

Prevalence of Helicobacter pylori infection among patients undergoing upper gastrointestinal endoscopy

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Abstract

Helicobacter pylori (H. pylori) has a role in the multifactorial etiology of peptic ulcer disease. A link between H. pylori infection and duodenal ulcer disease is now established. Other contributing factors and their interaction with the organism may initiate the ulcerative process. The fact that eradication of H. pylori infection leads to a long-term cure in the majority of duodenal ulcer patients and the fact that the prevalence of infection is higher in ulcer patients than in the normal population are cogent arguments in favor of it being the primary cause of the ulceration. This study was undertaken at the Department of surgery, Narayana medical college, Nellore from January 2007 to July 2008. A total of 150 patients with duodenal ulcers, gastric ulcers, antral gastritis, gastric carcinoma and dyspepsia of any kind were studied. Maximum number of cases were in the age group of 31 years to 50 years among both sexes and number of cases gradually decreased after 50 years of age in males and females. Males were more in number and male to female ratio is (2.75:1) approximately 3:1.

Keywords: Helicobacter pylori, gastrointestinal, endoscopy..

INTRODUCTION

Helicobacter pylori (H. pylori) has a role in the multifactorial etiology of peptic ulcer disease. A link between H. pylori infection and duodenal ulcer disease is now established. Other contributing factors and their interaction with the organism may initiate the ulcerative process. [1] The role of H. pylori as a gastric pathogen is dependent on virulence factors and pathogenic mechanisms. Virulence factors are those that allow H. pylori to survive in the hostile environment of the gastric lumen which includes its spiral shape, motility, adaptive enzymes, proteins, and ability to adhere to gastric mucosal cells and mucus. [2]

Gastric colonization of Helicobacter pylori has been associated with duodenal and gastric ulcer. H.pylori are found in the deep portions of the mucous gel coating the gastric mucosa or between mucous gel layer and apical surfaces of the gastric mucosal epithelial cells. They also located in the regions of the tight junctions between adjacent mucosa epithelial cells. [3]

H.pylori infection reduces the levels of ascorbic acid in the gastric juice. Levels in infected patients were only 25% of those in non-infected subjects. Eradication of H.pylori resulted in a large increase in gastric juice ascorbate. The reversible lowering of gastric juice ascorbate may predispose to gastric cancer and peptic ulceration. [4]

H.pylori is present in

> 90 of patients with duodenal ulcer.

60 – 90% of patients with gastric ulcer.

About 50% of patients with non ulcer dyspepsia [5]

H.pylori is also seen in asymptomatic individuals with normal endoscopic findings, but with histologic evidence of gastritis and H.pylori.

H.pylori transmitted through close personal contact and

that the human being is the only significant reservoir of infection.[6] The detection of bacterium in saliva, dental plaque, diarrhoeal stool and vomit implicates oral-oral (or) fecal-oral transmission as possible routes of infection. Contaminated water and raw vegetable could be a source of H.pylori in the fecal - oral transmission pathway. [7]

Environmental factors play a role in the out come of the disease. Socioeconomic class, which affects living conditions and sanitation increase the risk of exposure to bacterium. Tobacco smoking increases the risk of duodenal ulceration for patient infected with H.pylori. [8]

MATERIALS AND METHODS

This study was undertaken at the Department of surgery, Narayana medical college, Nellore from January 2007 to July 2008. A total of 150 patients with duodenal ulcers, gastric ulcers, antral gastritis, gastric carcinoma and dyspepsia of any kind were studied.

CRITERIA FOR SELECTION OF PATIENTS

1. Consent of the patients taken prior to admitting for study.
2. Age ranging from 20 to 70 years and above
3. Patients without previous gastric surgery
4. Patients free of other concurrent infection or symptomatic illness.

SAMPLE COLLECTION

Patients suffering from dyspepsia of any etiology were endoscoped for biopsy. Patients fasted for up to 12hours before endoscopy. Prior to specimen collection the endoscope with biopsy forceps was rinsed thoroughly with water and soaked in 2% gluteraldehyde (cidex) for 20 minutes. The endoscope was thoroughly rinsed with sterile normal saline just before collection of specimen. At the end of each day endoscope was washed and soaked in 2% gluteraldehyde for 30 minutes.

The endoscopists ascertained the diagnosis just before performing the biopsy. From each patient four biopsy specimen were taken from pylori antral mucosa within 5cms of pylorus,

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each piece of tissue approximately measuring 1mm in diameter under standard aseptic precaution. The four specimens were used for bacteriological study and were picked up from the endoscopic biopsy forceps with the help of sterile disposable needles. The first specimen was taken in a screw capped bottle of 5 ml capacity containing 3ml of sterile 20% glucose broth for culture. The second specimen was inoculated on to the urease test bottle, with third specimen an imprint smear was made on a sterile slide by placing it on and pressing the specimen with another sterile slide. The fourth specimen was subjected for Histopathological examination by H - E staining.

HISTOPATHOLOGICAL EXAMINATION

In all the subjects studied 1-2 biopsy specimens were fixed in 2 ml of 10% v/v buffered formalin, dehydrated in ethanol and embedded in paraffin. Section were cut a 5 micrometer with fine microtome and stained with Hematoxylin - Eosin. In cases where bacteria were few and difficult to recognize special stain (Warthin-starry) were performed to confirm the presence of *H.pylori*. The prepared slides were evaluated for the presence of *H.pylori* under oil immersion using light microscope.

RESULTS

Findings of the present Laboratory study of 150 cases were here under presented and analyzed.

Table 1: Age and Sex distribution of cases

Age group (In years)	Males	Females	Total Number tested
21-30	19	09	29
31-40	25	13	38
41-50	30	08	38
51-60	22	06	28
61-70	10	03	13
>70	04	01	05
Total	110	40	150

From the above table it can be seen that maximum number of cases were in the age group of 31 years to 50 years among both sexes and number of cases gradually decreased after 50 years of age in males and females. Males were more in number and male to female ratio is (2.75:1) approximately 3:1.

Table 2: Endoscopic diagnosis of the cases

S.No	Endoscopic Diagnosis	No. studied	% of Incidence
1.	Antral gastritis	60	40
2.	Non - ulcer dyspepsia	45	30
3.	Duodenal Ulcers	22	14.6
4.	Gastric Ulcers	15	10
5.	Carcinoma stomach	08	5.3
Total No. of cases		150	

Antral gastritis was predominant (40%) followed by non ulcer dyspepsia (30%) among the study group. Carcinoma stomach (5.3%) was comparatively less frequent.

DISCUSSION AND CONCLUSION

In the present laboratory study of 150 symptomatic individuals undergoing endoscopy, an attempt has been made to study more than one biopsy specimens from them by more than one endoscopy based tests with a view to know the prevalence of *H.pylori* infection among them.

Extensive work made all over the world by several workers indicate that gastro duodenal diseases are more common among male members of the population. Common in the age groups between 21 to 50 years and less among children and older people. According to ozmen M.M et al., gastro duodenal diseases are uncommon in the age group below 20 years. [9] These are gradually increases to adolescent age and constant with higher incident in adults. So, overall views shows prevalence with age. (*H.pylori* an update for surgeons, 1995 edition). Male to female ratio for duodenal ulcer varies from 5:1 to 2:1, whilst that for gastric ulcer is 2:1 or less.

Corroborating with this, in the present study also the male to female ratio of the patients is 3:1 showing male preponderance. Incidence has been more in age groups between 21-50 years among both sexes and later showed a gradual decline.

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