

# Study of prevalence of h pylori among dyspeptic patients

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## Abstract

**Introduction:** Helicobacter pylori is a spiral shaped organism associated with gastrointestinal disease in humans. It causes a chronic gastric infection that usually is lifelong and many epidemiologic studies have shown that this is probably one of the most common bacterial infection throughout the world, involving 40% to 50% of the population in developed countries and 80% to 90% of the population in developing regions. **Aims and Objectives:** To study the Prevalence of H Pylori among Dyspeptic Patients. **Methodology:** The present study was carried out in the Department of Pathology in a tertiary care hospital in Tamil Nadu. During the two year study period, 105 gastric biopsy materials and 105 serum samples were collected for Helicobacter pylori study in patients presenting with dyspepsia. **Result:** In the present study, the age group of patients ranged from 17 years to 82 years and the maximum number of H.pylori positive cases were found in the age group of 51-60 years (88.2%). Minimum numbers of positive cases were found in the age group of 13-20 years (50%). Out of the total 105 cases, 69 (65.7%) cases were males and 36 (34.3%) cases were females. Out of 69 males, 54 (56.3%) were positive for H.pylori and out of 36 females, 20 (55.6%) were positive for H.pylori. Out of 39 peptic ulcer cases (30 duodenal ulcer and 9 gastric ulcer), 35 (89.74%) cases [28 (93%) duodenal and 7 (77.8%) gastric ulcer] showed H.pylori positivity. Among 66 non-ulcer cases (8 duodenitis, 4 gastritis and 54 normal mucosal appearance on endoscopy) 39 cases [6 duodenitis (75%), 3 (75%) gastritis and 30 (55.6) normal mucosal appearance on endoscopy] showed H.pylori positivity. **Conclusion:** H Pylori was found more common in 51-60 years age group, was equally common in males and females and was found more commonly with Duodenal ulcers.


**Keywords:** H Pylori, Duodenal ulcers.

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## INTRODUCTION

Helicobacter pylori is a spiral shaped organism associated with gastrointestinal disease in humans. It causes a chronic gastric infection that usually is lifelong and many epidemiologic studies have shown that this is probably one of the most common bacterial infection throughout the world, involving 40% to 50% of the population in

developed countries and 80% to 90% of the population in developing regions.<sup>1</sup> Over 80% of individuals infected with this bacterium are asymptomatic. At least half the world's population is infected by H. pylori making it the most widespread infection in the world.<sup>2</sup> Actual infection rates vary from nation to nation. The Third World has much higher infection rates than the West (Western Europe, North America, Australia), where the rates are estimated to be around 25%.<sup>3</sup> Infections are usually acquired in early childhood in all countries. However, the infection rate of children in developing nations is higher than in industrialized nations, probably due to poor sanitary conditions. In developed nations it is currently uncommon to find infected children. The percentage of infected people increases with age, 50% infected are over the age of 60 compared with 10% between 18 and 30 years of age.<sup>3</sup> The higher prevalence among the elderly reflects the fact that they were infected from childhood. Prevalence appears to be higher in African-American and

Hispanic populations, although this is likely related to socioeconomic rather than racial factors.<sup>5,6</sup> The lower rate of infection in the West is largely attributed to higher hygiene standards and widespread use of antibiotics. Despite high rates of infection in certain areas of the world, the overall frequency of *H.pylori* infection is declining.<sup>7</sup> However, antibiotic resistance is appearing in *H.pylori* and many metronidazole and clarithromycin resistant strains seen in most parts of the world.<sup>8</sup> *H.pylori* is contagious, although the exact route of transmission is not known.<sup>9,10</sup> Person-to-person transmission by either the oral-oral or fecal-oral route is most likely.<sup>11</sup> Consistent with these transmission routes, the bacteria have been isolated from feces, saliva and dental plaque of some infected people.<sup>11</sup> Transmission occurs mainly within families in developed nations yet can also be acquired from the community in developing countries.<sup>22</sup> *H.pylori* may also be transmitted orally by means of fecal matter through the ingestion of waste-tainted water. Hence a hygienic environment could help to decrease the risk of *H.pylori* infection.<sup>11</sup> It causes a chronic low-level inflammation of the stomach. The clinical outcomes associated with *H.pylori* infection include duodenal ulcer, gastric ulcer, gastric adenocarcinoma and gastric mucosa-associated lymphoid tissue (MALT) lymphoma. The bacterium has been classified as a class I definite gastric carcinogen to human.<sup>13</sup> *H.pylori* infection can be diagnosed by invasive (i.e., requiring endoscopy) and noninvasive techniques (i.e., techniques that do not require endoscopy with biopsy sampling).<sup>14</sup> Eradication of *H.pylori* improved markedly the inflammatory cell infiltration characteristic of *H.pylori* related gastritis, inhibited recurrence of peptic ulcer<sup>68</sup> and also led to regression of MALT lymphoma.<sup>15</sup> In this study we will discuss the Prevalence of *H Pylori* in various age groups.

## MATERIAL AND METHODS

The present study was carried out in the Department of Pathology in a tertiary care hospital in Tamil Nadu. During the two year study period, 105 gastric biopsy materials and 105 serum samples were collected for *Helicobacter pylori* study in patients presenting with dyspepsia. Patients were clinically diagnosed as suffering from dyspepsia based on the following symptoms: nausea, vomiting, anorexia, heartburn, flatulence, regurgitation, early satiety, fullness and bloating in addition to pain or discomfort.<sup>16</sup> The working proforma is appended in annexure I. It was a prospective study. Patients of both sex above 12 years of age who were found to have peptic ulcer, gastritis, duodenitis and normal on endoscopy on evaluation of dyspepsia were taken up for the study. History of antibiotic ingestion in the previous 4 to 6 weeks, history of ingestion of antacids

or  $H_2$  blockers or proton pump inhibitors and Non-steroidal anti-inflammatory drugs over the past 4 to 6 weeks were excluded from the study. Informed consent was obtained from all patients included in this study. The relevant history and clinical details were recorded using a structured proforma. After overnight fasting, oesophagogastroduodenoscopy was done on the following morning. Three gastric biopsy materials, one from corpus and two from antrum of stomach were obtained. One antral specimen was used for urease test in the endoscopic room itself. 2ml blood was collected by venipuncture for IgG ELISA serology investigation. Detection of *Helicobacter pylori* Rapid Urease Test. One gastric antral biopsy specimen was taken and placed immediately in 5ml of freshly prepared solution of 10% urea containing 1% phenol red as pH indicator. Change of colour from yellow to pink was observed in the next 24 hrs.

## RESULT

**Table 1:** Distribution of all the cases as per the Age group

Sr. No	Age group (yrs)	No of cases		Total	Percentage
		Male	Female		
1	13 - 20	2	-	2	1.9
2	21 - 30	8	7	15	14.3
3	31 - 40	22	11	33	31.4
4	41 - 50	13	8	21	20
5	51 - 60	10	7	17	16.2
6	61 - 70	12	3	15	14.3
7	Above 70	2	-	2	1.9

The maximum numbers of cases were found in the age group of 31- 40 years, comprising a total of 31.4% of the study population. The least number of cases were in the age groups of 13-20 and above 70 years, each comprising a total of 1.9% of the study population. Among females, no cases were found in the age groups of 13-20 years and above 70 years. The youngest patient among males was 17 year old and the oldest patient was 82 year old. The youngest patient among females was 26 year old and the oldest patient was 70 year old.

**Table 2:** Age distribution of positive cases

Age group	No of cases	Positive cases	Percentage
13 - 20	2	1	50
21 - 30	15	10	66.7
31 - 40	33	22	66.7
41 - 50	21	16	76.2
51 - 60	17	15	88.2
>60	17	10	58.8

Maximum numbers of positive cases were found in the age group of 51-60 years (88.2%). Minimum numbers of positive cases were found in the age group of 13-20 years (50%)

**Table 3:** Sex distribution of all cases

Sr. No	Sex	No of cases	Percentage
1	Male	69	65.7
2	Female	36	34.3
<b>Total</b>		<b>105</b>	<b>100</b>

Out of the total 105 cases, 69 (65.7%) cases were males and 36 (34.3%) cases were females

**Table 4:** Sex distribution of positive cases

Sr. No	Sex	No of cases	Positive cases	Percentage
1	Male	69	54	56.3
2	Female	36	20	55.6

Out of 69 males, 54 (56.3%) were positive for H.pylori and out of 36 females, 20 (55.6%) were positive for H.pylori.

**Table 5:** Endoscopic findings

Sr. No	Endoscopic findings	No of cases	Positive cases	Percentage
1	Normal mucosa	54	30	55.6
2	Duodenal ulcer	30	28	93
3	Gastric ulcer	9	7	77.8
4	Duodenitis	8	6	75
5	Gastritis	4	3	75

Out of 39 peptic ulcer cases (30 duodenal ulcer and 9 gastric ulcer), 35 (89.74%) cases [28 (93%) duodenal and 7 (77.8%) gastric ulcer] showed H.pylori positivity. Among 66 non-ulcer cases (8 duodenitis, 4 gastritis and 54 normal mucosal appearance on endoscopy) 39 cases [6 duodenitis (75%), 3 (75%) gastritis and 30 (55.6) normal mucosal appearance on endoscopy] showed H.pylori positivity.

## DISCUSSION

Infection with *Helicobacter pylori* is a world-wide chronic infection with the highest incidence in developing countries. It is associated with duodenal ulcer, chronic active gastritis, gastric cancer and gastric lymphoma. It can be easily identified on biopsy specimens taken at endoscopy. Chronic gastritis is defined as the presence of chronic mucosal inflammatory changes leading eventually to mucosal atrophy and epithelial metaplasia. By far the most important aetiological association is chronic infection by the bacillus *Helicobacter pylori*. The organism is a worldwide pathogen that has the highest infection rates in developing countries. In the present study, out of 69 males, 54 (56.3%) males and out of 36 females, 20 (55.6%) females are positive for H.pylori. The male to female ratio is 1:1 which is comparable to a study by AbdurRauf Khan<sup>17</sup>. He studied a total of 528 biopsies. There are 313 males, among whom 217 males (69%) are positive for H.pylori and 215 females, among whom 136 females (63%) positive for H.pylori. The male to female ratio is 1:1. The higher prevalence of H.pylori

is in the age group of 51-60 years (88.2%). Normal looking gastric mucosa is the commonest single endoscopic finding, accounting for 51.4% of all cases. The positivity rate for duodenal ulcer is 93% and gastric ulcer is 77.8% in our study. It is comparable to a study by Tytget<sup>18</sup> [1988] who found that all 15 (100%) patients of duodenal ulcer and 9 out of 11 (81.8%) patients with gastric ulcer found to have the organism. And in 2002, Sengupta *et al*<sup>19</sup> studied antral biopsy specimens from 25 patients with symptoms and diagnosis of duodenal ulcer, amongst whom the positivity rate is 84%. In a study by Zhang C, Yamada N *et al*<sup>20</sup>, the prevalence of H.pylori in gastric ulcer is 80.8%.

## CONCLUSION

H Pylori was found more common in 51-60 years age group, was equally common in males and females and was found more commonly with Duodenal ulcers.

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