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# Detection of Immune Markers For H.Pylori In Paitents With Chronic Gastric Inflammation

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## Abstract

H. pylori is a one of the gastrointestinal, organism infecting more than half the population worldwide. This work aimed to detect by H. pylori infections by primary rapid tests, detection IgA for H. pylori & detection IL-8 by Elisa. A total of 100 patients suffering from dyspeptic symptoms representing different age groups from both genders. Collect sample in Baghdad Teaching Hospital in Baghdad during the period the November 2024 to March 20225. The results showed that were relationship between H. pylori infection and IL8, diagnosed dyspeptic symptoms 100 cases; It was recorded H. pylori Ab 75 cases from dyspeptic patients. The study shows high value IgA for H. pylori in patient with chronic gastric disease also show high infection with O blood group. The results showed that were relationship between the occurrences of H. pylori infection and diagnosed dyspeptic symptoms, with high level of IL8, high value IgA for H. pylori in patient with chronic gastric diseases also high infection with O blood group.

**Keywords**: Helicobacter pylori; chronic gastric; IgA; IL8

## Introduction

Infection with Helicobacter pylori (*H. pylori*) is a common infection in human beings[1]. When entering the stomach, this spiral' Gram-negative micro-aerophilic bacterium penetrates the mucus gastric layers [2]. The IL-8 gastric mucosal level increases *H. pylori*-associated gastritis and disappeared following the removal of the infections. Also, it reportedly grew in H. pylori-positive people with gastric carcinoma [3] where the study reported Anti-*H. pylori* immunoglobulin IgM and IgG responses in their serum. Furthermore, 4 weeks following infections, the gastric $CD4^+$ and $CD8^+$ T cell numbers rose in comparison to the pre-infection level [4]. These data prove that the gastric and systemic immune responses grew in short times following *H. pylori* infections. Linked to cellular responses, a humeral immune response is deduced in approximately every *H. pylori*-infected individual [5]. IgG antibodies and Serum IgA and in the chronically infected are addressed to several various *H. pylori* antigens [6].

Remarkably, *H. pylori* infections elicit autoantibodies which react to gastric epithelial cells, driving gastritis [7]. IgA class antibodies are sometimes seen combined with risen IgG antibodies in about two-thirds of the infected cases [8] and are diagnostically beneficial in the 2-7% of *H. pylori* people with low IgG levels [9]. The IgA antibodies are sensitive indicators of raised risks for cancer of stomach [10].

**The aim of the research:**

Detection of by *H. pylori* infection by primary rapid tests, and detection of IgA for *H. pylori* & IL-8 by Elisa

**Material and method**

A total of 100 patients, , with various gastrointestinal symptoms and ages ranging from 18 to 60 years, attended the endoscopic unit AL- baghdad Teaching Hospital in Baghdad during the period the November 2024 to March 2025. They were diagnosed with peptic ulcer (gastric and duodenal ulcer). It is also diagnosed with gastritis and stomach cancer via an endoscopic examination under the supervision of a gastroenterologist, and study includes the collection of serum

. Diagnostic Tests (Invasive tests):

1- *H. pylori* serum antibody test , Principle of test: *H. pylori* Ab test was a lateral flow chromatographic immunoassay depended on the principle of the double antigen-sandwich technique. to detect serum antibody of *H. pylori*. Serum samples were assessed using a kit, according' to the manufacturer's instructions (Helagen ,USA)

2-Measurement of IgA by ELISA , serum samples were assessed using a kit with a specific sensitivity' methodology – ELISA test, according' to the manufacturer's instructions (Abcam , china).

3-Measurement of IL8 by ELISA , serum samples were assessed using a kit with a specific sensitivity' methodology – ELISA test, according, to the manufacturer's instructions (Bioassay technology laboratory (BTLAB) . USA)

4-Blood group test , Principle: ABO blood group test depended on the principle of haemagglutination reaction. , blood samples were assessed using a kit, according, to the manufacturer's instructions (AFCO , Jordan )

**Statistical Analysis:**

Chi-Square test along with the statistical package (SPSS software version)was used to examine the data[11].

**Result**

Rapid test of *H. pylori* (Ab)

The rapid test was provided. 70 (30%) out of 100 were gave positive results for found of H. pylori, raid test was used to diagnose bacteria .this technique high accuracy and quick time (result within a few minutes) and no false-positive results as shown in figures (1) and table (1).

| **Group** | **No** | **Percentage (%)** |
|---|---|---|
| **Positive** | 75 | 75% |
| **Negative** | 25 | 25% |
| **Total** | 100 | 100% |
| **Chi-Square ($\chi^2$)** | --- | 14.814 ** |
| **P-value** | ---- | 0.0001 |
| **** (P≤0.01).** | | |

**Table 1. Distribution of sample study according to rapid test for *H. Pylori* by cassette (strip)**

This table show high significant between positive and negative rapid *H. pylori* Ab test the p -value <=0.01

**Distribution of factor study in control and patients**

A total number of disease cases subject to the examination patients and their distribution among males and females at 100patients were tested. There were 29 (41.43%) male and 41 (58.57%) female patients respectively, with a 42.59 year mean age of years with *H. pylori* infections were in 70/100 (39.8%) of the infected as shown in table (2).

| Factors | | Control No. (%) | Patients No. (%) | P-value |
|---|---|---|---|---|
| **Sex** | Male | 15 (50.00%) | 29 (41.43%) | 0.0822 NS |
| | Female | 15 (50.00%) | 41 (58.57%) | |
| **Blood groups** | A | 8 (26.67%) | 19 (27.14%) | 0.0001 ** |
| | B | 12(40.00%) | 21 (30.00%) | |
| | AB | 2 (6.67%) | 3 (4.29%) | |
| | O | 8 (26.67%) | 27 (38.57%) | |
| **Age (year)** | Mean ± SE | 35.20 ±2.41 | 42.59 ±1.57 | 0.0237 * |
| *** (P≤0.05), ** (P≤0.01), NS: Non-Significant.** | | | | |

**Table 2. Distribution of factors study in control and patients**

This table show significant difference between control and patient in sex factor

The p -value <=0.05

This table show high significant between control and patient in blood groups factor the p -value <=0.01

This table show non-significant between control and patient in age factor

The p -value >=0.05

Comparison between control and patient in IgA , IL6

| Group | Mean ± SE | |
|---|---|---|
| | IgA ( ) | IL-8 ( ) |
| **Control** | 0.308 ± 0.04 | 77.98 ± 4.39 |
| **Patients** | 0.907 ± 0.06 | 124.9 ± 4.71 |
| **T-test value** | 0.234 ** | 17.735 ** |
| **P-value** | 0.0001 | 0.0001 |
| **** (P≤0.01).** | | |

**Table 3. Comparison between control and patients groups in IgA and IL-8**

This table show high significant between control and patient in IgA

p -value <=0.01

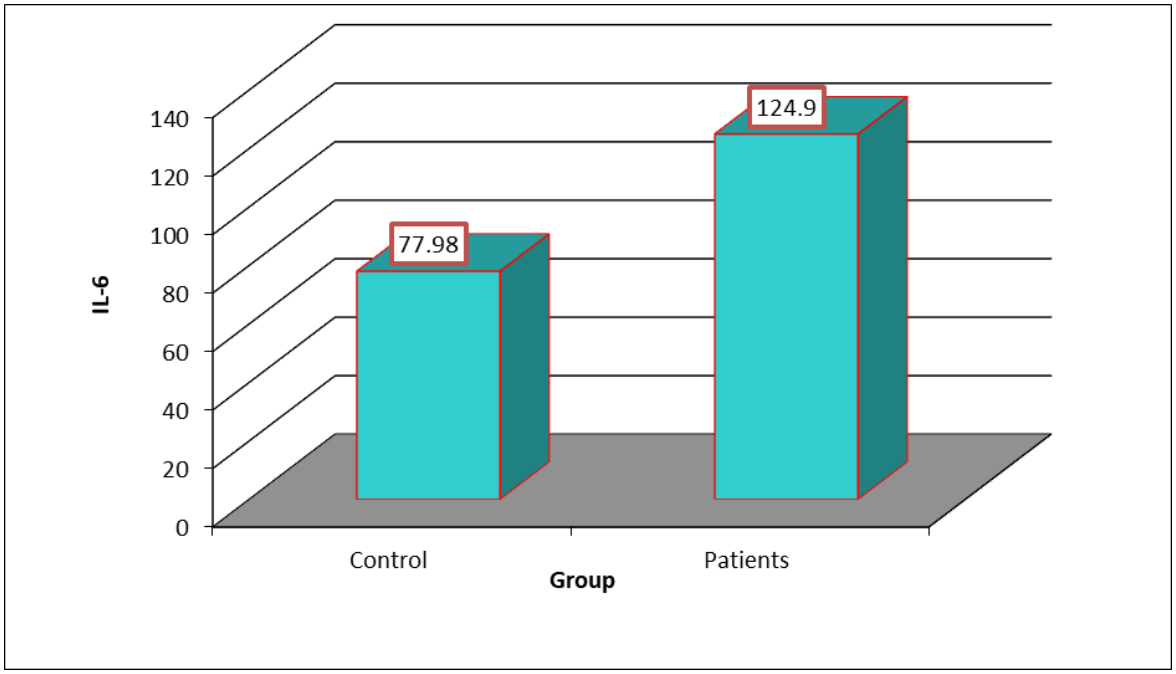


**Figure 1. Comparison between control and patients groups in IL-8**

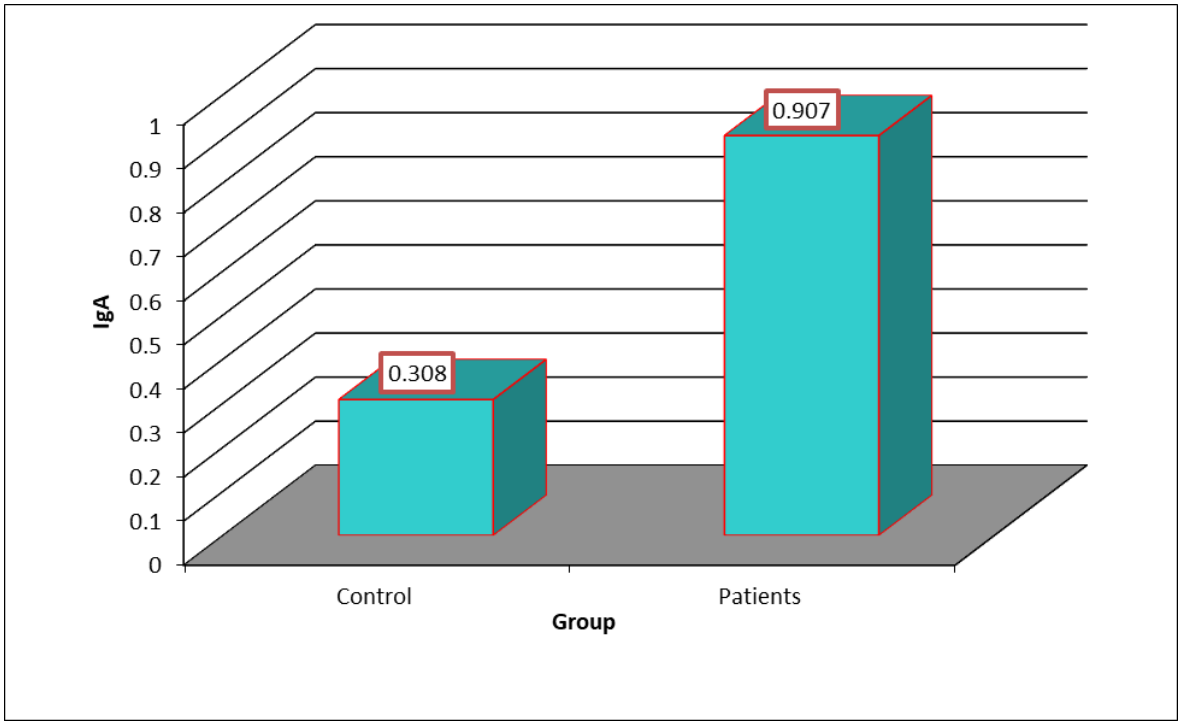


**Figure 2. Comparison between control and patients groups in IgA**

**Effect of age in IgA, IL8 patients groups**

| **Age groups (year)** | **Mean ± SE** | |
|---|---|---|
| | IgA ( ) | IL-8 ( ) |
| **>40** | 0.882 ±0.11 | 119.72 ±6.90 |
| **40-50** | 1.054 ±0.12 | 128.61 ±8.63 |
| **>50** | 0.759 ±0.08 | 128.57 ±9.79 |

| | | |
|---|---|---|
| **LSD value** | 0.324 NS | 23.885 NS |
| **P-value** | 0.293 | 0.459 |
| **NS: Non-Significant.** | | |

**Table 3. Effect of Age groups in IgA and IL-6 of patients**

This table show non -significant between IgA and IL6 in patients' effect by age

The p -value >=0.05.

Effect of blood groups in IgA, IL8 patients groups

| **Blood groups** | **Mean ± SE** | |
|---|---|---|
| | IgA ( ) | IL-8 ( ) |
| **A** | 0.862 ±0.13 | 131.15 ±14.16 |
| **B** | 0.911 ±0.09 | 121.98 ±7.04 |
| **AB** | 0.683 ±0.20 | 123.91 ±27.76 |
| **O** | 0.961 ±0.11 | 123.34 ±5.01 |
| **LSD value** | 0.518 NS | 38.147 NS |
| **P-value** | 0.828 | 0.770 |
| **NS: Non-Significant.** | | |

**Table 4. Effect of Blood groups in IgA and IL-6 of patients**

This table show non-significant between IgA and IL6 in patients effect by blood group the p -value >=0.05.

Effect of gender in IgA, IL8 patients groups

| **Gender** | **Mean ± SE** | |
|---|---|---|
| | IgA ( ) | IL-6 ( ) |
| **Male** | 0.888 ±0.07 | 130.01 ±6.12 |
| **Female** | 0.936 ±0.10 | 117.68 ±7.27 |
| **T-test value** | 0.264 NS | 19.482 NS |
| **P-value** | 0.714 | 0.138 |
| **NS: Non-Significant.** | | |

**Table 5. Effect of Gender in IgA and IL-8 of patients groups**

This table show non-significant between IgA and IL8 in patients effect by gender the p -value >=0.05.

**Discussion**

The total number of illness cases and their distribution among male and female patients are shown in (Table 2). The finding demonstrates that 41.43 % of male patients tested positive for *H. pylori*, compared to 58 % of female patients, a statistically significant difference of P value < 0.05.

The findings are agreement with those of [12], who studied *H. pylori* in gastric inflammation in both males and females, reporting that *H. pylori* prevalence was 54.2 %among males and 45.8 % among females.

Another study found that 20 % of females and 30 % of males were infected with *H. pylori* [13,14] Found that of 528 cases, 353 patients were positive, yielding a 67 There were 313 men and 215 women in the group. Males were infected at a rate of 69 %, while females were infected at a rate of 63%. Yet, the two genders showed no statistically significant differences. Furthermore, data from the study revealed that *H. Pylori* Positivity was more prevalent in males (54.76 %) than females (45.23 %) [15]. These results were similar to [16] who have reported that *H. pylori* infected have been demonstration world-wide and affect all age group. Estimated that 50% of the worlds' population are Affect. As demonstrated in table 4, patients over 42 years old had the highest incidence of *H. pylori* . Despite that the study discovered an increase in *H. pylori* infection with age, with the lowest incidence infection under 35 years, the results were not statistically significant across ages, P>0.05. This finding is comparable to that of [12], who discovered that in the general population, the prevalence of infection was highest in those over 60 years old and lowest in those under 20 years old. No significant differences between the categories, and there was no discernible increase in the incidence from childhood to old aged. This result was similar to [17,18]. Patients' blood samples were taken, and the results shows in (table 2) group A shows 27.14 %, group B shows 30 %, AB shows 4.29 %, and group O shows 38.57 % from injury-prone patients. As a result, blood group O was shown to be the most susceptible to *H. pylori* in this investigation, and this finding agrees with [19] who discovered that blood group O is the most afflicted group when compared to the other groups. 42 (22.6 %), 24 (12.9 %), 11(5.9%), and 109 (58.6%) of the 186 women had blood groups A, B, AB, and O, respectively [20]. IgA is affected by *H. pylori* infection that noted high level of IgA in patient rather than healthy control , also IgA effected by gender in (table 5) whereas in female 0.936 more than 0.888 male and age as shown in( table 3) whereas less than 40 years showed 0.882 while 40-50 years showed 1.054 in addition blood group as shown in (table 4) IgA is higher with O as a result of all of this, the importance of the IgA This outcome is consistent with [21]. According to their findings (51.2%) of the individuals tested positive for *H. pylori* antibodies [22]. Discovered that IgA levels in gastric cancer cases were much greater than in control patients, with a value that was even higher in the tumour's far perimeter but significantly lower toward the carcinoma lesion. IL-8 levels' between infected' and non-infected subjects appear high significant, We also note that IL-8 having varies value with age, as shown in(table 3 )with those aged 40 years having a value of 119.27 and those aged 40-50 years having a value of 128.61. IL-6 is also affected by blood group, as shown in(table 4), with a high value of 131.15 in A blood group compared to other blood groups. Also, IL-8 in males is higher than females as show in (table 5), reaching 130 in males versus 117.68 in females. This result is almost identical to [23] who showed approximate results of this study. Another systematic study found that high levels of IL-8 in the blood were linked to higher cardiovascular disease risks [24]. There was a link between IL-8 (>5 ng/L) and greater 6- and a year mortality in the Fast Revascularization, in Fragment, in Instability and in Coronary Artery Diseases II [19,25]. In addition, CRP could be elicited by IL-8 aaccording to a systematic reviews and meta-analysis [26]. Despite the fact that our individuals' blood IL-6 levels were less than 4 pg/mL, as normal ranges, several investigations have found that IL-8 levels are substantially linked to the CHD risk even if IL-8 levels were in the normal ranges proved by elevated serum IL-8 levels. Previous research has revealed that *H. pylori'* a secreted peptidyl prolytcis-trans-isomerize from Helicobacter pylori, elicits IL-8 gene expressions and IL-8 releases in macrophages [27]. The current study agrees with the result of the rapid test of *H. pylori* [28]. In addition, patients having Henoch-Schonlein purpura showed a significant rise in anti-H. pylori IgG than healthy subjects (versus U/mL) [29]. Also,the anti-*H. pylori* IgG antibody titers could be important in a variety of extra digestive diseases, including cardiovascular disease.

**Conclusion**

The results showed that *H. pylori'* infection occurrences and diagnosed dyspeptic symptoms were associated with high level of IL8. In addition, the high' value IgA of *H. pylori'* in those with chronic gastric diseases has higher infections with O blood group.

**Author Contributions**

Fatima Omer iscollaborated equally during the experimental works and discuss the results. All authors have read and accept to the published version of the manuscript.

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**Conflicts of Interest**

There were no conflicts of interest revealed by the authors.

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