Helicobacter pyloriInfection in Different Age Groups of Patients with Gastric Diseases.

الإصابة بالملوية البوابية في مجاميع عمرية مختلفة لدى المرضى المصابين بإمراض المعدة

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الخلاصة:
خلفية البحث: الملوية البوابية هي بكتريا ضارة ،مهمة طبيا ، مسببة للأمراض ،وهي تستعمر معدة الإنسان بمختلف الفئات العمرية. لذلك فأن من المهم إجراء البحوث عليها خصوصا وهي واسعة الانتشار في كل أنحاء العالم.

هدف الدراسة : هو التعرف على أكثر سن يكون فيه وجود بكتريا الملوية البوابية في المعدة أكثر من غيره وذلك من أجل معرفة المسار الطبيعي للإصابة بهذه البكتريا.

المنهجية : تم دراسة عينات نسيجية مؤخوذة من بطانة المعدة تعود ل ٣٥٠ مريضا راجعوا وحدة ناظور المعدة والاثني عشر في كربلاء، يعانون من الم المعدة ، تم إجراء فحص اليوريز الى كل هذه العينات و كان هناك ١٩٤ عينة أظهرت إيجابية اليوريز. من هؤلاء ال ١٩٤مريض إيجابي اليوريز، كانت اثنين و تسعون (٩٢) عينة خزعة معدية موجبة لبكتريا الملوية البوابية والذي أكده طريقة الفحص الجزيئي. جميع ال (٩٢) عينة من المرضى الإيجابيين للملوية البوابية لديهم مختلف الحالات من أمراض المعدة (مرض القرحة الهضمية وعسر الهضم من غير قرحة) الذي أكد تشخيصهم الفحص بالمنظار.

النتائج : لقد تبين أن الفئة العمرية التي تمتلك أعلى نسبة انتشار للبكتيريا الملوية البوابية كانت ٣١-٤٠ سنة (٢٩.٣٪) و٢١-٣٠ سنة (٢٨.٢٪)، بينما كان أقل نسبة انتشار لبكتيريا الملوية البوابية في الفئة العمرية الأقل من ٢٠ سنة (٨.٦٪).

الاستنتاج : كانت العدوى مع *H.pylori* منخفضة في سن النضوج المبكر أقل من ٢٠ عاما، لكنها كانت عالية في الفئات العمرية ٢١-٣٠، ٣١-٤٠ سنة، وانخفضت في الفئة العمرية ٤١-٥٠ لكن عادت فأزدادت عند العمر أكثر من ٥٠ سنة.

التوصيات : دراسة علاقة الإصابة ببكتريا الملوية البوابية في الأطفال دون سن الخامسة.

الكلمات المفتاحية : Helicobacter pylori، عينات الخزع النسيجية , الفئة العمرية ، أمراض الجهاز الهضمي.

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*waslow 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.

Key words: *Helicobacter pylori*, tissue biopsy sample, age, non-ulcer dyspepsi

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 colonizeand persist in the mucuslayersof the human stomach. Infection affects almost half of the world's population and it isresponsible 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, 13-40 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 UreaseTest (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 after10min, 1hr, 2hrs and24hrsof incubation.

Development of apink-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)] .

PCRpremix™ 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 *glm*M 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 *glmM*gene started with step one Initial denaturation (one cycle, one min, 94C°), 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°).

RESULTS:

Regarding the age prevalence of ***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 ***H.pylori*** positivity, while in the age group (11-20) years 8/92 which represented (8.6%) that showed the lower incidence of ***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.

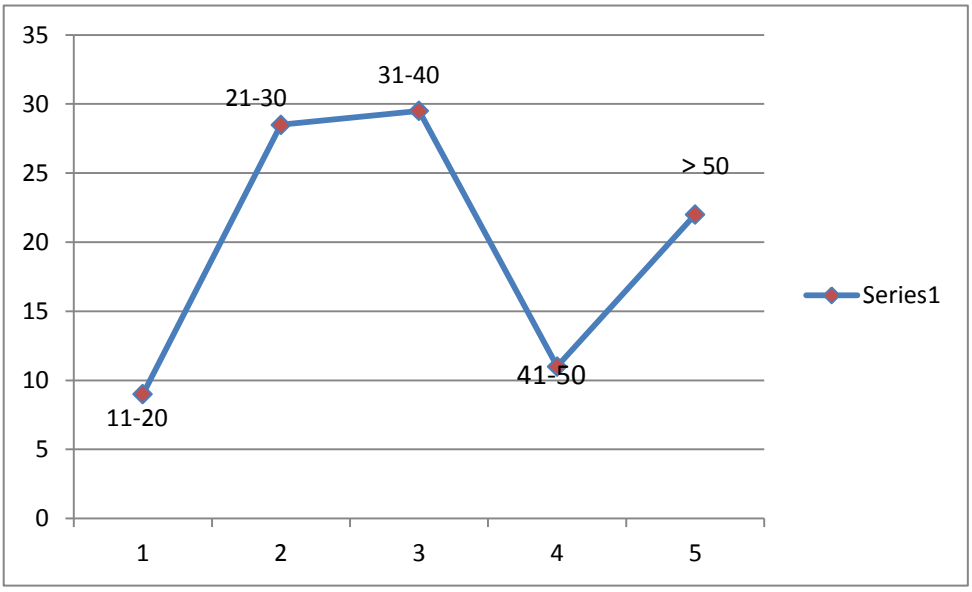

Figure 1- Distribution of *H. pylori* positive cases according to different age groups.

DISCUSSIONS:

The present study indicated that the highest incidence of*H.pylori*infections were among patients with ages 21-30 and 31-40years. 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 othersand two hypotheses have been proposed to explain these findings: *H. pylori* could might 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.pyloriwaslow 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.

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