

## Prevalence of biopsy proven helicobacter pylori infection among Iraqi patients undergoing upper endoscopy in Baghdad city-Iraq

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### ABSTRACT

**Introduction:** Helicobacter pylori infection is considered the most common infection worldwide and is associated with many other disorders.

The aim of this study is to determine the prevalence of this infection among patients undergoing endoscopy in gastroenterology unit in Baghdad teaching hospital/medical city complex in Baghdad/Iraq. **Methods:** between February 2013 and December 2013, all patients referred from gastroenterology clinic to the endoscopy unit at Baghdad teaching hospital-medical city complex were enrolled in this prospective study after application of exclusion criteria. For each patient clinical and epidemiological data was collected and endoscopy was performed, at least two antral biopsies were obtained from each patient and those were examined histologically for the presence of gastritis and stained for helicobacter pylori using modified giemsa stain. **Results:** A total of 50 patients (26 males) were studied, 44% of them were biopsy proven helicobacter pylori infection positive. A 10 (38.46%) out of 26 males studied were positive and 12 (50%) out of the 24 females studied were positive. Dyspepsia with alarm features was the highest indication for referral to endoscope.

**Conclusion:** The prevalence of H. pylori infection in patients subjected to an upper gastrointestinal endoscopy in Baghdad governorate is high. Further larger, multi center studies are needed to determine the type of H. pylori strain and exact estimation.

### Introduction:

*Helicobacter pylori* bacteria was discovered in 1983 by two Australian investigators worldwide and Warren and Marshal<sup>1</sup>, since then it become the most common infection by some estimate over one half of the population are infected with this organism<sup>2</sup> with more prevalence in the developing countries, it is well recognized that *helicobacter pylori* infection is associated a wide range of digestive and other extra gastroentistinal disorders, including chronic active gastritis, atrophic gastritis, duodenal ulcer, gastric ulcer, carcinoma of the stomach<sup>3</sup>, mucosa associated lymphoid tissue lymphoma<sup>4</sup> and skin diseases<sup>5</sup>. Although *helicobacter pylori* is associated strongly with peptic ulcer disease, it is also postulated as one of it's causal factors. However, not all cases of peptic ulcer are due to *helicobacter pylori* infection<sup>6</sup>.

The prevalence of *helicobacter pylori* positive peptic ulcer disease vary from one population to another, ranging from 35% to 60%, it is estimated that 0%-1% of uninfected adults acquire *helicobacter pylori* infection each year<sup>7</sup>, however the prevalence of the bacteria in developing countries and the factors that may influence the pattern of distribution remain scanty. The risk of acquiring *helicobacter pylori* infection is inversely related to the socioeconomic status and living conditions early in the life.

Factors such as density of housing, overcrowding, number of siblings, sharing a bed and lack of running water have all been linked to a higher acquisition rate of *helicobacter pylori* infection<sup>8</sup>. The infection is most commonly transmitted through oral ingestion of the organism which is transmitted among family members<sup>9</sup>.

H. pylori is the most common chronic bacterial infection in humans. Conservative estimates suggest that 50 percent of the world's population is affected. Infection is more frequent and acquired at an earlier age in developing countries compared with industrialized nations<sup>10</sup>. In developing nations, where the majority of children are infected before the age of 10, the prevalence in adults peaks at more than 80 percent before age 50<sup>11</sup>. In developed countries, such as the United States, evidence of infection in children is unusual but becomes more common during adulthood. Serologic evidence of H. pylori is rarely found before age 10 but increases to 10 percent in those between 18 and 30 years of age and to 50 percent in those older than age 60.

Within any age group, infection appears to be more common in blacks and Hispanics compared to the white population; these differences are probably in part related to socioeconomic factors<sup>12</sup>.

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The increased prevalence of infection with age was initially thought to represent a continuing rate of bacterial acquisition throughout one's lifetime. However, epidemiologic evidence now indicates most infections are acquired during childhood even in developed countries. Most infections were acquired before five years of age with a declining incidence thereafter in one report from Ireland. Thus, the frequency of *H. pylori* infection for any age group in any locality reflects that particular cohort's rate of bacterial acquisition during childhood years<sup>12</sup>. The risk of acquiring *H. pylori* infection is related to socioeconomic status and living conditions early in life. Factors such as density of housing, overcrowding, number of siblings, sharing a bed, and lack of running water have all been linked to a higher acquisition rate of *H. pylori* infection<sup>13</sup>. More recent studies continue to show that in developing countries such as Iran, childhood hygiene practices and family education determine the prevalence of *H. pylori* infection<sup>13</sup>. In Japan, 70 to 80 percent of adults born before 1950, 45 percent of those born between 1950 and 1960, and 25 percent of those born between 1960 and 1970 are infected<sup>14</sup>. This rapid decline of infection has been attributed to Japan's post-war economic progress and improvement in sanitation. The consumption of salted food appears to increase the possibility of persistent infection with *H. pylori* infection<sup>15</sup>. In addition, a synergistic interaction between *H. pylori* infection and salted food intake to increase the risk of gastric cancer has also been reported in case-control studies<sup>16</sup>. Possible hereditary susceptibility to *H. pylori* infection has not been proven. However, studies do suggest that members of certain ethnic and racial groups including Hispanics and African-Americans have a higher rate of infection than Caucasians. These differences are not entirely explained by differences in socioeconomic status<sup>17</sup>. Twin studies also support genetic susceptibility to infection. Monozygotic twins raised in different households have a greater concordance of *H. pylori* infection than do dizygotic twins raised apart. However, twins raised together have a higher concordance of *H. pylori* status than twins raised separately, emphasizing the role of childhood environment in *H. pylori* acquisition<sup>18</sup>. The route by which infection occurs remains unknown. Person-to-person transmission of *H. pylori* through either fecal/oral or oral/oral exposure seems most likely<sup>19</sup>. Humans appear to be the major reservoir of infection;. Intrafamilial clustering of infection further supports person-to-person transmission. Iatrogenic infection has been documented following the use of a variety of inadequately disinfected gastric devices, endoscopes, and endoscopic accessories<sup>20</sup>.

#### **Aim of study:**

The aim of our study is to determine the prevalence of biopsy proven infection of this organism.

#### **Patients and Methods:**

We conducted a prospective study during the period February 2013 to December of the same year, involving 50 consecutive patients who were referred from gastroenterology clinic to the Endoscopy unit in Baghdad Teaching Hospital/medical city complex in Baghdad city\Iraq. These patients were collected with different causes of referral to Endoscopy [I.e.regardless the indications of referral].

Some of them presented with dyspeptic symptoms accompanied by alarm features such as anaemia, haematemesis or malaena and weight loss, some others presented with haemodynamically stable upper G.I.T. bleeding and to less extent malabsorption syndroms. None of the patients had been taking anti-ulcer drugs or antibiotics for at least 4 weeks prior to endoscopy. Upper G.I. endoscopy was carried out with local anaesthetic spray. During endoscopy, the endoscopic findings such as hiatus hernia, esophagitis and its grades, gastritis, gastric and duodenal ulcers and any gross esophageal, gastric and duodenal pathology were documented. At least two antral biopsies were taken and put in formalin containing tube. These biopsies were sent to Pathology section at teaching laboratories\medical city complex for histological examination. The presence of *H. pylori* was determined by modified Giemsa stain.

#### **Exclusion Criteria:**

All patients referred for upper endoscopy after taking informed consent were included except those who used antibiotics, proton pump inhibitors, and/or bismuth in last four weeks

#### **Results:**

A total 50 patient who were administered for OGD for undertaking biopsy to prove the presence of *H. pylori*. The gender distribution was 24 females and 26 males. The positive cases were 22 and the negative were 28. The prevalence of positive cases was 44%, the female prevalence was 50% compared to males prevalence which was 38.46%.

The higher prevalence was of the age group (25-50) years was 20% (10 patients), followed by the age group of more than 50 years which was 18% (9 patients), then the less prevalence was with younger age group of less than 25 years old which was 6% (3 patients). The gender difference related to the positive and negative cases was not significant ( $p < 0.05$ ).

## significance of gender distribution in the positive cases

	H.P. +ve	H.P. -ve	Total
♀	12	12	24
♂	10	16	26
Total	22	28	50

P value=0.569

Figure 1- The prevalence according to the total examined patients  
Prevalence of +ve H.P. is 44%

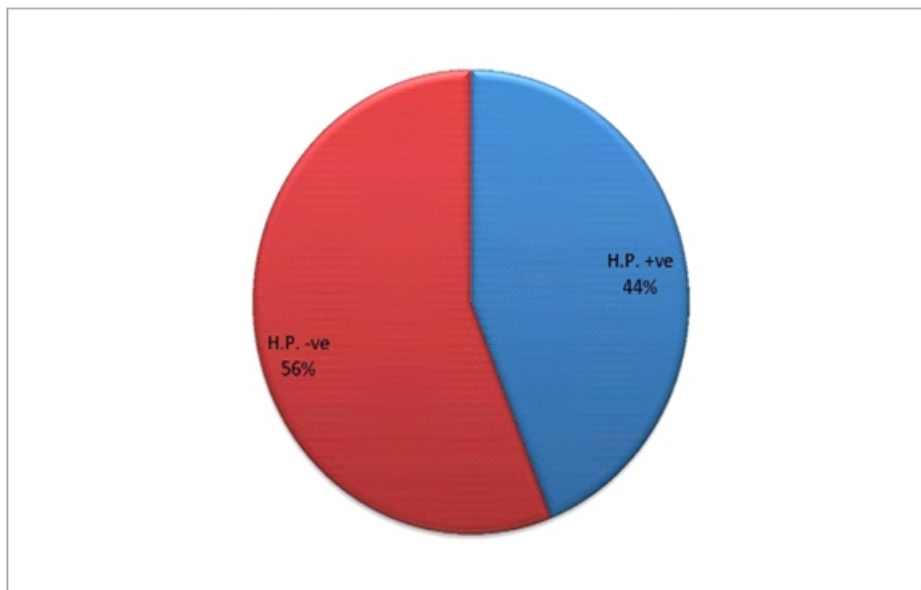


Figure 2- Ratio of positive cases according to gender distribution to the +ve H. pylori cases

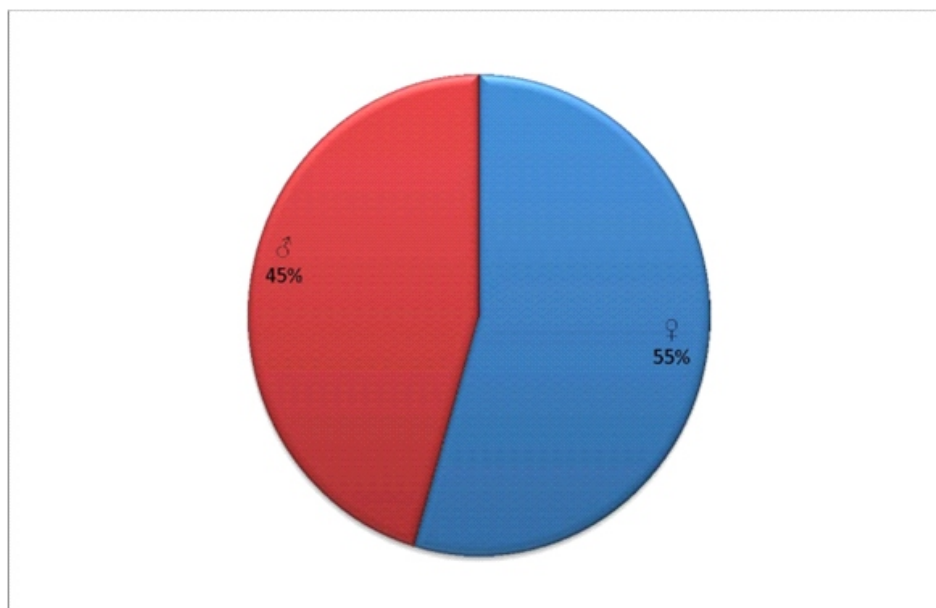


Figure 3- The prevalence according to age and gender distribution

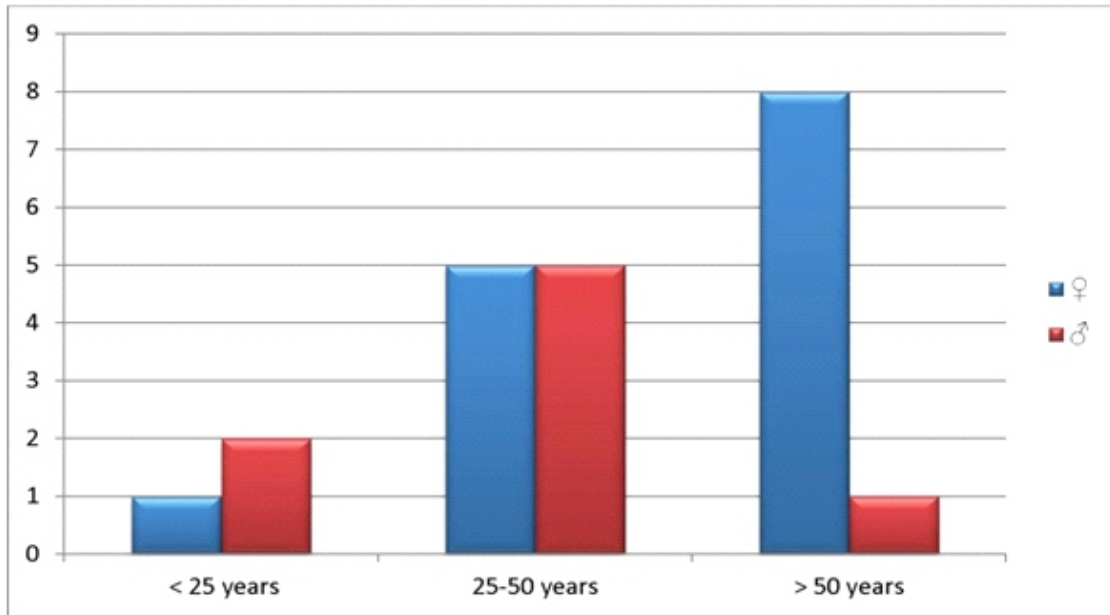


Figure 4- Ratio of positive cases according to age distribution to the positive cases

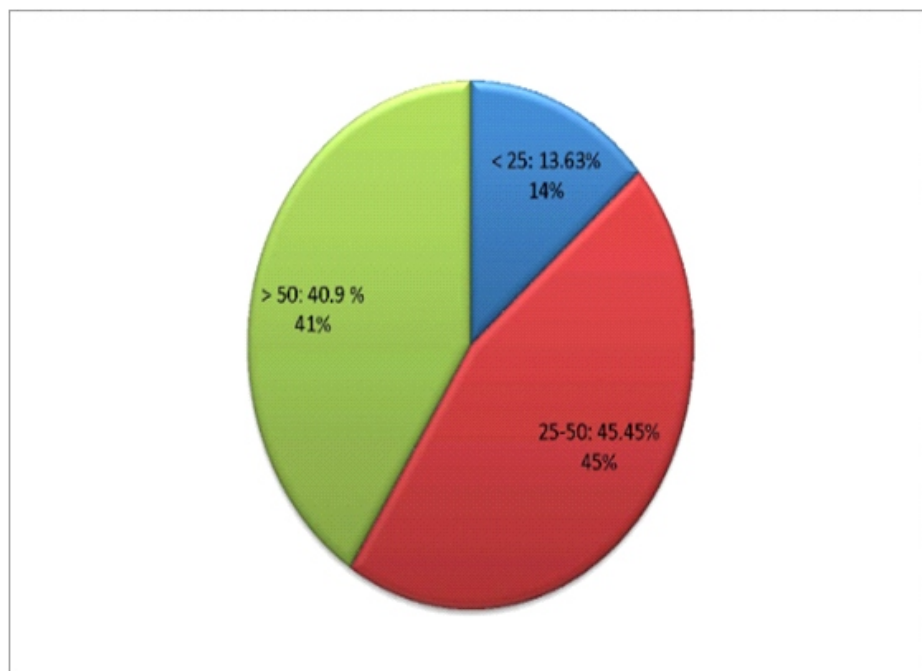


Figure 5- Distribution of positive cases according to referral cause for OGD

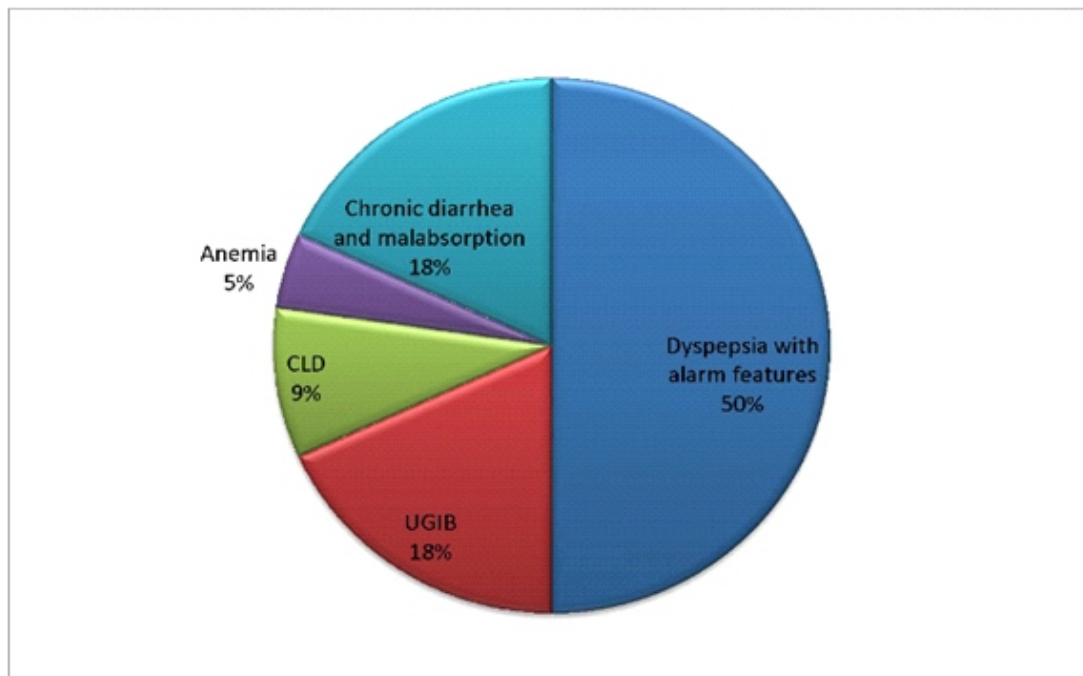
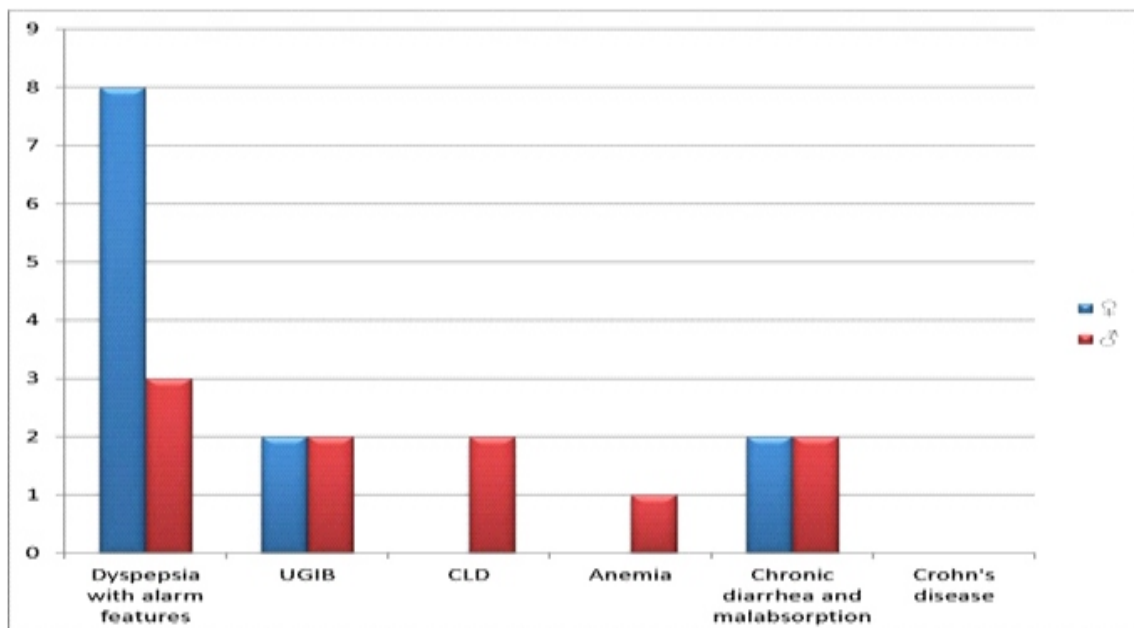


Figure 6- The +ve H.pylori according to the referral causes for OGD in association With gender distribution



**Discussion:**

Studying the epidemiological data on *H.pylori* is essential as it provide necessary information regarding its prevalence and incidence, which will help in establishing public health actions that could halt transmission and therefore acquisition of the infection and aids the planning of community-wide and the therapeutic program to eradicate the bacterium<sup>9</sup>. Prevalence rates of *H.pylori* have shown a strong relation with age, low socioeconomic status, but no gender<sup>10</sup>. We have shown that the prevalence of *H.pylori* increase with age but it is not related to gender, which is consistent with previous studies<sup>21</sup>.

The prevalence of *H.pylori* varies greatly between countries, generally, the prevalence about 30 percent in developed countries and up to 80 percent in developing nations<sup>4</sup>.

In Iraq several studies had been conducted to evaluate the prevalence of *h.pylori* in peptic ulcer disease indicating a range 60-70 percent as founded by Al-Ajeel et al, Fatah HT et al and Al-Sari et al. Another study conducted by Al-Sulami found that the biopsy proven prevalence in endoscopic ally diagnosed peptic ulcer was 59.6 percent, while Bashdar et al found seroprevalence was 55 percent.

The lower rate in our study could be attributed to some factors such as improve personal hygiene and living condition, increasing awareness about the diagnosis and usage of eradication therapy, overuse of antibiotics, the occasional patchy colonisation of organism and the density of biopsy material which may affect the positivity rate<sup>22</sup>, in addition to the expertise of histopathologist and good socioeconomic status of people who attended medical city. Also, these higher prevalence rate conducted on less invasive way of diagnosis like serological tests which could not differentiate recent, active from past, cured infection.

The prevalence of *H.pylori* is the highest in the patients who have dyspeptic symptoms with alarm features which is consistent with previous report<sup>23</sup>.

This observation agree with the well-known fact that *H.pylori* infection is a risk factor for peptic ulcer disease.

**Conclusion and Recommendations:**

The prevalence of *H. pylori* infection in patients subjected to an upper gastrointestinal endoscopy in Baghdad governorate is high.

Further larger, multi center studies are needed to determine the type of *H.pylori* strain and exact estimation.

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