

Original Research Article

Study of demographic determinants of *H. pylori* infection and the implications on endoscopic findings

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ABSTRACT

Background: *Helicobacter pylori* plays an important role in management of dyspepsia, as well as being a known carcinogenic risk factor. It is ubiquitously present in community to the extent of 50-80% in different studies depending upon the sampling from an urban area or a rural area, as well as socio-economic factors, as also the fact it is a risk factor for carcinoma in elderly age group and Peptic ulcer disease in relatively younger population. The study aimed at studying demographic profile in terms of the age and gender of patients, ascertaining its correlation with *H. pylori*.

Methods: This is a retrospective descriptive study based on the upper GI endoscopies carried out in the institution. The period covered was from 01 January 2018 to 31 December 2018. The inclusion and exclusion criteria were well defined. Statistical analysis was carried out using SPSS Version 16.0 Chi-Square was applied.

Results: This is a retrospective descriptive study based on the upper GI endoscopies carried out in the institution. The period covered was from 01 Jan 2018 to 31 Dec 2018. The inclusion and exclusion criteria were well defined. Statistical Analysis was carried out using SPSS Version 16.0 Chi-Square was applied.

Conclusions: The study confirms the relationship of age and gender with presence or absence of *H. pylori* infection.

Keywords: *H. pylori*, Endoscopy, Age, Gender association

INTRODUCTION

Helicobacter pylori infection is a known Carcinogen, as classified by The International Agency for Research on Cancer. It has been suggested from a number of studies that presence of *H. pylori* is associated with a spectrum of gastrointestinal conditions like gastritis, dyspepsia, epigastric pain, and Cancer.¹⁻⁵ It is also a known fact that gastric cancer shows a significant predilection in males as compared to females.⁶ While, the fact that Gastric cancer is more common in elderly population would suggest an age linked association, some studies do not support this association. However, no significant variation in gender

specific incidence of *H. pylori* has been observed.⁷ However, it is also a known factor in pathogenesis of gastric and duodenal ulcer, as well as being associated with reflux diseases. Epidemiological studies have shown that areas with high gastric cancer rates often have a correspondingly high prevalence of *Helicobacter pylori*.⁸ The mode of transmission of *H. pylori* remains poorly understood; no single transmission pathway has been identified.⁹ This study was conducted among patients who underwent upper gastrointestinal endoscopy (UGIE) carried out in patients suspected to be suffering from gastroduodenal symptoms and signs with following objectives:

- To understand the association of age and gender with Signs and symptoms, which such patients may present with.
- To study the relationship, if any between age and gender on detection of *H. pylori* in such cases.

METHODS

This study was conducted by Department of Surgery, at Integral Institute of Medical Sciences and Research, Lucknow.

This is a retrospective descriptive study based on the data of upper GI endoscopies carried out in the institution. The period covered was from 01 January 2018 to 31 December 2018.

Patients with symptoms of dyspepsia, difficulty in swallowing, blood in vomiting, unexplained weight loss, loss of appetite, upper abdominal discomfort were included in the study, who attended the surgery outpatients' section and also patients referred from other wards, screened by surgeon, for upper GI endoscopy.

The data was classified based on the age group, gender, types of diseases the diagnosis, and presence or absence of *H. Pylori*

The findings were classified under following heads and analysed accordingly:

- Descriptive statistics of study variables
- Association of study variable with indication:
- Association of study variable with findings

Statistical Analysis was carried out using Microsoft Excel program and SPSS Version 16.0. Chi-Square was applied.

Inclusion criteria

All the patients who underwent endoscopy during the period covered were included in the study.

Exclusion criteria

The cases where the data was missing or incomplete were excluded from the study.

Primary outcome

The study brought about the age and gender distribution of cases which were *H. pylori* positive or negative. The association between the demographic profile and endoscopic findings was also investigated

This study would help us to know if there is a correlation between the demographic profile and the endoscopic findings, and if so, can the relationship be significant enough to help in early detection of gastric malignancy?

RESULTS

It was observed that 25% of cases were found in age group 31-50 years. It was closely followed by age group 41-50 years accounting for 16.5% of cases. The percentage of cases dropped in age group 51-60 years to 12.2%. The age groups at the extreme like 61-70 years had 8.5% cases while at 11-20 Years had 12.5% of cases (Table 1).

Table 1: Age wise distribution of study subjects.

Age groups in years	Frequency	Percentage (%)
1-10	1	0.5
11-20	24	12.8
21-30	40	21.3
31-40	48	25.5
41-50	31	16.5
51-60	23	12.2
61-70	16	8.5
>70	5	2.7
Total	188	100.0

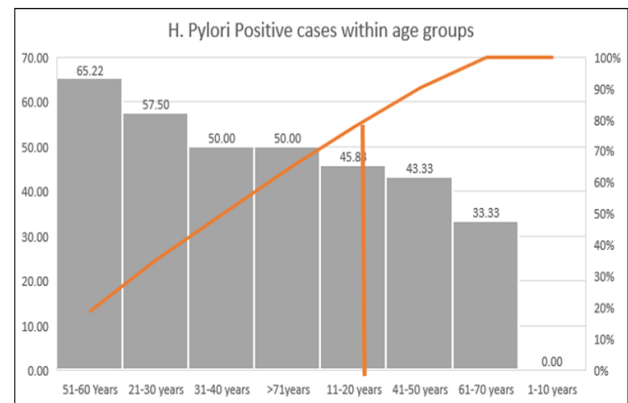


Figure 1: Association between age-group and *H. pylori* infection.

It was found that in 49% of cases *H. pylori* was not detected. In the cases, where it was found positive, the maximum numbers were in age group 31-40 years accounting for 25% of cases. It was closely followed by age group 21-30 years with approximately 24% cases. Elderly Age groups also showed relative predominance of *H. pylori* infection in age group 41-50 years (14.58%), and 51-60 years (15.68%) respectively (Figure 1).

Male to Female ratio was 1.1:1. Analysis of *H. pylori* positive cases revealed that the number of cases which were positive for *H. pylori*, and those which were not, was almost equal. However, when we looked at gender distribution of cases, it was found that while 41.96% males were positive for *H. pylori*, in case of females, 58.42% were positive for *H. pylori*. This was found to be statistically significant both in terms of Pearson's Chi square as well as Fisher's exact test (Table 2).

Table 2: Gender wise distribution of *H. pylori* infection.

Gender	H. Pylori		Total	
	Present	Not present		
Male	47	65	112	
Female	59	42	101	
Total	106	107	213	
Test applied	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-square	5.749675	1	0.02	-
Fisher's Exact Test				0.02

DISCUSSION

H. pylori is a common infection reported to be having a prevalence rate of 50%-80%. The significance and implication of this infection is that it is a precursor to Cancer stomach as well as Peptic ulcer disease. At the same time, it throws up fresh challenges in terms of community health. There is evidence to suggest that it is a precursor to development of malignancy. The malignancy detection rate in Asian dyspeptics has been reported to be 1.4%.¹⁰

The fact that peptic ulcer disease is primarily a disease of younger population, and Gastric Carcinoma, that of elderly population, we wanted to look into any age related and gender specific correlation with detection of *H. pylori*. Some studies have shown that The gastritis due to *H. pylori* in children may progress to multifocal atrophic gastritis, and making them vulnerable to Gastric Carcinoma.¹

In our study we noted that the percentage of *H. pylori* positivity in children and young adults was 45%. When we did Pareto's analysis, in our study, it revealed that 80% of cases were found in the age groups 21-40 years, and in the elderly age group 51-60 Years (65.22%), and those more than 71 years. Patients in age groups 01-20, 61-70 years, and 41-50 years formed only 20% of cases. In terms of relationship with gender, we found a significant relationship, in that while the ratio of Male: Female in our study was 1.1:1, in terms of *H. pylori* positivity within the gender subgroup, the females were found to have *H. pylori* in 58.12% cases, while Males had 41.96%. Fisher's exact test and Pearson's Chi square test demonstrated statistical significance of these findings. However, it still does not explain higher incidence of Gastric Carcinoma in males. What perhaps may explain it, be the fact that in our OPD consultations we see more females reporting with symptoms of dyspepsia. Khan, in his study in Saudi Arabia, had findings at variance with our results.⁷

The prevalence of *H. Pylori* has been found to be high in community as reported in various studies where it has

been reported to be between 50% -80% in developing countries.¹¹⁻¹³

Age and gender specific relationship with *H. pylori* and in turn with gastric carcinoma and peptic ulcer disease is important in clinical practice. While age does not reveal a statistical significance, it may still be a cofactor in genesis of these conditions. As we compared our study with the Saudi Arabian study, and noted a certain variance, it may indicate geographical variations.

CONCLUSION

It is recommended that presence of *H. pylori* in younger age group, should be an indication for follow up at different periods of life. It may require a larger study to establish the risk of developing Gastric Carcinoma, in children found to have *H. pylori* infection.

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Ethical approval: Not required

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