**Helicobacter pylori** infection Evaluated by C\(^{14}\)-urea Breath test and it`s Relation with age, sex and ABO/Rhesus blood Groups in Patients with Gastrointestinal complaints in Kirkuk City / Iraq.

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**ABSTRACT**

There was significant difference between genders and **H. pylori** infection (P<0.05). From the 176 patients attending private laboratories in Kirkuk city for the period from 1/8/2016 to 1/4/2017, 86(48.86%) belonged to blood group O, 42(23.86%) to A, 41(23.29%) to B and 7 (3.97%) to AB and There was statistically significant difference (P<0.05) in the incidence of **H. pylori** infection between these groups, there was significant correlation between the presence of particular blood group in **H. pylori** positive patients related to the reported frequency of the blood groups in Kirkuk population, the correlation between the Rh factor and positive **H. pylori** patients was not significant to the frequency of the Rh factor in the population (88.06% Rh+ and 11.93% Rh-). the **H. pylori** positive test was slightly, but not significantly lower in comparison with the negative **H. pylori** patients test values showed a highly significant difference (P<0.01) in **H. pylori** positive and **H. pylori** negative patients., in adults **H. pylori** infection depend upon gender, blood groups but they do not depend upon the Patients age or Rh factor.

**Introduction**

Gastric **Helicobacter pylori** infection is quite frequent with an incidence more than 50% in some parts of the world [1]. Development of symptoms after infection depends also with the physical status, eating habits and immune response for the patients [2]. Long-term consequences can include chronic superficial gastritis, gastric ulceration or duodenal, gastric mucosa associated lymphoid tissue lymphom.(with or without progressive atrophy) the presence of **Helicobacter pylori** can be related with some non-digestive diseases, such as autoimmune diseases, ischemic heart disease, late puberty, delayed grow-up etc. [3-5].

In the stomach environment, **H. pylori** has a unique way of adapting. to infect gastric epithelial cells with It goes through the mucous layer and produces enzymes that break down substances contained in gastric juices. Urease is the most important of these enzymes. Urease converts urea from gastric juices and saliva into bicarbonate and ammonia, which are thus protect **Helicobacter pylori** from stomach acidity. Carbon dioxide is absorbed into the bloodstream and excreted by the lungs. Urease is found in much higher concentrations in infections from any other bacteria, thus enabling **Helicobacter pylori** test. Thus, when an infected patient swallows a dose of urea labeled with a radioactive carbon-\(^{14}\) (**C\(^{14}\)**) **Helicobacter pylori**, in his gastric mucosa breaks down the labeled urea to ammonia and labeled CO\(_2\), which is being absorbed and exhaled. After the collection of a certain amount of 14CO\(_2\), its activity is measured by beta counter [6-11]. During the last few decades, some authors suggested that there was a relation between **Helicobacter pylori** attachment to gastric epithelium and only blood groups O [12-17] while others never realize such correlation between **Helicobacter. pylori** and blood groups [18].

The study focusses on the relationship between **Helicobacter. pylori** infection and age, ABO blood groups, Rhesus (Rh)factor, patients sax and age as well as the clinical importance of the test in many different gastrointestinal disorders.
Patients and methods
The total of 176 patients with gastritis were examined. Blood ABO blood groups and Rh factor positivity were studied using (Lorne laboratory Ltd.) standard routine tests. Gastric infection by Helicobacter pylori was proved by the C14-urea breath test using a commercially available kit (27kBq/dose). The Helicobacter pylori investigation was carried out under fasting conditions in patients who had not taken sucralphates or proton pump inhibitors during the last 4 weeks and were not to take these for another 2 weeks after treatment. Samples of radioactivity in the exhaled air were collected and measured, 30min after ingestion of the C14 urea capsule for the determination of test values. Descriptive and analytical statistical method were performed by using statistical percentage.

Results
Patients were of a very heterogeneous age group 15-75 years. T test showed that the presence of Helicobacter pylori did not depend on the patient’s with age (P>0.05).

Table (1) Number and Percentage of Infection Patients with Helicobacter pylori according to Age (year).

<table>
<thead>
<tr>
<th>Age group (year)</th>
<th>H. pylori + %</th>
<th>%H. pylori- %</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>16 (13.3)</td>
<td>5 (8.9)</td>
<td>21 (11.9)</td>
</tr>
<tr>
<td>25-34</td>
<td>21 (17.5)</td>
<td>17 (30.3)</td>
<td>38 (21.5)</td>
</tr>
<tr>
<td>35-44</td>
<td>43 (35.8)</td>
<td>13 (27.2)</td>
<td>56 (31.8)</td>
</tr>
<tr>
<td>45-54</td>
<td>19 (15.8)</td>
<td>11 (19.6)</td>
<td>30 (17)</td>
</tr>
<tr>
<td>55-64</td>
<td>14 (11.6)</td>
<td>8 (14.2)</td>
<td>22 (12.5)</td>
</tr>
<tr>
<td>65-74</td>
<td>7 (5.8)</td>
<td>13 (23.5)</td>
<td>9 (5.1)</td>
</tr>
<tr>
<td>Total</td>
<td>120 (68.18)</td>
<td>56 (31.81)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Chi-square=7.459 ns p-value=0.189

There was significant difference between sex and Helicobacter pylori infection (P<0.05). From the total of 176 patients, 86 (48.86%) belonged to blood group O, 42 (23.86%) to blood group A, 41 (23.29%) to blood group B while 7 (3.97%) to AB. blood group. Chi-square test showed statistically significant difference (P<0.05) between these groups, indicating that infection did relate to particular blood group.

Table (2) Number of Helicobacter pylori Infection according to Sex and ABO/Rhesus Blood Groups.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Total</th>
<th>Male+</th>
<th>Male-</th>
<th>Femal+</th>
<th>Femal-</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>31</td>
<td>22</td>
<td>9</td>
<td>38</td>
<td>17</td>
<td>86</td>
</tr>
<tr>
<td>A</td>
<td>18</td>
<td>10</td>
<td>8</td>
<td>24</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td>B</td>
<td>12</td>
<td>8</td>
<td>4</td>
<td>29</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td>AB</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>41</td>
<td>24</td>
<td>111</td>
<td>79</td>
<td>176</td>
</tr>
</tbody>
</table>

ns Ch Chi-square = 1.571 p-value = 0.141
ns Ch-square = 3.822 p-value = 0.281

* Chi-square = 6.828 p-value = 0.047

Table (3) The Number and Percentage of Helicobacter pylori according to ABO/Rhesus Blood Groups.

<table>
<thead>
<tr>
<th>H. pylori Infection</th>
<th>Rh+ %</th>
<th>Rh- %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ve+</td>
<td>106 (88.33)</td>
<td>14 (11.66)</td>
<td>120</td>
</tr>
<tr>
<td>Ve-</td>
<td>49 (87.5)</td>
<td>7 (12.5)</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>155 (88.06)</td>
<td>21 (11.93)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Ns Chi-square=0.025 p-value=0.874

From a total number of patient 21 (11.93%) were Rh- and 155 (88.06%) were Rh+. While 14 (11.66%) Rh- patients and 106 (88.33%) Rh+ patients were Helicobacter pylori +. Chi square test showed no statistically significant difference (P>0.05) in the above mentioned groups, indicating that the presence of Helicobacter pylori did not relate to the Rh factor. Basic and test values of the measured counts in the exhaled air, were estimated in all patients. Basic values were measured before ingestion of the C14-urea capsule

Helicobacter pylori positive 120 (68.18%), Helicobacter pylori present in their gastric mucosa, while 56 were negative (31.81%). As basic values we consider a number of counts per minute obtained from the bottle with the trapped exhaled air initially, and as reference values we consider the value obtained with the same procedure 30min after ingestion of the radioactive capsule. T test showed no statistically significant difference (P<0.05) in the basic values of the 14C breath test in positive patients in comparison to negative ones. Related to the test values, T test maintained that a highly (P<0.01) significant difference in the actual values of the 14C breath test measured in positive and negative patients. In clinical terms, can conclude that this test was highly accurate.

Discussion
Blood group is a risk factor for acquiring Helicobacter pylori infection [18,20]. In other studies, most prevalent blood group was blood type O.
(40%), subjects with blood group O show increased susceptibility to Helicobacter pylori infection than those with other blood groups (P<0.05) [21,22]. Similar to our results Jaff results viewed that Helicobacter pylori positivity was related to sex and ABO blood groups: many studies have failed to find an association between ABO blood groups and peptic ulcer disease. Many other studies have also failed to find any association between blood group and Helicobacter pylori infection. [23]. Others also found no significant correlation between sex, ABO blood groups with positivity[24]. However, Others showed that Helicobacter pylori sex positivity increased with age also was not related to sex nor the blood groups [25], other authors showed slightly results, like a relationship between blood group A and Helicobacter pylori infection [26, 27] and suggested that ABO blood groups may partly influence the prevalence of Helicobacter pylori infection, especially in males, and that it increased with age [27]. Others found that patients with blood groups A and O were more prone to Helicobacter pylori infection, and patients with AB blood group were less prone, and that this Helicobacter pylori positivity could also be related to age, sex, and smoking [28].

References

Please note that the references [10], [11], [12], [13], [14], [15], [16], [17] are not included in the text above.
الإصابة باللولبيات البوابية المشخصة بواسطة اختبار إستنسلشيات اليوريا وعلاقتها مع الجنس، مجتمع

الدوم والعامل الرئيسي

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الملخص

الهدف من الدراسة هو معرفة الاصابة باللولبيات البوابية وعلاقتها مع الجنس، العمر، مجتمع الدوم والعامل الرئيسي في مدينة كركوك للفترة من 2016/8/1 لغاية 2017/4/1. تم استخدام اختبار إستنسلشيات اليوريا بالكارايلون المشوي وتحويتا أعمار الحراري بين 15-74 سنة. تم فرض معايير تشخيص بالبوابية في اصل اصبانه باللولبيات البوابية بنسبه 86% من مجموعة AB بنسبة (48.8%) ومجموعة B بنسبة (23.86%) وقائلي فروقات معنوية بين مجموعات الدين المختلفة في مجتمع كركوك وفروقات معنوية في الأصابة بالنسبه للعامل الرئيسي، إذ بلغت نسبة العينات الموجبة 88.06% والسالفة (11.93%).