



Role of Helicobacter Pylori in Peptic Ulcer Disease - A Clinical Study

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ABSTRACT

Background : Even though many studies done before proves, the significant association between *H.pylori* and peptic ulcer disease, it is still not known why few patients harbouring *H.pylori* still does not suffer from peptic ulcer disease.

Methods : A total of 100 patients who were clinically diagnosed as a case of APD were subjected to UGLIE from September 2011 to August 2013. Out of 100 patients 7 were Gastric outlet obstruction due to pyloric stricture. *Helicobacter pylori* positivity was determined by RUT, Gram stain and ELISA

Results : 59 patients were found to be *H.pylori* positive. 7 patients with normal study were *H. pylori* positive (33.34%). 14 patients with gastritis/duodenitis were *H.pylori* positive (45.16% $\chi^2 = 3.42$, $P > 0.05$).

Conclusion : *Helicobacter pylori* has highly significant association with duodenal ulcer and gastric ulcer.

KEYWORDS : *H.pylori* ; peptic ulcer disease ; Acid peptic disease (APD)

Introduction:

Peptic ulcer disease is a major health care concern in the society today, in view of the personal suffering as well as economical health care costs. The dictum of KARL SCHWARZ : "no acid no ulcer" provided the framework for ulcer research for many decades¹. In 1983, Marshall and Warren, first reported the presence of gram negative spiral bacillus from a patient suffering from gastritis, since then the role helicobacter pylori in the pathogenesis of a variety of peptic disorder has been hotly debated both in medical press and by media.

Helicobacter pylori are probably the most common bacterial infection in humans. In some countries 50% of infants are infected which increases to 90% by 5 years. It has been incriminated in many systemic disorders in adults and its principal site of colonization is the gastrointestinal tract. It spreads by feco oral, oro- oral or gastro- oral route. Abdominal pain and occasional vomiting has been described with HP infection². It is now acknowledged worldwide that gastritis, duodenal ulceration, gastric ulceration, gastric adenocarcinoma, gastric mucosa associated lymphoid tissue lymphoma are in fact, infectious diseases.

Now various tests are available to diagnose *Helicobacter pylori* colonization such as microbiological culture, identification of *H.pylori* in biopsy sections or smear using various stains and by serological methods.

H.pylori infection is established when culture is positive or more than two of the tests were positive and non- infection state is established when more than 2 tests are negative³. In the light of the above we have attempted to study the prevalence of peptic ulcer disease in our setup with reference to age and sex occurrence, clinical presentation and its association with *Helicobacter pylori* infection.

Methodology:

The present clinical study to know the role of *Helicobacter pylori* in peptic ulcer disease was conducted in the Department of Surgery

in collaboration with microbiology department, J.J.M. Medical College, Davangere among patients who are clinically diagnosed as a case of acid peptic disease and willing to undergo upper gastrointestinal endoscopy.

Inclusion criteria :

- With in the age group of 10 and 60.
- Diagnosed clinically as a case of acid peptic disease.
- Who have given consent for upper GI endoscopy.
- Diagnosed as a case of peptic ulcer disease with complication such as haemorrhage, perforation, obstruction

Exclusion criteria :

- Who is taking NSAIDS and/or other ulcerogenic drugs.
- With suspected or known coagulopathy
- With h/o ingestion of caustic materials.

Sample collection:

Patients clinically diagnosed as a case of acid peptic disease were endoscoped after 12 hours of fasting. Endoscopy was carried out with Pentax video endoscopy system. Before the specimen collection, endoscope with biopsy forceps were rinsed thoroughly with water and soaked in 2% glutaraldehyde for 20 minutes, then rinsed with physiological saline just before insertion.

Four endoscopic biopsies were taken, 2 each from the gastric antrum and the body of stomach in the area of severe gastritis (maximum redness) or the edge of ulcer crater depending on the findings. Each pieces of tissue measured approximately 1mm in diameter. The specimens from the biopsy forceps were picked up by sterile disposable needles for bacteriological study.

- First and second specimen was inoculated into two urease broths.
- Third and fourth specimens - an imprint smear was made on a sterile slide by placing it on another slide and pressing it gently.
- Serum was collected for IgG estimation by ELISA.

A subject was defined as H.pylori positive if the bacteria were identified by at least two of the diagnostic methods used (Rapid urease test, Serology, Gram stain etc).

Results:

Out of 100 patients, there were 79 male patients and 21 female patients, age ranging from 10 to 60 years. Out of 100 patients, 59 patients were diagnosed to have been infected with H.pylori (59%). Out of 59 H.pylori positive patients 46 (58.12%) were males and 13 (61.9%) were females.

More number of cases were present in the age group between 21- 40 (52 cases) when compared to other age groups. Sero prevalence reaches a peak in the age group of 31- 40 (65.38%). Males (79) are more affected than females (21) by APD. But females (61.90%) have slightly higher seroprevalence when compared to males(58.22%).

All these patients presented with upper abdominal pain or discomfort. Out of which 59 were positive for H.pylori 19 patients (male - 16, female - 13) presented with nausea and vomiting, out of which 9 patients (male - 8, female- 1) had H.pylori infection.7 patients had past history of peptic ulcer disease now presented with Gastric outlet obstruction Out of which 2 patients were diagnosed to have H.pylori infection.

Out of 100 patients, 88 patients had epigastric tenderness on palpation.Out of which 53 patients to harboured H.pylori infection (60.22%).

Endoscopic findings : Many patients had more than one endoscopic findings.

1) Normal study :

There were 21 in this group, out of which 7 were found to be positive for H.Pylori infection (33.34%). Out of 21 patients, 11 were males and 10 were females. Out of 7 H.pylori positive cases 2 are males and 5 were females.

2) Gastritis / duodenitis :

Out of 100 patients 28 patients had gastritis out of which 14 were positive (50%) for H.pylori 23 patients had duodenitis out of which 10 pateints harboured H.pylori (43.49%). 31 patients had gastritis or duodenitis or both, of which 14 were found to be H.pylori positive (45.16%).

3) Duodenal ulcer :

Out of 42 patients 36 patients were found to be H.pylori positive (85.71%). There were 35 males and 7 females. Out of 36 H.pylori positive cases 30 were males and 6 were females.

4) Gastric ulcer :

There were 19 patients, out of which 14 were H.pylori positive(73.68%). There were 17 males and 2 females. Out of H.pylori positive 13were males and 1 was female.

5) Carcinoma stomach :

There were 2 cases of carcinoma stomach of which 1 is positive for H.pylori (50%). Both the patient are males..

Table 1: Prevalence of H.pylori infection in different age groups

Age (Years)	Mean Age	Total Cases	H. Pylori +ve	
			N	%
10- 20 years	19.13	8	4	50
21- 30 years	26.58	26	14	53.85
31- 40 years	36.5	26	17	65.38
41- 50 years	46.55	22	13	59.09
51- 60 years	55.94	18	11	61

Table 1: Prevalence of H.pylori infection in various sub groups

Endoscopy Findings	Total Number	H.Pylori Positive	Percentage	Chi value	Significance*
Normal Study	21	7	33.33	-	-
Gastritis/ Duodenitis	31	14	45.16	3.42	P>0.05 NS
Duodenal Ulcer	42	36	85.71	15.39	P<0.001 HS
Gastric Ulcer	19	14	73.68	4.99	P<0.05 S
Carcinoma of the Stomach	2	1	50	0.092	P>0.05NS

*** As compared with Normal Study**

Discussion:

After the discovery H.pylori by Marshall and Warren in 1983, many studies were conducted to confirm the association of H.pylori with various acid- peptic diseases and carcinoma stomach. Even though many studies done before proves, the significant association between H.pylori and peptic ulcer disease, it is still not known why few patients harbouring H.pylori still does not suffer from peptic ulcer disease

The association of H.pylori with gastritis / duodenitis is controversial. Therapeutic trials in gastritis / duodenitis patients with H.pylori infection produced conflicting results. Thus, at this stage in the history of acid - peptic disease and its association with H.pylori, the causation or association between the two is still unclear. In case of gastritis / duodenitis this is still more augmented by the conflicting results produced by the workers world - wide.

Thus we at the department of surgery J.J.M. Medical College, Davangere have made a sincere attempt to explore the possibility of proving this association between H.pylori and peptic ulcer disease and its contribution to gastritis / duodenitis. We have also compared our studies with other studies done previously. A brief outline of the studies compared is given below.

Endoscopic findings	Marshall & Warren (1984) ⁴		Von Wulfen et al (1989) ⁵		Goodwin et al		Present study	
	Total Pts	H.Pylori +ve (%)	Total Pts	H.Pylori +ve (%)	Total Pts	(1988) ⁶ +ve (%)	Total Pts	H.Pylori +ve (%)
Normal Study	16	8(50)	130	41(31.5)	319	139 (43.5)	21	7 (33)
Gastritis / Duodenitis	59	32 (54.2)	127	79 (62.2)	210	121 (57.6)	31	14 (45)
Duodenal ulcer	13	13 (100)	54	45 (83.3)	64	59 (92)	42	36 (86)
Gastric ulcer	22	18 (81.8)	18	13 (72.2)	30	25 (83)	19	14 (74)
CA stomach	-	-	-	-	8	7 (87)	2	1(50)
Total	100	58(58)	180	98(54)	631	351(55)	100	59(59)

Conclusion:

In our study peptic ulcer disease was found to be more common in males but H.pylori positivity is more in females than males.

- Seroprevalence of Helicobacter pylori increases with increasing age and reaches a peak in the age group of 30 to 40, and then declines with increasing age.
- In this study, we found that helicobacter pylori was consistently associated with duodenal ulcer and gastric ulcer than gastritis/ duodenitis

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