Helicobacter pylori Infection in Different Age Groups of Patients with Gastric Diseases.

الإصابة بالملوئت البوابيت في مجامع عمرية مختلفة لدى المرضى المصابين بأمراض المعدة

Israa Saeed Abbas, Assi. Lecture / Department of Microbiology, College of Medicine, University of Karbala.
Dr. Kareem Thamir Al-Kaaby, MBChB, PhD Medical Microbiology and Immunology/Department of Microbiology, College of Medicine, University of Kufa.
E-mail: alsultanayisraa@yahoo.com

Abstract:

Background: Helicobacter pylori (H. pylori) is a harmful, medically important, pathogenic bacteria that colonizes stomach of different age groups. Therefore, it is important to conduct research on this particularly wide-spread bacteria.

Material and method: Tissue samples were taken from the stomach lining of 350 patients who attended Endoscopic Unit in Karbala, where 194 patients showed urease positive gastric specimen samples. From these 194 urease positive patients, ninety two (92) gastric biopsy specimens showed H. pylori positive test that confirmed by molecular method. All (92) H. pylori positive patients with different disease status (peptic ulcer disease and non-ulcer dyspepsia) that were confirmed by endoscopic examination.

Results: It was shown that the age groups with highest prevalence of H. pylori infection was 31-40 (29.3%) and 21-30 (28.2%), but it was the lowest in age less than 20 years old (8.6%).

Conclusions: The infection with H. pylori was slow in young adults less than 20 years, but it was high in age groups 21-30, 31-40 years, and decrease in age group 41-50 but it was returned to be increased in the age over 50 years.

Recommendations: study of Helicobacter pylori infection in children less than five years old age.
INTRODUCTION:

*Helicobacter pylori* is a major gastric pathogen, infection is almost always life-long, generally acquired during early childhood and results in gastric inflammation, which remains asymptomatic in most individuals, ten to fifteen percent of infected individuals develop gastric or duodenal ulcers, and infection with *H. pylori* is also a cause of gastric cancer and mucosa-associated lymphoid tissue (MALT) lymphoma (1). This bacteria is able to colonize and persist in the mucus layers of the human stomach. Infection affects almost half of the world’s population and it is responsible for the most frequent and persistent infection of the gastrointestinal tract worldwide (2). One study mentioned that adults have a continuous risk of *H. pylori* infection, resulting in increased seroprevalence during lifetime as a function of age (3).

This study is aimed to study the prevalence of *H. pylori* infections in different age groups by studying its prevalence in five age groups which were 11-20 years, 21-30 years, 31-40 years, 41-50 years, and lastly those who were over 50 years of age, then to find out which age group showed the highest prevalence of *H. pylori* infection.

MATERIAL AND METHODS:

1- Source of specimens
From 350 patients who attended endoscopic unit of AL- Hussein General Hospital in Karbala city in Iraq, at the period between February 2013 and August 2013, there were 194 patients showed urease positive gastric specimen samples. From these 194 urease positive patients, Ninety two (92) gastric biopsyspecimens showed *H. pylori* positive that confirmed by molecular method. All (92) *H. pylori* positive patients with different disease status (peptic ulcer disease and non ulcer dyspepsia patients) that confirmed by endoscopic examination.

A gastric biopsy specimen was obtained from each patient then each specimen was placed in one milliliter of normal saline, then preserved immediately in deep freeze at -20 c for molecular diagnosis of *H. pylori* to detect *glmM* gene.

2- Rapid Urease Test (RUT):
Any gastric biopsy sample was directly placed into rapid urease medium at the time of endoscopy. The specimens were submerged in the medium, incubated aerobically at room temperature (20-25 C). The test result can be observed after 10min, 1hr, 2hrs and 24 hrs of incubation.

Development of a pink-red or red-violet color was regarded as a positive result (4).

3- Detection of *H. pylori*:

*H. pylori* were diagnosed by molecular method (PCR), using *glmM* gene.

4- DNA extraction and PCR amplification conditions

Total DNA extracted directly from gastric biopsy samples using tissue protocol (Geneaid, Korea), the final volume of DNA extraction product was 200 μl, with final concentration 1.25 ng/μl.

To confirm the presence of *H.pylori*DNA in biopsies samplification and melting conditions were optimized for the PCR assay by using specific primers sequences (5).

PCR premix kit from (Bioneer, Korea) was used to amplify the mentioned gene.

Total reaction volume of 20 μl containing, 3 μl of extracted DNA, 1 μl of 10 pmol/μl of
each forward and reverse primers for \textit{glmM} gene in addition to 14 μl of molecular biology grade water then the mixture added to lyophilized PCRpremix™ formula. The PCR protocol for detection of \textit{glmM} gene started with step one Initial denaturation (one cycle, one min, 94°C), then step 2 {Initial annealing and Extension include (30sec, 57°C), Denaturation (30sec, 93°C), and Annealing and Extension (60 sec., 72°C)} this step was repeated 35cycles, and the final step was step 3 Final Extension (one cycle, 5min., 72°C).

\textbf{RESULTS:}

Regarding the age prevalence of \textit{Helicobacter pylori} positivity samples. It was shown that the 92 positive specimens were distributed among the five studied groups as follow: In the age group (31-40) years they were 27/92 represented (29.3%) and in age group (21-30) 26/92 represented (28.2%) years which showed the highest incidence of \textit{H. pylori} positivity, while in the age group (11-20) years 8/92 which represented (8.6%) that showed the lower incidence of \textit{H. pylori} as shown in figure below.

Whilst in the age group (41-50) the numbers were 10/92 represented (10.8%) of the total, and finally in the age group (>50) 20/92 (21.7%), as shown below.

![Figure 1- Distribution of \textit{H. pylori} positive cases according to different age groups.](image-url)
DISCUSSIONS:

The present study indicated that the highest incidence of H. pylori infections were among patients with ages 21-30 and 31-40 years. It is believed that H. pylori infection is strongly related to the high rate of infection acquired in childhood, but disease manifestations typically do not appear until adulthood and often only after long periods of latency (6). This result was in agreement with Yangchun et al., 2014 (7) who found that the age from 30 to 39 years had the highest rate of H. pylori infection than other age groups.

Previous studies showed that the infection rate was higher in childhood probably because people were usually infected with H. pylori when they were young usually after a long period of latency (8). A lower prevalence rate of H. pylori infection in the elderly has also been reported by others, and two hypotheses have been proposed to explain these findings: H. pylori could be present in a small number or at low activity which might not have been detected. And H. pylori could have been present in the past, but was eliminated on account of the development of an unfavorable gastric environment with age (8).

CONCLUSIONS

The infection with H. pylori was slow in young adults less than 20 years, but it was high in age groups 21-30, 31-40 years old, and decrease in age group 41-50 but it was returned to be increase in age over 50 years old.

RECOMMENDATIONS

Study of Helicobacter pylori infection in children less than five year’s old age.

REFERENCES:

