Value of gastroscopy combined with serum pepsinogen in the diagnosis of high risk Hp related gastric cancer

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ABSTRACT

Objective: To explore the value of Helicobacter pylori antibody (Hp-IgG) and serum pepsinogen (PG) combined with gastroscopy for screening early gastric cancer and precancerous lesions in high-risk groups, so as to provide references for early clinical prevention and diagnosis. Methods: A retrospective analysis of our hospital from December 2014 to December 2017 were elderly patients with gastric cancer 304 cases, selected admitted 122 cases of elderly patients with gastric precancerous lesion (divided into superficial gastritis group, 70 cases of chronic atrophic gastritis group 52 cases) and 156 cases to the hospital in healthy volunteers as the control group. The status and the positive rate of Helicobacter pylori 13C urea breath test and compared two groups of patients with infection; using enzyme-linked immunosorbent assay of serum pepsinogen I (PG I), II (PG II) and pepsin Hp-IgG quantitative and qualitative diagnosis of individual and combined diagnostic efficiency and the comparison of three kinds of index. Results: The four groups were compared, the serum PG level of I from high to low were superficial gastritis group, normal control group, atrophic gastritis group and gastric cancer group, the differences were statistically significant; serum PG II levels from high to low in gastric cancer group and superficial gastritis group. Atrophic gastritis group, normal control group, the differences were statistically significant. Compared with the three groups, the positive rate of Hp-IgG was 90.7% in the gastric cancer group, 45.6% in the superficial gastritis group, 52.5% in the atrophic gastritis group, and the gastric cancer group was higher than that in the precancerous lesion group, but there was no difference between the precancerous lesions group. In terms of diagnostic efficacy, the specificity and sensitivity of Helicobacter pylori combined with pepsinogen were higher than those of the single diagnosis. Conclusion: Hp-IgG and PG combined with gastroscopy in screening high-risk gastric cancer and its precancerous lesions are of high specificity, high sensitivity and can be popularized in clinic.

1. Introduction

Gastric cancer is one of the most common and most frequent digestive tract malignant tumors in China, and its fatality rate is also the first of all kinds of malignant tumors. It is widely believed that early detection, early diagnosis and early treatment can effectively reduce the mortality of gastric cancer patients and improve their quality of life. At present, the main way to diagnose gastric cancer is gastroscopy. It is also used as a clinical golden standard. However, it is worth noting that gastroscopy is not suitable for screening gastric cancer as a result of cumbersome operation, patient discomfort and invasive operation[3]. Some studies also suggest that the specific signs and symptoms of early gastric cancer are relatively deficient. Therefore, the diagnosis of early gastroscopy is rather limited. Once the diagnosis is often in the middle and late stage, the best time of treatment is lost[4]. Therefore, we discussed the value of Helicobacter pylori antibody (Hp-IgG) and serum pepsinogen (PG) combined with high-risk group in gastroscopy to screen early gastric cancer and precancerous lesions, so as to provide references for early clinical prevention and diagnosis.
2. Data and methods

2.1 General information

A retrospective analysis of our hospital from December 2014 to December 2017 were elderly patients with gastric cancer 304 cases, selected admitted 122 cases of elderly patients with gastric precancerous lesion (divided into superficial gastritis group, 70 cases of chronic atrophic gastritis group, 52 cases) and 156 healthy volunteers to hospital to participate in physical examination as control group. All patients signed the informed consent, and the study has been passed by the hospital ethics committee. All the patients with gastric cancer or precancerous lesions were confirmed by pathological examination, and all were in accordance with the National Convention on chronic gastritis in Shanghai in 2006. There were 107 male patients and 97 female patients in the gastric cancer group. The age of the patients was 47-83 years old and the average age was (67.2 ± 9.5) years. Patients who had mental illness or poor coordination were excluded from taking acid suppressive drugs within 1 months before the examination. Those who used mucosal protective agents and chronic liver diseases within 1 week were excluded. And the four groups were compared in age, sex and other general data, the difference was not statistically significant (P>0.05), and it was comparable.

2.2 Diagnostic method

That is to say, all subjects received 5 mL peripheral venous blood in the early morning. The centrifugation radius was 15 cm, the rotational speed was 2 500 r/min, and the centrifugation 10-12 min was used to separate the serum. The serum was stored at -20 °C for preservation. Automatic biochemical analyzer adopts Japan Hitachi 7160. Using enzyme-linked immunosorbent assay of serum pepsinogen I (PG I), II (PG II) and pepsin Hp-IgG quantitative and qualitative diagnosis, serum pepsinogen I (PG I) kit (Shanghai Ying Gong Biotechnology Co. Ltd), human pepsinogen II (PG II) kit (Shanghai surplus the Biological Technology Co. Ltd.), all operations are in strict accordance with the instructions. The 13C urea breath test was used to compare the infection status and positive rate of Helicobacter pylori in the two groups, and the single and combined diagnostic efficacy of the three indexes were compared.

2.3 Statistical method

The data were analyzed by SPSS 16.0 statistical software, and the database was established by Microsoft Excel. The measurement data were expressed by mean ± standard deviation (Mean ± SD). The t test was used in 22 comparison, and chi square test was used to compare the enumeration data. The difference was statistically significant in P<0.05.

3. Results

3.1 changes of serum PG I and PG II levels in the four groups

The four groups were compared, the serum PG level of I from high to low were superficial gastritis group, normal control group, atrophic gastritis group and gastric cancer group, the differences were statistically significant (P<0.05); serum PG II levels from high to low in gastric cancer group, superficial gastritis, atrophic gastritis group, normal control group, the differences were statistically significant (P<0.05). It is specific as shown in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>PG I (ng/mL)</th>
<th>PG II (ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastric cancer group</td>
<td>153</td>
<td>72.4±38.0</td>
<td>22.9±9.1</td>
</tr>
<tr>
<td>Chronic atrophic gastritis group</td>
<td>19</td>
<td>82.7±34.4</td>
<td>18.4±8.4</td>
</tr>
<tr>
<td>Superficial gastritis group</td>
<td>26</td>
<td>164.3±53.8</td>
<td>20.2±9.0</td>
</tr>
<tr>
<td>Control group</td>
<td>35</td>
<td>90.6±49.7</td>
<td>17.3±7.1</td>
</tr>
</tbody>
</table>

3.2 Changes in the positive rate of serum Hp–IgG in the three groups

Compared with the three groups, the positive rate of Hp-IgG was 90.7% in the gastric cancer group, 45.6% in the superficial gastritis group, 52.5% in the atrophic gastritis group, and the gastric cancer group was higher than that in the precancerous lesion group (P<0.05), but there was no difference between the precancerous lesions group (P>0.05). It is specific as shown in Table 2.

Table 2.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Positive rate of Hp infection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastric cancer group</td>
<td>303</td>
<td>276(90.7)</td>
</tr>
<tr>
<td>Superficial gastritis group</td>
<td>70</td>
<td>32(45.6)</td>
</tr>
<tr>
<td>Chronic atrophic gastritis group</td>
<td>38</td>
<td>20(52.5)</td>
</tr>
<tr>
<td>x^2</td>
<td>-</td>
<td>13.791</td>
</tr>
<tr>
<td>P</td>
<td>-</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

3.3 Comparison of the effectiveness of the combined diagnosis of groups of three groups

In terms of diagnostic efficacy, the specificity and sensitivity of Helicobacter pylori combined with pepsinogen were higher than those of the single diagnosis. It is specific as shown in Table 3.

Table 3.

<table>
<thead>
<tr>
<th>Diagnostic efficiency</th>
<th>Gastric cancer group</th>
<th>Superficial gastritis group</th>
<th>Chronic atrophic gastritis group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Specificity</td>
<td>Sensitivity</td>
<td>Specificity</td>
</tr>
<tr>
<td>Hp-IgG</td>
<td>49.5</td>
<td>51.4</td>
<td>50.7</td>
</tr>
<tr>
<td>PG I</td>
<td>43.8</td>
<td>46.1</td>
<td>41.3</td>
</tr>
<tr>
<td>PG II</td>
<td>50.3</td>
<td>43.2</td>
<td>48.0</td>
</tr>
<tr>
<td>PG I+PG II+ Hp-IgG</td>
<td>88.2</td>
<td>87.4</td>
<td>79.1</td>
</tr>
</tbody>
</table>
4. Discussion

Gastric cancer is frequently found in people aged 40-60 years, and the incidence rate of men is higher than that of women. The most common type is adenocarcinoma, which is well distributed in the stomach and sinus department [5]. The present study is generally believed that most of the early gastric cancer patients' clinical symptoms are not typical, easily missed diagnosis and misdiagnosis, and with the continuous progress of the disease, gradually, belching, nausea, abdominal dull pain, vomiting, indigestion, fullness, the symptom such as loss of appetite, and gastric ulcer, gastritis and other similar, poor specificity [6]. And about gastroscopy diagnosis in recent years, the research thinks amplification dyeing endoscopy combined with conventional gastroscopy technology and intelligent technology, the method can be observed by adjusting the focal length and small lesions, and the dyeing technology imaging lesions, technology, the method can be observed by adjusting the focal combined with conventional gastroscope technology and intelligent technology often enters the middle and late stage, thus severely affecting its prognosis [8]. Therefore, the search for convenient, effective, fast early gastric cancer, especially the high risk Hp associated gastric cancer diagnostic markers, has become a hot and difficult clinical research [9].

Four groups of subjects in this study, serum PG I level from high to low in turn for superficial gastritis group, normal control group, atrophic gastritis group, gastric cancer group, the difference had statistical significance (P < 0.05); The levels of serum PG II were from high to low in gastric cancer group, superficial gastritis group, atrophic gastritis group, normal control group, and differences were statistically significant (P < 0.05). PG mainly through cervical mucus cells and the bottom of the stomach, the stomach body main secretion and cell transformation, its by PG I and PG II two isozymes original composition, at the same time the proximal duodenal Brunner gland and gastric antrum pyloric gland may also produce PG I, thus it can reflect the function of gastric mucosa [10] specificity. Some studies suggest that the risk of precancerous lesions in some serum PG levels is significantly higher than that of PG levels. Also has studies suggest that early gastric mucous membrane hyperplasia, elevated level of immature cells, make its secretion in the embryonic stage of gastric mucosa tissue of PG I highly expressed, and the differentiation of low than high in this time period group increased more obviously [11]. And compared three groups of subjects, Hp-IgG positive rate of gastric cancer group and 90.7%, respectively, the superficial gastritis group 45.6%, 52.5%, atrophic gastritis group stomach group is higher than the precancerous lesion group (P < 0.05), and no difference between a premalignant lesion group (P > 0.05). It is also believed that the positive rate of hp-igg is higher in atrophic gastritis with intestinal metaplasia [12]. It is also suggested that the hp-igg positive rate of advanced gastric cancer is more significant than that of early gastric cancer. At the same time, it was reported that the higher rate of hp-igg was found in the follow-up of patients with total gastric cancer [13]. Therefore, combining the recurrence is generally believed that the index of serum PG I, PG II, joint diagnosis of Hp - IgG can also as an important reference evaluation of recurrence after gastrectomy [14]. In terms of diagnostic efficacy, the specificity and sensitivity of helicobacter pylori combined with pepsin were higher than that of single diagnosis. We believe that Hp - IgG levels can reflect the lesions of the gastric mucosa, and serum PG I, PG II has the advantages of the operation is simple, noninvasive intuitive, a combination of diagnostic performance best [15].

To sum up, the Hp - IgG, PG high-risk groups jointly gastroscopy screening of early gastric cancer and precancerous lesions value, has changed significantly, specific degrees and the characteristics of high sensitivity, can be popularized in clinic.

References