennelliae, H. heilmannii (formerly known as Gastrospirillum hominis), Helicobacter westmeadii, Helicobacter canis, Helicobacter suis, Helicobacter canadensis sp., Helicobacter pullorum, and Helicobacter rappini (formerly known as flexispira rappini).

Gastritis is a common community problem, and inflammation of the mucous membrane lining in the stomach leads to dysfunction of function. Helicobacter pylori infection is a major cause of gastritis and its prevalence varies across countries. H. pylori is a major cause of gastritis, duodenal ulcer, gastric ulcer and gastric lymphoma H. pylori is the only bacteria to develop gastric lymphoma H. pylori infection is curable and medically treated. Early detection of H. pylori infection prevents gastric cancers, such as gastric adenocarcinoma, mucosa-associated lymphoid tissue lymphoma, gastritis, duodenal ulcer, gastric ulcer, and gastric lymphoma.

AIM

This study aimed to determine the prevalence of H. pylori infection as a causative factor for gastritis in patients undergoing UGI endoscopy for the following symptoms abdominal pain, dyspepsia, and vomiting.

MATERIALS AND METHODS

This prospective study included 100 patients with gastritis who underwent UGI endoscopy screening at the Government Dharmapuri Medical College and Hospital for 18 months from January 2020 and June 2021. Ethical approval and informed written consent were obtained from all patients.

Inclusion Criteria

Patients aged between 18 and 60 years, with chronic upper abdominal pain and dyspeptic symptoms, and diagnosed with chronic gastritis and gastric/duodenal ulcers on upper UGI endoscopy were included.

Exclusion Criteria

Patients aged < 18 and > 60 years, pregnant and lactating women, unwilling patients for endoscopy, H/o intake of NSAIDs and PPI before 1-month, suspected bowel perforation, and recent MI/cardiac failure were excluded.

Data regarding patient history, endoscopy findings, and rapid urease test results were collected.

Statistical analysis

RESULTS

The highest prevalence was found in the age group 20 -30 years (35%), followed by 31–40 years (28%), 41-50 (26%), and > 50 years (11%). 62% were males and 38% were females. BMI < 25 was 47% and BMI > 25 was 53%. 36% of the patients were smokers, 64% were non-smokers, 35% were alcoholic, and 65% were non-alcoholic. [Table 1]

The highest prevalence was observed among patients with dyspepsia (42%), vomiting (35%), and abdominal pain (27%).

The prevalence was highest for pangastritis (31%), followed by Lax Les (20%), abdominal pangastritis (17%), reflux oesophagitis (13%), and erosive gastritis (7%). [Table 2]

Table 1: Demographic data of the study

		No of patients	Percentage
Age in years	< 30	35	35%
	31-40	28	28%
	41-50	26	26%
	> 50	11	11%
Sex	Male	62	62%
	Female	38	38%
Body mass index	< 25	47	47%
	> 25	53	53%
Smoker	Yes	36	36%
	No	64	64%
Alcoholic	Yes	35	35%
	No	65	65%
Comorbid	Diabetes	7	7%
	Hypertension	13	13%
	Nil	80	80%

Table 2: Symptoms, diagnosis, Ugi scopy findings, and Rapid urease test

		Present	Absent
Symptoms	Abdominal pain	27	73
	Vomiting	35	65
	Dyspepsia	42	58
		No of patients	Percentage
Diagnosis	Acid peptic disease	14	14%
	Gastritis	82	82%
	Gerd	3	3%
	Peptic ulcer	1	1%
Ugi scopy findings	Antral gastritis	17	17%
	Pan gastritis	31	31%
	Erosive gastritis	7	7%
	Lax les	20	20%
	Reflux oesophagitis	13	13%
	Reflux gastritis	3	3%
	Duodenitis	4	4%
	Others	5	5%
Rapid urease test	Positive	52	52%
	Negative	48	48%

Table 3: Comparison of demographic data between H. pylori

		H. pylori - rapid urease test		P value
		Positive	Negative	
Age in years	< 30	18	17	0.876
	31-40	16	12	
	41-50	12	14	
	> 50	6	5	
Sex	Male	36	26	0.121
	Female	16	22	

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Body mass index	Less than 25	16	31	0.007
	More than 25	36	17	
Smoker	Yes	21	15	0.341
	No	31	33	

Table 4: Comparison of diagnosis, comorbidities, and symptoms between H. pylori

		H. pylori - rapid urease test		P value
		Positive	Negative	
Diagnosis	Acid peptic disease	6	8	0.46
	Gastritis	44	38	0.841
	Gerd	2	1	0.605
	Peptic ulcer	0	1	0.295
Comorbidities	Diabetes	4	3	0.777
	Hypertension	7	6	0.886
	Nil	41	39	Na
Symptoms	Abdominal pain	12	15	0.357
	Vomiting	20	15	0.45
	Dyspepsia	22	20	0.948

Table 5: Incidence of helicobacter pylori in various factors

Characters		No of patients	Positive	Percentage
Age in years	< 30	35	18	51%
	31-40	28	16	57%
	41-50	26	12	46%
	> 50	11	6	54%
Sex	Male	62	36	58%
	Female	38	16	42%
Body mass index	< 25	47	16	34%
	> 25	53	36	63%
Smoker	Yes	36	21	58%
	No	64	31	48%
Alcoholic	Yes	35	20	57%
	No	65	32	49%
Diagnosis	Acid peptic disease	14	6	43%
	Gastritis	80	42	52%
	Gerd	3	2	67%
	Dyspepsia	2	2	100%
	Peptic ulcer	1	0	0%
Symptoms	Abdominal pain	27	12	45%
	Vomiting	35	20	57%
	Dyspepsia	42	22	52%
Comorbidities	Diabetes	7	4	57%
	Hypertension	13	7	54%

There was no significant difference in age, sex, or smoking status between the H. pylori groups (p = 0.876, p = 0.121, p = 0.341). However, a significant difference was observed in the BMI between H. pylori groups (p = 0.007) [Table 3].

There were no significant differences in the diagnosis, comorbidities, and symptoms of H. pylori (p > 0.05) [Table 4].

DISCUSSION

In the present study, the prevalence rate was 52%. In a study conducted by Adlekha et al., the prevalence was 62%.1 In another study, conducted by Rastogi et al. reported a prevalence of 44.23%.2 In our study, the highest prevalence was found in the age group between 20-30 years (35%). In a study conducted by Asthari et al, prevalence decreased with age.3 In the study conducted by Adlekha et al., reported no statistically significant difference in age-related distribution.[1]

In the study conducted by Obiagali and Ivan, the highest prevalence of H. pylori infection and peptic ulcer occurred within the age group 38-47 years with 56.2% and 49.3% respectively, while ages 18-27 years had the least prevalence for both infections.4 In Rastogi et al. study the age-wise distribution showed maximum prevalence of Helicobacter pylori in the age group of 30-39 years (50.7%) and minimum in the age group of more than 70 years (20%).[2]

In the present study, the prevalence of H. pylori infection was 62% in males and 38% in females, which was not statistically significant. Asthari et al. reported no significant gender differences.[3] Obiagali and Ivan reported that more males were infected than females.[4] Rastogi et al. also reported no statistically significant difference in age-related distribution.

In the present study, BMI < 25 was 47% and BMI > 25 was 53%, and there was a statistically significant association between obesity and H. pylori infection. Similarly, Suki et al. found a positive association between H. pylori infection and increased BMI.[5] The results are in line with a study by Xinlan et al., who reported that obesity is associated with H. pylori infection. The study also reported H. pylori infection may be one of the risk factors for obesity.[6]

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In the present study, 36% of the patients were smokers, 64% were non-smokers, 35% were alcoholic, and 65% were non-alcoholic. There was no statistically significant association between smoking and alcohol consumption among H. pylori infections. Similarly, Ferro et al. reported no association between smoking and H. pylori infection.[7] But a study by Sánchez-Cuén et al. showed an association between alcohol consumption and H. pylori infection. The risk of H. pylori infection was greater in subjects who consumed alcohol than in those who did not.[8] Alcohol has a strong antimicrobial activity and stimulates gastric acid secretion. Alcohol consumption may compromise the living conditions of Helicobacter pylori in the stomach.[9] These findings support the hypothesis that moderate alcohol consumption may facilitate the spontaneous elimination of H. pylori infection among adults.

In the present study, the highest prevalence was found among patients with dyspepsia (42%), followed by vomiting (35%), and abdominal pain (27%), and there was no statistically significant association between symptoms and H. pylori infection. Rangaswamy and Rubby reported that 44 patients (48.88%) had heartburn, followed by other symptoms such as dysphagia 14 (15.55%), abdominal discomfort with meals 14 (15.55%), and abdominal pain 12 (13. 33%).[10] Alsaimary et al. also reported that 51 patients (87.9%) had abdominal pain followed by other symptoms such as: vomiting 46 (79.3%), heartburn 38 (65. 5%), dysphagia 35 (60.3%), and abdominal discomfort with meals 32(55.2%).[11]

In the present study, the prevalence was highest in pangastritis, which was 31%, followed by 20% in Lax Les, 17% in Antralpangastritis, 13% in reflux oesophagitis, and 7% in Erosive Gastritis. Adlekha et al. reported that the most common endoscopic abnormality is gastritis (69%). The correlation of endoscopic abnormality with H. pylori infection was statistically highly significant with a $p < 0.01$, proving endoscopic changes to be a sensitive indicator of H. pylori infection.[1]

A study done by Akeel et al. reported normal in 53(49% positive), gastritis in 255(44% positive), gastric ulcer in 31(45.2% positive), and duodenal ulcer in 17(47.1% positive).[12] Asthari et al. study showed 84% of the patients having gastritis features on endoscopy were positive for H. pylori.[3] Abboud et al. reported normal in 26 (15% positive), gastritis in 177 (40% positive), gastric ulcer in 19 (6% positive), duodenal ulcer in 8 (62.5% positive) esophagitis in 42 (66.7% positive), duodenitis in 68 (50% positive).[13] In the study conducted by Yadav et al. gastritis was observed in 190 (72.6% positive), gastric ulcer in 56 (85.7% positive), duodenal ulcer in 48 (91.66% positive), and duodenal ulcer in 48 (91.6% positive).[14] Ayana et al. gastritis in 127 (72% positive), gastric ulcer in 12 (50% positive), duodenal ulcer in 38 (89% positive), gastric carcinoma in 14 (58% positive), duodenitis in 32 (69% positive).[15]

CONCLUSION

There is a recent trend of a decrease in the prevalence of H. pylori, which might be related to human host factors as well as socioeconomic and hygiene factors. It appears that the acquisition and transmission of H. pylori can be prevented to a large extent by improving hygienic practices and the standard of living. The present study corroborates these findings as there is improvement in socioeconomic status and living conditions, as India strives on the path of being a developed country.

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