International Surgery Journal
*Srinivas Y et al. Int Surg J. 2016 Feb;3(1):305-309*
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20160248

**Research Article**

# Prevalence and impact of *Helicobacter pylori* in dyspepsia

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**Received:** 21 December 2015
**Accepted:** 08 January2016

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## ABSTRACT

**Background:** Functional dyspepsia is considered to possess a wide spectrum of non specific upper gastrointestinal symptoms without any organic alteration, accounting for 60% of patient referrals to gastroenterology clinics. The objective was to study the prevalence of *Helicobacter pylori* in patients with dyspepsia undergoing upper G. I. endoscopy.
**Methods:** 100 cases of dyspepsia, studied clinically as per the proforma over a period of one and half years from October 2010 to November 2012, were subjected to upper gastro-intestinal endoscopy under topical anesthesia, during which biopsies, from the antrum was taken. Biopsy specimens were immediately placed onto a unit containing urea and an indicator. Positive test (rapid urease test) for *Helicobacter pylori* was indicated by change in color of the medium from yellow to pink or red. The case was taken as *Helicobacter pylori* positive when the rapid urease test was positive.
**Results:** Out of 100 patients, with mean age of 41.8 years, 36 patients were diagnosed to have been infected with *Helicobacter pylori* (36%).
**Conclusions:** In this study, we found that Helicobacter pylori were consistently associated with peptic ulcer disease, which is in broad agreement with the studies done earlier. Thus we conclude that, *Helicobacter pylori* infection may have a role in the etiopathogenesis of peptic ulcer disease.

**Keywords:** Dyspepsia, Acid peptic disease, *Helicobacter pylori*, Urease, Peptic ulcer

## INTRODUCTION

Dyspepsia is derived from the Greek words *dys* and *pepse* and literally means "difficult digestion."

It is considered to be important to public health, because it is remarkably common, can be disabling, and can pose a major social and economic burden.[1] People with functional dyspepsia have a significantly reduced quality of life when compared to the general population.[2] Annual incidence of dyspepsia is approximately 9-10% and 15% patients have chronic (>3 months in a year), frequent (>3 episodes per week) and often very severe symptoms.[3]

Functional dyspepsia is considered to possess a wide spectrum of non specific upper gastrointestinal symptoms without any organic alteration,[4] accounting for 60% of patient referrals to gastroenterology clinics.[5]

*Helicobacter pylori* are a known cause of gastric and duodenal ulcers, non cardiac gastric cancer and gastric MALT lymphoma. The role of this microorganism in causing or preventing a large number of other diseases like esophageal cancer, functional dyspepsia, gastro esophageal reflux disease, asthma, cardiovascular diseases, iron deficiency anemia and idiopathic thrombotic purpura is being investigated.[6]

*H. pylori* infection is common in the Indian subcontinent.[10] Most global burden of *H. pylori* infection comes from Asia and therefore exclusion of this bacterium is an important part of diagnostic exercise in any Asian patients presented with dyspepsia to their physicians.[7]

The objective of the present study was to study the prevalence of *H. pylori* in patients with dyspepsia undergoing upper G. I. endoscopy.

## METHODS

100 cases of dyspepsia were studied clinically as per the proforma over a period of one and half years from October 2010 to October 2012. The inclusion and exclusion criteria were as follows:

### *Inclusion criteria*

1. Patients between above 17 years of age
2. Patients showing symptoms of dyspepsia for more than 2 weeks.

Dyspepsia includes a series of symptoms: upper abdominal pain, discomfort, nausea, and vomiting, bloating, early satiety. Patients with any 2 out of 6 symptoms mentioned above are included in the study.[8]

### *Exclusion criteria*

1. Patients below 17 years and above 60 years of age
2. Pregnant and Lactating women
3. Patients on Proto-pump inhibitors
4. Patients who are known cases of chronic pancreatitis
5. Patients on NSAIDs for more than one month duration
6. Patients who have received Anti-Helicobacter pylori treatment
7. Patients with esophageal growths on endoscopy
8. Unwilling or unfit patients for gastroscopy

### *Procedure*

After applying the inclusion and exclusion criteria, all the patients in this study group underwent upper gastro-intestinal endoscopy under topical anesthesia. The patients were asked to fast for 12 hours prior to the procedure. Lignocaine viscous or oral lignocaine sprays were given to the patient 5-10 minutes before the procedure for the local anesthetic effect.

On entering the esophagus, any lesions/growths in the esophagus were looked for. On entering the stomach; presence of any ulcers or growths was looked for. Any evidence of gastritis or bile reflux from the duodenum was noted. Then the duodenum was entered, up to its second part and evidence of any duodenitis or ulceration was noted.

Two endoscopic biopsies were taken, measuring approximately 2-3 mm each from the gastric antrum and the body of stomach in the area of severe gastritis (maximum redness) or the edge of the ulcer crater depending on the findings. The biopsies from the body and the antrum were randomly taken in cases where in the endoscopic findings were normal.

Biopsy specimens were immediately placed using a sterile handle on a paper containing urea and a color indicator. The adhesive label is sealed firmly and properly and the label over the test paper is pressed to squeeze the fluid out of the biopsy sample.

Positive test for *Helicobacter pylori* was indicated by change in color of the medium from yellow to pink or red. The test was read as strongly positive when the change in color occurred within 5-15 minutes following inoculation and weakly positive when the color change occurred in first 6 hours. The case was taken as Helicobacter pylori positive when the rapid urease test was positive.

Patients who tested positive for Rapid Urease test were considered to have infection and were advice d Anti Helicobacter Triple therapy Regimen for 14 days. Patients were asked to review after 1 month to check for relief of symptoms.

*Regimen advised:*

Amoxicillin: 1000 mg twice daily

Metronidazole: 400 mg twice daily

Omeprazole: 20 mg twice daily

Patients were instructed to stop the treatment in case of any urticarial reaction occurs and review immediately. After 14 days of treatment, patients were enquired about the relief of symptoms earlier complained, if not they were advised to take another regimen.

## RESULTS

Out of 100 patients, there were 72 male patients and 28 female patients, age ranging from 17 years to 60 years (mean: 41.8). Out of 100 patients, 36 patients were diagnosed to have been infected with *H. pylori* (36%).

Maximum number of patients complained of abdominal discomfort i.e. 83 out of 100 patients. 59 patients complained of bloating or postprandial fullness, followed by 49 patients who complained of upper abdominal pain most commonly centered in the epigastrium.

The most common symptom was discomfort in which the H. pylori were present in 27.7% of cases. This was followed by upper abdominal pain in which, 28% of cases was positive for the organism.

**Table 1: Prevalence of *H. Pylori* in various symptoms of dyspepsia.**

| Clinical features | No. of cases | *H. pylori* positive | Percentage |
|---|---|---|---|
| Upper abdominal pain | 49 | 14 | 28% |
| Discomfort | 83 | 23 | 27.7% |
| Bloating | 59 | 12 | 20.3% |
| Nausea | 22 | 02 | 0.1% |
| Vomiting | 43 | 10 | 23.2% |
| Early satiety | 32 | 06 | 0.18% |

Out of 36 patients who tested positive for H. pylori 26 were males and 10 were females. Out of 26 males maximum prevalence was noticed in the older age group (51-60 yrs) i.e. 11 tested positive out of 26 (42.3%). Out of 10 females tested positive for *H. pylori* equal incidence was noticed in the younger and middle aged women i.e. 33% in each group. Out of 72 males who complained of dyspepsia, 26 were tested positive for Rapid Urease test. Out of 28 females who complained of dyspepsia, 10 females were tested positive for Rapid urease test.

**Table 2: Prevalence of *H. pylori* according to endoscopic findings.**

| Endoscopic finding | No. of cases | *H. pylori* positive | Percentage |
|---|---|---|---|
| Normal Study | 79 | 27 | 32.9% |
| Gastritis | 06 | 01 | 16.6% |
| Duodenitis | 13 | 07 | 53.8% |
| Ulcer | 02 | 01 | 50.0% |

79 patients presented symptoms of dyspepsia, but the upper G. I. endoscopy was normal out of which 27 were found to be positive for *H. pylori* infection (32.9%).

Six patients were identified to have an inflamed gastric mucosa of which 1 was infected with *H. pylori* (16.6%).

13 patients were identified to have inflamed duodenal mucosa of which 7 patients tested positive for *H. pylori* (53.8%).

Two patients were identified to have a duodenal ulcer, out of which 1 female tested positive for *H. pylori* (50%).

Out of 100 patients 33 were smokers, all being males of which 23 tested positive for H. pylori infection. Out of 26 males who tested positive for *H. pylori*, 23 were identified to be smokers and 3 were identified to be non smokers.

Out of 100 patients included in the study, 60 patients gave a history of alcohol intake, of which 12 patients tested positive for *H. pylori*. Out of 12 who tested positive, 9 were males and 3 were females.

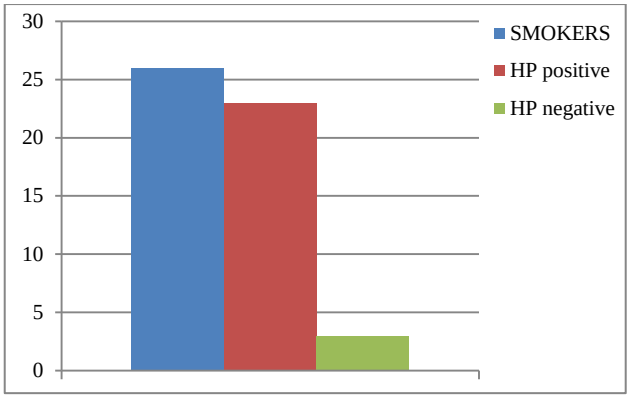


**Figure 1: Prevalence of *H. pylori* in smokers.**

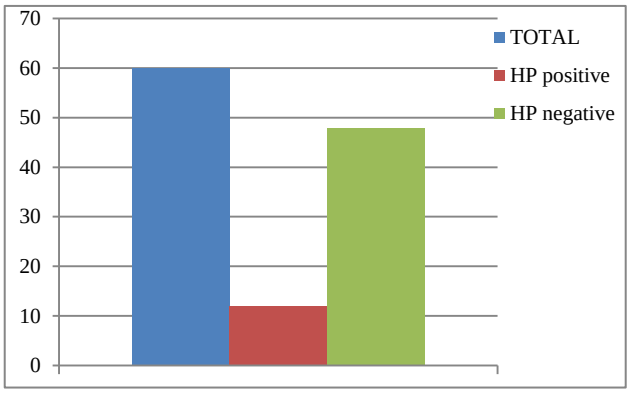


**Figure 2: Prevalence of *H. pylori* in alcoholic patients.**

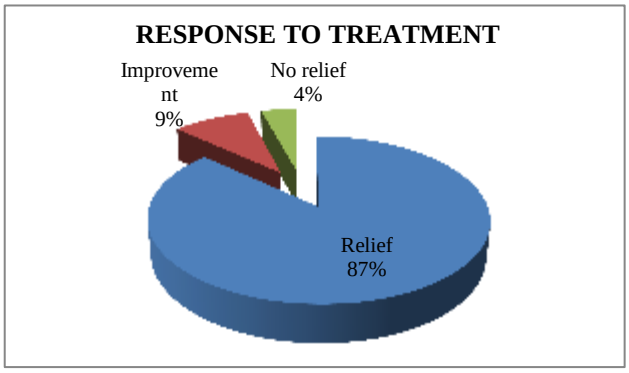


**Figure 3: Response to treatment.**

Out of 100 patients studied, 64 were tested negative and 36 tested positive for Rapid Urease test. All the 36 patients were advised anti-helicobacter pylori regimen for 14 days as mentioned in methods section. Out of 36 patients who received treatment, 29 reported relief of symptoms. Of the rest 7 patients, 3 reported improvement of symptoms after receiving treatment but symptoms recurred. The other 4 patients reported no relief of symptoms. All the above 7 patients were advised the SALVAGE regimen.[9]

## DISCUSSION

As depicted in observations, majority of the patients with dyspepsia were in age group 51-60 years. This was consistent with the study of Mahadeva S et al[10] which showed peak prevalence between the ages 45-54 in a Canadian survey.

We excluded patients below 17 years and above 60 years of age. The reason for establishing these age groups for exclusion was that *H. pylori* infection is acquired in early childhood and a disproportionately large number of children may have not acquired infection and if included can confound our results. On the other hand persons in higher age group have disproportionately high percentage of H. pylori positivity and also may not complaint of symptoms because of increased threshold of pain perceptions, thus above 60 years patient were also excluded.

In the present study the symptoms of dyspepsia were common in males as compared with females 72% versus 28%. This was consistent with the study of Kawamura A[11] who found a similar male preponderance in dyspepsia in a Japanese population.

In 100 patients included in the study most of them i.e. 83% had abdominal discomfort, 49% of the patients had epigastric pain. Most of the dyspeptic patients 22% & 43% of them had symptoms of nausea and vomiting, 32% had early satiety, and 59% had bloating. el-Omer EM et al[12] have shown in their study that 80%-90% of the dyspeptic patients have associated symptoms of epigastric pain, anorexia, nausea, vomiting, early satiety and regurgitation.

Approximately 80% patients had normal endoscopic findings and among positive endoscopic findings, inflammatory lesions were the most common. These findings were comparable with the study by TR OKello[13] who reported 51% patients having negative endoscopic findings. In our study among patients with positive endoscopic findings inflammatory lesions like duodenitis and gastritis were the commonest (19%).

In 100 patients studied, 36 patients tested positive for Rapid Urease test, these patients were considered to have H. pylori infection. Said et al reported a sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of 98, 100, 100, 98 & 99% respectively for RUT.[14]

Out of 100 patients who were included in the study, 36 patients tested positive for Rapid urease test. This shows that 88% of male patients who tested positive for *H. pylori* were smokers.

Most studies reported slightly increased odds of H. pylori infection among smokers.[15] On the other hand, there are a few studies which show that there is only moderate but not significant increase in the prevalence of H. pylori infection among smokers. The observed net association of smoking with active *H. pylori* infection may result from various mechanisms with partly antagonistic effects on risk of infection.[16]

Out of 100 patients, 60 patients were identified to be alcoholics, of which 12 tested positive for H. pylori. There are few studies which have shown that moderate amount of alcohol consumption would decrease the risk of *H. pylori* infection.[16]

Koloski NA et al[17] in their study *H. pylori* may be responsible for symptoms in a small proportion of patients with non-ulcer dyspepsia and in some of these cases anti- *H. pylori* therapy may be beneficial, this remains to be established.

All our observations in the present study are comparable to other studies except for the overall prevalence of *H. pylori* and the percentage of gastritis/duodenitis patients with *H. pylori* positivity which was less when compared to the other studies.

## CONCLUSION

There appears to be no significant association between *Helicobacter pylori* infection and unexplained dyspepsia. This finding does not exclude the possibility that a small undefined subset of infected individuals will have symptoms induced by the infection, but only large randomized trials will be able to establish this. We recommend eradication of the bacteria only in patients positive for the bacterium, who have peptic ulceration. We believe in, Peter C Robin's dictum: "If a person with peptic ulcer disease is shown to have *H. pylori*, then eradication is indicated".

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the institutional ethics committee*

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**Cite this article as:** Srinivas Y, Prasad PK, Sai ND. Prevalence and impact of *Helicobacter pylori* in dyspepsia. Int Surg J 2016;3:305-9.