



Prevalence of Helicobacter Pylori Infection in Patients With Dyspepsia

KEYWORDS

Helicobacter pylori, UGI Scope, Risk factors.

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ABSTRACT *Helicobacter pylori* is considered as one of the most prevalent & medically significant infection globally. It is known to cause inflammatory changes in duodenum, antrum and malignancies related to upper gastrointestinal tract. The life style factors that have influence on this infection include Smoking, Alcohol consumption, Coffee consumption, Diabetes Mellitus, Obesity & Socioeconomic status. The prevalence of *H pylori* infection among people with various risk factors was identified. Out of the 100 patients considered for the study, 76 were found to be positive for *Helicobacter pylori* infection. The prevalence of *Helicobacter pylori* infection among Diabetics was 75.8%, Obese individuals - 66.7%, Smokers - 85.3%, Alcoholics - 78.9%, and Low Socioeconomic status was 77%. The Endoscopic finding of antral gastritis had significant correlation with the prevalence of the bacterium.

INTRODUCTION

Helicobacter pylori is considered as one of the most prevalent & medically significant infection globally. In developing nations, children acquire this infection by 5 -10 years of age.¹ Studies have highlighted that this infection may go in for a spontaneous remission if acquired in childhood. But the infection acquired in adult life is considered lifelong unless treated.

Since its identification in the year 1983, this bacterium is known to cause inflammatory changes in duodenum, antrum and malignancies related to upper gastrointestinal tract. Its role in inducing IBD, Sideroblastic anemia and ITP are under probe. They are also known to cause severe cardiovascular morbidities.²

Though there are studies from the western world to quote the prevalence of *H pylori* infection among people with various risk factors, we do not have adequate studies carried on our Indian population to demonstrate such association.

In the present study we have made a sincere attempt to identify the prevalence of the *Helicobacter pylori* infection among people with various risk factors who attended the OPD of our college hospital.

These studies from the western world have correlated this infection with risk factors like Smoking, Alcohol, Diabetes, Obesity, Socioeconomic status and Coffee consumption.

AIM:

To identify the relationship between the adult life style (like smoking, alcohol consumption, coffee drinking) and the prevalence of *Helicobacter pylori* infection in patients with dyspeptic symptoms.

MATERIALS AND METHODS

Type of Study - Cross Sectional Study

Study Period - 11 Months (December 2014 to October 2015)

Source of Data - Coimbatore Medical college Hospital

Number of cases - 100

The patients who attended the Medical OP/ MGE OP/ admitted in the medical ward with complaints of dyspepsia, who satisfied the inclusion and the exclusion criteria were included in the study after obtaining an informed consent. This study was conducted by the Department of General Medicine in association with the Department of Medical Gastro Enterology, Coimbatore Medical College Hospital.

The study protocol was approved by the Ethical Committee of Coimbatore Government Medical College Hospital.

INCLUSION CRITERIA:

- 1) Men & Women between 18 and 65 years of age
- 2) Patients with symptoms of chronic dyspepsia (for more than three months)

EXCLUSION CRITERIA:

- 1) Patients with active upper gastrointestinal bleeding
- 2) Patients on long term PPIs
- 3) Patients on prolonged NSAID intake
- 4) History of antibiotic intake in past 14 days
- 5) Patients who have undergone Major Gastro- Duodenal surgery
- 6) Anatomical/ Mechanical obstruction at OG junction

METHODOLOGY:

After obtaining a detailed history including personal history, the patient is subjected to clinical examination.

After measuring the **Height and weight** of the patient, random blood sugar value is noted.

All the patients in the study group were asked to undergo an overnight fasting for 12 hours prior to the procedure.

After getting informed consent, oral Lignocaine (for the lo-

cal anesthetic effect) spray was used 15 minutes prior to the procedure.

After making the patient lie in left lateral position, they were subjected to upper GI endoscopy using Video Endoscopy - Olympus CV 150 series.

Endoscopic Appearance of the upper GI tract is noted
After making an endoscopic diagnosis, three biopsy samples are taken, using biopsy forceps. **Two samples from gastric antrum & the third sample from the lesion, if any.**

The first sample is subjected to Rapid Urease Test (Card test).

The second sample is stained using **Giemsa special stain** for Helicobacter pylori demonstration. Patients with demonstrable organism in the biopsy sample with or without a positive Rapid Urease test are considered as being infected with H pylori

The third sample is graded pathologically & the patient is treated accordingly.

Life Style Changes:

The factors responsible for acquiring the infection that were taken into consideration in our study include:

- 1) Obesity
- 2) Socioeconomic Status
- 3) Diabetes Mellitus
- 4) Smoking
- 5) Alcohol Consumption
- 6) Coffee intake

OBSERVATION AND ANALYSIS

Total Number of Patients : 100

Chart 1: Gender Distribution

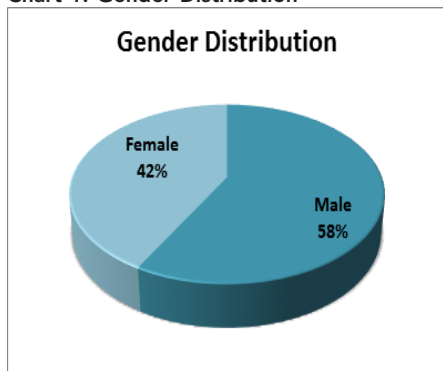
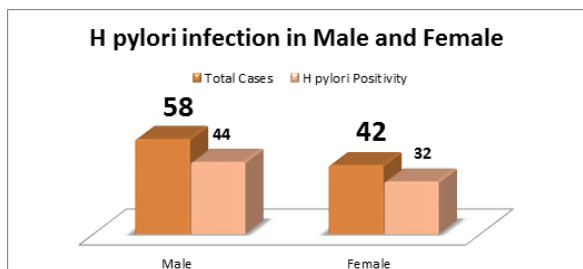


Chart 2



P Value - 0.970

Table 1: Prevalence of H pylori infection among different age groups

Age in Years	Total	HP Positive	Percentage
18 - 30	20	16	80%
31 - 40	26	20	76.9%
41 - 50	14	12	85.7%
51 - 65	40	28	70%

Risk Factors:

I) Obesity - Based on BMI

Table 2: Prevalence of H pylori in relation to BMI

BMI	Total Cases	H. pylori Positive	Percentage
<18.5	02	01	50%
18.5 to 24.9	73	54	74%
25 to 29.9	22	19	86.4%
>30	03	02	66.7%

P Value - 0.504

II) Socioeconomic Status

Table 3: Association between Socio Economic Status & Prevalence of H pylori

SES	Total Cases	H pylori Positivity	Percentage
Upper	0	0	
Upper Middle	03	03	100%
Lower Middle	27	19	70.4%
Upper Lower	57	44	77.2%
Lower	13	10	77%

P Value - 0.69

III) Diabetes Mellitus:

Table 4: Prevalence of H pylori infection in Diabetics & Non Diabetics

Variables	Total	H. pylori Positivity	Percentage
Diabetes	33	25	75.8 %
Non Diabetics	67	51	76.12%

P Value - 0.968

IV) Smokers:

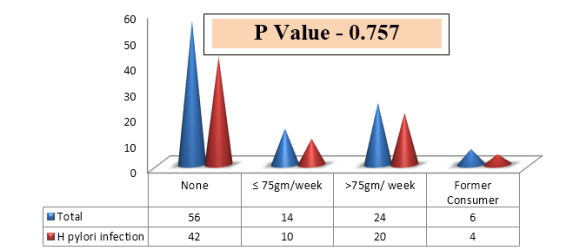
Table 5: Prevalence of H pylori infection among the Smokers

Variables	Total	H pylori Positive	Percentage
Never Smoked	58	42	72.4%
Former Smokers	08	05	62.5%
Light Smokers	12	09	75%
Moderate Smokers	10	09	90%
Heavy Smokers	12	11	91.7%

P Value - 0.419

V) Alcohol Consumers:

Chart:3



VI) Coffee Consumers:

Table 6:Prevalence of H pylori infection among Coffee consumers

	Total	H pylori Positivity	Percentage
Never Drink Coffee	17	11	64.71%
Consumes ≤3 Cups/day	32	25	78.13%
Consumes >3 Cups/day	51	40	78.43%

P Value - 0.488

Clinical Features and H pylori infection

Table 7 : Prevalence of H pylori in different clinical presentations

Clinical Features	Males	Fe-Total	H. pylori Positive	Percentage	P Value
Nausea / Vomiting	06 10	04	08	80%	0.755
Loss of Weight/ Appetite	05 09	04	04	44.4%	0.020*
Burning Chest pain	08 14	06	09	64.3%	0.268
Abdomen Pain/ Discomfort	32 58	26	48	82.8%	0.043*
Bloated Abdomen	06 09	03	07	77.8%	0.896

Investigations and H pylori Infection

1) Endoscopic Diagnosis:

Table 8: Prevalence of H pylori infection in relation to Endoscopic findings

Endoscopic Findings	Total Cases	H pylori Positive	Percentage	P Value
Normal Study	16	10	62.5%	0.168
Esophageal Erosins	15	11	73.33%	0.793
Gastritis/ Duodenitis	46	40	87%	0.024*
Duodenal Ulcer	07	05	71.43%	0.769
Gastric Ulcer	12	09	75%	0.931
Ca Stomach	04	01	25%	0.015*

II) Rapid Urease Test

Since the demonstration of H pylori by special stain from the biopsy sample is considered more specific than the Rapid urease Test, the results from both these tests are compared.

Table 9 :

	Total	RUT Positive	Giemsa Staining Positive
Male	58	50	44
Female	42	36	32

III) Histopathological Examination:

Table 10 : Association between H pylori and Histopathological Examination:

Histopathological examination	Total cases	H pylori Positivity	Percentage
Normal Study	06	0	
Chronic Gastritis	71	61	85.9%
Non Neoplastic Gastric Ulcer	12	09	75%
Non Neoplastic Duodenal Ulcer	07	05	71.4%
Adenocarcinoma	04	01	25%

P Value - 0.000**

DISCUSSION

The present study investigated the relationship between the lifestyle factors and the prevalence of Helicobacter pylori infection

The lifestyle factors for acquiring the infection that were taken into consideration include

- a) Obesity - based on BMI
- b) Socioeconomic Status
- c) Diabetes Mellitus
- d) Smoking Cigarette/ Beedis
- e) Consuming Alcohol
- f) Coffee Consumption

Though there are studies from western world to quote the prevalence of H pylori infection among people with various risk factors, we do not have adequate studies carried on our Indian population to demonstrate such association.

In the present study we have made a sincere attempt to identify the prevalence of the Helicobacter pylori infection among people with various risk factors who attended the OPD of our college hospital.

The present study is a cross sectional study in which one hundred patients who presented with features of dyspepsia were enrolled. Detailed including the

Out of one hundred patients considered for our study, 58

were males and 42 were females. Out of these 75.9% of males (44) were infected with H pylori and 76.19% of females (32) were infected. **The overall prevalence of the infection is 76%.**

The overall prevalence of H pylori infection from other studies:

Marshall and Warren³ - 52%

Von Wulfen et al - 54%

Brenner et al - 21%

In the present study, the overall prevalence of this infection is **very high** (76% vs 54%) when compared to the studies conducted from the developed nations.

1) Diabetes Mellitus as a risk factor:

The total number of diabetics in the present study is 33 out of 100 patients with dyspepsia. Out of these 33 patients, **75.8% (25) were infected.**

Prevalence among non diabetics was 76.12%,(Table:4)

Anastosis et al⁴ have quoted that around 30 - 78% of diabetics have this infection, may be due to the altered glucose metabolism.

A **Greek study⁵** have declared that no relationship does exist between the diabetic status and this infection.

The studies which have acknowledged the presence of a strong relationship between the Diabetes Mellitus and this infection include **Malecki et al, Bytzer et al, Oldenburg et al⁶⁻⁸**

In the present study, the H pylori is more prevalent in Non-Diabetics than in Diabetics.

The present study doesn't show a significant relationship between the two.

2) Smoking as a risk factor:

Out of 100 subjects, 42 were smokers and 58 were non-smokers

81% of the smokers and 72.4% of no smokers were infected. (Table:5)

The prevalence of infection among **moderate smokers was 90%** and that among **heavy smokers was 91.7%**. It was significantly lower among former smokers (around 62.5%) .

3) Consuming alcohol as a risk factor:

In the present study, the prevalence of H pylori infection among people who **consume alcohol was 77.3%** and that among **non alcoholics was 75%**. The incidence is about **83.3%** among people who consume excess alcohol. (Chart:3)

4) Coffee consumption as a risk factor:

Out of one hundred subjects, 83 people consumed coffee.

The prevalence of this infection among them was 78.3% when compared to 64.1% among people who never had consumed coffee. (Table:6)

Though the prevalence is very high among coffee consum-

ers, our study didn't show a significant relationship between coffee consumption and the infection.

5) Obesity as a risk factor:

Body mass index of every individual was calculated to group them into 4 categories. Subjects with BMI > 30 were labelled as Obese individuals.

The prevalence among **Obese** individuals - **66.7%**

The prevalence among **Overweight** subjects - **86.4%**

The prevalence among **Non obese** subjects - **76.3%**

Though the prevalence among obese subjects is low in our study, there is no significant association between BMI and H pylori infection.

6) Socioeconomic Status as a risk factor:

The Prevalence of infection among subjects from different SES are as follows(Table:3)

Grade V (Lower Class) - 77%

Grade IV (Upper Lower Class) - 77.2%

Grade III (Lower Middle Class) - 70.4%

Grade II (Upper Middle Class) - 100%

A strong inverse relationship does exist between the H pylori infection and SES. Studies have revealed that about 60% of the Indian children from low economic background, between the age of 3 - 10 years are infected with H pylori.^{9,10}

The present study failed to demonstrate a significant relationship between the two.

This infection is more prevalent among people who presented with Abdomen pain/ discomfort followed by people with Nausea/ vomiting & bloated abdomen.

The present study showed a **"SIGNIFICANT RELATIONSHIP" between the H pylori and people who presented with abdomen pain/ discomfort and also with Loss of appetite/ weight.(Table:7)**

The present study showed a **"Significant Association"** between Gastritis/ Duodenitis and H pylori. Similarly, this study also showed a **"Significant Association"** between gastric growth and H pylori.(Table:8)

Relationship between the Rapid Urease test and H pylori demonstration by Special Stain:

Of the 100 people with dyspepsia, 86 were positive for RUT and 76 of biopsy samples demonstrated the organism 'Helicobacter pylori'.(Table:9)

The p_value being 0.000" which is considered **"HIGHLY SIGNIFICANT AT LEVEL 1"**

Relationship between the Histopathological examination and H pylori demonstration by Special Stain:

Of the 100 people with dyspepsia, 71% had chronic gastritis, 12% had gastric ulcer, 7% had duodenal ulcer, 4% had adenocarcinoma and 6% had normal study.(Table:8)

The p_value being 0.000" which is considered **"HIGHLY SIGNIFICANT AT LEVEL 1"**

CONCLUSION

To conclude, the prevalence of H pylori is very high in our

study population when compared with that in other studies. There is no significant correlation between the risk factors and the prevalence of helicobacter pylori infection in our population. Hence it may be concluded that in our setup, **The Environmental circumstances play a major role in acquiring the organism rather than the life style factors.** Since this study showed significant association between the people who presented with upper abdomen discomfort and the Helicobacter infection, we recommend that H pylori **eradication therapy** can be given to all patients who presents with this symptom to OPD even without subjecting them to UGI scopy.

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