

PREVALENCE OF HELICOBACTER PYLORI INFECTION IN PATIENTS WITH ACID PEPTIC DISORDERSChetan P. R¹, Madhusudhan A², Naveen P. R³, Prashanth H. L⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: BACKGROUND: A single centre study was planned to assess prevalence of H. pylori infection in patients suffering from acid peptic disorders, in order to find out the burden of the disease. **OBJECTIVES:** To assess the prevalence of H. pylori infection in patients suffering from acid peptic disorders. **METHODOLOGY:** A total of 100 subjects, suspected clinically as cases of acid peptic disorder, were subjected to upper gastro intestinal endoscopy. Two biopsies were taken and sent for rapid urease test and histopathological examination. **STATISTICAL ANALYSIS:** The data obtained was coded and entered in Microsoft Excel Spreadsheet. The categorical data was expressed as rates, ratios and percentages and comparison was done using chi-square test. **RESULTS:** Total of 100 subjects was studied, of which 66 were males and 34 were females. Rapid urease test was positive for H. pylori infection in 40 % (n=40) of the patients and histopathological report revealed 49% (n=49) of the patients with H. pylori infection. Based on both the diagnostic modalities of which either one may be positive (rapid urease test or histopathological examination) the H. pyloric prevalence in acid peptic disorder patients was found to be 59%. **CONCLUSIONS:** Present study showed high prevalence of H. pylori in patients with acid peptic disorders. The infection with H pylori was not associated with age, sex and place of residence.

KEYWORDS: Helicobacter Pylori, Rapid urease test, Histopathology, Prevalence.

INTRODUCTION: Since the introduction of Helicobacter pylori to the scientific community by Marshall and Warren from Australia almost three decades ago, the focus of basic biochemical and clinical research and debate. Its relevance to human disease, specifically to peptic ulcer disease, gastritis, and gastric malignancy, is indisputable.¹

H. pylori infection remains one of the world's most common bacterial infections. Prevalence varies considerably throughout the world, and although exact numbers differ among sources, H. pylori infection is widespread in developing nations, where prevalence is believed to be more than 80% among middle-aged adults. The prevalence of H. pylori infection in industrialized countries is considerably lower, with 20% to 50% of the population infected.²

Helicobacter pylori infection is common in the Indian subcontinent. Exposure occurs in childhood and approximately 80% of adults have been infected at some time. Sero-surveys indicate a seroprevalence of 22%-57% in children under the age of five, increasing to 80%-90% by the age of 20, and remaining constant thereafter.³

Although chronic gastritis will develop in nearly all individuals who are persistently colonized with H. pylori, 80% to 90% will never experience symptoms or develop clinical disease. It has not been clearly established as to how the presence of H. pylori leads to gastric and duodenal ulcers, but disruption of gastric and duodenal mucosal integrity seems to involve a complex interaction between the host and pathogen.²

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Currently, there are several popular methods for detecting the presence of *H. pylori* infection, each having its own advantages, disadvantages, and limitations. Basically, the tests available for diagnosis can be separated according to whether or not endoscopic biopsy is necessary.

Histological evaluation, culture, polymerase chain reaction (PCR) and rapid urease tests are typically performed on tissue obtained at endoscopy. Alternatively, simple breath tests, serology, and stool assays are sometimes used, and trials investigating PCR amplification of saliva, feces and dental plaque to detect the presence of *H. pylori* are ongoing.⁴

Despite the fact of high prevalence of *H. Pylori* infection there is scarcity of literature regarding incidence of *H. Pylori* infection in patients with acid peptic disorders especially in this region. Hence the present study was undertaken to estimate the incidence of *H. pylori* in patients with acid peptic disorders so as to find effective management strategy for patients presenting of acid peptic disorders with *H. pylori* infection as etiology.

METHODOLOGY: This is a cross-sectional study, and was conducted at the Department of Surgery, Karnataka Institute of Medical Sciences (KIMS), Hubli from January 2012 to July 2013.

Demographic data such as age, sex, religion and occupation were obtained. Patients presenting with clinical features of acid peptic disorders and patients on endoscopy showing features of acid peptic disorders were subjected to endoscopic biopsy.

Patients with history of NSAIDS/ steroids usage, corrosives, malignancies, pregnant and lactating females, rheumatologic disorders, active upper gastrointestinal bleeding were excluded. Prior to the commencement, the study was approved by the Ethical and Research Committee, Karnataka Institute of Medical Sciences, Hubli.

All the patients fulfilling the selection criteria were explained about the nature of the study and a written informed consent was obtained.

PROCEDURE: Patient were kept nil by mouth six hours before the procedure. An upper gastro intestinal endoscopy was done and findings were noted (see Fig. 1). Two biopsy specimens were obtained from the antrum. Biopsy was also taken from any suspicious lesions, if noted. One biopsy specimen from the antrum was used for histopathological examination (see Fig. 2) and the remaining biopsy specimen sent for rapid urease test (see Fig. 3). Based on the rapid urease test and histopathological examination the incidence of *H. pylori* infection was determined. Subjects were considered to be infected even if one of the two tests was positive.



Fig. 1: Upper gastrointestinal endoscopy showing gastric ulcer

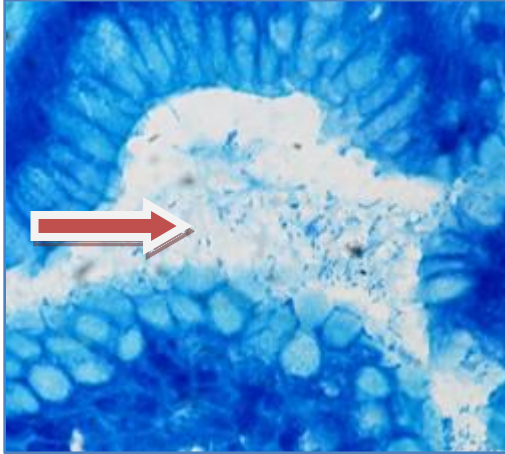


Fig. 2: Microscopy showing H. pylori on giemsa staining (pointed by an arrow)



Fig. 3: Rapid urease test (pink color indicates positive result)

STATISTICAL ANALYSIS: The data obtained was coded and entered in Microsoft Excel Spreadsheet. The categorical data was expressed as rates, ratios and percentages and comparison was done using chi-square test.

RESULTS: Total of 100 (n=100) subjects were studied, of which 66 were males and 34 were females. In this study most of the patients presented with age between 31 to 45 years (38%) followed by 46 to 60 (25%), ≤ 30 (21%) and > 60 years (16%). The mean age of the study population was 45.21 ± 16.11 years. Fifty four percent of the patients reported urban area as the place of residence while 46% belonged to rural area.

Rapid urease test was positive for H. pylori infection in 40 % (n=40) of the patients and histopathological report revealed 49% (n=49) of the patients with H. pylori infection.

In the this study, based on rapid urease test and histopathological diagnosis, the H. pyloric induced acid peptic disorder was noted in 59% of the patients by taking either presence of even a single positive result as infection.

Table no. 1 shows that, thirty seven out of 66 males (56.06%) were positive for infection, whereas 22 out of 34 females (64.71%) were positive, (p=0.405).

Highest numbers of positive patients 23 out of 38, (60.53%) were found in the age group of 31to45 years, whereas least number of positive cases was found in the age group of ≥ 60 years (Table no. 2).

Thirty two patients (54.23%) out of 59 positive cases were from rural area whereas 27(45.76%) cases were from urban region, the difference of which was not found to be significant (Table no.3).

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Sex	H. pylori infection				Total (n=100)	
	Positive (n=59)		Negative (n=41)		No	%
	No	%	No	%		
Male	37	56.06	29	43.29	66	66.00
Female	22	64.71	12	35.29	34	34.00
Total	59	59.00	41	41.00	100	100.00

Table No.1: Prevalence of H. pylori in relation to sex

p=0.405

Age group (Years)	H. pylori infection				Total (n=100)	
	Positive(n=59)		Negative(n=41)		No	%
	No	%	No	%		
30 or less	12	57.14	9	42.86	21	21.00
31 to 45	23	60.53	15	39.47	38	38.00
46 to 60	13	52.00	12	48.00	25	25.00
> 60	11	68.75	5	31.25	16	16.00
Total	59	59.00	41	41.00	100	100.00

Table No. 2: Prevalence of H. pylori in relation to age

p=0.753

Place of residence	H. pylori infection				Total (n=100)	
	Present (n=59)		Absent (n=41)		No	%
	No	%	No	%		
Urban	27	58.70	19	41.30	46	100.00
Rural	32	59.26	22	40.74	54	100.00
Total	59	59.00	41	41.00	100	100.00

Table No.3: Prevalence of H. pylori in relation to place of residence

p=0.954

DISCUSSION: Helicobacter pylori is a spiral shaped microaerophilic bacterium that colonises the gastric mucosa and causes both acute and chronic gastritis. This has initiated new active lines of investigations into the clinical and etiological aspects of gastric diseases. It is now established that H pylori infection is a persistent condition that is probably related to occurrence and relapse of peptic ulcer diseases and possibly, to the risk of gastric cancer.⁵

In this study 66% of the patients were males. The male to female ratio was 1.94:1. Similar study done by B J Marshall et al⁶ has 63 male and 37 female cases in study population and another study by Ahmed K S et al⁷ has 300 (60%) male and 200 (40%) cases in study population and a study done by Vandana Berry et al⁸ has 197 (65.23%) and 105 (34.77%) males and females respectively.

In our study, most of the patients were in the age group of 31 to 45 years (38%) followed by 46 to 60 (25%) years. The mean age of the study population was 45.21 ± 16.11 years. Mean age of

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study population of B J Marshall et al⁶ study was 55 years, similar studies like Muhammad Zubair et al¹⁰ and Jeh-En Tzeng et al¹¹ has mean age of 55 and 41.95 years respectively.

In our study out of 59 positive patients 37(62.71%) patients were males and 22(37.28%) were females among 34 females 22(64.71%) were positive for H. pylori infection, whereas out of 66 males, 37(56.06%) were positive for infection. Difference was statistically not significant (p=0.405). A study from Jammu by Rajesh Kumar et al⁹ from India also reported among H. pylori positive patients, 64.13% were males and 35.86% were females.

In our study the rapid urease test was positive for H. pylori infection in 40% of the patients and histopathological report revealed 49% of the patients with H. pylori infection. Based on either rapid urease test or histopathological examination, the incidence of H. pylori among acid peptic disorder patients was found to be 59%.

A prospective one year, study from Jammu and Kashmir by Rajesh Kumar et al.⁹ enrolled 265 symptomatic patients of acid peptic disease, out of which 92 patients were found H. pylori positive (by biopsy urease test and histopathological test) giving a prevalence of 34.71%.

Another study done by Tokunaga Y et al.¹² at Japan shows, 73% by modified rapid urease test and 91% by giemsa staining.

A study by E.N. Nwodo et al.¹³ to determine the seroprevalence of H pylori infection among patients with gastritis and peptic ulcer disease (PUD) in Kaduna state, Nigeria on a total of two hundred and twenty five (225) patients reported seroprevalence for H. pylori as 80.4%.

Similar study done by Jeh-En Tzeng et al¹¹ enrolled 111 patients included 58 males and 53 females. Sixty six of the 111 patients (59.5%) were diagnosed as positive for H. pylori infection and 45 (40.5%) as negative.

A study done by Vandana Berry et al⁸ has 302 cases, out of which 33(10.93%) cases were positive for rapid urease test and 25(10.93%) were positive with microscopy. All microscopy positive cases were positive by rapid urease test.

CONCLUSION: Present study showed high prevalence of H. pylori in patients with acid peptic disorders and this has to look for while treating the patients with acid peptic disorders. The H. pylori infection was not associated with age, sex and place of residence. Role of risk factors like smoking, alcohol and tobacco chewing have to be assessed in future studies. Further studies of multicentre large sample can give clear picture of accurate prevalence of H pylori in a given population, and it may be helpful in forming a better management plan.

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