

## Trends in the Prevalence of *Helicobacter Pylori* Infection in Fardis, Iran, 2011 - 2014

Mohammad Javad Gharavi,<sup>1,2</sup> Monir Ebadi,<sup>3</sup> Hossein Fathi,<sup>3</sup> Zahra Yazdanyar,<sup>2</sup> Nassimeh Setayesh Valipor,<sup>3</sup> Parviz Afrogh,<sup>4</sup> and Enayatollah Kalantar<sup>3,5,\*</sup>

<sup>1</sup>Department of Pathobiology, School of Medicine, Alborz University of Medical Sciences, Karaj, IR Iran

<sup>2</sup>Fardis Central Laboratory, Fardis, Karaj, IR Iran

<sup>3</sup>Dietary Supplements and Probiotic Research Center, Alborz University of Medical Sciences, Karaj, IR Iran

<sup>4</sup>Pasteur Institute of Iran, Tehran, IR Iran

<sup>5</sup>Department of Microbiology and Immunology, School of Medicine, Alborz University of Medical Sciences, Karaj, IR Iran

\*Corresponding author: Enayatollah Kalantar, Department of Microbiology and Immunology, School of Medicine, Alborz University of Medical Sciences, Karaj, IR Iran. Tel: +98-2634551034, Fax: +98-2634529133, E-mail: ekalantar@hotmail.com

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### Abstract

**Background:** One of the most common causes of chronic bacterial infections is *H. pylori* and there is evidence indicative of its strong association with gastric cancer.

**Objectives:** We aimed to determine the prevalence of *H. pylori* infection using Gram staining, IgG, urea breath test (UBT), and stool antigen from patients with gastrointestinal (GI) symptoms.

**Materials and Methods:** Patients with GI symptoms who were referred to Fardis Central Laboratory, Fardis, Iran for identification of *H. pylori* from different clinical specimens from 2011 to 2014 were included in this study. Demographic data were retrieved from the medical records of enrolled patients.

**Results:** A total of 16002 patients were referred to Fardis Central Laboratory, Fardis, Iran over the past 3 years. Among them, 5662 (35.38%) were males and 10340 (64.62%) females; their mean age was 48 years (range 3 to 93 years). Of 16002 patients tested, 6770 (83.77%), 137 (1.69%), and 1174 (14.54%) were positive for *H. pylori* according to the results of immunoglobulin G (IgG), urea breath test (UBT), and H antigen, respectively.

**Conclusions:** *H. pylori* infection rate in patients referring to Fardis Lab with GI symptoms was relatively high which could be due to some health habits. Although this kind of infection is considerably common, it can easily be diagnosed by noninvasive tests.

**Keywords:** IgG, Prevalence, UBT, *Helicobacter Pylori*

## 1. Background

Infectious diseases are worldwide public health problems, mainly in developing countries bearing the highest burden. Many scientists believe that *Helicobacter pylori* infection is the most common infectious disease in the world (1-3). Estimates suggest that half of the world's population is infected with *H. pylori* (4). The infection primarily involves the upper gastrointestinal tract leading to development of gastric cancer (5), which is the second most common cause of cancer death worldwide (6).

There is a wide variation in the reported prevalence of *H. pylori* infection. While, global prevalence of *H. pylori* infection is more than 50% (7), its prevalence in Iran is nearly 90% in adult population (1, 7) and appears to occur early in life, with > 50% of children infected before the age of 15. The prevalence of *H. pylori* infection varies widely according to geographic area, age, race, and ethnicity (8, 9).

## 2. Objectives

For detection of *H. pylori* in such infections, various tests

are used. This study was conducted to determine the prevalence of *H. pylori* infection using Gram staining, serology (IgG), urea breath test (UBT), and stool antigen (10).

## 3. Materials and Methods

Fardis Central Laboratory is located in Fardis, Alborz Province, Iran; its primary focus is the outpatient clinical specimens from all over the Alborz province. The critical role of this laboratory in infectious disease diagnosis calls for a close relationship between the clinicians and the microbiologists who bring enormous value to the health care team.

Study subjects were selected from patients with GI symptoms who were referred to Fardis Laboratory for identification of *H. pylori* from different clinical specimens from 2011 to 2014.

Demographic data were retrieved from the medical records of enrolled patients. *Helicobacter pylori* was diagnosed in the stool, blood, and biopsy using a commercially available stool antigen test, a 14C-urea blood test (UBT), and serology, respectively.

## 4. Results

Following careful review of medical records, we identified 16002 patients that had been referred to Fardis Central Laboratory over the past 3 years. The demographic characteristics of the patients are shown in Table 1. Among 16002 referred patients, 5662 (35.38%) were males and 10340 (64.62%) were females; their mean age was 48 years (range; 3 to 93 years).

**Table 1.** Frequency for *Helicobacter pylori* Infections Using Different Diagnostic Tests

Variables	Values <sup>a</sup>
<b>Gender</b>	
Male	5662 (35.38)
Female	10340 (64.62)
Total	16002 (100)
<b>Age, y</b>	48 (3 - 93)
<b>Positive Diagnostic tests</b>	
Serology	6770 (83.77)
UBT	137 (1.69)
Stool Ag	1174 (14.54)
Total	8081 (100)
<b>Negative Diagnostic tests</b>	
Serology	4629 (58.39)
UBT	276 (3.48)
Stool Ag	3016 (38.13)
Total	7921 (100)

<sup>a</sup>Data are presented as No. (%) except age that is presented as mean (range).

## 5. Discussion

Of 16002 patients' test results, 6770 (83.77%), 137 (1.69%), and 1174 (14.54%) were positive for *H. pylori* according to the results of IgG, UBT, and H antigen, respectively. *H. pylori* infection rate in patients referring to Fardis with GI symptoms was 83.77% which was relatively high (11, 12). Other studies also reported the different prevalence rates among various races, for example, Malay 16.4%, Chinese 48.5%, and Indian 61.5%. So our results are close to rate among Indian race (13, 14). Unlike other studies, in our study, the prevalence of *H. pylori* infection among males is more than females (15, 16).

In conclusion, *H. pylori* infection rate in patients referring to Fardis with GI symptoms is relatively high which could be due to some health habits. Although this infection is considerably common, it can easily be diagnosed by noninvasive tests.

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## Footnote

**Authors' Contribution:** Mohammad Javad Gharavi designed the study. Monir Ebadi and Hossein Fathi collected the data. Zahra Yazdanyar carried out the experiments. Nassimeh Setayesh Valipor analyzed the data. Enayatollah Kalantar wrote the manuscript.

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